



September 9, 2020

Mr. Kenneth D. Kozel
President and CEO
Shore Regional Health
219 South Washington Street
Easton, MD 21601

RE: NATURAL ATTENUATION MONITORING REQUIREMENTS
Case No. 1987-2534-KE
Chester River Hospital Center
100 Brown Street, Chestertown
Kent County, Maryland
Facility I.D. No. 3168

Dear Mr. Kozel:

The Maryland Department of the Environment's (MDE) Oil Control Program (OCP) completed a review of the case file for the above-referenced property. On May 17, 2016, the University of Maryland Shore Regional Health (the Hospital) and MDE entered into a Settlement Agreement and Consent Agreement that specified certain work to be performed including site monitoring. On April 24, 2020, MDE issued the *System Shut-down and Post-Remedial Monitoring Approval* letter. On June 26, 2020, MDE postponed system shutdown after it became apparent the system had been inoperable for approximately two months and had not been reported to MDE. At that time, MDE required operation of the system for at least two more quarters for further evaluation.

The monitoring well network consists of a total of 46 monitoring wells, 6 recovery wells, and 3 sentinel wells. Over several years, samples have been routinely analyzed for full-suite volatile organic compounds (VOCs), including fuel oxygenates and naphthalene, using EPA Method 8260 and total petroleum hydrocarbons - diesel range organics (TPH-DRO) using EPA Method 8015B. In recent years, the addition of a silica gel cleanup (SGC) method (EPA Method 3630) for the TPH-DRO analysis has been used to obtain a more precise measurement of petroleum hydrocarbons detected by EPA Method 8015.

In reviewing the previously collected TPH-DRO data with and without SGC from multiple wells, MDE determined that active biodegradation is occurring within the area of the project with the greatest residual petroleum hydrocarbon concentrations. The conclusion is based on the fact that there is not a naturally occurring background level of TPH-DRO in the aquifer. Therefore, the differences between TPH-DRO results with and without SGC for the same well can be attributed to the presence of polar compounds that are often products of biodegradation as discussed in the ITRC document, *TPH Risk Evaluation at Petroleum-Contaminated Sites*, November 2018.

Building upon this observation, MDE is requiring the collection of additional data to assess the natural attenuation processes at the site. The goal will be to develop a long-term sampling strategy to establish additional lines of evidence that cleanup to date has been effective and, once the project enters the post active remediation phase, that biodegradation is effectively stabilizing and decreasing the residual petroleum hydrocarbons. Specifically, MDE is requiring the following:

- 1) During the next two quarterly sampling events, the following natural attenuation parameters must be collected from each of the wells:

| Analysis | Method | Method Description | Reporting Units |
|--|------------------------------------|--|-----------------|
| Dissolved Oxygen (DO) | EPA 360.1 | Membrane electrode with flow-thru cell (i.e. YSI 650/6820 water quality meter or equivalent) | mg/L |
| Nitrate (NO ₃ ⁻) | HACH 8039/8192 and EPA Method 9056 | Colorimetric field kit. Sample must be filtered with 0.45 micron filter prior to analysis. A minimum of 10% of samples must also be analyzed in a lab by EPA Method 9056 to confirm field results. | mg/L |
| Soluble Iron (Fe ²⁺) | HACH 24140-25 | Colorimetric field kit. Sample must be filtered with 0.45 micron filter prior to analysis | mg/L |
| Sulfate (SO ₄ ²⁻) | HACH 8051 and EPA Method 9056 | Colorimetric field kit. Sample must be filtered with 0.45 micron filter prior to analysis. A minimum of 10% of samples must also be analyzed in a lab by EPA method 9056 to confirm field results. | mg/L |
| pH | - | YSI 650/6820 water quality meter or equivalent (with flow-thru cell) | standard units |
| Oxidation-Reduction Potential (ORP) | - | YSI 650/6820 water quality meter or equivalent (with flow-thru cell) | milliVolts |
| Temperature | - | YSI 650/6820 water quality meter or equivalent (with flow-thru cell) | degrees Celsius |

- 2) All groundwater samples collected must continue to be analyzed for full-suite VOCs, including fuel oxygenates and naphthalene, using EPA Method 8260 and TPH-DRO using EPA Method 8015B. Continue to perform EPA Method 3630 (i.e., SGC) on the currently selected wells listed in Table 3 of the quarterly reports.
- 3) Continue monthly gauging and quarterly sampling of all monitoring, recovery, and sentinel wells in the network. All data collected must be submitted in quarterly reports detailing the results of the gauging and sampling events. The reports must continue to follow the currently approved reporting format, including pump and treat system performance and inspection notes.

- 4) For all future quarterly reports, submit a Mann-Kendall statistical analysis, including calculation tables, on all wells that have historically had detections of the following compounds: benzene, naphthalene, and TPH-DRO. The data sets must include all sampling events since routine quarterly sampling began in June 2012. For wells that have been analyzed for TPH-DRO with and without SGC, separate statistical analyses must be performed.
- 5) In the next two quarterly reports, submit iso-contour maps from the most recent data collection events for each of the following analyses: benzene, naphthalene, TPH-DRO, DO, nitrate, soluble iron, sulfate, and ORP.
- 6) If a new occurrence or uncharacteristic increase in the amount of LPH is observed relative to historic site data, or if measurable amounts of LPH are detected in any monitoring point at a thickness greater than 0.01 foot (e.g., “sheen” or “film”), report the findings to MDE within 2 hours of discovery by calling OCP at 410-537-3442 during standard business hours, or the Emergency Response Division hotline at 1-866-633-4686.
- 7) Remediation System Requirements
 - a. If the remedial system fails to operate for more than 24 hours, for any reason, it must be reported to MDE. Once operation of the system is restored, a summary of the cause of the system failure, repairs made, and total system down time must be provided to MDE within five days of system reactivation.
 - b. **Within two weeks of this letter**, install a remote telemetry monitoring system capable of providing notification when the remediation system fails to be operating as designed. If a telemetry system is already present on the remediation system, provide specifications for the system installed.

A minimum of two quarters of natural attenuation parameter sampling and associated reporting must be completed prior to MDE allowing approved system shutdown to move forward. Based on the results of the first two quarters of natural attenuation parameter results, MDE will determine the sampling requirements for post-active remediation monitoring.

As indicated in MDE’s August 28, 2020 letter to Mayor Cerino, MDE would like the Hospital to discuss with the Town the possibility of incorporating town well number 8 (TW#8) into the sampling schedule. This well is a potential direct receptor and is the closest available well to the Town’s active municipal wells. The data collected from this location will be meaningful in considering any future request for closing the case in the years to come.

This letter should not be construed as a waiver or limitation of MDE’s right to take enforcement or other action with respect to activities not addressed by this letter or unknown to MDE at this time, including newly discovered contamination or the exacerbation of existing contamination. The MDE and the State of Maryland retain all authority and rights against any persons in any way responsible for causing the contamination present at or migrating from the site, including the right to seek all available relief, including equitable relief and damages of any nature, such as compensatory and natural resource damages, resulting from the release of any contaminant at the site.

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Notify the Oil Control Program at least five (5) working days prior to conducting any work at this site so we have an opportunity to observe field activities. When submitting documentation to OCP, provide three hard copies and one electronic copy on a labeled compact disc (CD) or via email. If you have any questions, please contact me at 410-537-3499 or susan.bull@maryland.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Susan Bull". The signature is fluid and cursive, with the first name "Susan" and the last name "Bull" clearly distinguishable.

Susan R. Bull, Eastern Region Supervisor
Remediation Division
Oil Control Program

cc: Mayor Chris Cerino, Town of Chestertown
Mr. Bill Ingersoll, Manager, Town of Chestertown
Michael Powell, Esq., Gordon Feinblatt, LLC
Mr. John Beskid, Director, Environmental Health Programs, Kent County Health Dept.
Julie Kuspa, Esq., Office of the Attorney General
Mr. John Grace, Source Protection and Appropriation Division, Water Supply Program
Mr. Saeid Kasraei, Program Manager, Water Supply Program
Ms. Lindley Campbell, Case Manager, Remediation Division, Oil Control Program
Mr. Andrew B. Miller, Chief, Remediation Division, Oil Control Program
Mr. Christopher H. Ralston, Program Manager, Oil Control Program