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LETTER AND THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT FOR OPERABLE UNIT 8 (OU 8) AT NSY PORTMOUTH ME
06/14/2016
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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June 14, 2016

ATTN: L.L. Cole, BLDG Z-144, 1st FLOOR
COMMANDING OFFICER
NAVFAC MIDLANT
9324 VIRGINIA AVE
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re: Draft Remedial Investigation/Feasibility Study, Operably Unit 8, Portsmouth Naval Shipyard, Kittery, Maine, March 2016

Dear Linda,

The Maine Department of Environmental Protection has completed its review of the subject document. We have the following comments.

General Comment

1. The Navy still needs to submit the analytical, field and water level data to MEDEP in a properly formatted electronic data deliverable (EDD). Details on the EDD are located at the MEDEP website: http://www.maine.gov/dep/maps-data/egad/index.html .

Specific Comments

2. Section 1.3.2, OU8 History: There is an extra line of text at the end of the first paragraph on page 1-5, please revise as needed.

3. Section 1.4, p. 1-7 last paragraph. The Navy agreed to analyze for EPH for informational purposes and to confirm that petroleum hydrocarbons contamination is not present. The EPA's RSL calculator has screening levels for petroleum hydrocarbon fractions. Risks can be calculated and should be included in cumulative site risk estimates. If there is sufficient DRO/GRO data it should be converted to equivalent carbon fraction using the Maine Petroleum Guidance to estimate potential site related petroleum hydrocarbon fraction risks.

4. Section 3.6, Surface Water Use and Hydrology: Please clarify in the text that the flood elevations listed reference the Shipyard's vertical datum rather than the North American Vertical Datum (NAVD) 1988, as reported by FEMA. FEMA has released a preliminary revised map for the area (2013) that indicates portions of OU8 are in the 100-year flood zone, if the final versions are consistent than this issue may need to be revisited.

5. Section 4.2, Groundwater Contamination: MEDEP agrees that there is a disconnect between the soil and groundwater concentrations for metals, likely due to the decades of fill interacting with the shallow groundwater following placement in the timber basin. Manganese in groundwater at MW-05R could be related to the recently placed fill utilized for the expansion of Building 174. That soil may still be equilibrating to the local groundwater.

6. Section 7.4, PRGs for OU8: Table 7-4 lists the basis for the surface soil cPAHs as an ILCR of 1.0 x 10-4. Please revise to 1.0 x 10-5, as noted in the table for the subsurface soil cPAH ILCR, and make any corrections needed in the risk calculations.

7. Section 7.5, Remediation Areas and Volumes: The third to last paragraph (page 7-6) lists the maximum lead concentrations incorrectly. Based on the data in Table 4-2 the maximum lead concentration of 20,100 mg/kg was in the two to six-foot interval at WTB-SB09. Based on the data for the deeper intervals listed in the draft text, MEDEP anticipates this will not change the volume estimates, the deeper intervals would still be included in removal calculations.

The following comments pertain to Section 6.0, Human Health Risk Assessment, and associated appendices.

8. This HHRA was very well prepared which facilitated the review. Several updates are recommended in these comments for consistency with current guidance.

9. This HHRA assumes that there will not be a future residential receptor and that groundwater will never be used for consumption. These site use restrictions should be formalized in order to consider this risk assessment to be health protective for all populations.

10. Blood lead screening levels. Both the US CDC and EPA have now recognized that adverse health effects may occur at blood lead concentrations below 10 micrograms per deciliter (µg/dL) down to 5 µg/dL, and possibly below. Please revise this 2016 RI report to acknowledge that soil screening levels based on the criteria that no more than 5% of the population reach a blood lead level (BLL) of 10 µg/dL, is no longer considered health protective. However, until EPA issues new guidance, it is appropriate to continue to evaluate potential hazards based on the criteria BLL of 10 µg/dL.

11. Page 6-1 Last sentence. Suggest rewording to "The potential risks to human health at OU8 are estimated based on the assumption that there will be no future residential exposure to soil or use of groundwater, and no actions are taken to control contaminant releases."

12. Page 6-6. Section 6.2.2 Selection of COPC: Neither the EPA nor Maine allows exclusion chemicals from a HHRA based on comparison to background levels. Chemicals 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. Because of this aluminum, arsenic, cobalt, lead and vanadium should be included as soil COPC.

13. Page 6-7 3rd paragraph. The assumption that the water is not potable and therefore was not considered as a potential exposure pathway should be established with an environmental covenant, see Comment 9.

14. Page 6-28 2nd paragraph. Lead may not be eliminated based on background concentration. Furthermore the maximum detect should be compared to the screening level to determine if lead is a COPC (See Comment 12). Therefore lead is a COPC for surface and subsurface soil.

15. Page 6-28, Section "Absence of COPC Screening Levels". This section states "Exclusion of these chemicals from COPC selection adds some uncertainty to the risk assessment; however, it is assumed that chemicals lacking toxicity criteria would not contribute significantly to overall risks."

16. Comment: The assumption that chemicals lacking toxicity criteria would not contribute significantly to site risk is inappropriate speculation. A lack of a regulatory screening level has nothing to do with a chemicals potential toxicity. Please readdress this uncertainty discussion to be more specific about the potential risks that are not being considered. For example:

- Data for DRO and GRO can be converted to representative carbon fractions using the Maine DEP guidance .
- HEAST has a cancer slope factor for carbazole.
- The potential toxicity of the C11-C22 aromatic petroleum hydrocarbon fraction may be evaluated using naphthalene as a surrogate.

17. Page 6-29, Section "Surrogate Screening Levels". Use of a chemical surrogate toxicity value to generate a screening level is certainly more conservative than to disregard the presence of the chemical entirely. The direction of the bias is clearly conservative.

18. Page 6-32 last paragraph. The ALM is protective of the blood of the fetus of the pregnant worker. The averaging time should be minimal to conservatively reflect the exposure, use of an annualized daily concentration results in an underestimate of potential blood lead concentrations. Maine typically uses a 0.5 year exposure period for the construction worker (125 days/6 months). For the lead model, it is appropriate to set the averaging time to the exposure duration. The baseline blood lead concentration used in the ALM was 1.0 ug/dL, this should be the model default NHANES III value of 1.5 ug/dL and the geometric standard deviation should be 2. For the recreational user the averaging time should reflect the exposure period, in this case the model's minimum of 90 days should be used.

19. Page 6-38 Section "Uncertainty Associated with Evaluation of Arsenic". Please include a discussion of the California EPA cancer potency factor (CPF) for arsenic [9.45 (mg/kg-day)-1], which Maine considers to be appropriate for a conservative estimate of the potential carcinogenicity of arsenic.

20. Page 6-39, Section "Use of Chromium Toxicity Criteria". Please provide additional details concerning the tests performed to justify the evaluation of total chromium as 100% chromium (III) in the risk assessment.

Appendix C

21. Table 2.1 Surface soil screening levels. Please see Comment 12 regarding COPC selection and background contaminants.

22. Table 2.3 Construction Worker screening level for lead 1340 ug/L, please see comment 27.

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

24. Table 4.3 Calculation risks for the Construction Worker assumed a surface water ingestion rate of 10 ml/hour and an exposure duration of 4 hours per day for 30 days over an entire year. Maine uses a Construction Worker surface water ingestion rate of 50 ml/hour, an exposure duration of 8 hours per day, and an exposure frequency of 125 days in a 6 month exposure period (DEP 2011, EPA 1997). The argument that the Construction Worker surface water exposure is transient during the course of the day allows for the 4 hour duration. The ingestion rate of 10 ml/day is justified by the decreased exposure duration. However, the decreased exposure frequency and increased exposure period serve to underestimate potential risks. Please see comment 18.

Appendix A.4 Risk Based Screening Level Development for the Construction Worker Exposed to Groundwater at Portsmouth Naval Shipyard

25. Page 2. Exposure parameters used for derivation of screening levels may be more conservative than those used in the Maine risk assessment guidance, otherwise please harmonize exposure parameters with those in Appendix C. The currently recommended skin surface area used for the Construction Worker is 3,527 cm^2.

26. Page 3. EPA has made changes to the parameters involved in dermal exposure to water, with an update to the preferred approach for selecting dermal permeability (Kp) values and determination of effective predictive domain (EPD) . The previous hierarchy used RAGS Part E before using EPA's Estimation Programs Interface (EPI) Suite for EPD determination and Kp. Recently released logKows for some chemicals conflicted with those in RAGS Part E. Specifically for the RSL project, the most recent logKow were used to determine EPD status. The RSLs now also calculate the FA (fraction absorbed) values. Please update this draft report to use the most current EPA guidance for dermal permeability. In addition EPA now FA, unfortunately several COC that are currently using a 0 in the OU8 HHRA use an FA of 1 according to EPA. Please check the status of the parameters used for dermal absorbed dose modeling.

27. Attachment 1. Derivation of Lead Screening Levels

Please use the updated geometric standard deviation (GSDi) and baseline blood lead (PbBo) from NHANES III survey (1999-2004) of 1.8 and 1.5 ug/dL respectively. Using the most recent values for these variables in the adapted ALM for water as presented, changes the screening level from 1340 ug/L to 405 ug/L.

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

Sincerely,

Iver McLeod
Project Manager
Bureau of Remediation and Waste Management

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