



MARYLAND DEPARTMENT OF THE ENVIRONMENT

Oil Control Program, Suite 620, 1800 Washington Blvd., Baltimore MD 21230-1719

410-537-3442

410-537-3092 (fax)

1-800-633-6101, ext. 3442

Martin O'Malley
Governor

Robert M. Summers, Ph.D.
Secretary

Anthony G. Brown
Lieutenant Governor

July 25, 2014

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

RE: MODIFIED PILOT TEST 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 Oil Control Program, Underground Injection Control Program, and the Water Supply Program have completed a review of the *Groundwater Remediation 2013/2014 Action Plan Modifications*, dated June 26, 2014. The June 2014 *Action Plan* proposes modifications to the July 2013 *Action Plan* approved by the Department on October 17, 2013. The modifications were adopted after technical meetings with the Town of Chestertown, the Hospital, and the Department, and were discussed at a public meeting with the citizens of Chestertown. These modifications include: conducting injections in only four well locations (MW-22, MW-40, MW-41, and MW-42); continuing to operate the groundwater pump-and-treat system during the pilot test; and the collection of all materials purged during the "pull" portion of the procedure in separate breakout tanks to ensure the system is not fouled with liberated material from the formation.

The Underground Injection Control Program has reviewed the June 26, 2014 *Action Plan* and has determined that the modifications made to the approved plan have been instituted to improve groundwater quality and are not adding pollutants to the groundwater. In addition, leaving the pump-and-treat system on during the injection process will further decrease the possibility of migration of Ivey-sol (i.e. is more conservative than the previous plan); therefore, no changes will be made to the previous authorization.

The Oil Control Program has reviewed the *Action Plan Modifications*, dated June 26, 2014, and approves the proposed modifications, contingent upon the following:

- 1) The Department understands that recovery well MW-22 will be utilized as a “push/pull” well during this pilot test. Following completion of the pilot test, MW-22 will return to a recovery well.
- 2) In order to better evaluate recoverability, radius of influence, the draw-down effect, and to evaluate liquid phase hydrocarbons (LPH) rebound, the Department requires more continuous monitoring during the injection event. The goal will be to collect depth-to-water measurements at intervals of once per every 30 minutes. These monitoring reading must include those points already outlined on the *Pilot Test Well Designations Table*. Gauging of the monitoring well network should be conducted before, during, and post-injection until water levels return to pre-injection conditions.
- 3) The Department requires weekly gauging events to evaluate the potential of LPH rebound for the first four (4) weeks post-injection. This will be followed by the proposed monthly gauging thereafter.
- 4) The Department concurs with the proposed post-injection sampling regime.
- 5) Following sample collection, gauging must return to a monthly schedule.
- 6) **No later than 45 days following the three month post-injection monitoring period**, submit a *Pilot Test Evaluation Report*. This report must provide: tabulated gauging data; radius of influence calculations; post-injection groundwater sampling data; technical discussion(s) of the remedial effectiveness and efficiency of the injection event; and recommendations for additional implementation. The presentation of this data should, at a minimum, include:
 - a) Independent tables depicting:
 - i) Gauging data collected before, during, and after the *Pilot Test*;
 - ii) Draw down data by well and a calculated area of influence per extraction well;
 - iii) Time of surfactant break through to the nearest extraction well based on the surfactant field testing data (i.e. surface tension data);
 - iv) Volume of surfactant solution accepted in each injection well vs. time; and
 - v) Surfactant, total petroleum hydrocarbon (TPH), and volatile organic compound (VOC) analytical data per well.
 - b) Independent figures depicting:
 - i) Calculated area of influence per injection well;
 - ii) Capture zones of the recovery wells;
 - iii) Concentration maps depicting surfactant, TPH, VOC, and LPH concentrations; and
 - iv) Updated cross section maps as follows: A-A’ – add MW-22 and RW-3B; B-B’ – add MW-16; C-C’ – add RW-3B and RW-2D; D-D’ – add RW-6; and create E-E’ – include MW-1, MW-2, MW-42, RW-5, MW-41, MW-47, MW-33, MW-16, and MW-23.

Mr. Kenneth Kozel
Case No. 1987-2534-KE
Page - 3 -

If you have any questions, please contact me at 410-537-3499 (email: susan.bull@maryland.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Bull', followed by a horizontal line and the word 'FOR' written in capital letters.

Susan R. Bull, Eastern Region Section Head
Remediation and State-Lead Division
Oil Control Program

SRB/chr

cc: Mayor Chris Cerino (Town of Chestertown)
Mr. Bill Ingersoll (Town of Chestertown)
Mr. Bob Sipes (Town of Chestertown)
Mr. Michael Forlini, Esquire (Funk & Bolton, PA)
Mr. John Beskid (Kent County Health Dept.)
Mr. Dane Bauer (Diversified Building Solutions, LLC)
Mr. James Sines (EBA Engineering, Inc.)
Mr. Michael Powell, Esquire (Gordon-Feinblatt, LLC)
Dr. Ching-Tzone Tien, Ph. D, P.E.
Mr. John Grace
Mr. Saeid Kasraei
Ms. Priscilla Carroll, Esquire
Mr. Andrew B. Miller
Mr. Christopher H. Ralston
Mr. Horacio Tablada