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LETTER AND COMMENTS FROM MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION REGARDING DRAFT REMEDIAL INVESTIGATION REPORT FOR OPERABLE UNIT 7 (OU 7) NSY PORTSMOUTH ME
12/14/2010
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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December 14,2010

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9742 Maryland Ave
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Attn: Linda Cole

re: Draft Remedial Investigation Report for Operable Unit 7, Portsmouth Naval Shipyard, Kittery, ME, October 2010.

Dear Linda,

The Maine Department of Environmental Protection has completed its review of the Draft OU7 RI Report for Portsmouth Naval Shipyard. In general, the report does a good job discussing the large amounts of data for this site and MEDEP agrees with the report's recommendation to prepare the Feasibility Study for OU7. Our comments are below.

1. 1.2, p. 1-2. "Appendix B contains analytical results, including the complete database printout for soil and groundwater..." This is incorrect. Appendix B only contains groundwater results for inorganic analyses. All results must be shown in order for the database to be complete. See Comment 20.

2. 1.4, p 1-5 Para. 2: "BGS05 was removed from the background data set and included in the OU7 soil data set." BGS-08 also lies within the site boundaries. Please discuss the rationale for retaining it in the background data set. It appears that it would skew the background comparisons for the site and the "no debris fill" area near former Building 237. The Navy should consider including it in the OU7 soil data set.

3. 1.4.1, Onshore Investigations Prior to the RI, p. 1-6. Please provide a brief discussion of the camera survey of the storm drains at OU7 that occurred several years ago and the conclusions drawn from it.

4. 2.2, Shoreline Stabilization, p. 2-2: "The stabilization measure provides for filtering by using multiple layers of increasingly larger material."

Clarify what the stabilization measure is filtering.

5. 2.3, Data Usability, p. 2-3. "Seep data from 1996 and 1997 is not representative of current conditions because of changes to the shoreline that occurred in 2006. Please

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indicate the types of changes that occurred - how were the seeps affected? How do current conditions compare to 1996197 conditions? If this is discussed elsewhere please reference it here.

6. 2.3, Data Usability, p. 2-4. "...several soil samples had very high detection limits..."

Were the data from these samples omitted from the risk assessment and extent of contamination determinations?

7. 3.2.1 Shoreline Revetment Structure, p. 3-3. The first sentence under Shoreline Revetment Construction indicates that the riprap exists under the filter stone, geotextile and pea-stone ("...riprap underlying filter stone..."). Please correct this.

8. 3.2.1 Shoreline Revetment Structure, Surface Layer Rock, p. 3-4, 3rd bullet. Please indicate here, not just in App. A6, that the original large granite blocks on the shoreline were reused as part of the surface layer.

9. 3.4.3 Cross-Section Description, D-D', p. 3-9. "Localized pockets of waste material were encountered..." To our knowledge lateral limits of the waste pockets were never determined. Therefore, on Fig. 3-3 draw the waste pockets to indicate that lateral limits are unknown.

10. 3.5.2, p. 3-13 Para. 2 and Para. 4, and Table 3-1: "TP-MW-06 was not *equipped with a transducer..*"
The statement should be revised to state that the 2000 data indicated there was no tidal influence rather than tidal lag. It is unusual for this well not to have some tidal influence based on its location in the filled area and its shallow screen in fill with debris, based on the relative response of other wells screened in similar material. Please add the results for MW-06 in October 2008 to the text. Also, the data from 2008 at MW-05 indicate that the Low Tide water elevations are higher than the High Tide elevations, were the readings taken according to the tidal lag in the table? If so, is it possible the lag is incorrect?

11.3.5.2, p. 3-13 Para. 3 and Table 3-1. "Tidal effects were observed in the wells quipped with transducers except TP-MW-01 and TP-MW-09..."
Please clarify the magnitude of decreasing water levels and that no tidal effect was observed in these wells. Based on its location, high hydraulic conductivity and boring log MW-09 would be likely to have tidal effects, however the void reported in the logs must affect this location.

12. 3.5.2, p.3-15 Para. 4, Appendix A.4 and Table 3-1. The recovery plots for these two wells are certainly atypical and indicate very fast response times. The data for MW-09 may actually represent the conductivity of the sandpack in the void at that well, and at MW-10 the well may be hydraulically connected to the drainage system across Goodrich Avenue. Please discuss this possibility and how it might affect interpretation of site hydrogeology.

13.4.0, Nature and Extent, p. 4-1, 1st para. Please indicate that **outfall** samples were also collected.

14.4.1.1, p. 4-1, Table 4-2 & Table 4-3. "**Maximum** facility background concentrations...are presented." The Site 32 QAPP (Table 1-3) used the "representative" PNS Facility Background values for comparisons of site data to screening criteria. Please revise Table 4-2 and Table 4-3 to these levels rather than the maximum concentrations that are listed.

15.4.1.1, p.4-2. Please indicate the source for the EPA residential soil screening levels.

16. 4.1.1, p. 4-2. "Two PCBs (Aroclor 1248 and Aroclor 1254) were detected at concentrations above background and risk based screening levels in surface and subsurface soils, with Aroclor 1260 only detected in concentrations exceeding facility background and risk based screening levels in subsurface soil."

Several of the nondetected **Aroclors** had detection limits higher than **USEPA** Nov. 2010 Regional Screening Levels (http://www.epa.gov/region9/superfund/prg/). The Navy compares detection limits to screening levels in **App.** D.4 and shows that there were exceedances of detection limits 1.0% to 3.1% of the time. Does the Navy discuss the uncertainty that these relatively few exceedances add to the human health risk assessment?

17.4.1.1, p. 4-2 last paragraph and Table 4-2 **and Table 4-3. The discussion of** background needs to be removed from the text related to PCBs. The text should note that all Facility Background samples were non-detect for PCBs (see Tables). In addition there is no geologic source or intended use in soils for PCBs.

18.4.1.1, p. 4-4. The **paragraph** discussing normal probability plots indicates that there are 27 soil and 23 subsurface soil locations corresponding to data points above an inflection point as shown in **App.** B.2. Please indicate what locations these are as this information cannot be determined **from** the probability plots.

19.4.1.1, **pp.** 4-3 & 4-4 and App. B.2. "Based on these plots, detected concentrations exceeding risk-based screening levels correspond to areas filled **after** 1910, ..."

Please include **TP-SB115** in this discussion, and correct the text later in the paragraph on page 4-4 to reflect the detection at that location and the **Arochlor** 1254 screening level. Also, discuss the relative significance of the surface soil PCB detection in the area where no industrial activity took place.

20.4.1.2, p. 4-4, para **1.**

a) Figure 4-1 does not show MW-07 and MW-03, please revise as needed.

b) The analytical database for groundwater presented in App. B.1 is incomplete. The Navy must present results for all analyses even if all the results were non-detect. The detection limits provided with these data are critical to understanding whether or not compounds are definitively below screening levels.
c) "A copy of the analytical database for groundwater is presented in Appendix B.1 and summarized in Table A.1 of Appendix A.5 presents the OU7 sampling list." Some words are missing. Please correct.
d) Please provide a reference for the ecological screening levels that are used to derive groundwater screening levels.

21.4.1.2, p. 4-4, para 2. "VOCs, pesticides, and PCBs were not detected in any of the groundwater samples." All results for toxaphene were nondetect, however even after a dilution factor of 100 detection limits exceeded the ecological screening level of 0.0002 ug/L by factors ranging from 43 – 300. Therefore, toxaphene may present a risk to biota and should not be dismissed. Please discuss this issue within the report. This comment also applies to toxaphene in surface water.

22.4.2.1, p. 4-5. "Inorganics were the only chemicals detected in OU7 surface water." See previous comment regarding toxaphene.

23. Section 4.2.1, p. 4-5, Para. 2: "Zinc was not detected in the filtered samples from OF-61, OF-63, and TPSW-03 but not at TP-SW02." Should the first part of this sentence read "Zinc was detected..."?

24. Table 4-2 – Footnote 4. "RBCs for noncarcinogenic compounds are divided by 10 to correspond to a HI of 0.1."

The RSL for lead has not been divided by 10 for an HI=0.1. Please change 400 mg/kg to 40 mg/kg or clarify why it should remain 400 mg/kg.

Also, the RSL for metallic vanadium is incorrect. Please update to the Nov. 2010 RSL, 5.5 mg/kg. Therefore, the value presented in the table should be 0.55 mg/kg to correspond to a HI of 0.1.

25. Tables 4-5 & 4-6. Please indicate the sources of the ecological screening levels. Some appear to be from National Recommended Water Quality Criteria, some from NOAA SQRT tables, and some from elsewhere.

Also, please carefully check units of ecological screening levels. Some of the values that appear to be from NOAA SQRT tables; e.g. acenaphthene, are in ug/L while the concentrations for organics found in water are in ng/L.

26. Table 4-6. Indicate that shaded chemicals were selected as COPCs.

27. 5.2.1, p. 5-6, Para. 2. "One seep was observed east of OU7." Please identify the seep on one of the figures or provide additional detail on its location.

28. 5.3.4 Modeling Input Parameters and Appendix C: Why was Arochlor-1254 included in the COPC list and not the other PCB arochlors with higher concentrations in soil at the site?

29. 5.3.6 final paragraph: Since the calculated leached value was not carried through the model for most compounds, how does the modeling demonstrate how conservative it is to use the lowest applicable K_d?

30. Table 5-1. Please indicate the sources of the surface water criteria.

31. 6.0, p. 6-1, 3rd paragraph, **Table1** (Appendix D) and Figure 6-1. The Conceptual Site Model (CSM) needs to include consideration of the vapor intrusion pathway due to the presence of volatile compounds in soil in some areas of the site. Though the volatile compounds in soil (including some of the more volatile semi-volatile compounds such as naphthalene and 2-methylnaphthalene) may not have been selected as **COPCs** for direct contact exposure pathways, these compounds could present a risk to occupants of current **and/or future** buildings at the site. It should be noted that there are some detections of semi-volatile compounds that may also contribute to the vapor intrusion pathway. Please address.

32. **6.2.2,** p. 6-9, Former Location of Building 237 Decision Unit. Please provide additional justification for evaluating this exposure point as a separate decision unit. As written, there is no information provided to judge whether this approach is conservative or results in data gaps for this separate decision unit **(e.g.,** insufficient soil or groundwater data).

33. 6.2.2.1, p. 6-10, Para. 3 & 4. The first sentence in the text needs to be corrected, as there were no detections for PCBs in the Background samples. The conclusion for surface soils near Building 237 also needs to be revised for Arochlor-1254.

34. 6.2.2, p. **6-10** ***ff.*** COPC selection for soil and groundwater. As stated in the 2009 MEDEP ***Guidance for Human Health Risk Assessment for Hazardous Waste Sites,*** "...neither **USEPA** nor **DEP/MeCDC** permits the exclusion of inorganic or organic compounds **from** the human health risk assessment based on comparison to background levels. Compounds that may exist at background concentrations should be quantitatively evaluated in the risk assessment." The decision to forego action for compounds that are present at levels consistent with background is a risk management decision and should occur as **part** of the feasibility study, not as part of the risk assessment, Though it is recognized that there is some further discussion of the eliminated compounds in the Uncertainty Analysis, the risk assessment lacks a clear presentation of cumulative site risk, including those compounds that the Navy has speculated are present as a result of background conditions. Please include this analysis.

35. 6.6.1, p. 6-31, contaminants Eliminated Due to Background, and App. B.2. The evaluation relies on non-detect reporting limits to assess data distributions and in comparison to actual detections at site locations. The associated data plots often describe the distribution of reporting limits (or in some cases reporting limits with a few detections) as if they were actual data. Conclusions regarding background conditions need to be heavily qualified when only a few detections are assessed. Elimination of COPCs by comparing detected concentrations to reporting limits is not appropriate. Compounds which were not detected in background include the PCB Arochlors, dieldrin, and thallium.

36. 6.6.3, p. 6-43, 1st paragraph. Please provide additional details concerning the testing performed to justify the evaluation of total chromium as 100% chromium (III) in the risk assessment. This paragraph implies that a portion of the total chromium is present as chromium (VI) and the assumption that all chromium is chromium (III) may not be appropriate. Please address.

37. 6.7.3, p. 6-50. Risk drivers should be identified for any receptor with cancer risks greater than 1×10^{-5}, not 1×10^{-4}. Please correct.

38. 7.1.1, Para. 2, p. 7-1. "Therefore, the filled area before 1910 can be defined as a separate population from the rest of OU7."

Please revise the statement to restrict the conclusion to the area filled prior to 1910 in the immediate vicinity of Building 237. Adding a shaded area to one of the figures would help clarify what portion of the site is being considered.

39. 7.1.3, p. 7-4. "Offshore concerns for ecological receptors are being addressed as part of OU4." Please indicate here that OU7 is no longer acting as a source of contaminants that may pose unacceptable risk to the offshore area.

40. References. TtNUS, August 2000 – change November 1996 to November 1997.

41. The plots in Appendix B.2 are inconclusive for the various Arochlors(and possibly other compounds), as they compare detection limit values to actual detections. Such comparisons are inappropriate. See Comment 35.

42. App. B.2.

a. Please place the outlier analysis plots after page B.2.7, not after B.2.9 which discusses the site data-background data comparisons.
b. Place the site-background comparison plots after p. B.2.9.
c. Label the site-background comparison plots so the difference between, e.g. the first surface soil plot for aluminum is distinguished from the second surface soil plot for aluminum. Presumably one set s f plots is for the area around the former Building 237 area but this is not clear at all.
d. Place Tables 1-7 at the end of App. B.2, after all the plots.

43. App. B.2. The Q-Q plots for the "clean area" need to be labeled as such rather **than** as "site 32". For the "Site 32" plots, were the data for the area near Building 237 removed or included?

44. App. B. 2 It is not clear why the background data for several compounds, **e.g.** Al, are different for the two comparisons. Please explain why a different group of background data was used to compare to the "clean fill"' vs. the entire site. Or are the plots actually comparing the whole Site 32 to the **"Clean** fill" and they are mislabeled?

45. Since the intent of the formal statistics was to assess the Building 237 area compared to the site overall, a table comparing the relevant values for the "clean" area and the site would be useful. Further, in addition to plotting both data sets against background, plot them against each other to demonstrate that there is separation between concentrations at the two areas.

46. Appendix **D-1** RAGS Part D Table 2-2. The COPC table needs to be revised or annotated in the appendix, based on use of non-detect reporting limits in background to rule out **COPCs.**

47. Appendix D.1, RAGS Part D Table 4, Tables 4.5.RME through 4.10.RME: Maine recommends a default soil recreational exposure frequency of 90 **days/year** and a default surface water and sediment exposure fi-equency of 78 **days/year** for wading exposures. The exposure fi-equency of 52 **days/year** for soil and 7 dayslyear for sediment and surface water should be changed to 90 **days/year** and 78 dayslyear, respectively, or additional site-specific justification should be provided. In addition, the total exposure duration should be 30 years, not 24 years, for a recreational scenario. A **fraction** ingested (FI) term of 1 (not 0.5) should be used for all media, unless a compelling site-specific justification is provided.

48. Appendix **D.1,** RAGS Part D Table 5.1 : The oral RfD for Aroclor-1254 (2E-05 **mg/kg-day)** should be used as a surrogate for Aroclor-1260.

49. App. D. 4. "Please see the associated detection limit exceedance tables in this appendix for chemical-specific exceedance percentages." Please ensure these tables are included in the Draft Final version of the RI report.

50. App. D.4. The last two pages of the **Surface/Seep** Water Data Usability Worksheets are incorrectly labeled Groundwater. Also, in the last Data Usability Worksheet page change November 2007 to November 1997 in the **TtNUS,** August 2000 reference.

51. Appendix D.5.2: Do the facility-specific screening levels for sediment and surface water factor in the agedependent adjustment factors for compounds with a mutagenic mode of action? Many of the exposure assumptions used to calculate the screening values are not consistent with current guidance. For example, the exposure frequency, as mentioned previously, should be 78 **days/year** for wading exposures, not 26 **days/year** as

detailed in this appendix. In addition, a FI term of 1 should be used, not **0.5.** These changes are required for consistency with current guidance and to account for future exposures which may be of greater duration and intensity than those that occur currently. The facility-specific screening levels may not be sufficiently conservative for COPC selection for surface water and sediment.

Please feel free to contact me at (207) 287-8010 if you have any questions.

Sincerely,

Ivor McLeod
Project Manager
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