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LETTER AND COMMENTS FROM MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION REGARDING DRAFT FEASIBILITY STUDY REPORT FOR SITE 11 SOLVENT RELEASE AREA NAS SOUTH WEYMOUTH MA
09/17/2010
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF MASSACHUSETTS
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Mr. Brian Helland, RPM
BRAC PMO, Northeast
4911 South Broad Street
Philadelphia, PA 19112

Re: Feasibility Study Report
Solvent Release Area
Former South Weymouth NAS
RTN No. 4-3002621
September 17, 2010

Dear Mr. Helland:

The Massachusetts Department of Environmental Protection (MassDEP), Bureau of Waste Site Cleanup, reviewed the draft *Feasibility Study Report for Site 11, Solvent Release Area, Naval Air Station South Weymouth, Weymouth, Massachusetts*, dated August 2010. Comments are attached.

If you have any questions about the comments, I can be reached at 617-348-4005.

Sincerely,

D. Chaffin

David Chaffin
Federal Facilities Project Manager
Bureau of Waste Site Cleanup

cc: D. Barney, USN-S. Weymouth
K. Keckler, USEPA
Executive Director, SSTTDC
RAB Members

MASSDEP COMMENTS ON
DRAFT FEASIBILITY STUDY REPORT
SOLVENT RELEASE AREA
FORMER SOUTH WEYMOUTH NAVAL AIR STATION (RTN 4-3002621)
SEPTEMBER 17, 2010

1. Sections 1.3.6.1 and 2.1: As explained in comments on the remedial investigation report, MassDEP believes that exposure to surface water in the East Mat Ditch (EMD) impacted by discharge of site groundwater poses unacceptable risk. In particular, estimated risks for child recreational users (2×10^{-5}) and lifelong recreational users (3×10^{-5}) exposed only to surface water in the EMD, scenarios which represent the planned future use of the EMD and immediate vicinity, exceeded the state cancer-risk threshold [1×10^{-5}, 310 CMR 40.0993(6)].

2. Section 2.3.1: The remedial action objectives (RAOs) should be modified to address unacceptable risks posed by exposure to surface water in the EMD (refer to previous comment), either explicitly by adding an RAO that requires prevention of exposure to surface water in the EMD with contaminant concentrations exceeding remediation goals, or implicitly by clarifying the term "groundwater" in Section 2.3.1 to indicate that it includes site groundwater discharging to the EMD.

3. Table 2-2: The state location-specific ARARs should include Massachusetts Wetland Protection Act regulations (310 CMR 10.00).

4. Tables 2-5, 4-8, 4-11, 4-14, and 4-17: The state action-specific ARARs should include regulations for actions involving the injection of remedial additives (310 CMR 40.0040).

5. Section 4.2.2, Alternative G-2: NA with Monitoring and LUCs:

   - The report should indicate that the natural attention remedy would be designed in accordance with USEPA's Monitored Natural Attenuation policy (e.g., *Performance Monitoring of MNA Remedies for VOCs in Ground Water*, EPA/600/R-04/027, April 2004).

   - The assumption that groundwater monitoring would be conducted using 36 existing monitoring wells is reasonable for the purposes of the report; however, in the event that this alternative is selected for design and implementation, significant modifications, including installation of new wells, may be required during the remedial design to establish a reliable long-term monitoring network.

   - The monitoring program should include collection and analysis of surface water samples from the EMD.

   - This alternative should include measures to restrict access to the EMD until contaminant concentrations in groundwater discharging to the EMD are reduced to levels that do not pose unacceptable risk.

6. Section 4.2.3, Alternative G-3: In-Situ Enhanced Bioremediation (Overburden and Bedrock), NA with Monitoring (Downgradient), and LUCs:

- The report should explain how the difficulty of delivering stimulant through a bedrock fracture network to the relatively sparse bacterial community that would be expected prior to treatment would not significantly limit the effectiveness of this approach for bedrock remediation.

- The report should explain how subsurface conditions would be controlled and monitored sufficiently to ensure effective contaminant destruction without generating an extensive iron and manganese plume that exceeds the extent of the existing plume or adversely impacts surface water in the EMD.

- The report should be clarified to indicate whether the source region, contaminant plume, or source and plume are the intended targets of treatment. Section 4.2.3.1 indicates that the contaminant plume would be targeted for treatment. The locations of the mulch barriers and injections wells (Figures 4-2 and 4-3), which would not treat the full extent of the source region, are consistent with this description. In contrast, Section 4.2.3.2 indicates that the contaminant sources would be removed. The distinction between contaminant sources (i.e., sorbed or separate phase material) and contaminant plumes (i.e., dissolved phase groundwater contamination) has significant implications for cleanup timeframes. Consequently, a decision to partially treat the source or limit treatment to the plume should be supported by an evaluation that demonstrates full source treatment would not reduce cleanup times significantly.

- The discussion of remedial timeframes should be clarified. Conflicting estimates of 45 years and more than 100 years for overburden cleanup should be explained or corrected. The 100-year timeframe appears to be an overestimate because it is based on the assumption that no overburden cleanup will occur outside of the source area (Appendix F); however, Figure 4-2 indicates that overburden groundwater outside of the source area would be treated, potentially resulting in shorter cleanup times. Also, because bedrock and overburden are hydraulically connected, the report should explain why the overburden cleanup would not take as long as the bedrock cleanup; relatively persistent bedrock contamination would be expected to sustain contaminant concentrations in the overburden until bedrock cleanup has occurred.

- This alternative should address the concerns raised about NA and LUCs in Comment 5.

7. Section 4.2.4, Alternative G-4: In-Situ Chemical Oxidation (Overburden) and Enhanced Bioremediation (Bedrock), NA with Monitoring (Downgradient), and LUCs:

- Reliance on a one-time implementation of ISCO to address overburden contamination is questionable due to the low probability of destroying all of the source material in the overburden. Consequently, to ensure that the source strength is adequately reduced before relying on bedrock treatment and natural attenuation to complete the cleanup, this alternative should include specific goals for post-ISCO contaminant concentrations, performance monitoring provisions, and contingencies such as repeat treatments.

- Because ISCO treatment would be expected to destroy a significant fraction of the existing bacterial community, the report should explain how the lost bacterial community would be restored and provide a restoration time estimate.

- The discussion of remedial timeframes should be clarified to allow meaningful comparison with other alternatives. The estimated timeframe for this alternative (more than 100 years for overburden cleanup and several hundred years for bedrock cleanup) is the same as estimated for the natural attenuation alternative (Alternative G-2). Presumably, implementing ISCO to destroy the overburden source region would reduce cleanup times or provide other remedial advantages when compared to natural attenuation; these potential advantages (e.g., reduced cleanup time, expedited reduction in plume extent, and expedited reduction of contaminant discharge to EMD) should be identified in the report.

- This alternative should address the concerns raised about enhanced bioremediation in Comment 6 and the concerns raised about NA and LUCs in Comment 5.

8. Section 4.2.5, Alternative G-5: ZVI PRB (Overburden), Enhanced Bioremediation (Bedrock), NA with Monitoring (Downgradient), and LUCs:

- The report should be clarified to indicate whether the source region, contaminant plume, or source and plume are the intended targets of treatment. Section 4.2.5.1 indicates that the contaminant plume would be targeted for treatment. The locations of the permeable reactive barriers (Figure 4-5), which would not treat the full extent of the source region, are consistent with this description. In contrast, Section 4.2.5.2 indicates that the contaminant sources would be removed. The distinction between contaminant sources (i.e., sorbed or separate phase material) and contaminant plumes (i.e., dissolved phase groundwater contamination) has significant implications for cleanup timeframes. Consequently, a decision to partially treat the source or limit treatment to the plume should be supported by an evaluation that demonstrates full source treatment would not reduce cleanup times significantly.

- The discussion of remedial timeframes should be clarified to allow meaningful comparison with other alternatives. The estimated timeframe for this alternative (more than 100 years for overburden cleanup and several hundred years for bedrock cleanup) is the same as that estimated for the natural attenuation alternative (Alternative G-2). Presumably, installing and operating PRBs at the site would reduce cleanup times or provide other remedial advantages when compared to natural attenuation; these potential advantages (e.g., reduced cleanup time, expedited reduction in plume extent, and expedited reduction of contaminant discharge to EMD) should be identified in the report. Also, the 100-year timeframe appears to be an overestimate because it is based on the assumption that no overburden cleanup will occur outside of the source area (Appendix F); however, Figure 4-5 indicates that overburden groundwater outside of the source area would be treated, potentially resulting in shorter cleanup times.

- This alternative should address the concerns raised about enhanced bioremediation in Comment 6 and the concerns raised about NA and LUCs in Comment 5.

9. Section 4.2.6; Alternative G-6: In-Situ ERH (Overburden) and Enhanced Bioremediation (Bedrock), NA with Monitoring (Downgradient), and LUCs:

- Reliance on a one-time implementation of ERH to address overburden contamination is questionable due to the low probability of destroying all of the source material in the overburden. Consequently, to ensure that the source strength is adequately reduced before relying on bedrock treatment and natural attenuation to complete the cleanup, this alternative should include specific performance goals for post-ERH contaminant concentrations and contingencies such as repeat treatments.

- Because heating would be expected to temporarily increase contaminant concentrations in groundwater, the report should explain how conditions would be controlled and monitored sufficiently to prevent a significant increase in the extent of the contaminant plume and prevent an adverse impact on surface water in the EMD.

- Because implementation of ERH in the overburden portion of the source region would be expected to destroy a significant fraction of the existing bacterial community, the report should explain how the lost bacterial community would be restored and provide a restoration time estimate.

- All of the selectable remedial alternatives presented in the report depend on technologies that involve the injection of fluids to cleanup bedrock contamination. Numerous case studies and recent experience at the Building 81 site have demonstrated that the effectiveness of these technologies is often limited by the inability to adequately distribute fluids through the existing bedrock fracture network. ERH, in contrast, does not involve such limitations, and therefore is potentially a more effective technology for bedrock remediation at the SRA. In addition, as indicated in Section 4.2.6.2, shorter cleanup times would be expected. Consequently, to provide an alternative approach for bedrock, MassDEP recommends that the report include an evaluation of a remedial alternative that would use ERH to treat the bedrock portion of the source.

- This alternative should address the concerns raised about enhanced bioremediation in Comment 6 and the concerns raised about NA and LUCs in Comment 5.