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U S NAVY RESPONSE TO REGULATOR COMMENTS TO DRAFT FEASIBILITY STUDY REPORT OPERABLE UNIT 7 (OU7) WITH TRANSMITTAL NSY PORTSMOUTH ME
10/25/2012
TETRA TECH

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PITT-10-12-056

October 25, 2012

Project Number 112G02100

Mr. Matthew Audet
USEPA, Region 1
5 Post Office Square
Suite 100
Mail Code OSRR07-3
Boston, Massachusetts 02109-3912

Mr. Iver McLeod
Maine Department of Environmental Protection
State House Station 17
Augusta, Maine 04333-0017

Reference: Contract No. N62470-08-D-1001 (CLEAN)
Contract Task Order No. WE13

Subject: Responses to Comments on the Draft Feasibility Study Report for Operable Unit 7
Portsmouth Naval Shipyard (PNS), Kittery, Maine

Dear Mr. Audet/Mr. McLeod:

On behalf of the U.S. Navy, Tetra Tech, Inc. is pleased to provide to U.S. Environmental Protection Agency Region I (USEPA) and Maine Department of Environmental Protection (MEDEP) 2 and 3 copies, respectively, of the subject responses to comments dated August 14, 2012 (USEPA) and July 31, 2012 (MEDEP). An electronic copy is being provided via email.

In accordance with the project schedule, comments are due by **November 23, 2012**.

If you have any comments or questions, or if additional information is required, please contact Ms. Elizabeth Middleton at 757.341.1985.

For the Community Restoration Advisory Board (RAB) members; if you have any comments or questions on these issues, they can be provided to the Navy at a RAB meeting, by calling the Public Affairs office at 207.438.1140 or by writing to:

Portsmouth Naval Shipyard
Public Affairs Office
Attn: Danna Eddy
Portsmouth, NH 03804-5000

Sincerely,

Deborah J. Cohen, P.E.
Project Manager

DJC/clm
Enclosure

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RESPONSES TO USEPA COMMENTS DATED AUGUST 14, 2012
DRAFT OPERABLE UNIT 7 FEASIBLITY STUDY
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

General Comments

The dioxin PRGs for workers and residents are based on outdated OSWER soil guidance for dioxin. The new PRGs are 664 ng/kg for workers and 50 ng/kg for residents. The PRGs on Table 2-4 of the draft FS are 0.02 mg/kg (20,000 ng/kg) for workers and 0.001 mg/kg (1,000 ng/kg) for residents. Thus the new PRGs are 20 times lower for residents and 30 times lower for workers. The new PRGs are found at question no. 3 at http://epa.gov/superfund/health/contaminants/dioxin/dioxinsoil.html. Please revise as appropriate, also the dioxin reference on page 5 of Appendix 5-1, Table 5-1.

Navy has discussed the fact that the area around former building 237 was evaluated separately because there were statistically different contaminant concentrations in those samples as compared to the rest of OU7. It is not apparent how Navy performed the 95% UCL calculations that determined the exposure point calculations. Please confirm that the exposure point concentrations presented for OU7 do not include samples located in the area around former Building 237.

Response: As discussed during the October 16, 2012 Remedial Project Manager (RPM) call, the Navy will use USEPA's updated (February 2012) reference dose (RfD) for 2,3,7,8-TCDD to calculate a site-specific non-carcinogenic risk-based preliminary remediation goal (PRG) for dioxins/furans [based on 2,3,7,8-TCDD toxicity equivalent quotient (TEQ) concentrations]. The Navy requests that USEPA provide written assurance that the OU7 cleanup goal for dioxins/furans and the selected remedy for OU7 will not need to be revised if a cancer toxicity value (slope factor) for 2,3,7,8-TCDD is established in the future.

OU7 site-specific exposure factors will be used to calculate the non-carcinogenic risk-based PRG for OU7. Preliminary calculations indicate that the OU7 dioxin/furan PRGs (based on 2,3,7,8-TCDD TEQ and a hazard index of 1) for residential and industrial worker will be approximately 50 ng/kg and 600 ng/kg, respectively. Section 2.0 and Appendix A will be revised as appropriate to reflect removal of the OSWER soil guidance and inclusion of a risk-based PRG for dioxins/furans. Please also see the Navy's response to MEDEP Comment No. 5 regarding other changes to the PRGs.

Exposure point concentrations (EPCs) presented in the FS are the entire site soil EPCs from the Remedial Investigation (RI) Report (Tetra Tech, July 2011). The sample locations from the area around former Building 237 were included in these calculations. The FS will be updated to include EPCs for the entire site, for the area around former Building 237, and for the site without the samples from the area around former Building 237.

Specific Comments

1. **Comment: Page ES-2, Executive Summary:** The partial paragraph at the top of the page states that only small pockets of waste have been detected at OU7 so it is not considered a landfill. Review of Figure 4-1 in the Remedial Investigation Report indicates that almost all borings in the fill since 1925 as well as the area of the timber basin contain waste and those areas comprise the majority of OU7. The alternatives presented would leave contamination in place at concentrations that far exceed unrestricted use standards, and as noted in the text,

groundwater transport is a potential migration pathway. Groundwater monitoring would therefore be required for OU7 to assure that contaminants are not migrating from the site. The alternatives presented need to be revised to include groundwater monitoring at the perimeter of the waste management area boundary.

Response: The conceptual site model (CSM) discussed on Page ES-2, and further discussed in Section 1.7, is based on the conclusions provided in the RI Report for OU7 (Tetra Tech, July, 2011) (see Section 1.6 for a summary of the RI Report). Results of the RI do not support that there is municipal or industrial waste at OU7 or that the contaminants in the fill material are of a nature that are releasing or would result in a future release of contaminants that would adversely impact groundwater. The CSM acknowledges that groundwater transport is a potential migration pathway; however, the risk and modeling results show that this pathway is not a current or future pathway of concern. As discussed further in this response, the site was filled over 50 years ago, mostly with rock and soil, and the fill material and contaminants found in the fill would not result in any new or sudden contaminant releases that would adversely impact groundwater. The three rounds of groundwater monitoring conducted between 1998 and 2008 and contaminant fate and transport modeling for OU7 support that there are no current or future unacceptable risks for exposure to groundwater or for migration of groundwater to the offshore. Given the age and conditions at the site and the groundwater monitoring and modeling results, there are no current or future risks for groundwater and groundwater monitoring is not required for any remedial alternative for OU7. Therefore, the alternatives in the FS will not be revised to include groundwater monitoring. The text discussing the summary of the RI Report (Section 1.6) and CSM (Section 1.7) will be revised to provide more support for the conclusion that groundwater migration is not a pathway of concern.

OU7 is an area that was filled with various materials from approximately 1900 to 1945 to provide land to support PNS operations. The area was a mudflat and the entire OU7 area is tidally influenced with the majority of fill material in the tidally saturated or saturated zone.

Boring logs and cross-sections provided in the RI Report do not indicate municipal or industrial waste in the fill material at OU7. Figure 4-1 of the RI Report indicates whether any debris or waste was found in the boring. Waste at OU7, as referenced in the RI Report, was considered where there was a pocket of concentrated debris (debris material with little soil). Debris includes slag, ash, metal, cinders, coal clinkers, wood, plastic, glass, concrete, porcelain, and brick, depending on the location at the site. As discussed in the RI and summarized in Section 1.6.1.5 of the FS Report, the fill material consists of surface fill consisting principally of sand with gravel, angular rock fragments, and silt. Debris was found throughout the site intermingled with the surface fill. And there were a few localized pockets of waste (concentrated debris) in the central portion of the site. By volume, the majority of the fill material consists of angular rock fragments composed of dark gray, fine grained quartzite. Site cross-sections (Figure 3-2 of the RI), show areas referred to as surface fill which contained no debris; areas referred to as surface fill with debris which contained primarily surface fill by volume, with some occasional debris; and areas referred to as waste which contained debris with no soil material. As shown in the cross-section figures the amount of waste (concentrated debris) and surface fill with debris is negligible by volume compared to the volume of surface fill.

The site has been used for industrial uses since filling began; however, concentrations do not support that there is high-level contamination across the site. Concentrations of some chemicals in the fill material (mostly subsurface soil) across most of the site exceed residential risk levels and therefore, most of the site is included within the proposed residential LUCs boundary. Within the former timber basin, there is an area with elevated concentrations of total

polychlorinated biphenyls PCBs (based on total Aroclor concentrations) and dioxins/furans (based on 2,3,7,8-TCDD TEQ). This is the area near sample locations TP-SB27, TP-SB112 and TP-SB14/TPSB108. Concentrations of PCBs and dioxins/furans exceeded the industrial PRGs in this elevated contaminant area. Outside of this area at OU7 concentrations of PCBs and dioxins/furans were at acceptable levels. PCB concentrations (based on total Aroclors) and dioxins/furans concentrations (based on 2,3,7,8-TCDD TEQ) outside of the elevated contaminant concentration area ranged from approximately 0.05 to 2.6 mg/kg (industrial worker PRG is 7.4 mg/kg) and approximately 0.2 to 34 ng/kg (industrial worker PRG will be approximately 600 ng/kg), respectively. These concentrations are also less than the residential PRGs. PCBs and dioxins/furans do not tend to migrate in groundwater and have not been detected in groundwater or offshore media at unacceptable concentrations.

Three rounds of groundwater data were collected from 1998 to 2008 to evaluate groundwater concentrations at OU7. Site overburden groundwater data indicate that inorganics and organic chemicals are not leaching from soil to groundwater at concentrations that would adversely impact human health or the environment. This is supported by the risk assessment and contaminant fate and transport modeling for OU7 presented in the RI Report. For the risk assessment, there were no human health chemicals of concern (COCs) for OU7 groundwater or surface water. Concentrations of chemicals in groundwater also were less than screening levels for potential to adversely impact surface water when groundwater migrates from the site to near-shore surface water. Regarding groundwater transport of contamination, as summarized in Section 1.6.3 of the FS Report and further discussed in the RI Report, contaminant fate and transport modeling was performed to conservatively estimate potential impacts from migration of contamination from soil to groundwater and then to intertidal sediment and near-shore surface water. The modeling assumed the pavement at OU7 was removed; that the amount of infiltrating precipitation coming in contact with soil would be greatly increased compared to current conditions; and that the overall groundwater flow conditions and contributions from storm water sewer discharge would not change significantly in the future (i.e., fill material at the site will still be in contact with water). The modeling results using unsteady state and steady state parameters indicate that surface water is not and would not in the future be adversely impacted by onshore sources of contamination. Using unsteady state parameters, the modeling conservatively indicates that sediment may potentially be impacted through the onshore migration of metals contamination through groundwater. Observed concentrations of metals in sediment are orders of magnitude less than the modeled results and do not indicate groundwater migration is adversely impacting sediment. In summary, the RI concluded that groundwater, surface water, sediment, and soil data for OU7, and modeling conclusions show that the migration of contaminants in groundwater from OU7 to the offshore does not pose a current risk and would not pose a future risk.

2. **Comment: Page 1-7, Section 1.6:** The mean high water elevation in NAVD 1988 is said to be 3.58 feet; however, this value appears inconsistent with the mean high water elevation presented in the remedial design for OU2.

Response: The text will be corrected to indicate that the 2002 PNS vertical datum relates 0 in NAVD 1988 to 96.78 feet (Civil Consultants, 2002). Regarding the mean high and low water elevations, these were updated in the Remedial Action Design for OU2. As part of the remedial design, data for the NOAA Seavey Island Tidal Station (Station ID 8419870) were evaluated to determine whether the mean high and low water elevations had been updated based on the recent NOAA tidal epoch (1983 to 2001). The last NOAA tidal epoch was from 1960 to 1978, which had a mean low water elevation of 92.22 feet and a mean high water elevation of 100.36

feet 2002 PNS vertical datum. As provided in the remedial design, using the 1983 to 2001 tidal epoch data for the Seavey Island Tidal Station, the updated elevations are 92.47 and 100.58 feet PNS 2002 vertical datum for mean low and mean high water elevations, respectively. Mean high and low water elevations presented in the FS will be updated to reflect the 1983 to 2001 tidal epoch.

3. **Comment: Page 1-15, Section 1.6.4:** The first sentence on this page refers to residents and occupational workers as future receptors due to the existence of pavement over the site. In the absence of current LUCs, please revise the text accordingly to identify current receptors to accessible soil.

   Response: The text in Section 1.6.4 is a summary of the RI Report (Tetra Tech, July 2011) and no changes to the site have occurred that would change the exposure for current receptors. Although occupational workers currently use the site, the majority of the site is covered by pavement and areas that are not covered by pavement are covered by grass or riprap; therefore, occupational worker exposure to soil is not a current exposure route. Residents are not current receptors at the site. H23 is a temporary housing unit and is surrounded by paved parking areas to the north, east, and west and a grass covered area with trees to the south; therefore, there would not be exposure to soil for these receptors and any future potential exposure would be more similar to an occupational worker or recreational user than a resident. Therefore, for exposure to soil in the RI, the occupational worker and recreational user were only evaluated for future potential exposure. Presenting residents and occupational workers as current receptors exposed to soil would provide an unrealistic impression that these receptors are being exposed to soil at the site. Table 1-2 and the text following will be clarified to indicate that although current site users, there is no current exposure to soil for occupational workers and recreational users.

4. **Comment: Page 1-17, Section 1.6.5:** The first sentence states that the boundary for OU7 is defined by the historical fill lines. There are several unpaved areas adjacent to the perimeter of the boundary and some samples with PRG exceedances are located in those areas. The final boundary for the proposed LUCs cannot be established without confirmation that the extent of the LUC boundary is adequate and protective.

   Response: Section 1.6.5 of the FS Report is a summary of the conclusions in the RI Report, which concluded that the site boundary for OU7 is defined by the historical fill lines. Within this boundary the Navy accepts that contamination is more likely from a CERCLA release or historically filling of the site than from general industrial use such as railroads or roadways. The Navy will use the limits of potentially unacceptable residential risk as shown on Figure 2-1 for the residential LUCs boundary and will not include adjacent areas within this LUCs boundary. Outside of this boundary is considered under Shipyard control and Shipyard land use and procedures for management of excavated soil are in place to provide any protection needed for any area outside of OU7.

5. **Comment: Tables 2.1, 2.2, 2.3:** EPA has not completed its review of ARARs at this time.

   Response: No response required.

6. **Comment: Page 2-12, Table 2-4:** a) Please correct the typographical error for the PRG listed for iron; the value should be 27,000 not 2,700.

   b) Table note 2 states that the construction and occupational workers are evaluated together and have the same PRGs. A construction worker will have significantly greater exposure to soil

than an occupational worker so it is unclear why Navy would group these two receptors together.

Response: a) The PRG listed for iron will be corrected to 27,000 mg/kg to match the value listed in Appendix A.1

b) Construction and occupational workers were evaluated together as an industrial worker for PRG selection to simplify the determination of remedial areas. Risk-based construction and occupational worker PRGs were developed separately as shown in Appendix A-1 of the FS. The lesser of the calculated PRG between the construction worker and occupational worker was presented as the Industrial Worker PRG on Table 2-4 of the FS.

7. **Comment: Figure 2-1:** This figure shows the limits of potentially unacceptable risk for residential receptors and indicates that the filled area in the vicinity of former Building 237 is not included. The last sentence on page 1-15 states that risk was only evaluated for construction workers for the former Building 237 area. If that statement is correct please clarify how Navy determined that there is no potential risk in this area for residential receptors.

   Response: The last sentence on page 1-15 will be deleted. In the Risk Characterization Section of the RI Report, risk was only evaluated for construction workers for the former Building 237 area. Risks for all other receptors for the former Building 237 area were evaluated in the Uncertainty Section of the RI Report.

8. **Comment: Table 3-1:** Signs, identified as active controls in Table 3-2, will be required to identify the existence of the LUCs. Please reconcile.

   Response: The screening comment for the active controls in Table 3-2 will be corrected to "Eliminate" because active controls are not necessary to prevent current site users from exposure to subsurface contamination at the site. Consistent with LUCs for other sites, passive controls such as mapping the LUC boundary on Shipyard land use maps and other land use restrictions are required.

9. **Comment: Table 3-2:** Please revise the screening comment for *Asphalt Cover*. Groundwater monitoring will determine if contaminant migration is a concern. Make the same correction for *Cap*.

   Response: The screening comment for Asphalt Cover will be corrected to "Eliminate" because a cover is not required to prevent current or future exposure to surface soil based on industrial site use and migration of soil contaminants to groundwater is not a current or future concern for the site. The screening criteria for Cap will be revised to read similarly. As provided in the RI Report (see Section 7.2.1), groundwater, surface water, sediment, and soil data from OU7 and modeling conclusions show that migration of contaminants in groundwater from OU7 to the offshore does not pose a current risk and would not pose a future risk; therefore, groundwater monitoring will not be included as a component of any of the remedial alternatives. Please also see the Navy's response to USEPA Comment No. 1 regarding groundwater.

10. **Comment: Page 4-6, Section 4.2.1.2:** The paragraph at the top of the page states that there are no location-specific ARARs for Alternative 1; that is not correct (see Table B-1). Please delete "location- or" from the sentence.

    Response: The text in Section 4.2.1.2 is correct, there are no location-specific ARARs for Alternative 1 (No Action). The location-specific ARARs listed on Table B-1 pertain to remedial activities such as excavation that could occur in the locations specified in the ARARs (e.g.,

coastal area, floodplain). There are no remedial activities considered for the No Action Alternative. Therefore Table B-1 will be updated to remove the location-specific ARARS and no change is needed for Section 4.2.1.2 regarding location-specific ARARs.

11. **Comment: Page 4-10, Section 4.2.3.2:** The text states that with the removal of the two hot spots the risk for industrial exposure to subsurface soil would be reduced to acceptable levels. This is only true considering average subsurface soil concentrations but construction worker exposure does not actually occur at average concentrations but at specific locations. Because there are many locations where elevated levels of contamination will be left in place in excess of risk-based levels for construction workers, a land use restriction must be implemented over these areas to adequately protect construction workers. Based on the areal extent of sampling construction worker LUCs are probably needed over most of OU7.

    Response: Exposure does not occur at average concentrations but it also does not occur at one specific sampling location only. Exposure occurs over areas referred to as exposure units. Risk assessment guidance was written to conservatively account for receptor exposures by utilizing 95 percent upper confidence limits (UCLs) on the mean concentration of chemicals of potential concern (COPC) over an exposure unit. The 95 percent UCL is greater than the average concentration. The exposure unit for the construction worker was defined in Section 6.0 of the RI Report as the entire site; therefore, risks were calculated based on 95 percent UCLs for COPCs based on data sets for the entire site (except for lead which is based on an average concentration). Based on the risk assessment, the COCs that pose a potential risk for construction workers are dioxins/furans and PCBs. Industrial PRGs were developed for these COCs. Review of the individual sample results for dioxins/furans (based on 2,3,7,8-TCDD TEQ) and total PCBs shows that elevated concentrations of these COCs only occur in the two areas within the former timber basin, and not at many locations. The areal extent of sampling supports that LUCs are not necessary over most of OU7 to protect construction workers; however, LUCs for residential use would be required for most of OU7. Additional clarification of the elevated concentrations of contamination in the former timber basin will be added to the discussion in the FS (e.g., Section 2).

    The specific individual sample results that exceed the risk-based PRG levels for the construction worker are at the three locations included in the limited excavation area provided in Alternative 3. These exceedances were dioxins/furans (based on 2,3,7,8-TCDD TEQ) at TP-SB27 (1.7 µg/kg),, and total PCB concentrations at TP-SB112 (19.1 mg/kg), TP-SB14 (21.5 and 44.4 mg/kg), and TP-SB108 (41.1 mg/kg). There were no other exceedances of the risk-based PRG levels for dioxins/furans and PCBs; therefore, after excavation of the elevated contaminant concentrations in the two areas within the former timber basin, no further LUCs for industrial use are necessary to protect construction workers from exposure to subsurface soil. For Alternative 2, LUCs for industrial use are only needed in the two areas identified in the former timber basin. Figure A-3 shows the two areas with elevated dioxins/furans and PCB concentrations and the industrial receptor PRG exceedances for total PCBs. This figure will be revised to show the exceedance of the dioxins/furans PRG (at TP-SB27) based on the update that will be made to the dioxins/furans PRG..

12. **Comment: Figure 4-1:** The industrial LUC boundary presented in this figure would not be protective of construction workers because these workers would be exposed to location-specific contaminant concentrations not average site-wide concentrations. Navy probably needs a construction worker LUC over most if not all of OU7 to restrict access to soil. The same comment also applies to Figure 4-2 for Alternative 3.

Response: Please see the Navy's response to USEPA Comment No. 11. No change to Figures 4-1 and Figures 4-2 are required based on this comment.

13. **Comment: Figure 4-2:** EPA notes that the residential building (H23) is located within the boundary defining potentially unacceptable residential risk where a residential LUC will be imposed. Please clarify how this will be addressed going forward and whether additional sampling in a pre-design investigation will be needed to remove Building H23 from the residential LUC area.

    Response: H23 is temporary housing (transient barracks) used to house transient Navy personnel and is not a military or long-term residence. Therefore, the transient Navy personnel housed in H23 are not evaluated using a residential exposure scenario. No additional sampling would be required in a pre-design investigation and H23 will remain in the residential LUC area. Please also see the Navy's response to USEPA Comment No. 3 regarding H23.

14. **Comment: Page 5-1, Table 5-1:** Please correct the ARARs evaluation for Alternative 1; it would not comply with all ARARs.

    Response: Table 5-1 will be updated for Alternative 1 to indicate that there are no chemical-, location-, or action-specific ARARs and that chemical-specific TBCs would not be met. This change will also be made to Section 4 text related to Alternative 1.

15. **Comment: Appendix A.1 Page 5:** The dioxin reference cited is outdated and needs to be removed for the FS together with the PRGs cited in this reference.

    Response: The cited OSWER reference will be removed and PRGs for dioxins/furans will be updated. Please see the Navy's response to USEPA General Comment for the update to the dioxins/furans PRGs.

16. **Comment: Appendix A.1 Figure A-1:** Boring TP-SB120 at the western extent of OU7 had a lead concentration of 3,980 mg/kg in surface soil in an unpaved area. No other samples have apparently been collected farther to the west to define the limits of this contamination in the unpaved or paved areas. It is not appropriate to limit the extent of LUCs here and elsewhere as depicted without further confirmation that the limits of unacceptable contaminant concentrations have been defined.

    Response: As stated in the nature and extent section of the RI, "TP-SB120 has detected concentrations of total PCBs, lead, and PAHs in excess of risk-based screening levels TP-SB120 is located near Goodrich Avenue and the railroad tracks, and the elevated concentrations of total PCBs, lead, and total carcinogenic PAHs could be related to use of Goodrich Avenue and the railroad tracks." Therefore it is assumed that elevated lead concentrations at TP-SB120 (611 mg/kg in the original sample and 3,980 mg/kg in the duplicate sample) are not related to any site sources including the historical filling of the site or timber basin activities so the OU7 boundary will not be impacted by these results. Please also see the Navy's response to USEPA Comment No. 4 regarding site boundary.

17. **No comment was provided.**

18. **Comment: Appendix C:** Alternative 2 nor Alternative 3 includes costs for maintaining and repairing the pavement surface; however, the description of the required LUCs for both alternatives includes retaining the existing site features to prevent exposure to soil and the surface migration of soil contaminants. Therefore, maintenance and repair of the pavement will be required regularly over the life of the remedy and costs need to be included for this work.

Response: There are no current or future unacceptable risks due to surface soil exposure for current receptors and there are only potential unacceptable risks for exposure to surface soil for the hypothetical future residents. LUCs in Alternatives 2 and 3 restrict residential use of the site so that there is no need to maintain or repair pavement to prevent exposure to soil at OU7. Therefore, costs for long-term maintenance and repair of pavement do not need to be included in the costs for Alternatives 2 and 3. Maintenance of existing conditions in the alternatives is to maintain the shoreline erosion controls to prevent potential future erosion of contaminated soil to the offshore. The text in Section 4 will be revised to clarify that long-term management in these two alternatives is for the shoreline controls.

19. **Comment: Appendix D Page 2 of 3:** Please correct the volumes at the bottom of the page for consistency. 6 cubic yards should apparently be 3 cubic yards and 19 cubic yards should apparently be 14 cubic yards.

Response: An assumed larger area for pavement replacement than pavement removal was used to calculate the volume of asphalt because of possible damage to surrounding areas during excavation.

RESPONSES TO MEDEP COMMENTS DATED JULY 31, 2012
DRAFT OPERABLE UNIT 7 FEASIBLITY STUDY
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

Specific Comments

1. **Comment: Fig. 1-3.** This and other figures have a balloon indicating the filled area near the former Building 237. For clarification refer to section 1.6.2 and/or App. A.2 in the balloon wherever it occurs.

   Response: Text boxes in figures identifying the filled area near former Building 237 will be updated to include a reference to section 1.6.2 and Appendix A.2.

2. **Comment: ARARs tables.** Add the following items:

   - Federal Chemical-specific:
     - TBC - Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. (USEPA, January 2003)
   - State Chemical-specific[1]:
     - TBC - Maine Remedial Action Guidelines (RAGS) For Soil Contaminated with Hazardous Substances (MEDEP, January 2010);
     - TBC - Guidance for Human Health Risk Assessments for Hazardous Substance Sites in Maine (MEDEP and MECDC, July 2009)

   Response: Both of the documents "*Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil (USEPA, January 2003*)" and "*Guidance for Human Health Risk Assessment for Hazardous Substance Sites in Maine (MEDEP and MECDC, July 2009)*" were considered and cited for the OU7 human health risk assessment in the RI Report; however, these documents will not be added to ARARs tables in the FS because these references were not used in the development of PRGs. Consistent with the OU2 FS Report, the document "*Maine Remedial Action Guidelines (RAGS) For Soil Contaminated with Hazardous Substances (MEDEP, January 2010)"* will be added to the ARAR tables in Section 2 of the FS as TBC and then screened out in the alterative-specific ARAR tables in Appendix B because site-specific PRGs are being used instead of RAGs values.

3. **Comment: 2.4, p. 2-11.** The Navy states they based the PRG for manganese on a "more realistic construction worker exposure frequency" (60 days/yr) than what was used in the Human Health Risk Assessment (150 days/yr). It is inappropriate to change values that were used in the risk assessment without discussion with the regulators. MEDEP cannot accept the reduced manganese exposure frequency for construction workers and the resulting elimination of Mn as a CoC without further discussion.

[1] Note that any hazardous substance site in Maine requiring cleanup of contaminated soil must consider Maine RAGS and/or Maine Guidance for Human Health Risk Assessments. Cleanups that do not consider these guidance documents are not acceptable to MEDEP.

Also, please explain why the Navy did not change exposure frequencies for other CoCs to "more realistic levels" since exposure frequencies should be the same for all parameters.

Response: Use of a construction worker exposure frequency of 60 days per year is based on likely construction worker exposure at OU7 and is consistent with construction worker PRG development in the OU1 and OU2 FS reports. All construction worker risk-based PRGs were developed using a 60 days per year exposure frequency as shown in the risk-based construction worker PRG calculations included in Appendix A.1. Text will be added to Section 2 to clarify that all construction worker PRGs were developed based on an exposure frequency of 60 days per year.

4. **Comment: Table 2-4, p. 2-11.** Clarify that cPAHs refers to benzo(a)pyrene equivalents.

   Response: Table 2-4 will be revised to clarify that carcinogenic PAHs are referring to benzo(a)pyrene toxicity quotient equivalents (BAP TEQ).

5. **Comment: Table 2-4, p. 2-11.** Given our recent discussions regarding improper use of Non-detect values in calculating representative background values, especially for PAHs, the PRG for cPAHs is suspect. MEDEP must discuss this further with the Navy before we can accept this PRG.

   Response: The Navy and MEDEP have not resolved the appropriate use of non-detected values for calculating representative background values; however, the representative background value will not be used for the carcinogenic PAHs PRGs for OU7. The Navy calculated a residential risk-based PRG for carcinogenic PAHs of 0.5 mg/kg based on an incremental lifetime cancer risk (ILCR) of $3.3x10^{-5}$. The USEPA acceptable risk range for carcinogens is $1x10^{-6}$ to $1x10^{-4}$. There are three carcinogenic COCs at OU7 so the ILCR limit of $1x10^{-4}$ was divided by 3 which equals $3.3x10^{-5}$, so that the cumulative cancer risk would not exceed $1x10^{-4}$ if PRGs are met for all three carcinogenic COCs. Appendix A will be updated to present this calculation. Table 2-4 will be updated based on the calculation.

6. **Comment:** Although acceptable for the scenario of subsurface soils brought to the surface, the Navy needs to be cautious in applying the PNSY background values to subsurface soils. All background data represented surface soils, and in the case of PAHs and other potentially anthropogenic compounds the surface soil concentrations can be higher than the subsurface concentrations.

   Response: No revision is required based on this comment. PAHs are COCs for subsurface soil for residential land use based on the potential for subsurface soil to be brought to the surface. For excavation and management of soil, the Shipyard maintains a policy that includes soil testing and disposal requirements. This policy has been included as part of the LUC RDs (e.g., OU1, OU2, and OU3).

7. **Comment: Table 2-4, footnote 1.** "PRGs are EPCs…" This statement is somewhat confusing as PRGs are not necessarily EPCs. It would be better to state that, "PRGs are the desired EPCs…" or something similar.

   Response: The text will be revised to read "PRGs are the goals for representative exposure concentrations for an exposure unit and are not intended as pick-up levels."

8. **Comment: Alternative 2, Short-Term Effectiveness, p. 4-8.** Please clarify in the text why this evaluation includes excavators since Alternative 2 consists solely of LUCs and long-term management.

Response: For costing in the FS, long-term management of the shoreline controls was assumed would require maintenance of the shoreline controls every 15 years and would consist of removal and replacement of a portion of the existing controls. Therefore, as part of the long-term management of the shoreline controls, it was assumed that excavators would be needed. The text will be clarified to include the assumptions regarding shoreline maintenance for Alternatives 2 and 3. In addition, the assumptions regarding excavation for Alternative 3 will be included.

9. **Comment: Alternative 3, Excavation and Off-site Disposal, p. 4-9.** The Navy should be prepared to excavate below the high tide mark if confirmation samples indicate that the limits of contamination have not been reached.

   Response: The excavation is to address human health risk exposure to unsaturated soil. There are no unacceptable risks for migration of groundwater; therefore, excavation in the saturated zone is not needed to be protective of human health and the environment. The depth below mean high tide line for excavation is typically only slightly below high tide. This depth would be provided in the Remedial Action documents (e.g., Remedial Action Design or Remedial Action Work Plan).