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U S NAVY RESPONSE TO U S EPA REGION I AND RHODE ISLAND DEPARTMENT OF  
ENVIRONMENTAL MANAGEMENT COMMENTS ON THE DRAFT RECORD OF DECISION  
SITE 19 ON SHORE DERECKTOR SHIPYARD OPERABLE UNIT 12 (OU 12) NS NEWPORT

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08/12/2014

TETRA TECH

**Response to Comments on the  
Draft Record of Decision for  
Site 19 – On-Shore Derecktor Shipyard (OU12) – Soil and Groundwater  
Naval Station Newport, Middletown/Newport, Rhode Island**

On behalf of the Navy, Tetra Tech is pleased to submit responses to comments (RTCs) received from the U.S. Environmental Protection Agency (EPA) Region 1 via email dated July 2, 2014, and received from the Rhode Island Department of Environmental Management (RIDEM) on July 9, 2014, on the *Draft Record of Decision (ROD) for Site 19 – On-Shore Derecktor Shipyard, Naval Station (NAVSTA) Newport, Middletown/Newport, Rhode Island* (Tetra Tech, June 2014). The ‘redline’ *Draft Final ROD* is provided with these RTCs.

**PART 1 – EPA GENERAL COMMENTS**

1. During its review of the FS, EPA commented that the unpaved strip of land adjacent to the Stillwater Basin needed to be covered. The Navy agreed and stated that it would be addressed in the remedial design. This requirement should be addressed in the ROD so that the designers will be aware of this requirement. Please edit the ROD to identify the need for a cover for this area in the figures and the text

**Response:** The ROD will be modified to document the agreed approach for the awareness of future designers. See the redline Draft Final ROD, which is provided with these RTCs. The following paragraph will be added to Alternative S-2 Details in Table 2-7. Similar info will be provided in a note on Figure 2-8 (Soil Remedial Action figure).

*Figure 2-8 shows these different cover-type areas with shaded colors or hatching. Some ancillary, small areas not specifically called out on the figure will need some form of cover (and maintenance; or its existing condition maintained). These will be determined during preparation of, and specified in, the forthcoming Remedial Design.*

2. EPA assumes that when the additional soil and groundwater sampling data are available, this ROD will be revised.

**Response:** The Draft Final ROD will be updated with narrative information about the June 2014 soil and groundwater data—currently in the Draft Final ROD (redline provided with these RTCs), more so as they relate to soil leachability conclusions. The June 2014 data will be distributed in a data technical memorandum, which is proposed herein to be appended to the ROD. See the redline Draft Final ROD, which is provided with these RTCs.

*June 2014 Data:* The June 2014 soil data for naphthalene and SPLP-lead showed no exceedances of RIDEM GA Leachability Criteria; therefore, language from the Draft ROD related to maintaining covers to minimize leaching of contaminants (red text highlighted yellow in the Draft) will be removed (and replaced with explanative information about the new data when needed). The June 2014 groundwater data show similar or lower concentrations compared to the previous data (2011 and/or 1996). Of note, TCE at 0.99 µg/L was the only chlorinated volatile organic compound (VOC) detected in well MW104 in June 2014. No specific technical changes as they relate to the new groundwater data are proposed for the ROD; however, some discussion is provided in these RTCs (e.g., see response to EPA Comment 9).

*Data Technical Memorandum:* The data technical memorandum for the June 2014 sampling effort is being provided to the Team initially as a separate deliverable for review concurrent with the Draft Final ROD. However, the Navy proposes including the technical memorandum as new Appendix F in the ROD, because the ROD is being updated based on the June 2014 data (e.g., no leachability criteria exceedances), and distributing this way provides for practical entry into the Administrative Record. See the Draft Technical Memorandum as new Appendix F (for now) in the redline Draft Final ROD.

## PART 2 – EPA SPECIFIC COMMENTS

1. p. 6, bullet 1. (i) Add the following bullet: “Long-term monitoring will confirm that the soil cover remedy remains protective.” (ii) In the current first bullet, insert: “, except in part of the Southern Waterfront where a recreation path is permitted” after “will be prohibited.”

**Response:** (i) It is the Navy’s understanding that operation and maintenance (O&M) inherently includes confirming cover adequacy in the long-term. In addition to O&M and periodic land use control (LUC) / soil cover inspections, remedy protectiveness will be evaluated during each Five-Year Review. Navy believes the term(s) “long-term monitoring” suggests to the reader that long-term environmental sampling is included for the soil remedy (it is not). Navy proposes modifying the LUCs and O&M bullet (i.e., third bullet in Section 1.4) to as shown below. Note this comment is partially overcome by the June 2014 soil data, which indicate no exceedances of RIDEM GA Leachability Criteria (therefore, covers do not need to be maintained to minimize leaching to groundwater, which was detailed in red text highlighted yellow throughout the Draft ROD). (ii) The current text in the subject bullet (third bullet in Section 1.4) states “...unrestricted recreational use will be prohibited,” which is intended to relay that the portion of the paved recreation path in the South Waterfront (i.e., at the south end of the Central Area) has *restricted* recreational use. The Navy proposes the following revision to this bullet to address both parts (i) and (ii) of this EPA comment:

*Land use controls (LUCs) and Operation and Maintenance (O&M): LUCs and O&M will ensure that future use of the property is limited to industrial activities (residential and unrestricted recreational site use will be prohibited). A limited portion of a paved recreation path is located in the southern-most portion of the Central Area. This paved path surrounded by effective soil cover will operate under restricted recreational activity.; The LUCs and O&M will prevent disturbance of and maintain soil, pavement, and/or asphalt covers; ensure that subsurface soils that are above cleanup goals are not disturbed without appropriate precautions; restrict potential exposure to COCs in site groundwater; and prohibit groundwater use until cleanup levels have been achieved. LUCs and O&M also will protect (inspect and fix) components of soil remedy (e.g., covers) and the groundwater remedy (e.g., monitoring wells).*

2. p. 6, ¶1. (i) In the first sentence, insert “long-term monitoring of protective covers,” after “impacted soil.” (ii) In the third sentence after “industrial” insert “with a limited recreational area.” (iii) In the last sentence, insert “(with one area with limited recreational use)” after “continued industrial use.”

**Response:** (i) Also see response to Comment 1. Navy presents “maintenance of barriers” to mean the covers will be inspected and maintained, which will be detailed further in the LUC Remedial Design and O&M Plan. The Navy thinks adding “long-term monitoring” implies to the reader that long-term environmental sampling is included for the soil remedy (it is not). The June 2014 soil and groundwater data indicate no exceedances of RIDEM GA Leachability Criteria and no apparent

continuing source issues from soil to groundwater (therefore, the covers do not need to be maintained specifically to minimize leaching to groundwater, which was detailed in red text, highlighted yellow throughout the Draft ROD). Therefore, Navy proposes the paragraph be revised as shown below. (ii) and (iii) Navy proposes similar changes as shown below.

*The Selected Remedy mitigates potential unacceptable exposure of human receptors to contaminated soil and groundwater through construction and/or O&M of barriers to impacted soil, LUCs for soil and groundwater (which include inspections for specific land usage (i.e. industrial), and condition of soil covers and monitoring wells), and long-term groundwater monitoring. Remedial actions for Site 19 – On-Shore Derecktor Shipyard (OU12) are not expected to adversely impact the current and reasonably anticipated future land use. The Selected Remedy is expected to achieve substantial long-term risk reduction and to allow the property to be used for the reasonably anticipated future land use (industrial, with restricted recreational use only for a limited portion of a paved exercise path). This ROD documents the final remedial action decision for soil and groundwater at Site 19 – On-Shore Derecktor Shipyard (OU12) and does not affect any other sites at NAVSTA Newport, including OU5 (marine sediment at Site 19 – Off-Shore Derecktor Shipyard). Implementation of this remedy will allow for continued industrial use of the site (with one small area having restricted recreational use), which is consistent with current use and the overall cleanup strategy for NAVSTA Newport of restoring sites to support base operations.*

3. p. 6, §1.6. Replace the third paragraph with: “Federal regulations that pertain to the cleanup require a determination that there is no practical alternative to taking federal actions affecting federal jurisdictional wetlands, aquatic habitats, and floodplains, per Executive Orders 11990 (Protection of Wetlands) and 11988 (Protection of Floodplains), as incorporated under Federal Emergency Management Agency (FEMA) regulations. While there are no jurisdictional wetlands at the site (although regulated habitats about the site in Narragansett Bay), the majority of the site is located within the 100-year coastal floodplain. The Navy’s remedial measures will prevent contamination within the floodplain from migrating from the covered areas and posing a risk to adjacent floodplain, wetlands, and aquatic habitats. The FEMA regulations require the Navy to solicit public comment, as part of the Proposed Plan, regarding its proposed remedial work within the coastal floodplain. No negative comments were received.”

**Response:** The third paragraph of Section 1.5 will be revised as requested.

4. p. 6, §1.6. After the website address, add “then click Administrative Records.”

**Response:** The text will be added as requested.

5. p. 9, §1.7.1. Insert “long-term monitoring of protective covers,” after “impacted soil.”

**Response:** Also see responses to Comment 1(i) and Comment 2(i). Navy would like to avoid the term(s) “long-term monitoring” for cover inspections and maintenance. No leachability criteria exceedances confirmed by June 2014 data. Navy proposes the following edit to the subject text:

*The Selected Remedy mitigates potential unacceptable exposure of human receptors to contaminated soil and groundwater through construction and/or O&M of barriers to impacted soil; LUCs for soil and groundwater (which include inspections for specific land*

usage (i.e. industrial) and condition of soil covers and monitoring wells); and, long-term groundwater monitoring of natural attenuation.

6. p. 11, §1.7.2. Insert “long-term monitoring of protective covers,” after “impacted soil.”

**Response:** Same proposed revision as in response for Comment 5, above:

7. *The Selected Remedy mitigates potential unacceptable exposure of human receptors to contaminated soil and groundwater through construction and/or maintenance of barriers to impacted soil; LUCs for soil and groundwater (which include inspections for specific land usage (i.e. industrial) and condition of soil covers and monitoring wells); and, long-term groundwater monitoring of natural attenuation.* p. 14, Table 2-1. In the third line item, change the date to “1987” and change the Description text to: “Robert E. Derecktor pled guilty to criminal violations of the Toxic Substance Control Act, CERCLA, Clean Water Act, Resource Conservation and Recovery Act, Clean Air Act, and Hazardous Transportation Act, for illegal disposal activities within the site.”

**Response:** The text will be revised as requested.

8. p. 15, Table 2-1. The third line item should refer to Pier 2, not Pier 1, as it refers to an area within the North Waterfront.

**Response:** Pier 1 is correctly referenced for the PCB sample location adjacent to the transformer pad south of Pier 1, as described in the *Remedial Action Report for Various Removal Actions at the Derecktor Shipyard and Miscellaneous Investigations at Naval Station Newport* (Foster Wheeler Environmental, July 2002). This location was located in the North Waterfront Area subarea as defined for the investigation and risk assessment. The Navy proposes no changes to this item.

9. p. 19, ¶2. At the end of the first sentence, add: “, except in part of the Southern Waterfront where a recreation path is present”

**Response:** Navy agrees with the edit, except with minor revision: Navy proposes the subject sentence (first sentence of the third paragraph in Section 2.5.2) be revised to read as follows:

Current site usage is military / industrial, except in the South Waterfront Area (now the southern portion of the Central Area) where a limited portion of a paved exercise path is used under restricted residential conditions.

10. p. 19, Table 2-2. Please change the PCB concentrations to mg/kg. Also, correct the PCB value for surface soil because it does not match the value cited in the footnote.

**Response:** The units for Total Aroclors (PCBs) will be corrected by adding “mg/kg,” and the footnote typo (“0.146” mg/kg) will be corrected to “0.416” mg/kg.

11. p. 20, ¶1. (i) Insert a new fifth sentence: “This indicates that the current site conditions, including existing permeable and impermeable cover over the areas where exceedances are present, is inhibiting the movement of these contaminants into the groundwater.” (ii) Remove the last sentence since it discusses remedy issues (not addressed here).

**Response:** (i) This comment is overcome by the June 2014 data, which indicate no GA Leachability exceedances or continuing soil source-to-groundwater issues at the site. Soil at each previous

exceedance location was retested in June 2014 for naphthalene and lead. Lead was tested using the “Synthetic Precipitation Leaching Procedure (SPLP)” method, which mimics ambient acid rain conditions, rather than Toxicity Characteristics Leaching Procedure (TCLP) method, which mimics more acidic landfill conditions. Therefore, the associated red text, highlighted yellow in the Draft ROD will be deleted and additional/new text will be added to explain that the June 2014 data indicate no leachability exceedances. Navy proposes including the June 2014 data in the ROD by appending the data technical memorandum deliverable as new Appendix F. The following revised subject paragraph immediately following Table 2-2 is proposed:

*Soils with metals and PAHs exceeding RIDEM criteria and Newport/site-specific background levels are in various, but distinct, areas in the Central Area. Since the FS, additional soil sampling was conducted in June 2014 in order to reevaluate previous soil leachability criteria exceedances based on historical naphthalene and TCLP lead data. The June 2014 naphthalene and SPLP lead results indicate no leachability criteria exceedances (see Appendix F). Also, historical groundwater data and June 2014 groundwater data provide empirical evidence that (i) lead has not leached from soil to groundwater at levels to cause groundwater concentrations above the RIDEM GA Groundwater Objective of 15 µg/L, and (ii) naphthalene has not leached from soil to the groundwater (RIDEM GA Groundwater Objective is 100 µg/L) (see Appendix F).*

Navy proposes a related revision in the next paragraph to make it read as follows:

*A low-concentration trichloroethene (TCE) plume is in the shallow aquifer throughout the Northern Area. The maximum TCE concentration was 12 µg/L in 2011, down from the maximum of 33 µg/L in 1996. The maximum TCE concentration decreased to 9 µg/L in June 2014 (see Appendix F). A wide area of dissolved mixed metals above cleanup levels extends throughout the Northern and Central Areas.*

12. p. 21, ¶4. Insert a new second sentence: “A limited area in the Southern Waterfront will continue to be used for a recreation path.”

**Response:** Navy agrees with the edit, except with revision: Navy proposes the following additional sentences after the first sentence of the fourth paragraph in Section 2.6:

*In addition, a limited area in the south-most portion of the Central Area will continue to be used for a recreation path. Restricted recreational use will be maintained for the short length of paved path, which is surrounded by surface soil below cleanup levels (effective cover).*

13. p. 22, §2.7, ¶1. Please delete “there” in the last sentence.

**Response:** The word will be deleted.

14. p. 26, Table 2-4. (i) Please bold “2x10E-4” cancer risk for hypothetical lifelong resident exposed to subsurface soil at the PCB Removal Area. (ii) Please add the vapor intrusion risk of 6x10E-4 from groundwater for the hypothetical resident to link the RAOs and groundwater cleanup levels.

**Response:** (i) The value will be bolded.

(ii) The Navy proposes not adding any of the over-estimated, potential vapor intrusion risk values for hypothetical buildings / exposure scenarios in the North Waterfront Area and the Former Building 234 Area. The conclusions for the screening risk evaluations for vapor intrusion in the SASE Addendum Report (Tetra Tech, January 2013) indicate the calculated risks are over-estimated (potentially by orders of magnitude) due to overly conservative default model input parameters (e.g., attenuation factors). This EPA comment is overcome by the June 2014 groundwater sample data, considering the following discussion(s):

The 1996 and 2011 monitoring well groundwater data were used to perform the screening risk evaluation for vapor intrusion in the North Waterfront Area and Former Building 234 Area (subareas for risk assessment), where chlorinated VOCs were historically detected. The evaluations for each subarea used non-site-specific / non-building-specific general model inputs with the groundwater data (and soil gas data for the North Waterfront Area), resulting in calculated potential indoor air concentrations for a hypothetical future building, which in turn were used to calculate potential risks. Note the calculated potential risks were qualified as “overly conservative” in the risk evaluation conclusions, mainly due to using overly conservative default soil gas-to-indoor air and groundwater-to-indoor air attenuation factors.

#### Former Building 234 Area Discussion

The 1996 vinyl chloride concentration from MW104 (100 µg/L) results in a calculated residential carcinogenic risk of  $6 \times 10^{-4}$ , which is above EPA’s acceptable risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , and which, due to its magnitude, also is the total residential carcinogenic risk for vapor intrusion in this subarea. The resulting non-cancer hazard quotient (HQ) from the 1996 vinyl chloride value is 1. The 1996 TCE value from well MW08 (4 µg/L; 2011 TCE concentration is 3.9 µg/L) results in a non-cancer HQ of 0.6. The combined total HQ, or Hazard Index (HI) is 2, above EPA’s acceptable threshold of unity (1). The representative values for other VOCs in the vapor intrusion evaluation (1,1-dichloroethene [-DCE] and cis-1,2-DCE) were low enough that they do not impact the total risk or total HI. Utilizing the same groundwater concentrations, the calculated total industrial risk ( $4 \times 10^{-5}$ ) and total industrial HQ (0.4) for vapor intrusion are within and below acceptable ranges, respectively.

The June 2014 groundwater data in this subarea (MW08 and MW104) show maximum chlorinated VOC concentrations at significantly lower magnitudes, if detected at all. The only chlorinated VOC detected at MW104 in June 2014 was TCE at 0.99 µg/L (vinyl chloride was nondetect below 0.5 µg/L). In well MW08, the June 2014 chlorinated VOC detections were as follows: cis-1,2-dichloroethene (-DCE) at 7 µg/L and TCE at 3.3 µg/L, each lower than respective 2011 concentrations. Considering these June 2014 groundwater concentrations, the calculated total carcinogenic risk and total non-cancer HI would be below acceptable risk ranges.

#### North Waterfront Area Discussion

Cancer risks and non-cancer hazards were evaluated in the same manner as in the Former Building 234 Area, utilizing 1996 and 2011 groundwater data from wells within the subarea. The 1996 TCE concentration in well MW03 (33 µg/L) and the 2011 vinyl chloride concentration in well MW220 (1.47 µg/L) were the main contributors to risk for the screening effort utilizing groundwater data. The risk evaluation for this subarea also was performed using 2011 soil gas data. Both evaluations resulted in unacceptable risks for hypothetical residents. Industrial risks from the chlorinated VOCs are within/below acceptable ranges. The risk evaluation conclusions in the SASE Addendum Report indicate that the risk results using soil gas data are over-estimated (by magnitude of at least 100) due to usage of overly conservative default soil gas to indoor air attenuation factors.

The June 2014 data show reductions in chlorinated VOC groundwater concentrations since 1996 and 2011. The only VOC detection in well MW03 was TCE at 3.1 µg/L, and the only VOC detection in well MW220 was cis-1,2-DCE at 1.9 µg/L. There are no notable chlorinated VOC detections in June 2014 groundwater samples from other wells in the North Waterfront Area, except the maximum concentrations of TCE now are 9.1 µg/L in well MW221 and 6.5 ug/L in well MW222. Considering these June 2014 groundwater concentrations, the calculated total carcinogenic risk and total non-cancer HI would be below acceptable risk ranges.

#### Proposed Path Forward /

Likely there are significant reductions in potential vapor intrusion risks (to below acceptable risk ranges) in both subareas considering the decreases in concentrations and/or nondetects in the June 2014 data. However, due to the goal of finalizing the ROD in September 2014, the Navy does not propose officially reevaluating the vapor intrusion risks at this time nor removing from the Selected Remedy at this time the LUC components that mitigate potential vapor intrusion issues. Future vapor intrusion evaluations (as required by the current Selected Remedy) will provide appropriate outcomes/conclusions, likely to be based on additional and multiple rounds of groundwater data.

#### Response Summary for Comment 14(ii)

The Navy proposes not modifying Table 2-4 in the ROD to include the estimated, potential vapor intrusion risk values reported in the SASE Addendum (Tetra Tech, June 2013). These calculated risk values are in some cases based on almost-20-year-old analytical data for biodegradable chlorinated VOCs, are qualified in the risk evaluations as over-estimated, and are not supported by the most recent groundwater data in June 2014 (significantly lower chlorinated VOC concentrations or no detections). The current respective text(s) in the ROD relay the potential vapor intrusion issues for new/future buildings at the site (assumed site-wide), and the Selected Remedy will address the potential issue.

15. p. 27, §2.7.1.4. Please correct the first sentence in the last paragraph: "...exposure are shown...."

**Response:** The text will be corrected.

16. p. 28, §2.8, ¶2. The first remedial action objective for the Central Area should specify the pertinent receptors. Please edit it to read: "... that exceed the respective human health cleanup goals for residential and industrial exposure."

**Response:** The RAO will be revised as suggested.

17. p. 30, Table 2-5. Please list the exceedances of the leachability standards under a separate subheading after the "Residential Scenario" listings because they pertain to all soil in the vadose zone, not just to the soil depth required for the direct contact standards.

**Response:** This comment is overcome by the June 2014 soil data, which indicate no soil leachability criteria exceedances. Also see responses to Comments 1(i), 2(i), 5, and 6. No changes are proposed.

18. p. 30, Table 2-6. Please remove the extra line for vinyl chloride.

**Response:** This comment is overcome by the June 2014 groundwater data: vinyl chloride was not detected in well MW104 or any of the wells in June 2014. Therefore, Table 2-6 (and other portions of the ROD as appropriate [see redline Draft Final ROD]) will be revised to remove vinyl chloride as a groundwater COC. Vinyl chloride was added as a groundwater COC at EPA's request during finalization of the Feasibility Study. Concern/request was based on the 1996 vinyl chloride groundwater concentration of 100 µg/L and the corresponding estimated potential vapor intrusion carcinogenic risk of  $6 \times 10^{-4}$ .

19. p. 31, Table 2-7. In the S-2 LUC text, add at the end of the first sentence: “, except for the limited recreational use in the Southern Area.” After the highlighted text (after leachability criteria), insert “Monitoring of the cover areas will be incorporated into the monitoring plan for the groundwater component of the remedy.”

**Response:** Navy agrees with the edit, except with minor revision: Navy proposes the subject sentence (first sentence in the LUCs row of Table 2-7) be revised to read as follows:

*The site will remain industrial/commercial, except for the portion of the paved recreation path at the south end of the Central Area, which will be maintained for restricted recreational usage.*

20. p. 33, Table 2-8. (i) Include costs associated with G-2 or G-3 O&M since each will involve maintaining (and possibly replacing) monitoring and (in the case of G-3) treatment wells. (ii) In the second paragraph of the Alternative G-2 Details text, insert a new second sentence that qualitatively explains why MNA is expected to be successful within 30 years (e.g., low levels of contamination). (iii) In the fourth paragraph of the Alternative G-2 highlighted text, change “considered” to “included.” (iv) In the LUC row Details text, groundwater should be prohibited for all uses, not only for drinking water wells, residential irrigation, and drinking water (because it poses an exposure risk to future industrial workers).

**Response:** (i) The O&M costs for protecting and maintaining the monitoring well and treatment well networks in the alternatives are covered in periodic costs and contingency for convenience. The O&M at \$0 in the table is followed parenthetically by (accounted in periodic costs). The LUCs and O&M for the groundwater alternatives include inspecting and protecting the well networks, and include periodic well repairs or replacements. (ii) A new sentence on MNA will be added as suggested. (iii) This comment is overcome by the June 2014 soil data, which indicate no leachability criteria exceedances. The associated red text highlighted-yellow in the Draft ROD is being deleted for the Draft Final ROD. (iv) The Navy agrees with the edit and proposes the following revision to the sentence:

*Institutional controls will prohibit installation of groundwater supply wells, including public and private drinking water wells and residential irrigation wells, and will prohibit any potable use of groundwater.*

21. p. 35, §2.10. In the first paragraph, remove the last sentence. The No Action alternative needs to be discussed under each of the first seven NCP criteria.

**Response:** The sentence will be removed and brief text for the No Action alternative will be added to each of the first seven NCP criteria discussions in Section 2.10.1 and Section 2.10.2.

22. p. 35, Table 2-9. Highlight the selected alternative.

**Response:** The Navy will incorporate the request; however, it is not clear how the Alternative S-2 column can be highlighted considering the table format (color scheme and cell layout). At this time the Navy proposes an asterisk on the column heading for Alternative S-2 with a footnote below the table to read as follows: \* - *Alternative S-2 – Cover and LUCs is the Selected Remedy for soil (see Section 2.12)*. The Navy can change the table formatting or apply another indication of the Selected Remedy in the Final ROD if this approach is not acceptable.

23. p. 36, Table 2-9. (i) Replace the dots for the Cost criterion with the costs. (ii) Please revise the State and Community Acceptance text to reflect the State’s agreement with the selected remedy and lack of any community opposition.

**Response:** (i) The costs are provided in the rows directly below the qualitative dots, all in blocked in the Cost row. To be consistent with the current state of the Off-Shore ROD, the qualitative dots will be removed. (ii) The text for State and Community Acceptance will be updated as requested.

24. p. 37, Table 2-10. (i) Highlight the selected alternative. (ii) Replace the dots for the Cost criterion with the costs. (iii) Please revise the State and Community Acceptance text to reflect the State’s agreement with the selected remedy and lack of any community opposition.

**Response:** (i) Please see response to Comment 22. Asterisk and footnote will be used at this time to call out Alternative G-2 as the Selected Remedy for groundwater. The footnote will read as follows: \* - *Alternative G-2 – MNA and LUCs is the Selected Remedy for groundwater (see Section 2.12)*. The Navy can change the table formatting or apply another indication of the Selected Remedy in the Final ROD if this approach is not acceptable. (ii) The text for State and Community Acceptance will be updated as requested. Also, the qualitative cost dots in this Table 2-10 will be removed (also see response to Comment 23[i]).

25. p. 38, §2.10.1.1, ¶1. After the highlighted text, insert: “Monitoring will also confirm that the existing covers remain protective.”

**Response:** Navy agrees with the edit, with minor revision:

*As part of the LUCs and O&M, inspections will confirm that covers remain protective.*

Also see responses to Comments 1(i) and 2(i). Navy would like to avoid the term(s) “long-term monitoring” for cover inspections and maintenance, because environmental sampling, or “monitoring,” will be ongoing for groundwater, while there is no long-term environmental sampling / monitoring for soil.

26. p. 38, §2.10.1.2. (i) Add a discussion of the No Action alternative. (ii) For each paragraph, cite the alternative-specific ARARs tables in the FS.

**Response:** (i) Brief text will be added to include discussion of the No Action alternative. The appropriate FS ARARs tables citations will be added to each paragraph in Section 2.10.1.2.

27. p. 38, §2.10.1.2, ¶2. Please delete the last sentence because there is no basis for this statement.

**Response:** Strong oxidants can adversely impact sensitive aquatic habitats, especially if they are so proximate to the ISCO injection locations, and also especially in a very transmissive aquifer such as the overburden material at this site. Alternative G-3's ISCO component would include injection of an incredibly large volume of strong oxidant(s) in very close proximity to the bay. The material would readily flow into the bay before being reduced through the sediments, pore water, and then into the bottom horizon of the surface water (above sediment interface). The oxidant could physically damage ecological receptors rather quickly upon contact depending on the type/strength and concentration of the oxidant. The Navy proposes revising the sentence to read as follows:

However, ISCO likely would have a negative impact on the sensitive and proximate bay habitats and ecological receptors from the extreme geochemical changes to be induced by the oxidant, which would be injected in large quantities immediately upgradient of the bay.

**28.** p. 38, §2.10.2. Add a discussion of the No Action alternative for each balancing criteria.

**Response:** Brief text will be added to each balancing criterion discussion.

**29.** p. 39, ¶1. (i) In the second sentence after "LUC inspections," add "and monitoring." (ii) Add a sentence that "Five-Year Reviews will be required as long as contamination is left in place under the covers."

**Response:** (i) The Navy disagrees with adding "and monitoring" for the reasons explained in responses to comments above. Navy proposes modifying the sentence as follows to emphasize the same intent of the comment:

*Both alternatives address surface soil industrial PRG exceedances equally and require LUC inspections and cover inspections to ensure performance and long-term reliability.*

(ii) The sentence will be added.

**30.** p. 39, §2.10.2.2. (i) In the first paragraph (for soil), remove the last two sentences. (ii) In the second paragraph (for groundwater), remove the second sentence (natural attenuation is not covered under this criterion).

**Response:** (i) The sentences will be deleted. (ii) The sentence will be deleted.

**31.** p. 40, §2.10.2.4, ¶2. Please correct the second sentence to read: "The implementation of these alternatives..."

**Response:** The sentence will be revised as suggested.

**32.** p. 40, §2.10.2.4, ¶3. Please correct the second sentence to read: "...construction permits will be met..."

**Response:** The wording will be changed as suggested.

**33.** p. 40, §2.10.2.5, ¶4. (i) Please change S-2 to G-2 in the second sentence, and revise the sentence to read: "Alternative G-2 requires fewer monitoring wells and less sampling." (ii) Based on the description in Table 2-8, are O&M costs for maintaining (and possibly replacing) the wells for each alternative included?

**Response:** (i) S-2 will be corrected to G-2 and the sentence will be revised as suggested. (ii) O&M costs for wells are effectively included in the alternative. As mentioned in response to Comment 20(i), the maintenance of wells is included in periodic costs and contingency.

34. p. 41, §2.12.1, ¶2. Add a new last sentence: “Monitoring of the cover areas will be incorporated into the monitoring plan for the groundwater component of the remedy.”

**Response:** This comment is overcome by the June 2014 soil data, which indicate no soil leachability exceedances. The covers will be inspected and maintained as part of the soil remedy. No changes proposed. Also see responses to Comments 1(i), 2(i), 11(i), 17, and 20(i).

35. p. 42, §2.12.2, bullet 1. Add at the end: “and prevent migration of soil contaminants to surface or groundwater.”

**Response:** This comment is overcome by the June 2014 soil data, which indicate no soil leachability issues. No changes proposed. Also see responses to Comments 1(i), 2(i), 11(i), 17, 20(i), and 34.

36. p. 42, §2.12.2, bullet 4 Remove the highlighted text. It is a component of the soil remedy, not the groundwater remedy and addressed by text changes to the previous two bullets).

**Response:** The text will be deleted. The June 2014 soil data indicate no soil leachability issues.

37. p. 42, §2.12.2, ¶1. Please correct the first sentence to read: “... OU12 and includes ....”

**Response:** The sentence will be corrected.

38. p. 42, §2.12.2, ¶2. Please correct the first sentence to read: “... OU12 and includes ....”

**Response:** The sentence will be corrected.

39. p. 42, §2.12. Add another paragraph (2.12.4) for Five-Year Reviews and include the standard language as was done for the Gould Island ROD.

**Response:** A paragraph detailing the Five-Year Review remedial alternative component (similar to Gould Island ROD) will be added.

40. p. 42, §2.13. See previous comments concerning the O&M costs associated with maintaining the groundwater monitoring wells included.

**Response:** The groundwater remedy includes inspections and O&M to protect and repair/replace the wells. Costs for well upkeep are covered in periodic costs and contingency. Also see response to Comment 20(i).

41. p. 43, §2.12.4, ¶1. In the first sentence after “industrial land use” add “, with a limited area of recreational use.”

**Response:** Navy proposes adding “with a limited area of restricted recreational use.”

42. p. 43, Table 2-11. In the second row Comments, add at the end of the third paragraph: “Monitoring of the cover areas will be incorporated into the monitoring plan for the groundwater component of the remedy to confirm its protectiveness.”

**Response:** This comment is overcome by the June 2014 soil data, which indicate no soil leachability issues. Subsequently, the yellow-highlighted red text associated with leachability concerns will be deleted. Navy proposes revising the first paragraph in the row as follows:

*Soil leachability test data from samples collected in June 2014 (see Appendix F) indicate no leachability criteria exceedances. In addition, empirical data (collocated soil and groundwater data; including groundwater data from samples collected in June 2014) suggest COCs are not migrating to groundwater at levels that cause unacceptable risk or criteria exceedances in groundwater.*

43. p. 44, §2.13, bullet 1. In the last sentence, insert “, monitoring,” after “maintenance.”

**Response:** Navy agrees with the “monitoring” entry in this case, as it applies to the groundwater Selected Remedy in this context. The sentence will be revised as requested.

44. p. 44, §2.13, ¶5. Please edit the second sentence to read: “... and have a significantly greater cost.”

**Response:** The sentence will be revised as requested.

45. Figure 2-3. (i) Please correct this figure to show the wells with metals contamination in excess of the cleanup goals. (ii) Please correct the Legend to refer to surface/subsurface contaminants. (iii) Please add a Legend symbol for the orange shading in the subsurface/groundwater. (iv) Please correct the purple shading (groundwater contamination). It is above the water table.

**Response:** (i) Figure 2-3 is an interpretive three-dimensional conceptual site model diagram. This type of detail is not intended here. Groundwater cleanup level exceedances are shown on Figure 2-6. (ii) The legend will be revised as requested. (iii) The shading is labeled on the figure as “Overburden” (above the “Bedrock”). No legend entry proposed. (iv) The purple groundwater contamination shading that looks to be above the water table (dashed blue line) is for wells that are projected west (into the figure; not above the water table on the profile slice). The tops of the monitoring wells are indicated on the surface rendering in the picture to provide perspective scale. No changes proposed.

46. Table D-2, p. 1. For the Floodplain Management and Protection of Wetlands, replace the Action to be Taken text with: “While there are no jurisdictional wetlands at the site (although regulated habitats are adjacent to the site in Narragansett Bay), the majority of the site is located within the 100-year coastal floodplain. The Navy’s remedial measures will prevent contamination within the floodplain from migrating from the covered areas and posing a risk to adjacent floodplain, wetlands and aquatic habitats. Public comment on the proposed remedy within coastal floodplain was solicited through the Proposed Plan. No negative comments were received.”

**Response:** The text will be revised as requested in Table D-2.

47. Table D-5, p. 1. For the Floodplain Management and Protection of Wetlands, replace the Action to be Taken text with: “While there are no jurisdictional wetlands at the site (although regulated habitats

are adjacent to the site in Narragansett Bay), the majority of the site is located within the 100-year coastal floodplain. The Navy's remedial measures will prevent groundwater contamination beneath the floodplain from migrating and posing a risk to adjacent floodplain, wetlands and aquatic habitats. Public comment on the proposed remedy within coastal floodplain was solicited through the Proposed Plan. No negative comments were received."

**Response:** The text will be revised as requested in Table D-5 as requested.

48. Table D-6, p. 4. Move the Remediation Regulation citation to the Chemical-specific Table (D-4, p. 3).

**Response:** The citation will be moved from Table D-6 to Table D-4 as requested.

### PART 3 - RIDEM'S SPECIFIC COMMENTS

1. p. 19, Table 2-2, Summary of Maximum Concentrations of COCs. Please note that the units in the column heading for site-wide surface soil and site-wide subsurface soil are incorrect. All concentrations presented are in milligrams per kilogram (mg/kg). Please consider showing the data for all compounds in the same units. Also, the note below this table states: "\* Total PCBs is not a COC because the maximum soil concentration (0.146 mg/kg in surface soil...)..." This note is inconsistent with the maximum value of 0.416 mg/kg shown on the table. Please correct.

**Response:** The units and the footnote will be fixed in Table 2-2.

2. p. 20, Section 2.5.3, Nature, Extent, Fate and Transport of Contamination, 1st paragraph. (i) The third sentence is inconsistent with the Final Feasibility Study (FS). The Final FS indicates that nine locations had exceedances of state leachability criteria for lead and/or naphthalene. However, RIDEM notes that Tables 2-10a and 2-10b in Appendix C show nine locations with leachability criteria exceedances, with the results at two of these locations crossed out. Please explain why some results in these tables are crossed out (add a footnote). (ii) Also, please explain in more detail how the results of pre-ROD sampling will impact how the lead and naphthalene state leachability criteria exceedances will be addressed. Provide clarity on how the pre-ROD sampling results will change this section.

**Response:** (i) The legend/footnotes at the bottom of Table 2-10b in Appendix C of the FS explains that the blue x on the cell (crossing out the value) indicates that depth interval from which the soil sample was collected is saturated / below the water table. Leachability criteria apply only to the vadose (unsaturated) zone. (ii) Explained herein. The June 2014 soil data were used to confirm no leachability criteria exceedances. The June 2014 groundwater data provide another line of evidence of no continuing source of naphthalene or lead from soil. The June 2014 soil and groundwater data will be provided in Appendix F starting in the Draft Final ROD (provided in redline with these RTCs). Navy proposed appending the actual Data Technical Memorandum for the June 2014 sampling event. Tracking the changes in the Draft Final provides the detail on changes associated with the confirmation of no leachability criteria exceedances.

3. p. 20, Section 2.5.3, Nature, Extent, Fate and Transport of Contamination, 3<sup>rd</sup> paragraph. *"The Navy and RIDEM agreed that petroleum issues (as indicated by TPH concentrations) at the site will be addressed under RIDEM's UST Program."* Please include in the response to comments an approximate time frame for addressing the TPH exceedance of industrial criteria in surface soil at TP-

16, as agreed between RIDEM and the Navy. Please note that it would be prudent to address this location concurrently with the CERCLA remediation activities.

**Response:** Comment(s) noted. The Navy will work with RIDEM accordingly under appropriate regulatory framework. Although a response action timeframe is unknown at this time, it is agreed that concurrent work would result in a more efficient use to resources.

4. p. 22, Section 2.7.1.1, Identification of COPCs; 4th sentence. Please revise to “State criteria included RIDEM Residential and Industrial DECs and GA Leachability Criteria”.

**Response:** The text will be revised as requested.

p. 23, Table 2-3, Receptors and Exposure Routes Evaluated in HHRA. Incidental ingestion of groundwater was evaluated in the HHRA for the current/future construction worker; however, this pathway is missing from Table 2-3. Please check for consistency between the pathways evaluated in the HHRA and those specified in Table 2-3 and revise this table as needed.

**Response:** Table 2-3 will be corrected and consistency will be reviewed.

5. p. 24, Section 2.7.1.4, Risk Characterization, 4th paragraph, 5th sentence. (i) This sentence incorrectly states that the maximum total cancer risk estimate for all applicable groundwater exposure scenarios is a cancer risk of  $6 \times 10^{-4}$  for the hypothetical child resident. Please note that the correct maximum cancer risk value for groundwater, as provided on Table 2-4 (p. 25), is  $2 \times 10^{-3}$  for the hypothetical lifelong resident. Please correct this sentence and revise the following sentence as necessary. (ii) Additionally, please indicate in this section and in Table 2-4 that the risk estimates are for COCs only.

**Response:** (i) The sentences will be corrected as suggested. (ii) The risk assessment considers the COPCs after initial screening for risk calculations. COCs are the remaining subset of COPCs at the end of the risk assessment. Risk assessments report the total calculated risks from the COPCs, and the resulting COCs are the main risk drivers typically with individual risk above acceptable risk ranges. No changes proposed for this portion of the comment.

6. p. 24, Table 2-4, Receptors and Calculated Risk Exceedances in the HHRA. Several risk estimates are inconsistent with the HHRA tables presented in the Final FS. Specifically, in the North Waterfront Area, total cancer risk for groundwater for the hypothetical child resident and hypothetical lifelong resident should have the “<” deleted. In the Central Shipyard Area, total cancer risk for surface soil for the hypothetical child resident should be without the “<”. In the PCB Removal Area, the total cancer risk for surface soil for the hypothetical adult resident is incorrect. It should be  $< 1 \times 10^{-4}$ . The total non-cancer risk for subsurface soil for the hypothetical child resident should not have an “\*” (asterisk). For the Former Building 234 Area, the total non-cancer risk for groundwater for the hypothetical adult resident should have an asterisk (\*). Please make these corrections to the table.

**Response:** These errors in Table 2-4 will be corrected.

7. p. 30, Table 2-6, Cleanup Levels for Groundwater (Site-Wide). Please note that vinyl chloride is presented twice in this table.

**Response:** Both instances of vinyl chloride in Table 2-6 will be deleted, as will the vinyl chloride footnote. The June 2014 groundwater data show no detections of vinyl chloride, even at MW104.

8. p. 31, Table 2-7, Summary of Remedial Alternatives Evaluated for Soil. (i) For Alternative S-2, LUCs, please provide more detail on how institutional controls will be maintained to meet residential RAOs or rephrase for clarity. The statement “to meet residential RAOs” is misleading considering that the site will remain industrial/commercial. (ii) Additionally, refer to Comment #2 regarding the pre-ROD sampling.

**Response:** (i) Navy proposes rewording the subject text as follows: (ii) See response to RIDEM Comment 2. The redline Draft Final ROD will show the red text highlighted-yellow in Table 2-7 (and elsewhere in the ROD) as struck-out (deleted) considering the June 2014 data confirmed no leachability criteria exceedances. In some instances, new text is provided for clarity (see redline Draft Final ROD).

9. p. 33, Table 2-8, Summary of Remedial Alternatives Evaluated for Groundwater. (i) For Alternative G-2, MNA, please add a statement regarding the timeframe for the attainment of VOC cleanup levels in groundwater. (ii) For Alternatives G-2 and G-3 under “Cost”, “Year 1” is presented twice. Please correct the second “Year 1” to “Year 2”. (iii) Additionally, refer to Comment #2 regarding the pre-ROD sampling.

**Response:** (i) Statement for the MNA timeframe will be added to Table 2-8 (also see EPA Comment 20[iii]). (ii) The second “Year 1” is a typo to be corrected to “Year 2.” (iii) The redline Draft Final ROD will show the red text highlighted-yellow in Table 2-8 (and elsewhere in the ROD) as struck-out (deleted) considering the June 2014 data confirmed no leachability criteria exceedances. In some instances, new text is provided for clarity (see redline Draft Final ROD).

10. p. 40, Section 2.10.2.5, Cost, Groundwater; 1st paragraph, 2nd sentence. Please correct “Alternative S-2” to “Alternative G-2”.

**Response:** The “S-2” typo will be corrected to “G-2.”

11. Figure 2-1a, Historical Site Layout and Features, and Figure 2-1b, Sample Locations Representing Current Conditions. The color delineations for paved and unpaved areas appear to be inconsistent with Figure 2-8, Soil Alternative S-2 Cover and LUCs. Specifically, TRZ-3, TRZ-4, and TRZ-6 are identified on Figure 2-8 as requiring cover with 6 inches of clean soil. However, Figures 2-1a and 2-1b show these areas as being paved. Additionally, TRZ-8 is not shown as either paved or unpaved on Figures 2-1a and 2-1b, but Figure 2-8 shows this area as requiring cover with 6 inches of clean soil. Please make Figures 2-1a and 2-1b consistent with Figure 2-8, or vice versa.

**Response:** Figures 2-1a and 2-1b show some outdated pavement conditions due to the age of the base figure. Removal actions and a multitude of site improvements or other construction/ demolition (not related to environmental restoration) have created the different pavement conditions. Current conditions shown on Figure 2-4 (Soil Criteria Exceedances figure) are based on a site walk performed by Tetra Tech and the Navy in January 2014. The current conditions are indicated by / differentiated with dots or x’s [or nothing] on the various exceedance-indicator symbols). Navy proposes adding a note to each of Figures 2-1a and 2-1b indicating the outdated shading in some locations and referring the reader to current conditions presented on Figure 2-4 and presented via aerial background on Figure 2-8:

*[Figure 2-1a / Figure 2-1b] show outdated pavement conditions due to removal actions and unrelated site improvements (construction and demolition). Current conditions based on aerial photography dated 2010 and site walks in January 2014 are shown on Figure 2-4 and Figure 2-8.*

Figure 2-8 shows different cover-type areas with shaded colors or hatching. Some ancillary, small areas not specifically called out on the figure will need some form of cover (and maintenance; or its existing condition maintained). These will be determined during preparation of, and specified in, the forthcoming Remedial Design.