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LETTER AND COMMENTS FROM U S EPA REGION I ON RESPONSE TO COMMENTS
REGARDING REMEDIAL INVESTIGATION FOR SOLVENT RELEASE AREA NAS SOUTH
WEYMOUTH MA
03/23/2009
U S EPA REGION I



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

March 23, 2009

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

Re: Response to EPA Comments on Remedial Investigation for the Solvent Release Area

Dear Mr. Helland:

Thank you for the opportunity to review the responses to EPA Comments dated June 26, 2008 on Remedial Investigation for the Solvent Release Area (SRA). Since many responses indicate that the identified additions or changes will be made in the draft final RI report, EPA withholds its final approval until these changes can be verified. Detailed comments are provided in Attachment A.

EPA concurs that the work outlined in Enclosure 1 will help address many of these issues, but it is not clear whether the work outlined will fully satisfy the outstanding characterization issues. It is likely that an iterative approach may be needed. Given the complexity of many of the issues raised, EPA recommends a focused technical meeting to reach consensus on an updated conceptual site model and possible follow-up actions in the site characterization process. EPA is concerned that a number of significant data gaps remain, including:

- Extent of soil contamination to the west of known source area,
- Potential for soil contamination (and extent) in vicinity of eastern ditch,
- Three-dimensional extent of DNAPL zone,
- Hydraulic properties and potential for contaminant transport in the uppermost 5-10 feet of bedrock,
- Extent of dissolved CVOC plume to west, southwest, and south of source area,
- Association/extent of CVOC plume with steeply-dipping vertical fractures, particularly NE-SW striking features previously identified with surface geophysics,
- Further assessment of vapor intrusion potential

Letter Comment 2: While EPA agreed on January 12, 2009 that the FS could address soil contamination, the response dismisses the possibility of a removal action. Soil excavation should be considered as a straightforward direct means of reducing contaminant mass. The need to perform dewatering should not be considered an extraordinary impediment. Construction dewatering has been used extensively during recent development projects. Consideration should be given to a potential removal action before completing the RI/FS (*see also* Comment 2).

Letter Comment 3: EPA noted gaps in the soil characterization, including the extent of contamination to the west of the nominal source area. Because many of the higher PCE detections in soil were at depth, and co-located with detections in groundwater, EPA recommended at the January 12, 2009 meeting that the association between deep soil contamination and groundwater

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contamination be evaluated in the existing data. Since it is not clear whether the release (or releases) occurred in multiple events, or at multiple locations, the original comment stands. The suggestion of collecting additional soil and groundwater delineation data in conjunction with installation of new groundwater control points to the west will help delineate the full extent of soil impacts. EPA does not agree that groundwater data alone are sufficient to delineate soil impacts because of the lack of correlation between soil and groundwater data. Since knowledge of the release locations is weak, further consideration should be given to delineating the extent of contamination to the east and west. The apparent co-location of the soil impacts to the roadway is not necessarily compelling, and some characterization needs to be directed to the eastern roadway to determine whether additional releases were directed to that area. The responses propose a number of new overburden monitoring wells to the west of the access road (at the locations of the MW10-409D1/D2 bedrock well pair, the MW10-412D1/D2 bedrock well pair, and temporary well GW10-316), and propose soil sampling at these locations in conjunction with the well installations. This proposal will partially address the concern for bounding soil contamination to the west.

Letter Comment 4: The the overburden groundwater flow direction and contamination is not adequately constrained on the west side of the site. The proposed additional investigation (Enclosure 1) recommends new overburden wells to the west (near existing MW10-409D1/D2, MW10-412D1/D2, and temporary well GW10-316), as well as to the south and southwest (NE of MW11-128, and adjacent to MW10-411D1/D2). These are sound locations to expand the coverage of overburden groundwater to the west and south, and will allow interpretation of the overburden potential surface over a wider area to the west (*see* Figures 3-8 and 3-9 in the RI), as well as test the overburden groundwater in this domain for PCE.

2nd bullet; EPA's comment intended to direct future efforts to better understand the potential role of the ditch with respect to groundwater. EPA will reevaluate the situation after the proposed additional shallow well control that is installed in the area between the suspected release area and the Barracks Ditch.

3rd and 4th bullets; In addition to the proposal for new shallow well control in the vicinity of MW10-411D1/D2, EPA will evaluate the need for additional wells after we receive the requested assessment of the engineered drainage system. Additional shallow well(s) to the west of the MW10-411D1/D2 area, on the western (*i.e.*, upgradient) side of the ditch may need to be added.

Letter Comment 5: While it is true that evidence of plume discharge at Barracks ditch is lacking, eliminating such an occurrence based on limited information is also difficult. EPA may perform an independent temperature survey at Barracks ditch as well as at the East Mat and eastern ditches to clarify patterns of groundwater discharge to surface water.

Letter Comment 6: The data collected from this phase of investigation has been useful, and EPA simply indicated a potential data gap that was not well understood in 2006. The response does little to clarify the nature of this potential data gap, and EPA does not agree that preferential pathways need only be directed downward at the MW-405 area. An additional assessment of the uppermost bedrock zone is warranted. The discussion offered for MW-408 highlights the fact that there is a 9-foot data gap between the bottom of the screen at MW-408 and the top of the screen at MW-408D1. Since concentrations were found to be over 100 times higher in MW-408D1, potential concentrations in the intervening interval, which are perhaps even higher, are simply not known.

Letter Comment 7: While EPA appreciates the new analysis done in response to the original comment, we do not agree with the conclusion that states that the predominant fracture orientation

is north-south. Rather, the work indicates NE-SW striking fractures in the general area of the suspected release, and therefore the potential for contaminant migration in this direction (*i.e.*, to the southwest of the source), can not be dismissed. Additional bedrock well control is needed to the west of the source area, which specifically targets the principal geophysical anomalies identified through previous surface geophysical surveys. The response did not address the potential presence and significance of shallowly dipping "sheeting" fractures in the upper part of the bedrock (*see also* Letter Comment 6). A technical meeting is needed to discuss these issues and to update the CSM for bedrock. These discussions should help to guide the next phase of work (*see also* Letter Comment 9).

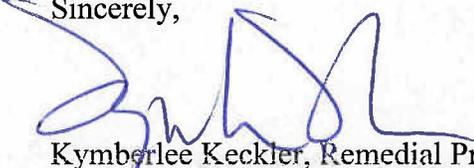
Letter Comment 8: EPA believes that obtaining the true depth to bedrock is a significant element of the CSM for the site. Accordingly, EPA may elect to have the data reevaluated by an additional geophysical expert. An accurate depth to bedrock should inform the potential importance of the uppermost bedrock zone (*see also* Letter Comments 6 and 7 and Comment 18).

Letter Comment 10: We should revisit this comment at a technical meeting to update the CSM (*see also* Letter Comments 6, 7, and 8).

Letter Comment 19: EPA looks forward to reviewing the work plan for the vapor intrusion pathway. Please note that this evaluation should adhere to RAGs F, which is now available. Also, the response addresses the vapor intrusion pathway but does not mention other pathways associated with the use of groundwater for irrigation. As discussed during the January 12, 2009 SRA meeting, potential exposure to irrigation water should be evaluated in the RI.

I look forward working with you and the Massachusetts Department of Environmental Protection on the investigation and remediation of the remaining areas of the base. Please contact me at (617) 918-1385 to arrange a meeting to discuss the SRA RI.

Sincerely,



Kimberlee 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

Comment # Rebuttal

- Comment 6 EPA looks forward to discussing well construction during a technical meeting to update the CSM.
- Comment 7 While EPA accepts the response, additional discussions are needed for the MW-408 area.
- Comment 11 While EPA accepts the response, EPA insists that all water introduced during the drilling process be removed during the well development process.
- Comment 12 The response does not address whether well integrity was evaluated at BG-4 before sample collection. Are records for the well integrity testing effort available?
- Comment 13 EPA appreciates the photograph and supporting materials. It appears that the stream bottom temperature data was collected at or near the top of the sediment column owing to the diameter of the probe. Please clarify.
- Comment 16 The response is incomplete. EPA will review the requested information regarding the potential relevance of bedrock fractures mapped at the regional scale once they are available.
- Comment 19 Given that the strike of the fracture is essentially N-S, as shown on Figure 3-7, it seems as if the appropriate dip direction should be W (or WNW). Please clarify whether there is an error in the Resistivity Profiling Report.
- Comment 22 While the new figures (annotated cross sections and fracture map) advance the data integration process considerably, it will be useful to comprehensively review the integration of surface geophysics and borehole data in conjunction with developing an updated CSM and a characterization strategy that will address the data gaps.
- Comment 23 It is not clear where SRA groundwater ultimately discharges. EPA will review the revised language in this regard once it is provided.
- Comment 24 An iterative approach is needed. A comprehensive evaluation of the adequacy of the existing monitoring well screened intervals is needed to improve the CSM.
- Comment 25 Best faith efforts should be taken to collect at least one subsequent water level round to coincide with an extreme low water period.
- Comment 27 The issue of the appropriate range of hydraulic conductivity values for the uppermost portion of the bedrock needs additional work, including targeted intrusive activities during the next round of field work. This issue needs to be discussed in light of an improved CSM for the site. EPA looks forward to discussing the scope of work needed to further characterize the uppermost bedrock interval.

- Comment 29 EPA concurs with the decision to collect an additional synoptic round of water levels and stream gauging data after the new wells are installed (*see also* Comment 25).
- Comment 30 What are the distances to French Stream and Old Swamp River?
- Comment 34 We should discuss what steps are necessary to further delineate the extent of the DNAPL zone in three-dimensions. It may be useful to consider “shake tests” if appropriate pre-conditions are in place (*see also* Comment 37).
- Comment 35 EPA accepts the response regarding CH108-MW01. While the response regarding SB10-BK1 makes a compelling case that this location is not part of the site, it is not clear that it is an appropriate background location.
- Comment 38 It is not clear that the three additional soil borings described in Enclosure 1 will be sufficient to delineate soil contamination to the west. An iterative approach will likely be needed.
- Comments 39 & 40 The response suggests that waste may have been covered with clean soil in these areas? Is this a possibility?
- Comment 41 Page 4-22, Section 1.3.3, noted that groundwater manganese was screened against a 2002 background value of 2680 ppb, rather than the 2005 EPA-recommended revised value of 377 ppb. The Navy’s rejection of the revised manganese background concentration should be discussed as part of our follow-up technical meeting. The impact of the lower background value on the outcome of the risk assessment should be assessed. If the lower value has a negligible effect on the risk assessment, then the question of which is the more appropriate background value is moot. If the lower value affects the outcome significantly, then discussion of the appropriate background value for manganese in groundwater should be re-evaluated, and a resolution sought. Resolution may require a new effort to determine a meaningful background value based on a larger number of sampling locations.
- Comment 42 The highest PCE concentration at the MW10-405 cluster was found at the deepest (D2) screen, suggesting that the contamination was not bounded at depth. On January 12, 2009, we discussed the attempt at sampling a deeper interval in the original boring (*see also* the Table included in Enclosure 4). The table indicates that the analytical result was pending. Please report the result. The proposed new bedrock well between MW10-409D1/D2 and MW10-412D1/D2 presents an opportunity to test for the presence of deep bedrock PCE possibly downgradient of MW10-405. It is not clear that the work outlined in Enclosure 1 will be sufficient to delineate the plume to the west and other directions. An iterative approach will likely be needed.
- Comment 49 EPA disagrees. Please see response for Letter Comments 6, 7, and 8.
- Comment 65 EPA does not agree with the interpretation offered here (*see also* Letter Comment 7).
- Comment 66 EPA disagrees. Please see response for Letter Comments 6, 7, and 8.

- Comment 75 Please ensure that all chemicals eliminated as COPC based on a lack of screening values are appropriately addressed in the uncertainties section.
- Comment 80 While EPA agrees that non-carcinogenic values for TCE are no longer available on the 2008 PRG tables, EPA identified two peer-reviewed values to consider when evaluating non-cancer toxicity: the 10 ug/m³ air criterion developed by the New York State Department of Health (NYSDOH, 2006) and the 600 ug/m³ Chronic Reference Exposure Level developed by California EPA (Cal EPA, 2000). Since there is no IRIS or PPRTV value for TCE, it is appropriate to use valid Tier 3 toxicity values under the OSWER Toxicity Hierarchy (USEPA, 2003). While both the NYSDOH criterion and the Cal EPA REL should be considered as Tier 3 toxicity values under the OSWER Toxicity Hierarchy, the NYSDOH criterion is based on a more extensive evaluation of health endpoints and available health effect literature. Therefore, please revise the document to include non-cancer risk of TCE using the 10 ug/m³ criterion, and discuss the uncertainty in the risk by comparing this risk to that using the 600 ug/m³ criterion.

REFERENCES:

- California EPA Office of Environmental Health Hazard Assessment. 2000. Chronic Toxicity Summary: Trichloroethylene. Documentation for a chronic Reference Exposure Level for Trichloroethylene. April. http://oehha.ca.gov/air/chronic_rels/pdf/79016.pdf
- NYSDOH. 2006. Center for Environmental Health, Bureau of Toxic Substances Assessment, Trichloroethene Air Criteria Document, October. http://www.health.state.ny.us/environmental/chemicals/trichloroethene/docs/cd_tce.pdf
- USEPA. 2003. Human health toxicity values in Superfund risk assessments. OSWER Directive 9285.7-53. <http://www.epa.gov/oswer/riskassessment/pdf/hhmemo.pdf>