



September 11, 2013

Mr. Christopher Ralston
Program Administrator
Oil Control Program
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230-1719

Re: Chester River Hospital Center
Close Out Process
Project No: 13402.00
MDE Case No. 1987-2534-KE
Facility ID No. 3168

Dear Mr. ^{Chris}~~Ralston~~:

This is to confirm our various ongoing communications regarding the status of the cleanup process and proposed close out of the Chester River Hospital Center groundwater contamination case. As you know, for the past year and pursuant to Chester River Hospital Center's (CRHC) request, Earth Data has been overseeing the comprehensive groundwater monitoring program. This effort was initiated after twenty (20) plus years of groundwater pump and treat operations, as upgraded over time, and consisting of seven (7) recovery wells and a filtration system with a series of pre-filters and Mycelex filters followed by discharge to an onsite storm sewer. The remediation effort through 2012 had resulted in recovery of 83,452 gallons of fuel oil. Following this twenty (20) year recovery process, MDE agreed in 2012 that the free product effort had effectively reached an end point and that CRHC could, at their request, proceed with the close out process as outlined in MDE Regulation and Policy.

As part of the close out process CRHC, through Earth Data, shut down the pump and treat operation and implemented a very comprehensive monitoring program using proposed protocols. This program includes testing for many chemical constituents based on agreements reached with MDE as to the type of samples and duration of monitoring required over a full twelve (12) month period. On May 8, 2012, MDE directed a letter to CRHC which provided a complete review of the case file and documented in detail the projects progress from the initial oil spill, through cleanup operation. This letter also addressed CRHC's request in April, 2012 to shut down the recovery system and proceed with an established post-remedial monitoring plan.

This letter further identified the post remediation monitoring plan to include:

- Monthly gauging of the entire monitoring network
- Quarterly sampling of all wells that do not exhibit LPH
- Targeted recovery of detected LPH via hand bailing and use of absorbent materials, and
- Quarterly reporting

The May 8, 2012 MDE letter also indicated "If at any time during this monitoring period any dissolved phase hydrocarbons are detected in any of the down gradient monitoring wells located across Brown Street (MW16, MW19, MW33, MW34, or MW35) the system must be reactivated." The MDE as part of the May 8, 2012 letter approved the written request for system shut down and the Draft Post Corrective Action Monitoring Plan.

To fill a gap in the groundwater monitoring network beneath the parking area south of Brown Street, Earth Data installed three (3) new monitoring wells (MW48, MW49, and MW 50) in March, 2013. The three (3) new monitoring wells were gauged and sampled each month during the last quarter (April, 2013 to June, 2013) of the post corrective action monitoring plan. During the period from June, 2012 to April, 2013 the collected samples and laboratory results were as expected and everything indicated the cleanup continued to produce favorable results. It was believed that after the last quarter of monitoring an updated site assessment of the required seven (7) factors would have led to the final close out.

However, in May and June of 2013 very low levels (at or near the levels of detection) for TPH-DRO were found in eight (8) of seventeen (17) down gradient monitoring wells (including MW 16, MW19, MW34, and MW35) as documented in Earth Data's June, 2013 Post Corrective Action Quarterly Monitoring Report. The remediation system was immediately reactivated on June 14th. To confirm the presence of TPH-DRO in the down gradient monitoring wells, all wells south of Brown Street were resampled for TPH-DRO. The results of these samples indicated detectable levels of TPH-DRO in the same wells as the earlier samples but at considerably lower concentrations. Furthermore, we requested the lab to analyze the samples at a lower quantitative limit. The results showed very low (0.044 mg/L and 0.040 mg/L) but detectable levels of TPH-DRO in MW18 and MW23.

It is the collective opinion of the CRHC Consultant Team that the reactivation of the remediation system had the effect of lowering the water-table elevation in the vicinity of the down gradient monitoring wells where TPH-DRO had first been found allowing these dissolved organics to be adsorbed by the upper soil strata, which than resulted in lower concentrations in the collected samples.

These observations matched the Consultant Team's theory that these trace amounts of dissolved chemicals are associated with adsorption of TPH to the soils when fluctuating water tables are lower with reintroduction into the water column when the water table is elevated. Sorption effects limit the availability of contaminants for physical, chemical, and biological remediation. It can count for ninety percent (90%) or more of the total contaminant mass at a site. Hence Hydrophobic Organic Chemicals (HOC's) (free phase, dissolved, and/or sorbed) can persist in soils, sediments, and fractured bedrock for extended periods of time. This explains why some remediation projects are slow, costly, and/or fail to achieve their remediation objectives.

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In July and August ongoing sampling indicated that detectable levels of TPH-DRO occurred in far fewer wells with only two (2) wells showing detectable levels in August. The Team believes this is due to a lowering of the water table and the documented smear effect.

For these reasons, and in order to effectively complete the cleanup, protect the local water supply, and to be able to efficiently close out the project, CRHC is recommending a new "clean up step" (Ivey-sol) to complete the process as described in the attached 2013 Action Plan.

We look forward to working with the MDE in what we hope to be the final phase of the groundwater remediation for this site.

Should you have any questions concerning this information or require any clarifications please contact me directly on 410.812.9109. Once you have had a chance to review the detail associated with our plans please call so that we can set up a meeting at your earliest convenience so we can discuss implementation steps.

Sincerely,

Daft-McCune-Walker, Inc.



Dane S. Bauer
Senior Vice President

Enclosures

Cc: Mr. Art Hilsenrad
Mr. Scott Burlison
Dr. Robert Summers
Mr. Kunal Gangopadhyay
Mr. Bud Ivey
Mr. Tucker Moorhead