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LETTER AND COMMENTS FROM U S EPA REGION I REGARDING REMEDIAL INVESTIGATION ADDENDUM FOR BUILDING 82 NAS SOUTH WEYMOUTH MA
09/13/2010
U S EPA REGION I

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION I
5 Post Office Square, Suite 100
Boston, MA 02109-3912

September 13, 2010

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

Re: Remedial Investigation Addendum for Building 82

Dear Mr. Helland:

EPA reviewed the Building 82 RI Addendum that documents results of groundwater profiling performed in 2009 and 2010 to delineate TCE contamination southeast of Building 82. The addendum includes results of groundwater sampling at five existing monitoring wells located around the west end of the hangar, where PCBs were detected previously. Results of additional profiling to investigate possible groundwater impacts from PCE and TCE contamination discovered previously in soil at SB-112, at the west end of the hangar are also reported. Detailed comments are provided in Attachment A.

The supplemental investigations reported in this document meet their stated goals:

- The TCE plume has been adequately delineated and is bounded on all sides by sub-MCL detections or NDs. Vertical control is also good, supporting depictions of both shallow (Figure 4-1) and deep (Figure 4-2) overburden domains. The maximum detection of TCE is in profile sample B82-GP-K09 (25 ppb). A possible source was identified based on spatial associations. It appears that a release may have occurred at catch basin C612, off the southern corner of Building 15. There appears to be no obvious connection of this release to the Building 81 plume, which is primarily PCE.

- PCE and TCE detected previously in soil at SB-112 do not appear to have resulted in detectable groundwater impacts.

- Previous PCB detections in groundwater at the western side of Building 82 were not reproducible.

In order to better support these findings moving forward, EPA recommends a number of additional actions. In the area south and west of Building 81, a groundwater flow map with synoptic, site-specific head data should be prepared. Additionally, once groundwater flow gradients are determined at the site-specific scale, one or more vertical hydrogeologic cross sections in transverse and longitudinal orientations should be added to the report (*e.g.,* in Section 4) to better depict the plume in its vertical distribution, including its relationship to the ground surface, the water table, the bedrock interface, the storm drains and associated trench, *etc.* Such figures will also be useful

toward supporting future considerations of possible remedial strategies. It is EPA's understanding that the Navy will undertake coordinated future long-term monitoring of groundwater in the Building 81 and 82 areas, including the intervening area in order to strengthen the conceptual site models created for the SE sites as well as to support FS and future remedial efforts in these areas.

Several tables and figures include "BTEX" as a parameter. Please explain in the text and a note to the tables and figures why BTEX is presented separately from the results for benzene, toluenes, and xylenes. BTEX appears in the unnumbered table in Section 4.2.1.1, the unnumbered table in Section 4.2.2.1, Table 4-2, Table 4-3, Table 4-4, Figure 4-1, and Figure 4-2.

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

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
p. 1-3, §1.3.2	EPA understands that the eastern portion of Building 15 was the original fire house for the base. As a result, consideration should be given to collecting samples from monitoring wells in this vicinity for PFOS/PFOA analyses. Also, additional information concerning the UST removals at Building 15 is needed. Were the removed tanks leaking? What was the volume of contaminated soil removed?
p. 1-4, §1.3.3 & Figure 1-3	It will be useful to annotate the storm sewer map with invert elevations (where known), locations of know breaks, *etc.* Once a groundwater flow map is prepared, it will be useful to superimpose the storm sewer network to clarify areas of likely groundwater/storm water exchange.
p. 1-5, §1.4.1	Please clarify where the OWS discharged to. If this feature discharged to the sanitary sewer, the alignment of the sanitary sewer should also be added to Figure 1-3. Is the OWS still present in the subsurface?
p. 1-6, §1.4.3	Please specify which monitoring well was sampled to assess potential impacts from UST No. 12.
p. 2-2 §2.1	Please list the monitoring wells added to assess UST impacts at Building 15. What was the volume of soil was removed here?
p. 2-4, §2.4.1	Please list the two monitoring wells installed at Building 81 that were used to assess upgradient impacts at Building 15.
p. 2-5, §2.4.2	Please describe the particular repairs needed to render wells 9AB-MW01 through – MW05 and MW07-003 functional.
p. 3-1, §3.3	Please add a figure showing a contour map of the interpreted hydraulic potential (*i.e.,* water-level) surface to support the discussion of flow direction, magnitude of hydraulic gradient, orientation of the plume, *etc.* While it is understood that most of the data collected was from temporary well points, efforts should be made to asses the adequacy of the existing permanent well network in this regard. A well inventory should be created to determine usable existing permanent wells in the areas between Building 82 and Building 81 for purposes of water level collection in greater Building 15 area. Certainly all wells in and around Buildings 10, 11, 15, 16, 39, 40, 41, and 120 should be considered, as well as appropriate wells in the Building 81 and Building 82 site areas. It may be necessary to add additional head control points in key areas.
p. 3-2, §3.3	The text offers calculations of "[t]he horizontal hydraulic gradient between one shallow overburden upgradient well…and three shallow overburden downgradient wells …." At most, only one of these downgradient wells can approximate the horizontal gradient if it is indeed directly downgradient (*i.e.,* on a flow line believed

to be normal to the equipotentials in this area). Several approaches can estimate a more meaningful horizontal gradient. First, one can use all available water-level control points available across the site to sketch an interpreted potential surface (*i.e.,* contour the water levels with a suitable contour interval), and then estimate the gradient as the change in water level between equipotentials divided by the perpendicular distance between them in the area of interest. Alternatively, one can use water levels from any three (non-co-linear) wells in the area of interest (*e.g.,* 9AB-MW-02, 9AB-MW-04, and 9AB-MW-05) to construct the plane surface passing through these points, and calculate the gradient (*i.e.,* direction and magnitude) characterizing this triangular facet that locally approximates the potential surface. Please revise this section accordingly.

p. 3-2, §3.3 The text states that the lower gradient relative to that observed closer to Building 82 implies slower groundwater flow. The flow velocities can be evaluated only if the hydraulic conductivities are also known. For example, it is possible that the groundwater flux (or the velocity, assuming that the porosity is the same in the two domains) is similar in the two areas, but that the conductivity is greater near Building 15 than near Building 82, which is compensated by the difference in gradients.

p. 4-8, §4.2.3 The first paragraph states that PCE was detected in shallow overburden wells MW-9S and MW-203S. Table 4-2 indicates that PCE was detected at MW-03 at 0.14 ppb in 2006; there is no entry for MW-9S. Please edit as necessary. Also, it should be noted that the fact that PCE was detected at locations "at least 50 feet from any corresponding TCE concentrations" does not necessarily lead to a conclusion that there is no association between the PCE and TCE. Moving forward, future LTM data, and perhaps additional analysis will be needed to strengthen this interpretation.

p. 5-4, §5.1.3 Please add that TCE is a common breakdown product of PCE.

p. 5-5, §5.3 PCE was noted in previous sections as being notable in terms of its frequency of detection. Accordingly, please include it in the fate and transport discussions.

p. 5-6, §5.3 The last paragraph states, "No daughter products of TCE were detected in any of the samples ...." However, Table 4-3 indicates three low-level detections of cis-1,2-DCE: at GP-C04 (1.0 ppb), MW-10D (0.43 J ppb), and MW-202D (0.58 ppb). All of these wells exhibited reducing conditions (-358 mV, -74 mV, and -128 mV, respectively). All are near the southwest (leading edge) boundary of the plume. Please edit. Although this could be evidence of reductive dechlorination, it is rather weak. The daughter products appear only in the downgradient portion of the plume, and only at low concentrations; vinyl chloride was not detected.

p. 5-7, §5.4.2 Please see comment above regarding the The third paragraph refers to "... the catch basin closest to the south side of Building 15...." Is this in reference to basin C612?

p. 5-7, §5.4.2 The fifth paragraph states, "...no daughter products have been detected...." Please see previous comment regarding the detection of cis-1,2-DCE at three monitoring wells near the leading edge of the plume and revise accordingly.

p. 5-8, §5.4.2 The assertion that low PCE/TCE detections in wells B81-MW-48I and -49I "indicates that the TCE concentrations are not associated with contamination from Building 81" is a reasonable conclusion, but will require further consideration as additional information from the Building 81 RI is disseminated, additional water levels are collected, and groundwater flow mapping is conducted in the area west of Building 81 and south of Building 82. There is still some possibility that preferential pathways (*e.g.,* bedrock fracture zones) connect the areas. Please also see comment below on Section 6.1, Conceptual Site Model.

p. 6-1, §6.1 While the report presents a reasonable update to the CSM for the site given the available information, a number of residual issues will require additional effort as the site progresses into future phases. EPA believes that these activities should not inhibit completing the RI, and may be addressed on a parallel track with the FS or subsequent project phases. These include:

- Inventory permanent monitoring points in greater Building 15 area.
- Install additional permanent wells as needed in under-represented areas.
- Collect synoptic water levels in greater Building 15 area.
- Preparation of high resolution groundwater flow maps at scale compatible with groundwater profiling (chemistry) data;
- Construction of hydrogeologic cross-sections parallel and perpendicular to the primary groundwater flow directions;
- Further assessment of the role of the engineered drainage system. Annotate sewer maps with invert elevations and overly on groundwater flow maps. Engineered drainage features should also be presented on cross sections described in preceding bullet;
- Further assessment of the role of the outfall and associated drainage features near Building 120 in 'capturing' the low-level CVOC plumes;
- Evaluation of shallow bedrock in the Building 15 area including additional assessment of potential bedrock connections with the Building 81 area. Install at least one shallow bedrock well within and/or down-gradient from potential source areas proximal to Building 15 (CB612, CB613, UST 9A, UST 9B, *etc.*);
- Develop coordinated long-term monitoring strategy for Building 81, Building 82, and adjacent areas. Ongoing groundwater monitoring at Building 81, Building 82, and adjacent areas.

p. 6-4, §6.1.8 Please see previous comment for page 5-8, Section 5.4.2.

p. 6-3, §6.1.8 TCE Plume: The text again refers to "… the catch basin closest to the south side of Building 15." Please note the specific basin number (C612?).

p. 6-4, §6.2.1 The text notes, "PCE has never been detected in any of the wells or groundwater profiling samples collected for the Building 82 RI and supplemental investigations…." This statement contradicts the discussion on page 4-8, Section 4.2.3, and Table 4-2, which note PCE detections at MW-03 and MW-203S in 2006. Nonetheless, EPA agrees that the PCE detected at these two locations is likely

unrelated to the TCE plume under investigation. These points lie outside (to the NW of) the TCE plume footprint. Please edit.

p. 6-4, §6.2.1 EPA agrees that the catch basin south of Building 15 appears to be associated with the TCE plume in that area. However, the extent of any contamination in bedrock and any potential connections to the Building 81 site are less clear. During subsequent project phases, a limited shallow bedrock drilling program in the Building 15 area (*see* comment above, p. 6-1, §6.1) could clarify these issues.