



February 2, 2023

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

**RE: 2023 GROUNDWATER SAMPLING AND ANALYSIS PLAN APPROVAL**  
**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) has completed a review of the case file for the above-referenced property, including the *2023 Groundwater Sampling and Analysis Plan (SAP)*, dated November 30, 2022, and the *Fourth Quarter 2022 Monitoring Report*, dated January 2023, both prepared by Gannett Fleming on behalf of the University of Maryland Shore Regional Health (SRH). The MDE also reviewed the Town of Chestertown's comments on the *SAP*, dated December 20, 2022.

On May 17, 2016, SRH and MDE entered into a *Settlement Agreement and Consent Agreement (SACO)*. Additionally, on June 22, 2016, the Town of Chestertown and SRH entered into a SACO to further protect the Town's water supply. The conditions of both SACOs remain in effect.

The current monitoring well network consists of a total of 55 wells, which include 46 monitoring wells, 6 recovery wells, and 3 sentinel wells. Surfactant injections were conducted on select monitoring wells in the network between August 2015 and March 2016. A supplemental subsurface investigation was completed in June 2016 to assess soil conditions in the areas of the original fuel release and the long-term recovery zone. On April 1, 2022, a *Pilot Pumping System Shutdown* was approved. The pumping system was shut down on April 25, 2022, which was the beginning of a 6-month monitoring period that continued through October 2022.

### **Chestertown's Limited Subsurface Investigation**

In August 2022, a *Limited Subsurface Investigation* was performed on the SRH property, as commissioned by the Town. This investigation included the completion of eight high resolution optical image profiler borings, advancement of eight soil borings, installation of eight temporary

wells and the collection of soil and groundwater samples to evaluate the current subsurface conditions.

The results of the investigation concluded that two of the eight borings exhibited UV fluorescence in the soil matrix indicative of the presence of residual light non-aqueous phase hydrocarbons (LNAPL). These responses were measured at the soil/ water interface, approximately 40 to 43 feet below ground surface (bgs) in soil borings SB-5 and SB-6, respectively.

A total of 16 soil samples and 8 groundwater samples were collected to evaluate the presence / absence of residual petroleum impact. All samples collected were analyzed for full-suite volatile organic compounds (VOCs), including naphthalene, using EPA Method 8260 and total petroleum hydrocarbons-diesel range organics (TPH-DRO) using EPA Method 8015. All soil sampling results were either non-detect or below MDE's non-residential soil cleanup standards, with the following exception. TPH-DRO were detected at a concentration of 2,800 parts per million (ppm) in SB-5, which was collected at a depth of 37 feet bgs. All groundwater sampling results were either non-detect or below groundwater standards, with the following exceptions. TPH-DRO were detected at a concentration of 1.5 ppm in TW-5 and 0.45 ppm in TW-6.

The results of the *Limited Subsurface Investigation* are consistent with the findings provided to date by SRH.

### **2023 Groundwater Sampling and Analysis Plan (SAP)**

During the 6-month monitoring period associated with the pumping system shutdown, the following observations were documented:

- There was no reoccurrence of LNAPL;
- No constituents of concern were detected that exceeded any approved MDE Work Plan established triggers;
- There were no indications that the dissolved phase hydrocarbon plume migrated; and
- There was strong evidence that natural attenuation and degradation of the hydrocarbon plume was occurring.

The *SAP* proposes a monitoring schedule for the 2023 calendar year that permits continued monitoring of the well network and provides flexibility for monitoring to be adjusted for future calendar years in accordance with the executed SACO agreements. The *SAP* proposes to monitor the well network under a modified quarterly and semi-annual monitoring schedule, with a subset of wells removed from the sampling program and only inspected on a semi-annual schedule. Sample analysis will include full-suite VOCs, including fuel oxygenates and naphthalene, using EPA Method 8260; TPH-DRO using EPA Method 8015; TPH-DRO using EPA Method 8015 with the silica gel cleanup preparation method by EPA Method 3630; and specified geochemical parameters. Progress reports will be submitted in April, July, and October 2023, and January 2024. An annual stakeholders meeting is proposed during November 2023 to review the status of the reports and discuss the 2024 groundwater monitoring program.

The *SAP* includes the same matrix of events that, any of which, can trigger either targeted supplemental investigation or reactivation of the groundwater pumping system. This is the same matrix that was proposed in the 2022 *Work Plan (Table 2)*, and approved in the *Pilot Pumping System Shutdown Approval*, dated April 1, 2022 (*Table 2 Summary of Triggers and Action Plans*). The triggers include:

1. MDE directs SRH to restart the groundwater pumping system;
2. Groundwater concentrations exceeding 0.47 mg/L TPH-DRO or 0.0017 mg/L naphthalene in any of the seven sentinel wells: S-1, S-2, S-3, MW-18, MW-23, MW-28, and MW-29;
3. Detection of any contaminants of concern above trigger levels (i.e., groundwater concentrations exceeding 0.47 mg/L TPH-DRO or 0.0017 mg/L naphthalene, or the detection of any surfactants) in an active Town production well;
4. The detection of LNAPL at greater than 0.01 foot in any well south of Brown Street;
5. The detection of LNAPL at greater than 0.05 foot in any well north of Brown Street for three consecutive gauging events; and
6. Groundwater concentrations exceeding 1 mg/L TPH-DRO or 0.017 mg/L naphthalene in all the following wells for three consecutive quarterly sampling events: MW-24, MW-16, MW-50, MW-49, MW-15, and MW-17.

### **2023 SAP Approval and Modifications**

Based on the current commercial and residential land use and the available information reviewed for the case, MDE hereby approves the proposed actions in the *SAP* with the following modifications.

1. As proposed, the groundwater pumping system may remain off, but must remain on site in the event conditions present that would trigger reactivation of the system or MDE requires the system be restarted. In accordance with Paragraph 43 of the *SACO*, if MDE instructs SRH to restart the groundwater pumping system, SRH will do so within 10 days.
2. **Monthly gauging** of all wells in the network must continue, including the eight wells proposed for inspection only (MW-1, MW-3, MW-4, MW-5, MW-12, MW-25, MW-32, and MW-44). If any gauging data collected warrants supplemental sampling, the OCP reserves the right to require select sample collection.
3. In addition to the 21 target wells proposed for **quarterly** monitoring (MW-15, MW-16, MW-17, MW-18, MW-20, MW-23, MW-28, MW-29, MW-33, MW-34, MW-35, MW-43, MW-46, MW-48, MW-49, MW-50, MW-54, MW-56, S-1, S-2, and S-3), samples must also be collected **quarterly** from the following 6 wells: MW-13, MW-14, MW-19, MW-24, MW-45, and MW-52.

4. Additionally, any well that exceeds a concentration-based or LNAPL detection-based threshold trigger that is not already sampled quarterly, must be added to the list of wells to be sampled quarterly.
5. MDE approves the proposed quarterly and semi-annual sampling schedule for the calendar year of 2023, with the additions noted above and the following:
  - a. All data collected must be submitted in quarterly reports detailing the results of the monthly gauging and sampling events;
  - b. Each quarterly report must include updated Mann-Kendall trend analyses for the same 40 wells that SRH provided trend analyses for during the *Pilot System Shutdown* and based on the following criteria:
    - i. One Mann-Kendall trend analysis for the period from April 2020 to the start of the *Pilot System Shutdown* on April 25, 2022;
    - ii. One Mann-Kendall trend analysis for the period from May 2022 through the present monitoring period;
    - iii. Each Mann-Kendall trend analyses must be completed for TPH-DRO using EPA Method 8015 and separately for TPH-DRO using EPA Method 8015 with the silica gel cleanup preparation method; and
    - iv. The Mann-Kendall trend analyses and any conclusions from them must be clearly identified in the report; and
  - c. The quarterly reports submitted must continue to include LNAPL thicknesses starting from April 2019 to the present in the groundwater gauging tables.
6. Only TPH-DRO data without silica gel cleanup will be used for compliance with the concentration-based threshold triggers in the *SAP*.
7. MDE approves of the proposed actions as stated in the *SAP* if LNAPL are detected in any well at a thickness greater than 0.01 foot, with the following exceptions:
  - a. Report the findings to the stakeholders by email notification no later than 24 hours of discovery. This email should, at a minimum, include the well location(s) and thickness of LNAPL measured; any immediate corrective action taken; post-corrective action gauging thickness; and proposed additional corrective actions, if warranted. MDE will review any notice to determine if additional measures, including system restart, will be required.
  - b. Absorbent wicks may not be left in monitoring points.

- c. MDE reserves the right to require additional recovery efforts based on either the amount of LNAPL rebound following corrective action or the initial amount of LNAPL detected.
8. MDE concurs with the *2023 Milestone Schedule* as proposed on page 4 of the *SAP*, with the following exception. The contingency for a *6-month review meeting* must be established for August 2023, so all stakeholders can discuss the data presented in the first two *Quarterly Monitoring Reports*. If the data is favorable, and it is determined by all parties that a meeting is not necessary, then all parties must confirm that this meeting has been waived.
9. As part of the 6-month and 12-month review meetings with MDE, SRH, and the Town, at least the following will be discussed: the outcomes of the ongoing monitoring program, and the 2024 monitoring program for the site.

This *2023 Groundwater Sampling and Analysis Plan Approval* letter is not a waiver or limitation of MDE's right to take enforcement or other action in the future based upon contamination at and around the site. The MDE and the State of Maryland retain all authority and rights to seek all available relief, including equitable relief and damages of any nature, such as compensatory and natural resource damages, for contamination at and around the site.

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. Unless otherwise stated in this letter, when submitting documentation, provide three hard copies and an electronic copy via email or on a labeled compact disc (CD). If you have any questions, please contact Ms. Lindley Campbell at 410-537-3387 ([lindley.campbell1@maryland.gov](mailto:lindley.campbell1@maryland.gov)) or Ms. Susan Bull at 410-537-3499 ([susan.bull@maryland.gov](mailto:susan.bull@maryland.gov)).

Sincerely,



Christopher H. Ralston, Program Manager  
Oil Control Program

cc: Mayor David Foster, Town of Chestertown  
Mr. Bill Ingersoll, Manager, Town of Chestertown  
Mr. Ken Guttman, Principal Engineer, Gannett Fleming  
Mr. Steve Slatnick, Senior Project Manager, Gannett Fleming  
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