N62661.AR.002235
NAVSTA NEWPORT
5090.3a

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

May 26, 2009

Winoma A. Johnson, P.E.
NAVFAC MIDLANT
Environmental Restoration OPHREV4
9742 Maryland Avenue
Bldg. N-26, Rm. 3208
Norfolk, VA 23511

Re: Draft Remedial Investigation for Site 08
Navel Undersea Systems Center (NUSC) Disposal Area
Naval Station, Newport, RI
March 2009

Dear Ms. Johnson:

EPA has reviewed the document entitled "Draft Remedial Investigation for Site 08, Navel Undersea Systems Center (NUSC) Disposal Area, Naval Station, Newport, RI," dated March 2009. The document was prepared by Tetra Tech for the Navy.

The NUSC RI was completed in accordance with the "Final Work Plan for the Remedial Investigation (Revision 2) for the NUSC Disposal Area," dated January 2007. The Draft Report documents the findings and data from the investigation, includes a human health and ecological risk assessment, and discusses the Navy's conclusions and recommendations. EPA concurs with the Navy's conclusion that the Navy must proceed with a Feasibility Study at the NUSC Disposal Site to address unacceptable human health and ecological risks at the site.

EPA's comments on the Draft RI Report are enclosed. Pages 1-6 are General and Specific Comments on the overall report, pages 7-8 are General and Specific Comments on the human health risk assessment, and pages 9-11 are General and Specific Comments on the ecological risk assessment. EPA looks forward to discussing these comments with the Navy and RIDEM at our meeting on June 24, 2009 and working with the Navy and RIDEM to finalize the RI Report and begin the Feasibility Study at this site.

If you have any questions regarding the enclosed comments, please contact me at (617) 918-1754 or at lombardo.ginny@epa.gov.

Sincerely,

Ginny Lombardo

Ginny Lombardo
Remedial Project Manager

Attachment

cc: Paul Kulpa, RI DEM
Cornelia Mueller, NAVSTA Newport
Stephen Parker, TtNUS
James Forrelli, TtNUS
Chau Vu, EPA
Bart Hoskins, EPA
Steve DiMattei, EPA
Todd Finlayson, Gannett Fleming

EPA Comments on
Draft Remedial Investigation for
Site 08, Navel Undersea Systems Center (NUSC) Disposal Area
Naval Station, Newport, RI
March 2009

General Comments:

1. Beneficial Reuse of Groundwater: EPA's expectations for addressing groundwater, as stated in the NCP, is to return usable groundwaters to their beneficial uses wherever practicable, within a time frame that is reasonable given the particular circumstances of the site. When restoration of groundwater is not practicable, EPA expects to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reductions. As such, the cleanup expectation for groundwater at the NUSC Disposal Area would be to achieve MCLs across the site. Therefore, the statements in the Draft Report referencing the potential use of Site groundwater as drinking water as an "uncertainty" that "may greatly over-estimate risk to potential future residents" should be deleted. In addition, the Draft Report discusses the RIDEM's state groundwater classification system, indicating that half of the NUSC Disposal Area site is in a "GA" area, classified as suitable for drinking water, and half of the area is classified as "GB", which is not suitable for drinking water without treatment. Note that RIDEM does not have an approved Comprehensive State Groundwater Protection Program (CSGWPP) and these state groundwater classifications do not change the NCP requirement to meet MCLs.

2. Geophysical Investigation of the Paved Storage Area: The geophysical investigation of the Paved Storage Area covered only approximately half of this area due to the presence of stored items that prevented a full investigation of these areas. Four anomolies that are potential buried objects were mapped in the Paved Open Storage Area. Page 2-13 indicates that test pits in the Paved Storage Area were not performed because it "would be logistically cumbersome, disruptive, and due to weather constraints." Page 8-2 indicates that the Navy did not further investigate these anomolies because they conclude from the RI data that "significant release of contamination has not occurred at any of the four anomolies." Although the latter position was not substantiated in the Draft Report, this position was detailed in a March 11, 2009 letter report, submitted by Tetra Tech, on behalf of the Navy entitled "Paved Open Storage Area Data Review." Considering the March 11, 2009 letter and the information presented in the Draft Report, EPA does not agree that the remedial investigation supports that no significant releases have occurred in this area. The Draft Report acknowledges that the Paved Storage Area covers earlier possible fill areas. In addition, monitoring well MW-02B is located within the Paved Open Storage Area and MW-103 is immediately downgradient of the Paved Open Storage Area and these two wells have the greatest arsenic in groundwater concentrations found at the site. In addition, a number of VOCs are consistently detected in groundwater downgradient of the Paved Storage Area. The presence of groundwater contamination, in conjunction with the known historical filling activities that occurred in these areas, indicates that a potentially significant contamination source may exist within either the Paved Open Storage Area or the Paved Gated Storage Area. In order to support a Feasibility Study, further investigation of these areas is

warranted. Remedial alternatives for the soils underlying these areas and for groundwater in and downgradient of these areas can not be adequately considered until the anomalies found in the Paved Open Storage Area are evaluated and geophysical and subsurface investigations are completed. The presence of the stored items should not prevent the Navy from conducting a complete investigation of potential areas of contamination.

3. Groundwater Contamination from Building 179: The Draft Report documents that Building 179, upgradient from the NUSC Disposal Area site, is a source of groundwater contamination. Building 179 is not currently regulated under the CERCLA FFA for Naval Station Newport. The Draft Report indicates that Building 179 contamination is responsible for 1,1,1-TCA groundwater contamination at the NUSC Disposal Area site. Please provide further details on the history of this site and the current status of cleanup actions at this site. EPA would like to discuss with the Navy whether the Building 179 site should be incorporated into the RI/FS for the NUSC Disposal Site or designated a separate Study Area under Paragraph 31 of the FFA.

4. TCE Plume: One significant domain of contamination at the site is defined by TCE in groundwater in the North Meadow area. The maximum observed TCE concentration is 730 ppb at MW-117B. Concentrations of like order of magnitude (maximum 350 ppb, DW01) are found in diffusion samples from water approaching the eastern shore of the pond. The report provides a conceptual model for this domain of contaminated groundwater (Page 5-20 – 5-21, Section 5.3.1.5), but the location of the source has not been identified. In addition, the body of impacted groundwater is not well constrained at depth. TCE is detected in three open bedrock borings, MW-117B, MW-03B, and MW-118B, the deepest of which (-118B) extends approximately to sea level (49 ft bgs). In order to support a Feasibility Study, it may be necessary to perform additional characterization to delineate the source of the trichloroethylene contamination found in groundwater and to determine the depth to which the TCE has been transported (perhaps at a point adjacent to, or downgradient of, MW-117B). One or more well clusters may be necessary to put some constraints on the vertical distribution of the TCE.

5. Building 185 Complex: A source of VOC contamination to groundwater is evident in the vicinity of the Building 185 complex. It is unclear whether an adequate investigation of the discharge areas for the drainage pipes from the Building 185 complex has been conducted. Tetra Tech discussed the work that they conducted within and around the Building 185 complex to identify source areas and identify the discharge areas, but these investigations do not appear to be adequately documented in the Draft Report. The history and historical use of the complex indicates that undocumented releases of hazardous contaminants have likely occurred from the complex, including but not limited to contaminants associated with Otto Fuel II. In order to support a Feasibility Study, a more thorough investigation of these areas, including discovery of the locations of all the drainage pipes and discharge locations, may be required. It is noted that petroleum odors were detected in the borings for MW-124B and -125B located immediately south and north of Building 185, Area 1. Petroleum odors and very high PID readings were also detected immediately east of the Building 185 complex. Chlorinated volatile organic compounds (VOCs) have also been detected in groundwater surrounding the building 185 complex. However, investigations of the known discharge

locations for Areas No. 1 and 4 were not conducted and no information relative to the discharge locations for Area No. 2 and 3 was provided.

6. Otto Fuel: It does not appear that soil and groundwater media were analyzed for Otto Fuel II components as required by the Work Plan. Please clarify. The text suggests on page 8-34 that analyses that would detect contaminants associated with Otto Fuel II was completed for groundwater from MW-124B, but Otto Fuel II components do not appear in the groundwater data table in Appendix F for this well.

7. 1,4 Dioxane: The investigation did not analyze for 1,4-dioxane in groundwater at any sampling point. This is a data gap, because the site lies downgradient of a release of 1,1,1-TCA, to which 1,4-dioxane was commonly added as a stabilizer. Because 1,4-dioxane is relatively soluble and sorbs relatively weakly in comparison to 1,1,1-TCA, it frequently "leads" the 1,1,1-TCA, and is found well downgradient of 1,1,1-TCA. Additional sampling and analysis is needed to characterize 1,4-dioxane. It is recommended that monitoring wells MW-07A/B, -101B, -103B, -104B, -105B, -04B, -122, and -03B be sampled and analyzed for 1,4-dioxane, as these appear to lie on groundwater flow paths that may lie downgradient of the 1,1,1-TCA release(s). Note that 1,4-Dioxane can be analyzed as a VOC, but requires a heated purge or can be analyzed by 8270 SIM.

Specific Comments:

1. Page 1-9, Section 1.4.1: The second full paragraph states that Area No. 2 of the Building 185 complex has the same approximate floor area and configuration as Area No. 1. However, Figure 1-5 does not appear to show Area No. 2 at a size equivalent to Area No. 1. Apparently Area No. 2 has been partially demolished, but the text does not discuss that or the condition of Area No. 2. Please provide additional discussion regarding Area No. 2.

2. Page 1-10, Section 1.4.1: This section indicates that the drainage from the storage areas in the Building 185 complex has been eliminated. Area 1 is currently used for storage of Otto Fuel II and chemicals. What is the current spill containment and stormwater drainage system for Area 1?

3. Page 1-10, Section1.4.1: In the first full paragraph, the reference to Areas 1 and 2 should be to Areas 1 and 3 according to Figure 1-5. Please review and correct.

4. Page 1-12, Section1.4.2: Please review and reconcile the second and third bullets – one reads "northeast" and one reads "northwest" but both appear to refer to the same area. In addition, edit the discussion of these aerial photographs to include observations relative to the existence of the Building 185 complex and the paved areas. Is a timeline available or determinable as to when these features were constructed?

5. Page 1-17, Section 1.5.2.4: This section references a monitoring well installed in the 1990's west of NUWC Pond. Does this well still exist? Is there monitoring data from this well that could be considered?

6. Page 1-20, Section1.5.2.5: Regarding the two suspect chemical disposal locations discussed in the first paragraph on this page, please edit a site figure to show these two locations.

7. Page 1-21, Section 1.5.2.6: Regarding the presence of the tar-like substance, it is not apparent from information in the report that this substance was sampled and analyzed. Please edit the document to clarify if it was sampled and what contaminants, if any, were found.

8. Page 1-21, Section 1.5.2.6: The last paragraph of this section indicates that post-excavation bottom and sidewall samples from the excavation of the Buried Container Area were not collected. What data does the Navy have on the levels of lead below the excavation limits? How will this be considered in the Feasibility Study?

9. Figure 1-8: Please edit this figure to include the areal extent of excavations associated with the removal of soil and concrete at Area No. 1 due to the documented Otto Fuel II release.

10. Page 2-9, Section 2.2: The VOC sample collection procedure described in the first full paragraph on this page appears to provide ample opportunity for loss of VOCs prior to sample collection. Please edit this discussion to provide any additional procedure details that would support the contention that representative VOC sediment samples were collected with minimal VOC loss.

11. Page 2-28, Section 2.4.4: Please correct the typo in the first sentence; May 5, 2009 should be May 5, 2008.

12. Page 2-37, Section 2.6.1: The first sentence is not complete (it appears as if the last word in the sentence is missing).

13. Figure 2-7: The last sentence of Note #9 (soil borings note) more appropriately belongs on Figure 2-5, because there are no soil boring locations shown on Figure 2-7.

14. Page 3-7, Section 3.2.2: This section refers to several Figures of geologic cross-sections completed for the site. No geological cross-section was presented for the Paved Open Storage area. To the extent possible with the limited data available for this area, please provide a geological cross-section of the Paved Open Storage Area.

15. Page 3-9, Section 3.2.2.1: The test indicates that TP-103 and TP-105 were terminated prematurely due to health and safety concerns and indicate that additional 55-gallon capacity drums likely exist in the South Meadow. The Draft Report discusses the South Meadow generally as a source area of contamination. However, the existence of these drums with black tar-like residue and potentially others, as noted, should be specifically evaluated as a source area for contamination.

16. Page 3-27, Section 3.3.2.5: The text in this section refers to Table 3-5 for information pertaining to the geometric mean hydraulic conductivities for various units, and to Table 3-6

for calculated groundwater velocities. These Tables appear as Tables 3-4 and 3-5, respectively. Please check for consistency of the references, and edit as indicated.

17. Page 3-31, Section 3.5: This section refers to French Stream and the Old Swamp River, which are surface water features at NAS South Weymouth. Please check and revise as necessary to describe features at Site 08.

18. Figures 3-10 and 3-11: These two figures present the groundwater potentiometric surface for two different times of the year in 2008, but they do not distinguish between overburden groundwater elevation and bedrock groundwater elevation. Please edit the figures to differentiate the contours (i.e., different colors) based on overburden and bedrock groundwater elevations.

19. Page 4-3, Section 4.1: In the 1st paragraph after the bullets, the text indicates that rejected results are reported as a number with a "R" qualifier. Rejected results should be reported with just the "R" qualifier and no number so that the result is not inadvertently used.

20. Page 4-9, Section 4.1.1.4: The last sentence in the paragraph under the table on this page is incomplete.

21. Page 4-49, Section 4.2.6: The text refers the reader to Tables 2-9a and 2-9b for field parameters recorded in conjunction with low-flow sampling. These tables are labeled 2-10 and 2-11 as they appear in the Tables section. Please check for consistency and edit as necessary.

22. Table 4-6: According to the surface soil data in Table 4-6, it does not appear that there were any duplicate samples collected. Please indicate how many duplicate samples were collected and show which samples had duplicates in Table 4-6.

23. Tables 4-10 and 4-11: There are no units (i.e. ug/L) associated with the analytical results.

24. Table 4-23: Please identify fish concentrations as dry weight or wet weight.

25. Figure 4-7: There appears to be an inconsistency in this figure based on the values in the tags versus the maximum value criterion used (510 µg/Kg), which appears to be incorrect. Most of the tag values exceed the criterion. Please also review the individual sample location colors, because at least two locations (SB110 and SB133) should have colored symbols if the maximum value is 282,900 (at SB 127) as it appears to be.

26. Figure 4-8: This figure indicates that the RIDEM screening criterion for ETPH is 500 mg/kg. For clarification, RIDEM's residential regulatory threshold for TPH is 500 mg/kg, which is composed of both gasoline and diesel range organics, not just ETPH. The document should make this clear. The same comment applies to Figure 4-20.

27. Figure 4-11: Please check the screening criterion value of 240 µg/kg. It should apparently be 220 µg/kg.

28. Page 5-11, Section 5.2.1: Please expand the discussion of the principal COCs at the site to include 1,1,1-TCA. Because this compound is found at upgradient interface and bedrock monitoring wells (e.g., MW-07A/B) at concentrations in exceedance of the MCL, and because it is likely the "parent" of 1,1-DCA (which *is* discussed in this section), its uses and general properties are relevant to the document.

29. Page 5-22, Section 5.3.1.8: The title of this subsection refers to DNAPL, but the discussion in the text only concerns LNAPL. Please check for consistency and edit as needed.

30. Page 5-26 – 5-28, Section 5.3.4: The section on the fate and transport of PCBs does not offer any discussion of potential source(s) of the compounds detected on the site. Is there any speculation with regard to site use, release scenarios, etc.? By what means might the PCBs have come to be present in "exposed subsurface" soils (Page 4-18, Section 4.1.3.4) at concentrations of the order of several mg/kg?

31. Page 5-30, Section 5.3.5: The text states, "... the distribution of metals in Site media suggests that their presence is largely not Site-related." This follows immediately after a good discussion of the sensitivity of metals mobility in groundwater to redox conditions. It should be noted here that, while the "presence" of As, Fe, and Mn may not be Site-related, to the extent that these elements are likely present naturally in the Site soil and bedrock, their concentrations in groundwater may very well be strongly influenced by site impacts. In particular, there is abundant evidence of release of organic compounds (e.g., petroleum hydrocarbons) at the site, which, in turn, may have driven the groundwater toward more reducing conditions due to microbial activity consuming electron acceptors in the process of breaking down the organics. In this sense, elevated metals may be considered a site impact.

32. Page 8-36, Section 8.5: The last paragraph identifies the unacceptable human health risk concerns to be addressed by the Feasibility Study. However, the ecological risk concerns need to also be itemized here.

33. Appendix G: This appendix was not included in the draft report. Please submit the data validation memoranda to EPA for review prior to the issuance of the Draft Final Report, so that these can be reviewed for adequacy.

Human Health Risk Assessment Comments:

General Comments:

1. The EPA regional screening levels, also referred to in the draft report as Oak Ridge National Laboratory (ORNL) screening levels, were updated in April 2009 and are posted on the EPA Region 3 website at http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm. Please confirm that the Draft Report reflects these updated screening levels.

2. Although it has been a practice of using 1/2 of the reporting limit as a proxy concentration for calculating EPC for non-detects, this practice is now discouraged for many disadvantages. The EPC calculations should be re-run using EPA's ProUCL version 4.00.04 software, which provides a module that replaces non-detect results with surrogate values based on the overall distribution of the data. The resulting EPCs might be different than if 1/2 of the reporting limit is used, depending on the data distribution. The latest ProUCL statistical software update is available at the following website: http://www.epa.gov/nerlesd1/tsc/TSC_form.htm.

Specific Comments:

1. Page ES-9, Section E.5: Please correct the summary of potential receptor groups to show current and future scenarios for industrial workers, adolescent trespassers, and recreational users. Please also discuss any adverse cancer effects to be anticipated or not via the vapor intrusion exposure pathway into indoor air from groundwater and soils.

2. Page 6-33, Section 6.2.4.10: Please update the IEUBK Model for lead to 2007, the most updated User's Guide. See http://www.epa.gov/superfund/lead/products/ugieubk32.pdf. Please check the EPA webpage from the Technical Review Workgroup for more recently updated guidance on lead. See http://www.epa.gov/superfund/lead/products.htm#user. To address periodic exposure of adolescent trespassers or workers to lead, please use EPA OSWER guidance in Assessing Intermittent or Variable Exposures at Lead Sites, EPA-540-R-03-008, OSWER #9285.7-76, November 2003. This guidance recommends the time-weighting approach when assessing intermittent exposures. See http://www.epa.gov/superfund/health/contaminants/lead/products/twa-final-nov2003.pdf. Please revise the risk calculation for the receptors with intermittent exposures to lead using this approach.

3. Page 6-38, Section 6.4.1: Please revise the sentence for the second equation as follows: "If the above equation resulted in an ILCR greater than 0.01, the following one-hit equation was used". After the equation, please add this sentence: "This equation is consistent with the linear low-dose model." Please correct the two equations at the bottom of this page as follows: "HQ = (Estimated Exposure Intake) / RfD" and "HQ = (Exposure Concentration) / RfC."

4. Page 6-39, Section 6.4.2: The risk management discussion in the last paragraph on this page should not be included in the RI report.

5. Section 6.4.3.7: Please revise the discussion on risks from lead to reflect the revised calculation for intermittent exposures using the time-weighting approach as mentioned in the comment above for Section 6.2.4.10. With the revised calculation, the risk from exposure to lead for hypothetical resident, recreational users, worker, or adolescent trespassers might be of concern.

6. Page 6-59, Section 6.6: Please use the equations in RAGS B to calculate the site-specific preliminary remedial goals (PRGs). Although the equation presented on page 6-59 would result in the same values, it does not show the specific parameters used to get those values.

7. Table 6-13: EPA requires use of toxicity values from California EPA for tetrachloroethene (PCE) and trichloroethene (TCE) for COPC screening and risk calculation. This is consistent with the 2003 EPA OSWER Directive 9285.7-53 regarding human health toxicity values to use CalEPA toxicity values as peer-reviewed Tier 3 values in risk assessment. See http://rais.ornl.gov/homepage/hhmemo.pdf. Using these values, the target vapor intrusion overburden bedrock groundwater screening values would be 0.55 µg/L and 2.89 µg/L for PCE and TCE, respectively. Please revise the values in the table.

8. Table 6-15: Please revise the target vapor intrusion bedrock groundwater screening toxicity values for ethylbenzene, PCE, TCE, and vinyl chloride to 3.04 µg/L, 0.55 µg/L, 2.89 µg/L, and 0.5 µg/L, respectively. CalEPA toxicity values are used to calculate the screening values for ethylbenzene, PCE, and TCE. For vinyl chloride, the screening values are calculated based on toxicity values representing continuous lifetime exposure during adulthood. These values are suggested to use in risk assessment to address both oral and inhalation routes of exposure. The reason being is that the "continuous exposure from birth" toxicity values are only relevant to exposures that are for a full lifetime or 70 years. Since the exposure duration characteristic of most CERCLA risk evaluation is typically 30 years or less, it is more appropriate to use the "continuous lifetime exposure during adulthood" values.

9. Table 6-20: Please revise this table to reflect the "Quantitative" analysis for the following scenarios: Adolescent trespassers: dermal contact with surface water; Adult trespassers: ingestion of & dermal contact with sediment; and Child/adult recreational users: ingestion of fish. This revision will also be consistent with Table 6-21.

10. Table 6-25: The values provided in the table accurately reflect the values in RAGS E but there are a couple points that need to be clarified. Please clarify how the Dermal Absorption Fraction was used for chemicals with NA or zero in the column. In addition, most of the values listed for PAHs are NA. RAGS E provides values for all the parameters in this table for PAHs. Please explain why these values were not included in this table.

11. Table 6-27: The values in this table accurately reflect those recommended in EPA (2002 and 2009). It should be noted, however, that site-specific foc values have been measured at the NUSC Site. A site-specific foc for surface soil of 0.029 was used to calculate earthworm BAFs in the ecological risk assessment. Please explain why a site-specific foc was not used to calculate the volatilization factor.

Ecological Risk Assessment Comments:

General Comments:

1. EPA does not agree with the Navy's interpretation of toxicity tests, in this case earthworm and sediment toxicity tests. The "80% survival rule" that no significant risk is indicated if there is 80% survival in a site sample seems to remove the possibility of a growth endpoint, and it eliminates the ability to set a dose-response from non-lethal to lethal endpoints. EPA's approach, as spelled out in the various EPA toxicity testing manuals, is to statistically compare site sample results for survival against the reference. If there is a statistical difference, there is an effect. If there is a survival effect, there is no need to look for a growth effect. For samples without a survival effect, compare growth of site samples against the reference. If there is a significant difference, there is an effect. EPA is fairly certain that no agreement was made with the Navy that growth effects would not be considered in a sample with 80% survival.

2. EPA has pointed out previously that straight regression analysis is unlikely to give any clear association between site contaminants and toxicity in situations with multiple contaminants and few samples. There are simply too many variables. A more sophisticated statistical approach is warranted to tease out associations. The Navy should consider conducting some other statistical analysis, such as principal component analysis or other multivariate analysis here.

3. The risk to aquatic organisms should be revised to include a comparison of measured fish tissue concentrations to Critical Body Residue (CBR) values for fish. This should be done whenever fish data are available to measure risk to fish based on their body burden.

Specific Comments:

1. Page 7-2, Section 7.2.2: Please add the depth of the pond, in order to better understand potential exposure to sediment.

2. Page 7-4, Section 7.3.1: Please clarify whether water benchmarks were adjusted for hardness.

3. Section 7.3.4.1: Metals benchmark comparisons should be summarized here.

4. Page 7-10, Section 7.3.4.3: The fourth bullet states that 16 inorganics were retained as-COPCs. Table 7-8 has only 15 inorganic COPCs identified. Please correct the text.

5. Page 7-10, Section 7.3.4.4: The potential effects of PAHs would be better understood for wildlife if HMW PAHs, LMW PAHs, and total PAHs were evaluated in the food chain models. Benchmark screening identified these chemical groups as COPCs, TRVs are presented for these groups, and a BAF is provided for total PAHs. Uptake and HQs, however, were not calculated for the wildlife receptors. Please add them to the food chain models. In addition, please explain why TPH, GRO, and DRO were not evaluated in the

food chain models. Potentially, sufficient information does not exist to model these parameters. If so, explain that in the report.

6. Page 7-11 – 7-12, Section 7.4.1: The evaluation of potential risk to plants is supported by a qualitative argument that plants appear to be healthy and that there is dense plant growth on-site. EPA observed a dense growth of plants on site, however, many are invasive species typical of disturbed and/or degraded sites. In addition, the argument that chemicals are less available in the field than in the laboratory is peculiar, and would suggest that no laboratory-derived benchmarks are valid. Please provide a more robust argument for not evaluating toxicity to plants further.

7. Page 7-13, Section 7.4.2.1: The elimination of carbazole and dibenzofuran is premature at this stage of the risk assessment.

8. Section 7.4.2.2: As discussed in the Ecological Risk Assessment General Comment 1 above, EPA does not agree with the interpretation of toxicity test results presented by the Navy. It appears that effects based on PAH concentrations may be underestimated using Navy methods.

9. Page 7-37, Section 7.4.5: The fish tissue sample size may not be adequate to confidently estimate the dietary uptake of COPC for piscivorous wildlife. The Work Plan proposed three composite fish tissue whole body samples for the pond, but only two were collected, so the data need identified in the Work Plan was not met. Please include the numbers of fish collected for each composite as well as the sizes of the individual fish collected, so that the adequacy of the composite samples can be better understood. Based on a review of this information, it may be necessary to consider literature BCFs and/or filet data from other fish collected at the site. The filet data had significantly higher concentrations of some COPCs (e.g., DDx, PCBs, and mercury), which is an indication that the whole body data may not provide an adequately protective look at potential risk.

10. Page 7-38, Section 7.4.5: Aluminum and iron were eliminated as risk drivers for the robin and shrew based on comparisons to background. Because the statistical comparisons to background do not clearly show that aluminum and iron are not site related, additional arguments should be provided in the test. For aluminum, please include a statement that the form of aluminum generally found in nature is less toxic than the forms used in toxicity tests (see the Eco SSL document for aluminum). For iron, please add a statement about iron being an essential nutrient.

11. Page 7-38, Section 7.4.5: The last sentence of the third paragraph states: "Therefore, risk to mammals and birds from these metals are possible." Please change this to "unacceptable risk" to distinguish these COPC from others for which risk is also possible.

12. Page 7-40, Section 7.4.5: The text indicates that the mink would likely obtain less than 25 percent of its food from the NUSC pond, as the home range is 35 acres and the acreage of the pond is 1-2 acres. Similarly, the heron would obtain less than 20% of its food from the NUSC Pond. The result is that calculated HQs would be lower. Because it is possible that

the mink and heron would forage in the pond disproportionately if the surrounding habitat is not good, the argument should be enhanced with a description of suitable habitat for mink and heron in areas surrounding the NUSC pond.

13. Table 7-1: EPA uses both central tendency (mean) and reasonable maximum (95% UCL) risk calculations in a BERA to better define and characterize risk. Use of average alone does not provide an upper bound or a sense of the overall data distribution with respect to risk.

14. Table 7-3: EPA has toxicity thresholds for AVS/SEM that can be used in this table to evaluate the AVS/SEM data.

15. Table 7-5: Selection of 1% incidental soil ingestion for the shrew is not conservative, given a range of 0.9 to 3.0. Please use an average of these values.

16. Table 7-6: According to Table 7-6, 22 surface water samples were collected. Table 4-18, however, only presents surface water data for 14 samples. Please clarify where the data for the other 8 samples are so that the summary statistics can be confirmed.

17. Table7-7: There appears to be a slight discrepancy in the sediment data presented in Section 4 (Tables 4-20 and 4-21) and the data summarized in Table 7-7. The data in Tables 4-20 and 4-21 showed that for benzo(a)pyrene, for example, the frequency of detection should be 24/28, not 22/26, and the average concentration should be 556 ug/kg, not 575 ug/kg. These seem to be minor differences but the apparent discrepancy should be explained.

18. Table 7-12: The listed plant and invertebrate benchmark for 4,4'-DDT, 4,4'-DDE, and total DDD/DDE/DDT is 12,000 ug/kg, citing the Canadian Soil Quality Guidelines for Plants and Invertebrates. Please provide a reference for this information. According to the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CCME 2006), 12,000 ug/kg is the screening value for commercial and industrial land use. A value of 0.7 ug/kg is provided for agricultural and residential/parkland uses. The Navy should consider using these CCME screening values and discuss the appropriateness of these values in the text. Also, please clarify where the soil and plant benchmarks for mercury originated. Finally, the footnotes say that Appendix F has background information for soil/plants, however this information is not present in Appendix F.

19. Tables 7-13 to 7-17: Please indicate if survival and growth are statistically different from reference. It is often helpful to list chemicals exceeding screening benchmarks below a list of toxic samples to help identify potential risk drivers. Table 7-17 requires more information.

20. Figure 7-2: Please add a mark to the surface water ingestion box for invertevorous birds and mammals to be consistent with the measurement endpoints for that receptor group.

21. Appendix I: In the table of NOAEL and LOAEL TRVs for terrestrial wildlife, no avian TRVs are provided for bis(2-thylhexyl)phthalate. Values are provided, however, in Sample at al. (1996) (1.11 mg/kg-d and 11.1 mg/kg-d). Please add these values to the table.