Ex. 5 Deliberative Process (DP)

From: MOOK, PHILIP H JR GS-15 USAF AFCEC AFCEC/CIBW [mailto:philip.mook@us.af.mil]
Sent: Tuesday, May 02, 2017 11:35 AM
To: Henning, Loren <Henning.Loren@epa.gov>
Subject: RE: Implementation of EBR at former WAFB

Dear Loren,

Thank you for your email outlining a proposal for implementing ST012 EBR in a phased approach. Your efforts and commitment to work toward addressing the technical issues associated with EBR implementation are greatly appreciated.

The AF evaluation of the regulatory proposed approach concluded that it is equivalent to a pilot study. A pilot study is not needed as multiple lines of evidence support that subsurface conditions are conducive to EBR. The desired outcome from the limited pilot study approach will be more effectively achieved by full scale implementation. Additional benefits of full scale implementation include addressing site areas that have been a concern to the regulators and advancing remediation of the entire site toward meeting our remedial action objective of protection of human health and the environment. A pilot study would entail an estimated two year delay.

The current plan is to implement full scale EBR in a phased and controlled approach. Approximately thirty areas will be addressed initially (during the first six months), starting with the up-gradient and central plume areas. The current implementation approach is iterative and will include data collection, optimization and adjustments as requested by the regulatory agencies.

Our joint goal is to make maximum remedial progress during next three years prior to the end of the current AF contract. We have the opportunity to significantly advance cleanup for a large portion of the site. In addition, results of full scale implementation during the next one to three years will provide valuable input to the AF for the next contract procurement planned for mid- 2020 award. The AF acknowledges specific areas of the site may need additional actions prior to MNA.

The AF is committed to the implementation of the EBR phase of the ST012 remedy in accordance with the Final OU-2 ROD Amendment and the Final RD/RA Work Plan, both of which were approved by EPA and ADEQ. The AF will deliver a Final RD/RA Addendum #2 Work Plan for your approval by 30 May 2017. The Final Work Plan will include the progress/agreements we've made over the past three months, including the Decision Tree and Criteria for EBR. Future enhancements and revisions will be addressed by work plan addenda and Field Work Variances.

Additional AF responses to the regulatory proposed approach are included in the attached table.

I look forward to discussing our path forward.

Sincerely,

Phil

//SIGNED//
Philip H. Mook, Jr., P.E.
BRAC Program Management/Western Region
Air Force Civil Engineer Center

3411 Olson Street
McClellan, CA 95652-1003
916.643.1250 x 100
916.203.2539 (cell)

-----Original Message-----
From: Henning, Loren [mailto:Henning.Loren@epa.gov]
Sent: Monday, April 24, 2017 5:07 PM
To: MOOK, PHILIP H JR GS-15 USAF AFCEC AFCEC/CIBW <philip.mook@us.af.mil>
Cc: Herrera, Angeles <Herrera.Angeles@epa.gov>; Tina LePage <LePage.Tina@azdeq.gov>
Subject: [Non-DoD Source] Implementation of EBR at former WAFB

Hi Phil,

As we discussed, here is a fairly general overview of the phased implementation of EBR requested by the Regulatory Agencies. The Agencies understand the AF's desire to move forward with implementation of EBR; however, our technical staff still have significant concerns about how EBR will be implemented and evaluated as a viable treatment technology. Therefore, the Agencies request that EBR be implemented in a phased approach, using a re-circulation

approach similar to that outlined in the approved May 2014 RD/RA work plan. It is necessary to use a recirculation approach because that approach was used in the modeling to predict the remedial time frame. The phased implementation must allow the Agencies to verify that benzene (including benzene in the LNAPL phase) is being degraded/depleted, to verify effective TEA distribution throughout the treatment area, and to determine the optimal conditions for EBR.

For this phased approach, the AF, with input provided by the Agencies, would select two locations at the site in each of the hydrogeologic zones to implement EBR initially; one location would be in an area of high LNAPL concentration, and another area with dissolved phase contaminants only. We propose that the primary measure of effectiveness of EBR would be reduction of benzene concentrations in LNAPL and groundwater, after allowing for the potential increase in dissolved phase concentrations immediately after the TEA is injected. Other lines of evidence to demonstrate that EBR is working as expected would include geochemical and microbiological analyses to determine the response of site geochemistry and the microbiota (particularly those microorganism groups known to be involved in degradation of benzene under sulfate-reducing conditions) to sulfate injection. This empirical data collected before and during implementation of EBR would be used to evaluate its efficacy, would be the basis for optimizing the system as appropriate, and would provide data on benzene degradation rates to be incorporated into appropriate models to predict the time to remediation.

Please share this with your technical staff, and let's plan to discuss in more detail during the next WAFB conference call.

Regards,

Loren

Loren Henning, Chief
Federal Facilities and AZ Private Sites Section US EPA Region 9
(415) 972-3164 phone
(415) 699-1941 cell