



MARYLAND DEPARTMENT OF THE ENVIRONMENT
Land Management Administration
Oil Control Program

MEMORANDUM

TO: Scott Burluson, Dane Bauer, Arthur Hilsenrad, Mark Wasserman
FROM: Christopher Ralston
CC: Robert Summers, Horacio Tablada, Mitch McCalmon, Drew Miller, Susan Bull, Saeid Kasraei, Ching-Tzone Tien
DATE: August 2, 2013
SUBJ: Chester River Hospital Center
Case No. 87-2534KE
Facility ID No. 3168
RE: **Comments to: *Groundwater Remediation 2013 Action Plan, July 17, 2013***

On July 22, 2013, CRHC’s consultant submitted the referenced plan as a draft for MDE’s review and comment. The MDE OCP has completed a review of the document and provides the following synopsis and comments. It is the expectation of the OCP that a technical meeting will take place to discuss the comments below and for CRHC to present additional detail to the Department. Upon further agreement on those details, CRHC may submit a final plan that will be reviewed by the Department and made available to the Town of Chestertown for their comments.

The OCP is available the week of August 12th or August 26th for a technical meeting with CRHC’s consultant team.

Plan Synopsis

The plan is for the injection of a surfactant solution, Ivey-sol, to assist in “dissolving” the residual adsorbed/absorbed petroleum hydrocarbons into the shallow groundwater formation. A “push pull” method will be employed to assist in the distribution efforts. The “dissolved” petroleum hydrocarbons will then be available for extraction and ex situ treatment. The existing recovery wells and pump and treat system can be used. Additional well locations may be installed to facilitate the plan implementation.

The OCP agrees that the technology can be successful in making more petroleum hydrocarbons available for recovery and treatment.

Comments

- The plan is conceptual in nature and does not detail where the injection and extraction points will be located. The treatment should be focused on the area of greatest residual source mass. This area is generally defined by the areas exhibiting the highest concentrations of TPH-DRO and measureable free product. Treating areas that are downgradient from the source area will not provide for long term or sustained remediation.
- The existing smear zone should be identified to determine the depths of residual hydrocarbons. This can be accomplished through review of previously collected boring logs (if sufficient detail exists) and previously collected soil data. The point of this exercise is to identify the general geometry of the residual mass so that the injections are targeted. By not completing this exercise and relying on “pouring” the surfactant solutions into existing wells, the solution will generally not distribute vertically to any significant degree. Using the existing recovery wells to influence the local hydraulics can assist with vertical distribution to a degree. However, it is often beneficial to install appropriately constructed injection wells to target the residual mass and better guarantee contact with the source area.
- Because the technology does make additional hydrocarbons available for migration within the groundwater, demonstrating adequate hydraulic control is a critical component to the OCP approving this plan. CRHC must demonstrate this through presentation of past hydrogeologic work (e.g. presenting of past pumping tests, established cones of depression) and presentation of updated information if new recovery wells are installed.
- The plan must include the specific wells to be used for 1) monitoring, 2) injection, and 3) extraction. Any new wells that are proposed to be installed for these purposes must also be identified and the installation details presented.
- It is not clear from the plan if the intention is to use the same wells for injection, extraction, and monitoring or if separate wells will be used for each function. The OCP generally does not allow for one well to serve all three purposes as this generally leads to only cleaning up of the well and immediately adjacent formation.
- The plan must present and discuss measurable endpoints for the activities. This is critical to both parties agreeing to what will constitute completion of the remediation project.
- The OCP agrees that the existing recovery well network and the existing pump and treat system can be used to assist in the proposed remediation. However, the extent that the existing pump and treat system will be used is not clear from the proposal.

- A discussion of any potential complications of the Ivey-sol chemical with the treatment train of the existing pump and treat system must be presented.
- If the extracted water will be hauled off site for treatment and disposal, a discussion of any potential complications to haulers must also be presented.
- An MSDS sheet for the Ivey-sol chemical must be submitted. Documentation must also be presented on how the extracted material meets with typical NPDES permit requirements.
- Because there have been detections of several VOCs, including naphthalene and PCE, the OCP will require sampling of VOCs during this implementation of this plan as they will also likely increase in concentration during treatment.
- The OCP requires the sampling of groundwater for the EPA methods identified in the Ivey International plan (EPA Method SM5540D and EPA Method SM5540C). Analysis of these parameters should be completed for the quarterly sampling events.
- The proposal does not specifically define what the residence time will be for the Ivey-sol chemical. In other similar implementations approved in Maryland, 24 hours has been typical. Please define either the time or the decision matrix that will be used to determine in the field.
- The Department cannot commit at this point to a meeting about cleanup goals in November. The timing of these discussions can be further discussed at a technical meeting to be scheduled.
- The Wastewater Permits Program has determined the injection wells will be permitted by rule under the Underground Injection Control program. A letter will be issued to the CRHC as part of the final plan approval.