



**MARYLAND DEPARTMENT OF THE ENVIRONMENT**  
Oil Control Program, Suite 620, 1800 Washington Blvd., Baltimore MD 21230-1719  
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Martin O'Malley  
Governor

Robert M. Summers, Ph.D.  
Secretary

Anthony G. Brown  
Lieutenant Governor

May 15, 2012

Mr. Herbert M. Meade  
Environmental, Health and Safety Director  
Carroll Independent Fuel Company  
2700 Loch Raven Boulevard  
Baltimore MD 21208

**RE: WORK PLAN APPROVAL**  
**Case No. 2005-0834-FR**  
**Green Valley Citgo**  
**11791 Fingerboard Road, Monrovia**  
**Frederick County, Maryland**  
**Facility I.D. No. 11836**

Dear Mr. Meade:

The Oil Control Program recently completed a review of the case file for the above-referenced property, including the *Injection Well Installation Work Plan - April 2, 2012*. Since September 2011, the approved *In-Situ Chemical Oxidation (ISCO)* injection pilot testing has been completed using three of the six originally installed ISCO injection wells. In February 2012, the Oil Control Program approved pilot testing of the *ISCO* technology over an additional three-month period. In an effort to more effectively deliver the ozone and hydrogen peroxide into the subsurface and increase the area of ISCO influence, the *Injection Well Installation Work Plan* proposes the installation of an additional ISCO injection well. The additional injection well is to be located down-gradient of the existing tank field. The Oil Control Program understands the total depth of the injection well and the depth of the screened injection zone(s) will be determined based on data obtained from the successive injections of uncontaminated water within specifically isolated zones within the borehole. Through conversation with your environmental consultant, the Oil Control Program understands that groundwater parameters will be monitored in four of the nearby existing monitoring wells during installation of the new injection well.

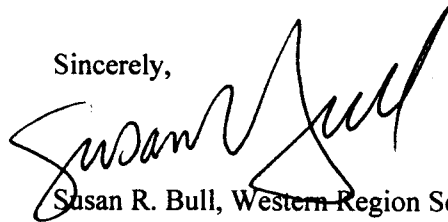
Based on our review, the Department hereby approves the *Injection Well Installation Work Plan* for immediate implementation, contingent upon the following modifications:

- 1) Continue **weekly** operation and maintenance inspections of the ISCO injection system and record all data necessary to evaluate the performance of the ISCO system (e.g., ozone injection rate; ozone and air flow rates; hours/days of operation; volume of hydrogen peroxide injected; soil vapor extraction data), as provided in Table 1 of the *Extended ISCO Pilot Testing - Comprehensive Summary Report*.
- 2) Continue **weekly** evaluations of monitoring wells MW-13, MW-15D, MS-18S, and MW-18D and **biweekly (every other week)** evaluations of monitoring wells MW-7, MW-8, MW-10, MW-14S, MW-14D, MW-16, and MW-17. These evaluations are necessary to monitor for changes in groundwater conditions, including elevation, temperature, dissolved oxygen, oxidation reduction potential, conductivity, pH, headspace pressure, and percent oxygen and ozone concentrations.

- 3) Continue quarterly (**every three months**) sampling of the entire monitoring well network. All groundwater samples collected during quarterly events must be analyzed for full-suite volatile organic compounds (VOCs), including fuel oxygenates, using EPA Method 8260 and for total petroleum hydrocarbons/diesel-range and gasoline-range organics (TPH/DRO and TPH/GRO) using EPA Method 8015.
- 4) The Department requires that additional sampling events continue using the eleven select monitoring wells (i.e., MW-7, MW-8, MW-10, MW-13, MW-14S, MW-14D, MW-15D, MW-16, MW-17, MS-18S, and MW-18D), six off-site private drinking water supply wells, and two on-site public supply wells for the purpose of assessing the effectiveness and potential impacts of ISCO injection activities. All samples collected as part of the ISCO evaluation of the eleven select monitoring wells must be analyzed for full-suite VOCs, including fuel oxygenates, total organic carbon, chemical oxygen demand, total dissolved solids, total suspended solids, dissolved and total iron and total chromium.
- 5) The Department requires the submittal of **monthly** progress reports during *Corrective Action Plan (CAP)* activities. Each progress report must include all data collected as part of ISCO system operation, maintenance, and sampling activities. Progress reports must also include a discussion of how site conditions (e.g., dissolved oxygen concentrations, contaminant concentrations) are being affected (i.e., positive and negative) by the use of ISCO technology.

Notify the Oil Control Program at least five (5) working days prior to conducting any scheduled field work at this site so we have an opportunity to observe field activities. If you have any questions, please contact the case manager, Mr. Jim Richmond, at 410-537-3337 (email: [jrichmond@mde.state.md.us](mailto:jrichmond@mde.state.md.us)) or me at 410-537-3499 (email: [sbull@mde.state.md.us](mailto:sbull@mde.state.md.us)).

Sincerely,



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

JWR/nln

cc: Mr. Steven M. Slatnick (Groundwater and Environmental Services, Inc.)  
Ms. Judy Gloyd (Green Valley Shopping Center)  
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Mr. Norman Handler (Resident Agent)  
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