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LETTER AND COMMENTS FROM U S EPA REGION I REGARDING DRAFT FINAL REMEDIAL INVESTIGATION FOR BUILDING 82 NAS SOUTH WEYMOUTH MA
10/13/2009
U S EPA REGION I

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

October 13, 2009

Brian J. Helland, P.E.
BRAC Program Management Office NE
4911 South Broad Street
Philadelphia, PA 19112-1303

Re: Draft Final Remedial Investigation for Building 82

Dear Mr. Helland:

Thank you for the opportunity to review the *Draft Final Remedial Investigation Building 82*, Naval Air Station, Weymouth, Massachusetts, dated September 2009. Overall, EPA is pleased that the Conceptual Site Model (CSM) is generally well developed to support the FS and that most of the recommended changes, additions, and clarifications on the draft have been incorporated into the draft final RI. Detailed comments are provided in Attachment A.

EPA believes that source area definition and groundwater flow directions and contaminant migration pathways should be examined further. EPA understands that additional data are forthcoming from the recent groundwater profiling efforts in the southern portion of the site and adjacent areas. EPA recommends that the site team meet after these data are available as the new data may provide additional insights.

While the primary source areas appear to be reasonably well delineated, EPA noted inconsistencies with the presentation of PCB data. Leaching of PCBs from the western site drainage ditch is identified as a particular source release mechanism. While residuals in the subsurface area beneath the ditch may be a source, it does not fully explain occurrence of PCBs in groundwater at MW-11D and MW-08-16D. This concept calls on west to east transport in groundwater, which may be supported by the data. The assertion that contaminant transport is "significantly retarded" in this area with respect to groundwater velocity requires additional discussion. EPA agrees that the fine-grained subunits near these wells may be partly responsible for these detections. Low-level PCB hits in surface soils (Figure 4-7) correlate with the ditches and drainage features and therefore the source for the detections at MW-11D and MW-08-16D may be eastward. A source in the western ditch necessitates further examination of potential transport to the west of this feature in addition to that to the east. Similarly, the detection or Arochlor-1248 at up-gradient location MW-07 does not necessarily indicate an off-site source. The former Houghton street and associated ditches shown on Figure 1-3 could be a source of PCBs in that area. Please prepare a map indicating all PCB detections in groundwater so that we can discuss it at an upcoming meeting when the new data are available.

Similarly, the source for TCE contamination needs further discussion. While the forthcoming data should illuminate this subject, it is premature to dismiss Building 81 as the ultimate source of this material. The contamination at Building 81 penetrates deeply into the bedrock and it is therefore difficult to draw meaningful conclusions from the limited shallow overburden characterization program at Building 82 with respect to any potential interconnections between the two sites. EPA encourages the Navy to examine the two sites from a broader perspective, with the requisite detail, including bedrock data from the Building 82 site.

While EPA agrees that the two 42-inch storm drains influence overburden groundwater, the site team should discuss the magnitude of this phenomenon. The basis for this interpretation, particularly the closure of contours to the west, requires the high heads posted for MW-11 and MW-08-16. These wells are located near MW08-15 which has anomalously high head values. The report cites artesian conditions at this location. This interpretation is difficult to support since no deep head values are co-located with MW08-15. Furthermore, the vertical gradients between MW08-16S/D are quite small. At MW-11S/D, the two screens are essentially screened in roughly the same interval of the overburden which is neither shallow nor deep. Use of these values to constrain either the deep or shallow flow fields is suspect. Fine-grained deposits may be responsible for semi-perched rather than artesian conditions in this part of the site. MW08-16S and MW08-15 are both screened in fill, whereas MW08-16D is partly screened in silt and partly in sand, silt, and gravel (potential till). Likewise MW-11S/D is screened in sand, silt, and gravel (potential till). The-finer-grained subunits in these areas may skew the head results. Also, the screened intervals for MW-11S/D may essentially overlap when the sand pack depths are considered. Again, the near-identical head values reported from these two wells may be misleading. In the absence of these constraining head values, it would be possible to contour the data with a flow vector slightly more to the SSW than the RI indicates. The result is a flow direction that is essentially north to south from the west central portion of the building toward the low area shown on the bedrock surface (110 ft contour shown on Figure 3-8). A smaller scale depression on the bedrock surface appears to coincide with this N-S alignment, consistent with the orientation of a mapped feature. Lastly, the RI relies heavily on an interpretation which upward gradient from the deep overburden to the shallow overburden, and ultimately to the 42-inch drains. EPA maintains that the TCE detections, and perhaps other constituents, identified in deep overburden may originate from a deeper source. Further examination of the bedrock appears necessary to better understand the groundwater system holistically. Additional monitoring is needed along the western and southern perimeters of the site. EPA looks forward to discussing the groundwater flow interpretation with the site team.

While the detections of TCE in groundwater in the SE portion of the site were not alarming (maximum concentrations were below 10 ppb, and the detections are not widespread), EPA was concerned because the higher detections were not bounded on the upgradient side. It is therefore possible that the TCE detected is just the downgradient expression of something worse upgradient, closer to an unknown source. The May 2009 sampling found a few more detections in the same range (max 6.5 ppb), but leaves some questions open. In particular, Figure 4-31 shows the shallow TCE unbounded to the SE

(the maximum detection is at the SE extreme of the area characterized). While the deep TCE (Figure 4-37) seems to be reasonably well bounded, with the maximum detections surrounded to the SW, NE, and E by lower detections, this is somewhat difficult to reconcile with the interpretation that the shallow contamination derives from the deep because of upward hydraulic gradients. Why is the maximum shallow detection upgradient of the maximum deep detection? While the report alludes to further work that may clarify this, all questions regarding the TCE in groundwater have not been answered. EPA looks forward to meeting with the site team to discuss the additional data when they are available and possible next steps.

Part of Letter Comment 21 referred to the appropriateness of using average sediment COPC concentrations to assess risk to wildlife receptors foraging in the ditches. EPA maintains that it is not appropriate to determine risk based on average site concentrations. While the additional explanation in the uncertainties is welcome, it does not sufficiently mitigate potential unacceptable risk. The home ranges are small for the ecological receptors evaluated in this risk assessment (*i.e.,* 0.3 acres for the Carolina wren and 1 acre for the star-nosed mole). Relative to these home range sizes, the Building 82 site is composed of two exposure units: 1) the northern ditch area where sample SD-100 was collected and 2) the southern area where SD-101 and SD-102 were collected. Since the focus of the comment was PAHs and none of the HQs based on maximum sediment concentrations suggest unacceptable risk for the mole from exposure to PAHs, further evaluation is only warranted for the wren. The area to the north of Building 82, represented by one hit of elevated PAHs (total PAH = 81,460 ug/kg), is large enough to support birds with small home ranges. Further, given that the northern ditch area appears to be more suitable to small birds than does the southern ditch area, these receptors are more likely to forage in the area with the elevated PAHs. The elevated PAH HQs (LOAEL HQs greater than 1) warrant further evaluation (pending resolution of new comments related to the BSAF and invertebrate EPC for PAH). The 81,460 ug/kg hit of total PAH should be delineated to determine the extent of contamination in that area. While the response notes that "some of the locations with the greatest PAH concentrations are no longer present," the sediment data set in the Draft Final is the same as that in the Draft. Please explain.

The concentration of total PAHs at SD-100 is 81,460 ug/kg. This concentration exceeds the PEC (22,800 ug/kg), suggesting potential significant effects for benthic invertebrates. The only line of evidence that this concentration may not pose unacceptable risk for invertebrates is the lack of aquatic habitat, as discussed on page 7-21. While the habitat is not optimal, based on the site description and on Photograph 10 in Appendix H, it is suitable for benthic invertebrates. Risk to invertebrates in this area is not fully evaluated. The high hit of PAH at SD-100 should be delineated.

The data from B82-SS-116 are no longer included in the ecological risk assessment. The result is that many of the PAHs have much lower maximum concentrations. However, the data are still shown in Table 4-2. Was the location removed? If so, please delete the sample results from Section 4. If not, please explain why they are no longer evaluated in the ecological risk assessment.

The invertebrate EPCs used for the intake calculations for the star nosed mole and Carolina wren are questionable. The maximum sediment concentration of benzo(a)pyrene, for example, is 3.1 mg/kg and the conservative BSAF is 1.0. The invertebrate concentration should be 3.1 mg/kg, not 29.3 mg/kg, which is used instead. Similarly, the average sediment concentration of benzo(a)pyrene is 1.28 mg/kg and the average-inputs BSAF is 9.7E-2. The calculated invertebrate concentration for benzo(a)pyrene in the Appendix H Table entitled STAR-NOSE MOLE - AVERAGE INPUTS is listed as 1.17 but should be lower. Please correct.

Please review the plant BAFs and calculations of plant EPA for the intake equations for the Carolina wren. For arsenic, for example, the listed plant concentration is 21 mg/kg. Given that the maximum sediment concentration was 1.36 mg/kg and the plant BAF was 3.75E-02, the plant EPC should be much lower.

I look forward working with you and the Massachusetts Department of Environmental Protection on the investigation and remediation of Building 82. Please do not hesitate to contact me at (617) 918-1385 should you have any questions or wish to arrange a meeting.

Sincerely,

Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Dave Barney, USN, South Weymouth, MA
Dave Chaffin, MADEP, Boston, MA
Kevin Donovan, SSTTDC, South Weymouth, MA
Phoebe Call, TTNUS, Wilmington, MA

ATTACHMENT A

Page	Comment
§6.2.2.2	In the second sentence of the penultimate paragraph of this section, the text states that Aroclor 1260 was detected in groundwater but was not selected as a groundwater COPC. Please explain.
§6.2.2.3	In the fifth sentence of the last paragraph, the text states that lead was not selected as a COPC in site groundwater, and therefore, the available data do not suggest that lead is leaching from soil to site groundwater at this time. Lead was not selected as a COPC because it was below the action level of 15 ug/l, but the action level by itself does not indicate whether lead leaches from soil to groundwater. Lead was detected in shallow and deep groundwater, albeit at levels below 1 ug/l for all but one deep groundwater sample. Please support the conclusion that lead is not leaching to groundwater at significant levels by summarizing the lead results in groundwater (*i.e.* frequency of detection, concentration range, *etc.*).
§6.3.2.2	Dermal risks were not calculated for Aroclor-1248 in groundwater owing to high uncertainty as noted in RAGS Part E. Please identify the specific location in RAGS Part E where this uncertainty is described.
§6.6.1	This section notes that PAHs and PCE occur at concentrations several orders of magnitude higher in deeper soil (8-20 ft bgs) than in soil above the water table (0-8 ft bgs). Please identify possible causes for this phenomenon and discuss the role this contamination may have on groundwater concentrations.
§6.6.3	EPA's review of the table of chemicals without screening values on page 6-75 found that there are PPRTV oral reference dose values for dibenzofuran (1E-03 mg/kg-day) and 1,2,3-trichlorobenzene (8E-04 mg/kg-day). Please describe in the uncertainty section the potential contribution of these chemicals to the total risk for the pathways where they occur.
Table 2.5B	Please edit this table in the Appendix because pages 4, 5, and 6 of 6 are incomplete. The potential ARAR/TBC for ethylbenzene should be revised to the EPA Region 1 risk-based value, 3.0 ug/l (instead of 6.91 ug/l).
Appendix G Table 2.5B	The left side of the table is missing in the electronic version.

Table 7.5A CTE	In several of the Appendix G-1 tables (*e.g.,* Table 7.5A CTE) showing the human health risk calculations, the CTE EPA for trichloroethylene is listed as 9 ug/L in inhalation risk sections. This is the RMA EPC, not the CTE, which is 0.88 ug/L. Please correct the tables. It appears that the correct concentration was used in the calculations.
Tables H.6 & H.7	These tables are missing.