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U S NAVY RESPONSES TO U S EPA AND RHODE ISLAND DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT COMMENTS TO DRAFT PROPOSED PLAN SITE 8
DISPOSAL AREA NS NEWPORT RI
6/19/2012
TETRA TECH

**Navy Responses to Environmental Protection Agency (EPA) Comments Dated May 16, 2012
on the Draft Proposed Plan Dated April 30, 2012
for Site 8, the Naval Undersea Systems Center (NUSC) Disposal Area,
at the Naval Station (NAVSTA) Newport, Rhode Island
June 19, 2012**

The major EPA comments were summarized and discussed at the May 16, 2012 Remedial Project Manager (RPM) meeting. See the RPM meeting minutes for a summary of the discussion.

Comment 1: Page 2, "What caused the contamination at Site 8?" section: Add additional information in this section on the releases and potential sources of contamination at the site. For example, discuss the historical use of Building 185 for hazardous material storage and the release of Otto Fuel that occurred in this area; discuss the past removal actions that occurred to remove contaminated soils and debris (detailed on page 4); discuss TCE contamination from unknown source.

Response: Agreed. The text will be revised to read as follows:

“Contaminants have been identified in soil, groundwater, and sediment at Site 8. Specific records of materials spilled or disposed since operations began in the early 1950s are not available. However, it is known that the central, upland portion of Site 8 in the Building 185 area was used for equipment storage, hazardous waste storage, and the disposal of miscellaneous materials including scrap lumber, tires, wire, cable, empty paint canisters, and several drums containing a tar-like substance. Several former NUSC operations also had the potential to generate hazardous materials (e.g., industrial plating, anodizing and chemical cleaning in a former nearby building, as well as PCB storage at an unnamed location). The Building 185 Complex was also used to store torpedo fuels and, in 2004, a release of Otto Fuel was discovered and the impacted soil was removed.

The cause of the groundwater contamination in the North Meadow is unknown, but was likely to have been associated with the disposal of spent liquid solvents during past operations.

The Building 179 Area is a research and development facility and formerly had a 2,000-gallon concrete underground storage tank (UST) used to collect byproducts generated from the torpedo propulsion system tests. This UST likely received waste water mixed with engine oil, solvent-based cleaners, Otto Fuel, and combustion byproducts. In 1995, it was discovered that the UST had leaked, contaminating soil and groundwater in this area and necessitating cleanup.

Contaminants from these areas entered Deerfield Creek through overland storm water runoff/soil erosion and groundwater transport and resulted in impacts to sediment in the creek and in NUWC Pond.

A discussion of past removal actions is included on page 4 of this Proposed Plan.”

Comment 2: Page 5 - Define SVOC.

Response: Agreed. The first use of “SVOC” will clarify that it means “semi-volatile organic compound”.

Comment 3: Page 5, Step 4 - Characterize the Risk - last bullet - For ingestion of fish, clarify in the PP why this exposure route was not carried forward for a cleanup objective. See related comment from Dave P [Comment #15].

Response: Agreed. The following text will be added: “These chemicals in fish tissue were not carried forward as COCs for remediation due to significant uncertainties in the source of

pesticides found in the fish tissue and in the uptake of PCBs from sediment to fish, as well as comparisons to similar fish tissue samples from background/reference ponds.”

Comment 4: Page 7, Cleanup Objectives - Incorporate a table of PRGs for major contaminants. See page 3-15 of EPA Guidance: "Present and describe the basis for preliminary cleanup levels for major contaminants of concern." This can be limited to the major risk driver COCs for the different media.

Response: Agreed. A bulleted list of the PRGs of major contaminants will be added as follows:

“Cleanup goals (also known as preliminary remediation goals, or PRGs) for the COCs in soil, sediment, and groundwater were developed in the Feasibility Study based on calculations of acceptable risk levels, regulatory criteria, and background concentrations. The PRGs for the major COCs at Site 8 are listed below. See the Feasibility Study for a complete list of PRGs.

- **Groundwater (PRGs are based on risk levels and regulatory standards)**
 - 1,1,1-Trichloroethane (200 µg/L)
 - 1,1-Dichloroethane (2.3 µg/L)
 - Trichloroethene (5 µg/L)
- **Soil (PRGs are based on risk levels, regulatory standards, and background levels)**
 - Arsenic (18 mg/kg)
 - Lead (500 mg/kg)
 - Benzo(a)pyrene (0.21 mg/kg)
- **Sediment (PRGs are based on risk levels)**
 - Lead (1,233 mg/kg) (stream)
 - Total PCBs (150 / 451 µg/kg) (pond / stream)”

Comment 5: Page 8, GW2 write-up - Remove the discussion on LUCs as this is presented for all alternatives in the "Common Elements" section. Either remove the discussion on remedial timeframe or add comparable language for the other GW alternatives. Delete the reference on "active" remediation, as GW2 does not include active treatment.

Response: Agreed. LUCs will be described in the “Common Elements” section only. The discussion on remedial timeframe will be deleted from this portion of the text. Per the response to Comment #16, the sentence referencing “active remediation” in the first paragraph in column 2 of page 8 will be deleted.

Comment 6: Page 9, Common Elements, 1st bullet - Ensure that the planned "selective" excavation areas are all adequately represented in this discussion.

Response: Agreed. The following text will be added: “Selected excavation will include geophysical anomalies in the Paved Storage Area, known remaining buried drum fragments in the South Meadow, remaining buried canisters in the Buried Container/Paint Can Area, and isolated locations to the west of Deerfield Creek and NUWC Pond, to the south of the main site area, and in the South Meadow.”

Comment 7: Page 10, Preferred Action Alternative - Add language that describes the most decisive considerations from the nine criteria analysis that affected the selection of the Preferred Alternative (see page 3-16 of EPA Guidance). After re-reading, I do see that the section does have some of this information. However, since the PP is the first document to explain why the Navy is recommending the preferred alternative over the others, it is important to support the preferred alternative with an explanation of the major factors that form the basis of the selection. Possibly, just re-arrange the information so that the reasons are specified clearly in the discussion of each selected alternative. Based on RIDEM's comment today, the PP should state why GW3 is preferred over GW4 (more than just the use of the chemical oxidants).

Response: Agreed. Text will be added to the discussion of the preferred alternative for each medium. For soil, Alternative SO3 provides the most implementable and cost effective option for

addressing the identified risks and is consistent with the intended site use. For groundwater, bioremediation provides an effective and more environmentally-friendly approach for treating the moderate contaminant concentrations. Although similarly priced and just as effective, the ISCO technology is better suited to high-concentration plumes than those that exist at Site 8. It also may present more risks to site workers and concerns for NUSC operations (due to handling of large volumes of oxidants) and to the nearby pond/wetland ecosystem (for example, if injected oxidants were to discharge along with the natural groundwater flow to the pond and stream at the site, these oxidants could have an effect on the organisms there). For sediment, Alternative SD4 is preferred because it will remove contaminated sediment from the site and will not have long-term maintenance and monitoring requirements, as would the sediment capping options.

Comment 8: Page 10, 2nd column, 1st Para - The text indicates that bioremediation "may also help to promote the desired groundwater conditions (geochemistry) to support subsequent MNA." What is meant by this statement? It should be acknowledged that bioremediation may increase metals in groundwater.

Response: The following will be added to the text, after the quoted sentence: "Bioremediation will create reducing conditions that promote the breakdown of chlorinated solvents within the aquifer. Upon completion of active bioremediation, those conditions will persist for a time, and enhance the continued attenuation of the residual plume. Although it is possible that the modified aquifer conditions may mobilize some soil constituents (such as arsenic and manganese) into groundwater, it is expected that this effect will be temporary, and that the concentrations will return to background levels over time."

Comment 9: Figures - Add another Figure that is a closer aerial to show the site layout with locations of buildings, roads and adjacent properties.

Response: Agreed. An aerial photograph focused on the site layout will be added. The figure will also show the proposed LUC boundary.

Comment 10: Also attached are comments on the Draft PP from Dave P [Comments #11-29]. Please let me know if the Navy wants to discuss any of these further for clarification. Also, please provide the draft public notice/newspaper announcement for review once that is prepared.

Response: Agreed. The draft public notice will be provided for review prior to publication.

Comment 11: Page 1, What You Think box – Add to the "What You Think" box (as was done for the New London Lower Subbase Proposed Plan): "Section 404 of the Clean Water Act and Executive Orders 11990 (Protection of Wetlands) and 11988 (Protection of Floodplains), as incorporated under Federal Emergency Management Agency regulations that are relevant and appropriate to the cleanup, require a determination that there is no practical alternative to taking federal actions affecting federal jurisdictional wetlands, aquatic habitats and floodplain. EPA and the Navy are requesting public comment concerning its finding that the proposed cleanup alternative for sediments is the least environmentally damaging practicable approaches for protecting wetlands and aquatic habitats. EPA and the Navy are also proposing a finding under the Toxic Substances Control Act that the risk-based PCB cleanup level for sediments and the covering of soils containing low levels of PCBs will not pose an unreasonable risk of injury to health or the environment."

Response: This Proposed Plan is being prepared in accordance with previous Proposed Plans at NAVSTA Newport (and several other Region 1 Navy sites), which are formatted differently than the one for the Lower Subbase at New London, Connecticut. The "Let Us Know What You Think" text box on page 1 of the Proposed Plan is intended to provide a brief overview of the public meeting/hearing and the public comment period. The requested information regarding the cited ARARs in the comment is provided on page 10 of the Proposed Plan, along with the description of the "Preferred Action Alternatives". Inclusion of these statements in the Proposed Plan satisfies the Clean Water Act and TSCA requirements for public participation.

Comment 12: Page 2, 1st col. – In the second sentence of the fourth paragraph insert “, which forms the Administrative Record for this Proposed Plan,” after “other documents.”

Response: Agreed. The text will be modified accordingly.

Comment 13: Page 3, History Box – For the 1989 note that the official name given to the Site at the time of listing is the “Naval Education Training Center Superfund Site.”

Response: Agreed. The text will be modified accordingly.

Comment 14: Page 5, 1st col. – In the fifth sentence of the fourth paragraph insert “in compliance with State requirements” after “will address the petroleum.”

Response: Agreed. The text will be modified accordingly.

Comment 15: Page 7, Cleanup Obj. – On page 6, the last bullet identified an unacceptable risk from ingestion of fish but the cleanup objectives don’t include preventing human ingestion of contaminated fish from the Site.

Response: See response to Comment #3.

Comment 16: Page 8, GW-2 – Remove the following sentence from the second paragraph since there is no active remediation of VOCs under this alternative: “MNA of metals, an EPA-approved remedial option, would be a follow-on remedial approach to the active remediation of the chlorinated VOC plume.”

Response: Agreed. The sentence will be deleted.

Comment 17: Page 8, all of the GW alt. descriptions – Figure 2-7 shows areas of groundwater contamination right up to the fence line. If it will be necessary to establish LUCs on the private property adjacent to the Site that component of the alternatives needs to be clearly identified in the alternative descriptions and elsewhere in this document.

Response: As noted in Section 5 of the FS, the Navy will coordinate with the adjacent property owner and state agencies (e.g., Department of Public Health and RIDEM) to prevent the installation of a groundwater extraction in the area adjoining Site 8. A statement will be added to the LUC discussion in the “Comment Elements” section of the Proposed Plan that the Navy will coordinate with the owner of the adjacent private property. A mechanism to establish LUCs on the abutting private property has not been identified.

Comment 18: Page 9, 2nd col. – In the second bullet add a new third sentence: “Groundwater cleanup standards applicable to the rest of the Site will not have to be achieved within the waste management area, provided LUCs are established to prevent groundwater use within the area.”

Response: Agreed. The text will be modified accordingly.

Comment 19: Page 9, 2nd col. – Regarding the last sentence of the third bullet, Navy needs to determine if there is an issue with establishing state compliant land use restrictions in RI.

Response: The Navy can make ELURs a part of the deed upon transfer of the property out of federal hands, if still required at that time (i.e., if the site conditions are not yet suitable for unrestricted use and unlimited exposure). This is consistent with the description in the Proposed Plan which states “If the property were ever to be transferred out of federal ownership, then the LUCs would be recorded as deed restrictions meeting state property law standards.” An ELUR will not be used while the property is still under federal ownership (the LUC RD would be used at that time). Once conditions are suitable for unrestricted use and unlimited exposure, then the LUCs (including any ELUR) would be discontinued.

Comment 20: Page 9, 2nd col. – Common Elements should also discuss the need to establish long-term monitoring requirements for soils and groundwater.

Response: Agree. The text will be modified accordingly.

Comment 21: Page 10, Pref. Alt. – In the second paragraph, need to describe the need to maintain the paved coverage over areas where a cover will not be installed.

Response: Agreed. The following will be added to the text: “The asphalt cover of the waste management area and the soil cover constructed in the other areas of the site will be maintained over time.”

Comment 22: Page 10, Pref. Alt. – In the third paragraph change the second sentence to: “The human health and ecological risk evaluations concluded that leaving PCBs in-place, under a cover with land use controls and long-term monitoring (disposal)...”

Also change the last sentence to: “Accordingly and based on the provisions of 40 CFR § 761.61(c), EPA is proposing to make a determination to be included in the Record of Decision that the in-place management of PCBs in soil will not pose an unreasonable risk to public health or the environment.”

Response: Agreed. The text will be modified accordingly.

Comment 23: Page 10, Pref. Alt. – In the fourth paragraph concerning groundwater the text needs to note that groundwater cleanup standards do not have to be met beneath the waste management area, provide LUCs are established to prevent groundwater use within the area. Also, note previous question as to whether LUCs for groundwater will need to extend across the fence line into private property (the golf course). If so this needs to be discussed in more detail in the text.

Response: The following will be added to the text: “Groundwater cleanup standards applicable to the rest of the site will not have to be achieved within the waste management area, provided the LUCs prevent groundwater use within the area.”

Regarding the application of LUCs to the adjacent private property, see the response to Comment #17.

Comment 24: Page 10, Pref. Alt. – In the sixth paragraph insert “Environmentally” after “Least.” As noted for page one the Navy needs to specifically solicit public comment on its determination the preferred alternative is the “Least Environmentally Damaging Practicable Alternative.”

Response: Agreed. The text will be modified accordingly. See also the response to Comment #11.

Comment 25: Page 10, Pref. Alt. – Replace the concluding paragraph with the following modified text from EPA’s Proposed Plan Guidance: “Based on information currently available, the Navy believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The Navy expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b): 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) partially satisfy the preference for treatment as a principal element to the extent practicable.”

Response: Agreed. The text will be modified accordingly.

Comment 26: Page 11, For More Info. – In the second sentence insert “, which forms the Administrative Record for this Proposed Plan,” after “other site documents.”

Response: Agreed. The text will be modified accordingly.

Comment 27: Tables 1 – 3 – The Tables need to identify whether each alternative meets the criterion, partially meets the criterion, or does not meet the criterion. Do not base the symbols on “good,” “average,” or “poor.” In rating the alternatives need to be consistent with the analysis presented in the FS.

Response: Agreed. The tables will be modified accordingly.

Comment 28: Table 2 – MNA alone (GW-2) does not meet the treatment criterion. GW-3 and GW-4 only partially meet the criterion since not all groundwater will be treated.

Response: The table will be modified to indicate that MNA is considered passive remediation. GW-3 and GW-4 will be changed to indicate that they partially meet the criterion.

Comment 29: Figures – Need to include a figure that shows where land use controls will need to be established for the preferred alternative for both soil and groundwater. Note previous comments regarding whether the LUCs will need to extend off-base since the groundwater contamination shown in Figure 3-7 extends to the fence line.

Response: See the responses to Comments #9 and #17.

**Navy Responses to RIDEM's Revised Comments Dated June 7, 2012
on the Draft Proposed Plan Dated April 30, 2012
for Site 8 – NUSC Disposal Area
Naval Station (NAVSTA) Newport, Rhode Island
June 19, 2012**

General Comments:

Comment 1. Viability of Bioremediation

Based on our review of the available data, it appears that geochemical conditions are not immediately favorable to anaerobic bioremediation in the North Meadow Area where TCE impacts to groundwater are greatest. For example, in March 2011, the three wells with the highest TCE detections (MW-128B, MW-118B, and MW-03B) were non-detect for vinyl chloride and had either non-detections or low-level detections of cis-1,2-dichloroethene. In addition, the ORP values measured at the time of sampling were above +150 mV at all three wells, consistent with the observation in the March 2011 groundwater sampling event report that "wells in the North Meadow tended to have higher DO and positive ORP readings." Based on the above lines of evidence, it seems as though a considerable effort would be required to manipulate the redox state and completely engineer the bioremediation chemistry. For example, sufficient electron donor would be required to deplete all terminal electron acceptors preceding carbon dioxide to create the methanogenic conditions favorable to dechlorinators. In addition, the absence of vinyl chloride detections at these wells suggests that dechlorinating populations may not be established, meaning that bioaugmentation may also be required. In these areas, replacement of bioremediation with in-situ chemical oxidation (ISCO) should be considered.

In contrast to the above analysis, the current geochemistry in the Building 179 Source Area (MW-078) and the Building 185/South Meadow Area (where 1,1,1-TCA is the predominant CVOC) appears better suited to the selected remedy. Reducing conditions are more widespread in these areas, consistent with higher levels of chlorinated ethane daughter products such as 1,1-DCA, and the higher levels of chloride. Enhancing the intrinsic bioremediation processes occurring in these areas is a more viable option than engineering reductive dechlorination in the aerobic North Meadow Area.

Response: As discussed during the May 16, 2012 RPM meeting, the Navy is planning to conduct a Pre-Design Investigation (PDI)/pilot study to further evaluate bioremediation and ISCO for North Meadow groundwater. Work plans will be provided for regulatory agency review. The Proposed Plan (and upcoming Record of Decision [ROD]) will be revised to allow for flexibility in the selection of the injected aquifer amendment (nutrient substrate or chemical oxidant), depending on the results of the PDI.

Comment 2. ISCO Alternative GW4

The primary ISCO technology evaluated in the FS and referenced in the Draft April 2012 Proposed Plan is Fenton's Reagent (hydrogen peroxide and iron catalyst). However, page 3-26 of the May 2012 Draft Final FS states:

"Pilot tests to select a reagent might also be required, although because of the relatively low TCE concentrations, potassium permanganate would likely be used."

It is not immediately clear why Fenton's Reagent was selected over potassium or sodium permanganate for ISCO Alternative GW4. The ability of permanganate to oxidize chlorinated ethenes has been widely demonstrated in the field, including at comparable, operational sites in Rhode Island. In addition, the stability and persistence of permanganate in the subsurface make it a better choice for fractured rock applications with uncertain fracture/matrix interactions and migration pathways. It is noted that chlorinated ethanes are recalcitrant to permanganate; however, activated

persulfate is an alternative, proven ISCO reagent that provides trichloroethane (TCA) coverage while offering more stability than Fenton's Reagent. Additional consideration should be given to permanganate and/or activated persulfate for source area remediation at the Site. This is particularly salient as the safety of site workers was cited as key differentiator between ISCO and bioremediation. In general, permanganate and activated persulfate do not result in unsafe gas and heat evolution, which is correctly noted as a safety hazard for unstabilized Fenton's Reagent. It is recommended that these reagents be strongly considered at the site in lieu of Fenton's Reagent and a more detailed explanation be added to the Final FS regarding the selection process of the ISCO reagent.

Response: The Navy acknowledges RIDEM's concerns regarding the type of reagent that would be selected for the ISCO process. A brief discussion regarding the different oxidizing agents will be added to Section 5.1.4 of the FS (also per Comment #3 below), but Fenton's Reagent will be retained for costing purposes in the FS and Proposed Plan. Further evaluation of the specific oxidant which may be used will be presented in the Remedial Design or PDI. The Proposed Plan will be modified to note the different oxidant choices to be considered during the design phase.

Comment 3. Segregation of Remediation Areas & ROD Flexibility

As described in General Comment #4 mentioned above, the North Meadow Area and the collective Building 179/Building 185/South Meadow Area have different CVOC profiles and geochemical conditions. In addition, these areas appear hydrogeologically separated by the Unnamed Stream, and are likely to have varying hydrogeological responses to injected amendments. As a result, we believe it prudent to separate the source remedy selection so that different technologies may be used in the two areas. Pre-Design studies for each area may be used to determine whether ISCO or bioremediation is the preferred alternative. In this manner, the selected remedy for each area could better match the current geochemistry, and reasonable performance and cost expectations for the source remediation can be developed.

As discussed during the RPM meeting on May 16, 2012, one potential way to accommodate this comment is to build flexibility into the ROD such that alternative GW3 and/or GW4 may be used depending on the outcome of Pre-Design studies. The Final FS can potentially incorporate the consideration of other ISCO reagents (permanganate or persulfate, see General Comment #2 mentioned above) by simply listing them as options in addition to Fenton's Reagent for alternative GW4. It is noted that switching to ISCO after performing pilot or full-scale vegetable oil injections is not a preferred sequence because of the resulting increase in oxidant demand. Up-front, Pre-Design comparison of the two technologies through bench-scale treatability testing is a better strategy.

Response: As discussed during the May 16, 2012 RPM meeting, the Navy is planning to conduct a PDI/pilot study to further evaluate bioremediation and ISCO for North Meadow groundwater. Work plans will be provided for regulatory agency review. It is agreed that bench-scale treatability testing of bioremediation (e.g., microcosm study) and ISCO would be the appropriate first step. The Proposed Plan will be revised to allow for flexibility in the selection of the injected aquifer amendment (nutrient substrate or chemical oxidant), depending on the results of the PDI.

Comment 4. MNA Parameter Analysis

Regarding the 2012 work plan for supplemental MNA sampling, RIDEM feels the Navy should classify groundwater redox processes in groundwater using the USGS spreadsheet program available at <http://pubs.usgs.gov/of/2009/1004/>. This program classifies the overall redox category (i.e., aerobic or anoxic) and the specific redox process (i.e., nitrate-reducing or sulfate-reducing) based on electron acceptor concentrations. It appears as though all required analytes for the USGS analysis are on the monitoring list with the potential exception of dissolved manganese. If not included on the TAL metals list, please add dissolved manganese to the sampling list so that the USGS spreadsheet can be used in future MNA analyses. Also, please analyze for dissolved organic carbon at some of the locations to compare with the total values.

Response: This comment does not affect the Proposed Plan, but will be taken into consideration during the development of the MNA program to be conducted as part of the Site 8 Remedial Action.

Comment 5. Spatial Extent of Remedy

Figure 2-7 of the FS outlines areas with groundwater concentrations exceeding PRGs. Figure 5-1 of the FS highlights wells that were selected for treatment. Several wells located in the areas exceeding PRGs were not selected for treatment (e.g., MW127B, MW108B, MW102B, MW130B, MW124B, and MW129B). Please include these wells for treatment or justify their exclusion. The natural attenuation modeling for CVOCs in groundwater included in Appendix D in the FS will be sufficient to estimate how long it will take for these wells to reach remedial goals.

Response: As described on page 5-6 of the FS, Figures 5-1 and 5-2 present a conceptual approach where the treatment zones would target high-concentration wells or areas to intercept the plumes, depending on groundwater velocity. The remaining plume fringe where concentrations are already low would be addressed through MNA. The Navy is currently developing a draft Remedial Design which will provide further details and will be provided for RIDEM review. At this time, it appears that wells such as MW-129B and MW-102B will be directly within the influence of the treatment zone. MW-108B is located within the planned waste management area; therefore, this location does not require groundwater treatment (or other action, to be determined) unless it is observed over time that COCs from MW-108B are migrating beyond the waste management area at concentrations exceeding PRGs. Groundwater at wells MW-124B, MW-127B, and MW-130B contains low levels of CVOCs (83.8 J ug/L, 12.3 J ug/L, and 33.6 J ug/L of total CVOCs, respectively), that only slightly exceed individual PRGs. These wells will be included in the long-term monitoring program, and the need for any further action will be evaluated based on the observed results of the active treatment zones and the MNA program.

Comment 6. Protectiveness of Groundwater PRGs – Exposure Pathways

Section 2.2 of the FS indicates that groundwater PRGs reflect ingestion of groundwater and are based on either a risk-based value or, if available, a Maximum Contaminant Level (MCL). We understand that vapor intrusion was not considered in development of PRGs, because this pathway did not pose an unacceptable risk in the human health risk assessment (p. 1-33 of FS), and that there are no currently occupied buildings at the Site. However, this pathway is a viable future exposure pathway and may contribute to cumulative cancer risk, should Site buildings be routinely occupied. Please add to the LUCs appropriate measures to eliminate this pathway (e.g., reevaluation of vapor intrusion risk, post-remediation and prior to occupancy, and/or use of vapor barriers, sub-slab depressurization systems, etc.) or require vapor intrusion evaluation for any future development.

Response: Disagree. As noted in Section 1.10.1 of the FS, the vapor intrusion evaluation was for indoor air, including future residential use. The risk assessment calculated that the incremental lifetime cancer risk (ILCR) was 6E-7 and the non-cancer hazard index (HI) was 0.0004 for hypothetical residential exposures via vapor intrusion. For industrial exposures, the ILCR was 4E-7 and the HI was 0.0003. These values are well below USEPA and RIDEM target levels, and indicate that the vapor intrusion pathway is not a significant contributor to the cumulative risk for exposures to groundwater. Therefore, LUCs are not needed for the vapor intrusion pathway.

Comment 7. Pre-Design Investigation

Please include in this Proposed Plan a discussion of the Pre-Design Investigation which will include the following: sampling for metals to conduct SPLP tests to confirm that metals are not leaching into groundwater, pilot/bench studies to be conducted to determine the best groundwater treatment

alternative for each area of the site, a microcosm study for all areas proposed for in-situ bioremediation, and investigation of the source of TCE and PCE in the North Meadow.

Response: The “Common Elements” section of the Proposed Plan will be modified to indicate that PDIs will include: soil sampling to verify that metals levels do not exceed Rhode Island leachability standards; soil borings to verify that a VOC source is not present in North Meadow soil; and pilot/bench-scale studies, to determine the type of amendment to be used for in-situ groundwater treatment (bioremediation or ISCO).

Specific Comments:

Comment 1. p. 1, “The Proposed Cleanup” box, Groundwater.

Please revise the groundwater remedy according to RIDEM's comments above.

Response: Agree. The text will be revised per the responses above.

Comment 2. p. 8, Soil Alternative SO3.

Please include a more detailed description of Soil Alternative SO3 (i.e., include Figures 4-2 and 4-3 from the FS, include a statement regarding the 2 feet of armor stone cover along the sloped areas). Also, please revise the last sentence to “Soil exceeding leachability standards in selected areas would be excavated and disposed offsite.”

Response: The description of Alternative SO3 will be modified to include additional details (e.g., soil cover location, armor stone placement, etc.) and the last sentence will be changed as requested. As discussed during the May 16, 2012 meeting, Figures 4-2 and 4-3 from the FS will not be included. Instead, the Proposed Plan describes the scope of each alternative in the text and the reader is referred to the FS for further details. Inclusion of such figures would complicate the Proposed Plan (e.g., figures for all alternatives would be needed) and the conceptual design details presented in the FS will be subject to some changes during the Remedial Design phase.

Comment 3. p. 8, Groundwater Alternative GW4.

Please revise GW4 to include the possible use of potassium or sodium permanganate or activated persulfate as possible chemical oxidants for In-Situ Chemical Oxidation based on RIDEM's comments above.

Response: Agreed. The text will be modified accordingly.

Comment 4. p. 9, Common Elements, 1st bullet.

Please revise the last sentence to state “The Navy will collect additional samples during the Pre-Design Investigation to verify that metals in soil are not exceeding leachability standards.”

Response: See the response to General Comment #7.

Comment 5. p. 9, Common Elements, 3rd bullet.

“Under Alternative SD4, the pond would not require a LUC because COCs would be removed.” Land use controls should still be placed on the pond due to possible recontamination due to groundwater migration from upgradient areas.

Response: The sentence will be revised to state that “pond sediment will not require a LUC”. However, the figures will be modified to show the proposed LUC boundary to include the entire site area, due to the soil and groundwater contamination.

Comment 6. p. 10, Preferred Action Alternatives, Groundwater.

Please update this section to include flexibility for the groundwater remedy as stated in RIDEM's comments above.

Response: Agree. The text will be revised per the responses above.

Comment 7. p. 11, After the Record of Decision.

Please include a statement regarding the Pre-Design Investigation which will be required prior to the Remedial Design for this Site.

Response: The text will be modified to state that the Navy will be conducting additional investigations in support of the Remedial Design.

**Navy Responses to Fish and Wildlife Services (FWS) Comments Dated May 21, 2012
on the Draft Proposed Plan Dated April 30, 2012
for Site 8, the Naval Undersea Systems Center (NUSC) Disposal Area,
at the Naval Station (NAVSTA) Newport, Rhode Island
June 19, 2012**

Comment 1: Site Background and Characterization: What caused the contamination at Site 8: It would be helpful to further explain the specifics regarding “an accident in the Building 179 area...”, relative to date, COC involved, quantities, etc. from the accident and UST.

Response: Agreed. Additional details will be added to the section.

Comment 2: Site Background and Characterization: What were the investigation results: The term ‘COC’ could be included to be consistent with the Risk Assessment.

Response: Agreed. The term “COC” will be introduced to the reader in the section entitled “What were the investigation results?”

Comment 3: Site Background and Characterization: Where are the Site 8 contaminants located: It would be helpful to state for soils and sediments in contamination is present in surface and/or subsurface depths.

Response: Agreed. The following text will be added: “Soil contamination generally extends to a depth of 10 feet below ground surface, although it is deeper in some locations.” It will also be clarified that the sediment is contaminated to a depth of approximately 2 feet based on available data.

Comment 4: Site Background and Characterization: Removal Actions at Site 8: COCs should be provided for these Removal Actions unless removals were based on limit of sight only with no analysis, which seems unlikely. It should also be stated if NTCR Actions were anticipated to have follow-up investigations or further removal actions, as implied, and if so, how this ties in with the PP.

Response: The text will be modified to indicate that PAHs were detected in soil near the Drum Removal Action area, lead was detected in soil near the Buried Container Area, and various contaminants, including VOCs, SVOCs, inorganics, and petroleum products were detected at the Building 179 Area. The history section will be clarified to note that while the goals of these removal actions were met (to remove contributing contaminant sources), it was acknowledged at their completion that some additional remedies would be needed for the residual contaminants present as a result of these and other releases at the site. The text will be modified to indicate that the Navy, EPA, and RIDEM agreed to complete the further investigations and cleanups under the CERCLA Program for Site 8.

Comment 5: Human Health Risks: Step 1: The term ‘COPCs’ could be used for Chemicals of Potential Concern, after initial use, to be consistent with the Risk Assessment.

Response: Agreed.

Comment 6: Human Health Risks: Please clarify if the petroleum is actually crude oil, heating fuel, etc.

Response: The Proposed Plan text will be clarified to indicate that the specific source of the petroleum is unknown, but appears to be associated with general disposal at the site. The Proposed Plan refers the reader to the previous investigation documents (e.g., RI, SRI) for further information. The RI and SRI explain that the petroleum detected at Site 8 consisted of extractable petroleum hydrocarbons (C9 to C36 range) (reported as diesel range organics, in some instances) and gasoline range organics (C5 to C12 range).

Comment 7: Ecological Risks: Step 1: The term 'COPC' is appropriate.

Response: Agreed.

Comment 8: Cleanup Objectives: Sediment: Clarify “and overall toxicity levels to aquatic organisms...”

Response: Toxicity testing was performed on the benthic macroinvertebrate community in the pond. The text will be changed to read as follows: “Sediment – PCBs and lead (and overall toxicity to aquatic organisms, based on the combined effects of PCBs, PAHs, metals, and pesticides in sediment).”

Comment 9: Cleanup Objectives: Use of the term “RAOs” for Remedial Action Objectives is suggested, in lieu of Cleanup Objectives.

Response: The term “Cleanup Objectives” is used for clarity for the reader. This also is consistent with the recent Proposed Plan issued for Site 9 (Old Fire-Fighting Training Area).

Comment 10: Provide a table of PRGs in support of human health and ecological RAOs.

Response: A complete list of PRGs would be extensive and is not appropriate for the Proposed Plan format. As discussed with EPA, a summary of the major PRGs will be added (see the response to EPA Comment #4).

Comment 11: 5th RAO bullet: It seems more appropriate for this to reflect surface water transport, not GW transport.

Response: The RAO pertains to COCs reaching sediment via erosion of upland soil and discharge of groundwater to the surface water bodies. COCs have not been identified in surface water, and no remediation of surface water is planned.

Comment 12: Summary of Cleanup Alternatives: Soil Alternative SO2: Clarify if leachability standards are federal and/or state standards. Describe final disposition of PAH LTTD treated soils. Provide fill details and final soil cover maintenance similar to SO3.

Response: The text will be modified to read as follows: “This alternative would include the removal of unpaved soil with COCs that exceed industrial standards to a depth of 2 feet, as well as the removal of soil exceeding state leachability standards. Soil containing PAHs would be treated using a “low-temperature thermal desorption” (LTTD) technology and placed back on-site as clean fill. The LTTD system would heat soil/debris to between 90 and 320°C (200 to 600°F) to separate out the organic constituents. The off-gas generated may require treatment in order to capture contaminants prior to its discharge through a stack. Excavated soil containing elevated levels of metals would be disposed off-site at a licensed facility. Clean fill would be placed back to restore the site grade, including 6 inches of clean topsoil which would be seeded and maintained as a grassy field.”

Comment 13: Summary of Cleanup Alternatives: Soil Alternative SO3: Clarify if leachability standards are federal and/or state standards. We assume excavation would occur first for all soils exceeding leachability criteria, so it would make more sense to mention this first, before capping/soil cover.

Response: The text will be modified to read as follows: “This alternative would include the construction of a soil cover over the identified limits of unpaved soils where COC concentrations exceed industrial cleanup goals. This would include the North and South Meadows at Site 8. The cover would be constructed to prevent contact with subsurface soil/debris and to resist environmental forces, such as erosion. Armor stone would be placed on the steep slopes of the soil cover next to the pond and streams. Some cutback of the slope may be required to ensure stability of the cover system. The completed soil cover would be 2 feet thick, comprised of 18

inches of common fill and 6 inches of topsoil that would be maintained as a grassy field. Soil exceeding state leachability standards would be excavated and disposed offsite prior to construction of the soil cap.”

Comment 14: Summary of Cleanup Alternatives: Soil Alternative SO4: Clarify if leachability standards are federal and/or state standards. Clarify if the South Meadow area would be suitable for continued industrial use. Provide fill details and final soil cover maintenance similar to SO3.

Response: The text will be modified to read: “...Similar to Alternative SO2, a 2-foot-thick soil cover consisting of 18 inches of common fill and 6 inches of topsoil would be constructed over the South Meadow area to contain this soil as well as the South Meadow soil that exceeds cleanup goals. The soil cover would be maintained as a grassy field. Soil exceeding state leachability standards would be excavated and disposed offsite prior to construction of the soil cap. Upon completion, the North Meadow would be suitable for unrestricted use, and the remainder of the site soil, including the South Meadow, would be suitable for continued industrial use.”

Comment 15: Summary of Cleanup Alternatives: Sediment Alternative SD4: Post-removal conformational sampling may be advised to verify remedial goal attainment.

Response: The text will be modified to read: “... Pond sediment could be dredged to a depth of 2 feet, although additional sampling would be performed prior to dredging to verify the appropriate depth. Post-removal, confirmatory samples would also be collected to verify that the contamination has been removed.”

Comment 16: Common Elements: Post-removal geophysical screening may be advisable after previously identified geophysical anomalies are removed.

Response: Additional geophysical surveys are not anticipated because the Paved Storage Area will be maintained as a Waste Management Area. Any additional subsurface debris under the Paved Storage Area will be contained in-place by the existing pavement (asphalt cap) and the planned Land Use Controls. Additional geophysical surveys (and potential further removals) would be necessary if the use of the area were to change such that the pavement were no longer present, or if groundwater monitoring data indicated that significant contamination was migrating from the Paved Storage Area.

Comment 17: Common Elements: 5-Year Reviews: Identify this as “Monitoring” to be consistent with the Alternatives. Near-term monitoring will also be required for restored habitat areas in the stream and pond that are impacted by remedial activities.

Response: The 5-year reviews are not equivalent to monitoring. An additional bullet will be added to the Common Elements section to explain that the Navy would restore any wetland areas that are impacted by the selected remedial action.

Comment 18: Preferred Action Alternatives: It would be beneficial to also state that restoration will occur in the pond and stream to aid “the ecological community to re-establish itself...”

Response: The second paragraph on page 10, column 2 will be revised to read: “This restoration will allow the ecological community to re-establish itself...”.

Comment 19: Figures: It would be helpful to include the PRG level for all categories on all figures.

Response: Due to the number and complexity of the Site 8 PRGs, this would complicate and clutter the figures. However, as noted in the response to EPA Comment #4, PRGs for the major COCs will be presented in the text, and the reader is referred to the FS document for further details.

Comment 20: Figure 5: It would be helpful to state or color-code the COCs above sediment PRGs for each area.

Response: The text will be modified to indicate that lead is a COC in stream sediment and that lead and PCBs are COCs in pond sediment, as well as overall toxicity to aquatic organisms.