

Land Management Administration • Oil Control Program

7-Eleven Store No. 28920 (a.k.a. 7-Eleven Woodbine/ Hilltop Sub-Shop)
7621 Woodbine Road
Woodbine Shopping Center
Woodbine, Carroll County, Maryland
MDE Case No.2002-0912CL

The Maryland Department of the Environment (MDE) Oil Control Program (OCP) continues to oversee cleanup actions related to the subsurface impact of petroleum hydrocarbons from the 7-Eleven Store located at the Woodbine/Hilltop Shopping Center in Carroll County. In January 2002, during random sampling of the drinking water supply well at the 7-Eleven strong petroleum odors were detected. In February 2002, the Carroll County Health Department (CCHD) notified the MDE-OCP of methyl tertiary butyl ether (MTBE) at 4254.61 parts per billion (ppb) in one of four (4) drinking water wells available to serve the Shopping Center. During this time, one supply well (P1) served the Shopping Center and one supply well served the 7-Eleven Store, while the other two wells (P2 – P3) were not in service. As a precautionary measure, the entire Shopping Center was temporarily closed and a tanker truck was connected to provide an alternative water supply until a replacement well was drilled.

MTBE is a fuel additive commonly used to reduce carbon monoxide and ozone levels caused by auto emissions. There is no national regulatory standard for MTBE in drinking water. In 1997, the U.S. Environmental Protection Agency (EPA) issued an advisory for MTBE of 20 to 40 parts per billion (ppb), based on taste and odor. Although the EPA has not established a regulated Maximum Contaminant Level (MCL) for MTBE, the MDE has adopted an action level of 20 ppb.

The Woodbine/Hilltop Shopping Center is situated on a ridge. This strip shopping center houses several businesses including the 7-Eleven gas station/convenience store. Located immediately downgradient and approximately 2/3 mile to the south is the South Branch Patapsco River, with an unnamed tributary to the west. Regional groundwater flow is primarily through fractures and joints in the bedrock and is recharged by precipitation. Groundwater flow is southerly.

The Department directed Southland Corporation, precursors to 7-Eleven Inc., and registered owners of the underground storage tank systems (USTs) to investigate the source of this release and to collect drinking water samples from nearby private wells. Subsequent sampling of select off-site private drinking water wells identified three (3) impacted homes located immediately adjacent to the Woodbine Shopping Center with MTBE levels above the State's action level of 20 ppb. Granular activated carbon (GAC) treatment systems were installed at no cost to the residents and are currently maintained by 7-Eleven to eliminate petroleum constituents. In January 2004, a new replacement well was drilled at the Woodbine Shopping Center and brought on-line in May 2004.

The 7-Eleven facility is an active gasoline station that currently operates four (4) 8000-gallon UST systems (3 gasoline tanks and 1 diesel tank). These first generations tanks are cathodically protected steel tanks with double walled piping. The USTs were installed in 1986. Stage II vapor recovery upgrades were conducted in January 1995 and automatic tank gauges installed in June 1997. A total of fourteen (14) monitoring wells are located on-site and two (2) monitoring wells (MW7; MW7D) located off-site. Six of the on-site wells (MW1-MW6) and one of the off-site wells (MW7) are screened at shallow depths (30 to 70 feet). Two (2) of the wells are former injection wells (INJ-C; INJ-G) that were converted to monitoring points. There are three (3) deep monitoring wells on-site (MW8D-MW10D) and one off-site deep monitoring well (MW7D). These deep wells extend to 200 feet below ground surface (bgs). Three (3) former on-site supply wells (P1-P3), with open boreholes extending from 165 to 400 ft deep, were converted to recovery and monitoring points. Additionally, there are two (2) tank field observation pipes (TF1-TF2) in the vicinity of the active tank field.

Under an MDE approved *Corrective Action Plan*, to remediate the MTBE contamination, a groundwater pump and treat system was installed on site. This recovery system has been in operation at the station since November 2003. To date over 520,000-gallons of groundwater have been treated. In 2006, the MDE granted approval to enhance the recovery system by including in-situ bioremediation technologies. Five oxygen diffusion wells (5) and three (3) bio-injection wells were installed immediately downgradient of the tank field area in the vicinity of the former supply well (P1). However due to concerns about plume migration and increasing levels of MTBE in a nearby residential well, the Department directed 7-Eleven to desist reinjecting treated groundwater on-site at injection wells INJ-C and INJ-G and to cease all bio-injection activities. Currently, the groundwater pump and treat system is in operation. However, all treated groundwater is trucked off-site for proper disposal at an approved facility. The MDE is currently evaluating a proposal to re-inject treated groundwater into two injection wells (INJ-A; INJ-B) which are located on the eastern edge of the property.

Between January 2002 and August 2006, thirty-five (35) private drinking water wells have been sampled. Three (3) residential properties have detected MTBE above the State's action level of 20 ppb. 7-Eleven currently maintains granular activated carbon treatment (GAC) systems on two (2) private residential properties. A routine sampling program has also been implemented by 7-Eleven to monitor local drinking water wells.

- Thirty-five (35) private drinking water wells in the Woodbine community have been sampled to date.
 - 12 wells - No detectable levels of MTBE
 - 15 wells - Detectable levels of MTBE below 5 ppb
 - 4 wells - Detectable levels of MTBE between 5 and 10 ppb
 - 1 wells - Detectable levels of MTBE between 10 and 20 ppb
 - 3 wells - MTBE detected at or above 20 ppb. GAC filtration systems have been installed.

(Reported below are pre-treatment sampling results for the highest concentrations reported to date.)

 - 7633 Woodbine Road MTBE at 2021 ppb (08/22/06 sampling event – MTBE at 1500 ppb)
06/12/08 sampling event – MTBE at 17 ppb)
 - 7637 Woodbine Road MTBE at 227 ppb (05/30/07 sampling event – MTBE at 14 ppb)
(01/28/09 sampling event – MTBE at 3.7 ppb)
 - 7639 Woodbine Road MTBE at 150 ppb (05/30/07 sampling event – MTBE non-detect)
(01/29/09 sampling event – MTBE non-detect)

Chronology:

- January 10, 1991. MDE-OCP opened *Case No. 1992-0069CL* in response a compliance assistance inspection. This case was subsequently closed on October 24, 1991.
- October 24, 1994. MDE-OCP conducted a compliance assistance inspection at the 7-Eleven Woodbine station. Facility scheduled for a system upgrade.
- May 20, 1996. MDE-OCP conducted a compliance assistance inspection at the 7-Eleven facility. Minor violations cited.
- June 11, 1996. 7-Eleven's consultant letter 06/05/96 indicated that minor repairs have been made in response to previous MDE compliance inspections.
- January 18, 2002. MDE and CCHD site visit to collect drinking water samples.
 - Strong odors were detected during the collection of samples from the supply well serving the Shopping Center
- January 31, 2002: MDE-OCP site visit to gauge the monitoring wells. CCHD site visit to collect drinking water samples.
 - UST systems on-site tested and passed.
 - 7-Eleven supply well MTBE –non detect

- February 2002: CCHD reported MTBE at 4254.61e ppb and TAME at 188.22e in a supply well serving the Woodbine Shopping Center. This sample was collected on 01/18/02. Tanked water was obtained for the Shopping Center.

- February 1, 2002. MDE-OCP in coordination with CCHD collected nearby private drinking water samples.
 - Well logs submitted for 5 drinking water wells.
 - A total of four (4) wells are located on the Woodbine/Hilltop Shopping Center
 - 1 Supply well solely serves the 7-Eleven gas station
 - * P4 (Well Tag – CL81-2447) 125 feet deep
Supply well MTBE – 0.59 ppb
 - 3 Supply wells serve the other commercial businesses in the Shopping Center
 - * P1 (Well Tag – CL92-0151) 400 feet deep
 - * P2 (Well Tag – CL73-3973) 165 feet deep
 - * P3 (Well Tag – CL73-5213) 165 feet deep
 - 7633 Woodbine Rd MTBE – 8.65 ppb
 - 7637 Woodbine Road (private well)
 - * Well Tag – CL88-1597 205 feet deep, screen depth 61 to 205 feet)
 - MDE site inspection at 7-11 Woodbine to observe tank testing of the UST systems at the station.
 - MDE conducted a site visit at 7610 Woodbine Road (Beechfield Landscaping Inc.)
 - An aboveground storage tanks (ASTs) observed.
 - MDE required that the tank have an emergency vent.

- February 2, 2002. MDE-OCP conducted a site visit at 7633 Woodbine Road
 - UST heating oil tank buried against the stone walk of the basement.
 - MDE required that the UST be hydrostatically tested.

- February 4, 2002. The residential heating oil tank at 7633 Woodbine Road failed a hydrostatic test. It was subsequently pumped out and removed.

- February 7, 2002. MDE-OCP letter to property owner of the Woodbine Shopping Center requiring sampling of all the on-site non-community supply wells.

- February 7, 2002: MDE-OCP letter to 7-Eleven in response to the complaint of MTBE contamination in the non-community supply well at the Woodbine Shopping Center.
 - Provide UST compliance data (precision test results, inventory records, alarm history, cathodic protection system test results, leak detection system)
 - Retrofit spill containment buckets
 - Test elements of the UST system (dispensers sumps, spill buckets, tanks)
 - Perform a direct push investigation in the immediate vicinity of the tank field area.

- February 14, 2002. CCHD letter 02/14/02 to property owner notifying them of drinking water sample results.

- February 21 & March 6, 2002: hydrostatic tests on turbine pump containment sumps and dispenser pans.
 - Testing indicated that water may be able to enter the conduits from the turbine containment sumps and dispenser pans but that the lower portions of the sumps and the pans appeared liquid tight.

- March 11, 2002. MDE-OCP received fax of drinking water sample results from the Woodbine/Hilltop Shopping Center.
 - Sampling event 02/25/2002. MDE and CCHD on-site during sampling activities.
 - W1 (P1) MTBE – 5030 ppb; TBA – 2460 ppb (well was not purged prior to sampling)

- W3 (P3) MTBE – 132 ppb (well was not purged due to blockage at 37 ft)
 - W4 MTBE – 257 ppb (well depth approximately 165 ft)
- March 21, 2002. MDE-OCP site visit to observe geoprobe investigative activities.GP1 – GP7
 - Required the installation of three (3) monitoring wells

 - April 18, 2002: MDE-OCP received a 7-Eleven letter –04/16/02.
 - Hydrostatic testing of the sumps completed.
 - Geoprobe investigation (GP1 – GP) soil samples below regulatory levels for petroleum constituents.

 - April 18, 2002: MDE-OCP issued a *Notice of Violation 2002-107* to 7-Eleven
 - Provide potable water to Woodbine/Hilltop Shopping Center and 7637 Woodbine Road (Palmer Residence)
 - Conduct a hydrogeological study and install a minimum of 4 monitoring wells within 45 days.
 - Submit a *Corrective Action Plan* within 45 days to address long-term remediation.
 - Submit monthly sampling data of product thickness, product recovered, water levels etc.

 - May 1, 2002. MDE-OCP site visit to observe the installation of four monitoring wells (MW1 – MW4).

 - May 30, 2002. MDE-OCP letter to 7-Eleven requiring immediate action for the impacted private well.
 - 7639 Woodbine Road MTBE – 20.37 ppb
 - Provide alternative drinking water
 - Begin sampling of this well on a quarterly basis and of all residences in the affected area
 - Sample the monitoring well network on-site on a quarterly basis
 - Submit a *Corrective Action Plan*

 - June 5, 2002: MDE-OCP received *Hydrogeologic Assessment Report - June 4, 2002*
 - Summarized site investigation activities- 7 geoprobe soil borings near USTs.
 - Four (4) groundwater monitoring wells (MW-1 through MW-4), 4 inches in diameter were installed 05/2002.
 - May 7, 2002 sampling event (*wells were not properly developed prior to sampling*)
 - MW1 (70 ft, screened 30 –70 ft) MTBE – non detect (ND)
 - MW2 (70 ft, screened 30 –70 ft) Benzene – 86 ppb, MTBE –2200 ppb, TBA – 14000ppb
 - MW3 (70 ft, screened 30 –70 ft) Benzene – 13 ppb, MTBE –9100 ppb, TBA – 4600ppb
 - MW4 (70 ft, screened 30 –70 ft) MTBE – 14 ppb

 - June 17, 2002: MDE-OCP received letter report –06/12/02 from 7-Eleven OF testing results for UST systems
 - Replaced turbine pump containment sumps, dispenser pans, and product lines between tanks and dispensers.
 - During construction, estimated 20 tons of petroleum-impacted soils were removed.

 - June 27, 2002. 7-Eleven letter 06/24/02 to MDE requesting a 30 day to submit a request for a *Corrective Action Plan*.

 - July 3, 2002. MDE letter to 7-Eleven granting a 30 day extension to submit a *Corrective Action Plan*.
 - No action required concerning drinking water samples collected from two private wells.
 - 7653 Woodbine Road MTBE – 10.4 ppb
 - 7711 Woodbine Road MTBE – 1 ppb

 - July 5, 2002: MDE-OCP received *Interim Corrective Action Plan-July 3, 2002*
 - Slug tests performed on MW2 and MW3. Hydraulic conductivity 1.7×10^{-4} and 1.2×10^{-3} ft/minute. Results inconclusive.
 - Recommended actions included:
 - Drill a new replacement drinking water well to serve the station
 - Install a pump and treat system in the tank field source area.

- Reinject treated groundwater to flush through the subsurface.
 - Continue to install point of entry treatment systems on private off-site wells if needed.
 - Bench scale testing for chemical oxidation and bioremediation.
 - Install 3 additional monitoring wells
- August 5, 2002. *Geophysical Investigation Results submitted by 7-Eleven.*
 - The Wissahickon Schist that has a thick weathering profile underlies site and vicinity.
 - Depth to groundwater 40 feet.
 - Seismic refraction conducted along two transects (*outside the area of the known release*).
 - Weathered bedrock slopes to the south.
 - Bedrock is at shallower depths to the northeast, which has less of a weathering profile.
 - September 4, 2002. MDE-OCP site visit to observe the installation of two on-site monitoring wells.
 - September 18, 2002. CCHD letter 09/13/02 to property owners notifying them that CCHD will no longer be sampling Their drinking water wells as this responsibility had been transferred to 7-Eleven.
 - December 23, 2002. MDE-OCP site visit to collect samples from private water wells off-site.
 - December 2002. 7-Eleven letters to property owners sampled in 11/2002.
 - 2002: MDE-OCP received *Quarterly Reports*.
 - During the *Fourth Quarter Report 2002*
 - Monthly, quarterly and annual drinking water sampling results collected by 7-Eleven mailed to residents.
 - January 21, 2003: MDE-OCP received *Corrective Action Plan-January 20, 2003*.
 - Five (5) remedial technologies evaluated. (*However the only pilot test conducted was a pump test on P1 to support the selection of a pump and treat system*).
 - Bioremediation – utilizing the use of microbes. Due to site heterogeneity this technology was not selected.
 - Groundwater pump and treat
 - Air Sparging and Soil Vapor Extraction
 - High vacuum extraction events
 - Dual phase extraction by operation a groundwater pump and treat system with soil vapor extraction.
 - Groundwater pump and treat was the selected methodology
 - Pump tests conducted on the former potable well -P1 on 11/08/2002 which had a pumping rate of 5gpm
 - Groundwater to be pumped from P1 then reinjecting treated water upgradient of the tank field area
 - Effluent to be discharged to two groundwater injection wells (a shallow and a deep well).
 - Groundwater monitoring network to be sampled for a limited suite of petroleum constituents; benzene, toluene, ethylbenzene, xylene (BTEX) and MTBE.
 - 2003: MDE-OCP received *Quarterly Reports*. Sampling limited to BTEX, MTBE, tertiary butyl alcohol (TBA), total petroleum hydrocarbons –gasoline range organic (TPH-GRO).
 - 3 GAC systems operating, sampled monthly
 - During the *First Quarter Report for 2003*
 - Discharge permit acquired for treated groundwater under an NPDES permit 2003-OGR-8033
 - *Second Report for 2003*
 - During the *Third-Quarter Report-October 2003*
 - Two (2) additional monitoring wells installed MW-5 & MW-6 in July 2003.
 - Results justify location of replacement potable well for Woodbine Shopping Center to CCHD, who stipulated operation of a groundwater remediation system at 7-Eleven before issuing the permit.

- During the *Fourth Quarter Monitoring and Sampling Report 2003*.
 - P1 (former supply well) is the only recovery well on-line.
 - 35,440 gallons of groundwater treated to date
 - Approximately 0.57 gallons of petroleum constituents recovered
 - Monthly, quarterly and annual drinking water sampling results collected by 7-Eleven mailed to residents.
 - November 24, 2003. Groundwater pump and treat system began operations.
- February 21, 2003. Frall Developers Inc, operators of the Woodbine Shopping Center provided comments on the *Corrective Action Plan*.
 - The water tank supply the center is temporary solution.
 - The installation of new replacement well a permanent potable source must be included in the *CAP*.
- June 30, 2003. MDE-OCP responded to small gasoline release near two dispensers. The release appeared to be caused by a customer. Sorbent pads were used to cleanup this release.
- July 3, 2003: MDE-OCP letter to 7-Eleven approving the *CAP*.
 - Groundwater pumping with re-injection.
 - Submit copies of notifications to sampled residents without GAC.
 - Annual monitoring of potentially impacted wells.
 - Quarterly monitoring of wells showing MTBE >2 ppb MTBE.
- October 30 and November 11, 2003. MDE-OCP site visits to gauge the progress of the remedial system installation.
- September 15, 2003. 7-Eleven letter *Final Remedial Action Design – September 11, 2003*. Modified to include recovery points MW2, MW3, MW5 and the extraction of soil vapors. Upon completion of the remediation activity, groundwater extraction will occur from P1.
- November 10, 2003. Frall Developers Inc, operators of the Woodbine Shopping Center requested a status update on remediation activities at the Shopping Center in a letter dated 11/05/03.
- November 24, 2003. MDE-OCP responded to a 25-gallon release of gasoline from a dispenser. The release was discharged to the pavement. Cleanup operations commenced.
- December 1, 2003. MDE-OCP site visit to verify that the remediation system is on-line. Groundwater extraction occurring from P1.
- January 28, 2004. MDE-Air Management Administration approved the removal of the granular activated carbon from the groundwater air stripping unit.
- March 2, 2004. 7-Eleven letter to CCHD dated 02/26/03 regarding the replacement well at Woodbine Shopping Center
 - Woodbine Shopping Center new well- 425 ft. deep, yield - 5 gpm; Non detect for petroleum constituents
 - No effect on the 7-Eleven drinking water well during pumping.
- 2004: MDE-OCP received *Quarterly Reports*. Sampling limited to BTEX, MTBE, TBA and TPH-GRO.
 - During the *First Quarter Monitoring and Sampling Report*
 - Broken subsurface recovery line in the vicinity of MW3. Recovery system was down 02/03-09/04
 - A total of 141,650 gallons of groundwater treated to date
 - During the *Second Quarter Monitoring and Sampling Report*
 - A total of 216,150 gallon of groundwater treated to date
 - During the *Third Quarter Monitoring and Sampling Report*.
 - May 24, 2004. The new replacement well to serve the shopping center was brought on-line.
 - Due to high water levels the groundwater recovery system was intermittently shut-ff.
 - An additional 500 pound GAC unit was included as part of the treatment train

- A total of 302,760 gallon of groundwater treated to date
- During the *Fourth Quarter 2004 Monitoring and Sampling Report*.
 - Due to the absence of product, 7-Eleven’s consultant’s proposed to reduce gauging of monitoring wells from monthly to quarterly
 - Temporary shutdown of the system occurred due to high water levels in the injection wells
 - October 27, 2004. Modifications were made to the system to incrementally reinject treated groundwater.
 - A total of 328,047 gallon of groundwater treated to date.
 - NPDES permit No. MD918033
- June 17, 2004. Faxed letter from 7-Eleven dated 06/17/04 regarding an on-site meeting with personnel from CCHD and MDE on 05/06/04.
 - Alternative water supply disconnected 05/21/04.
 - New production well for the shopping center was brought on-line.
 - Prior to well being brought on-line it was chlorinated.
 - Due to high water levels when MDE conducted the site visit on 05/06/04 it was discovered that the groundwater treatment system was shutdown.
 - Proposal to increase discharge capacity by modifying the shallow injection by overdrilling and increasing the depth and diameter of discharge well.
- December 8, 2004. MDE-OCP received *Corrective Action Plan Addendum – December 7, 2004*. This CAP was developed to address the Operation of the groundwater treatment system since 11/2003
 - 2000 gallons/per/day (gpd) of water recovered and treated.
 - Flow rates have decreased to 700 gpd.
 - Enhanced in-situ bioremediation is proposed using Oxygen Releasing Compounds.
 - ORC to be injected into MW2, MW3 and MW5
 - Groundwater samples to be collected from 8 monitoring wells and analyzed for BTEX, MTBE, TBA, TAME and TPH-GRO.
 - Effluent discharge to continue to be collected under NPDES permit MDG918033
- 2005. MDE-OCP received *Quarterly Reports*. Sampling limited to BTEX, MTBE, TBA, TPH-GRO and tertiary amyl methyl ether (TAME).
 - *First Quarter 2005 Monitoring and Sampling Report*.
 - Groundwater system operational approximately 365,160 gallons of groundwater treated to date
 - *Second Quarter Monitoring and Sampling Report*
 - Annual potable water samples collected in June 2005
 - Groundwater system operational approximately 403,874 gallons of groundwater treated to date
 - *Third Quarter 2005 Monitoring and Sampling Report*
 - Groundwater system operational approximately 408,540 gallons of groundwater treated to date
 - *Fourth Quarter 2005 Monitoring and Sampling Report*
 - Sampling at discrete depths in MW2 and P2 in anticipation of ORC injections.
 - Groundwater system operational. A total of 443,635 gallons of groundwater treated to date
- June 27, 2005. MDE-OCP inspector conducted a site visit to check on the status of the groundwater recovery system area-wide drinking water wells.
- July 20, 2005. 7-Eleven’s consultant letter – 07/15/05 requesting a response from MDE regarding their *Corrective Action Plan Addendum –December 7, 2004* to enhance the bioremediation system.
- August 5, 2005. 7-Eleven letter 07/19/05 notifying MDE-OCP of their sites located in a high risk groundwater use area, including the 7-Eleven Woodbine facility.
- November 2, 2005: MDE-OCP approved the *Corrective Action Plan Addendum –December 7, 2004* requiring the following:

- Test the gasoline UST systems for vapor leaks with the Maryland Helium Testing Protocol.
 - Test all spill catchment basins and containment sumps.
 - Conduct a self-audit of the UST systems:
 - Nine (9) on-site monitoring wells exist on-site (MW1 –MW6, P1-P3)
 - 24 off-site drinking water wells periodically sampled
 - 2 on-site transient non-community supply wells serving the Woodbine Shopping Center
 - Install three injection borings for ORC use instead of utilizing the existing monitoring wells
 - Measure the dissolved oxygen content in each well during each sampling event
- December 5, 2005. 7-Eleven’s response letter dated 12/05/05 regarding the MDE *CAP Addendum Approval*.
 - December 12, 2005. MDE-OCP received UST testing information
 - Helium test conducted 12/1/05 – passed
 - Self audit performed on 12/2/05
 - Inventory records dated 11/30/2004 – 11/30/2005
 - Tank gauge leak test results - 11-12/2005 passed
 - Cathodic protection survey – passed
 - Secondary containment test results - passed with repairs 3/31/05
 - Stage II Vapor Recovery tested 10/1/05 – passed
 - March 14, 2006: MDE-OCP received analytical results for water samples collected at residences with GAC systems: 2006: MDE-OCP received *Quarterly Reports*.
 - *First Quarter 2006 Monitoring & Sampling Report-May 1, 2006.*
 - Five oxygen diffusion wells and 3 bio-injection wells installed.
 - February 6, 2006. ISOC diffusion units installed in 5 oxygen diffusion wells (OW1 - OW5).
 - March 17, 2006. Oxygen diffusion initiated in OW1 – OW5 near MW2.
 - Groundwater system operational. A total of 484,339 gallons of groundwater treated to date
 - August 3, 2006. MDE-OCP notified by CCHD of a complaint by a resident of high MTBE levels in their drinking water well located near the Woodbine Shopping Center.
 - August 3 and 4, 2006. MDE-OCP enquiry to 7-Eleven’s consultant concerning the status of the complaint. Provide a written chronology of events leading up this complaint by the resident.
 - August 7, 2006. MDE-OCP received chronology of events surrounding the GAC system at 7633 Woodbine Road.
 - MDE e-mail to 7-Eleven’s consultant requiring the following interim measures.
 - Replace the existing coal-based carbon tanks in the GAC systems at 7633, Woodbine Road with virgin coconut based carbon tanks.
 - Recommend that tanks not be rebedded but shipped directly from the manufacturer.
 - Submit the sampling results for the off-site private wells recently collected.
 - Consider proactive measures to assess a permanent solution to provide an alternative water supply to the resident at 7633 Woodbine Road.
 - Inform the MDE-OCP directly off all new developments for this case.
 - 7-Eleven’s consultant’s informed MDE that the resident will be hooked up to tanker truck 08/07/06.
 - August 11, 2006: MDE-OCP received *Second Quarter 2006 Monitoring & Sampling Report –August 9, 2006*
 - June 2006. First bioaugmentation conducted in IP1 –IP3 and in the 3 tank field pipes TF1 - TF3.
 - ISOC diffusion units installed in 5 oxygen diffusion wells (OW1 - OW5) to degrade petroleum constituents.
 - Recovery continues from the groundwater remediation system. A total of 523,771 gallons of groundwater treated to date.
 - Annual samples collected from 20 off-site residential wells
 - Quarterly sampling conducted from 3 homes (7704, 7717 and 7721 Woodbine Road).
 - Monthly sampling conducted from 3 impacted homes with GAC systems (7633, 7637 and 7639 Woodbine Road).
 - 9 on-site monitoring wells are gauged and sampled on a quarterly basis.

- August 14 and 15, 2006. MDE-OCP notified 7-Eleven of the following requirements:
 - MDE site visit and meeting with CCHD on 08/14/06.
 - Cease and desist re-injecting treated water in the two injection wells (shallow and deep)
 - Reconcile well locations on site map.
 - Replace the existing coal-based carbon tanks in the GAC systems at 7633, 7637 and 7639 Woodbine Road with virgin coconut based carbon tanks. Retrofit each system with ultraviolet light pursuant to CCHD requirements.
 - Conduct sampling of the resident at 7633 Woodbine twice per month.
 - Sampling at the 7637 and 7639 Woodbine Road must continue to be conducted on a monthly basis.
- August 15, 2006. MDE-OCP notified via e-mail of GAC system schedule for the 3 impacted homes off-site.
 - E-mail to MDE indicating that the residents at 7633 and 7637 Woodbine Road had GAC systems retrofitted 08/17/06.
 - The GAC system at 7633 Woodbine Road will be brought on-line 08/21/06.
 - The GAC system at 7637 Woodbine Road will be brought on-line 08/17/06.
 - The GAC system at 7639 Woodbine Road will be retrofitted on 08/23/06.
- August 21, 2006. 7-Eleven letter to CCHD requesting well records and septic system information.
- August 22, 2006. MDE-OCP received complaint by the resident at 7633 Woodbine Road that new GAC system (coconut based) still has odor problems and causing skin irritation.
 - New GAC system was flushed on 08/21/06 (approximately 80-gallons).
 - As a temporary measure the new GAC system was taken off-line.
- August 23, 2006. MDE-OCP notified via e-mail of sampling results collected from 7633 Woodbine Road.
 - 7633 Woodbine Road. (pers. comm. homeowner 75- 80ft well)
 - Pre-filter MTBE – 1500e ppb; benzene 1.1 ppb; TBA – 630e ppb; TAME 55 ppb; naphthalene 0.6 ppb
 - 1st GAC-A MTBE – non detect (ND); naphthalene 1.5 ppb
 - 1st GAC-B non detect (ND) for all petroleum constituents
 - Post-filter MTBE – non detect (ND); naphthalene 1.5 ppb
- August 24, 2006. MDE-OCP e-mails to 7-Eleven's consultant regarding the status of the drinking water well situation at 7633 Woodbine Road.
 - 6 carbon tanks comprise the GAC treatment system at this residential property. The tanks are 3 in parallel series.
 - Future sampling of the GAC system at 7633 Woodbine Road must be conducted between each carbon tank on each leg of the parallel series.
 - In the interim the resident will return to the tanker of water until the existing GAC system is re-evaluated.
- August 28, 2006. MDE-OCP notified by 7-Eleven's consultants that a new replacement well is being considered for 7633 Woodbine Road. Meeting on-site with CCHD on 08/29/06 to scope out possible locations.
- August 30, 2006. MDE-OCP received the results of samples collected from residential drinking water supply wells in August 2006. (*see table for results*)
- September 15, 2006. MDE-OCP received the results of samples collected from the residential drinking water supply wells. (*see table for results*)
- September 20, 2006. MDE-OCP received a copy of the letter from the CCHD regarding requirements for the proposed location of the new drinking water supply well at 7633 Woodbine Road.

- September 22, 2006. MDE-OCP issued *Notice of Violation NV-2007-017*.
 - Cease re-injection of treated groundwater
 - Reconcile well locations
 - Replace carbon in treatment systems at 7633, 7637 and 7639 Woodbine Road-add UV light
 - Conduct sampling twice per month at 7633 Woodbine Road
 - Conduct monthly sampling at 7637 and 7639 Woodbine Road
 - Evaluate replacement of the contaminated well at 7633 Woodbine Road
 - Complete semi-annual sampling and quarterly sampling at specified addresses
 - Reactivate the pump and treat system
 - Cease injection of Oxygen Release Compounds
 - Submit a Work Plan detailing SVE pilot testing and proposal to install an SVE system
 - Prepare and submit a Site Conceptual Model
 - Submit a revised Work Plan to evaluate off-site migration of contaminants
 - Submit a Work Plan and pilot testing schedule for the purpose of re-evaluating the pump and treat system
 - Complete testing of the active UST system and perform a self-audit

- October 11, 2006. MDE-OCP received the results of samples collected from the residential drinking water supply wells at 7639 and 7637 Woodbine Road. (*see table for results*)

- October 17, 2006. MDE-OCP received a written response to NV-2007-017. 7-Eleven will:
 - Re-activate the pump and treat system after an alternate method of groundwater disposal is found
 - Request reinstatement of the ISOC devices
 - Submit proposal for testing/implementing SVE at the site
 - Prepare site conceptual model
 - Prepare Work Plan to define and address off-site plume migration
 - Re-evaluate effectiveness of existing treatment system
 - Complete enhanced vapor testing; Repair tank field pipe No. 3
 - Perform self-audit of UST system

- October 27, 2006. MDE-OCP received the *Preliminary Site Conceptual Model-October 26, 2006*.
 - The source of the contaminants is the tank field and the distribution island area
 - Hydrocarbon impacted soils exist in the immediate vicinity of the UST system
 - No liquid phase hydrocarbons are present
 - Dissolved phase hydrocarbons are present in the site monitoring wells and two private supply wells at concentrations above MDE guidelines
 - Primary groundwater flow occurs in the secondary porosity of the bedrock
 - Natural gradient is east to southeast
 - MTBE has migrated at an acute angle relative to natural gradient
 - Geologic setting includes three zones (overburden soils, weathered bedrock, unweathered bedrock)

- October 30, 2006. MDE-OCP received correspondence from the law offices of Peter Angelos
 - Representing residents at 7633 and 7637 Woodbine Road

- November 1, 2006. MDE-OCP received the *Application for Groundwater Discharge Permit-October 31, 2006*.

- November 3, 2006. MDE-OCP received the *Work Plan for Monitoring Well Installation-November 3, 2006*.
 - Proposing three shallow and two deep off-site monitoring wells

- November 15, 2006. MDE-OCP received the Work Plan entitled: *Re-activation of the Groundwater Remediation System-November 14, 2006*.

- November 16, 2006. MDE-OCP received the *Third Quarter 2006 Monitoring and Sampling Report-November 14, 2006*.
 - Analytical results received for sampling at 7637 Woodbine Road (*see table for results*)
- November 21, 2006. MDE-OCP received the *Soil Vapor Extraction Pilot Test Work Plan-November 20, 2006*.
- November 27, 2006. MDE-OCP received the passing results, following minor repairs for UST system testing completed in November 2006.
- December 8, 2006. MDE-OCP received analytical results for samples collected on 11/29/06 at 7637 and 7639 Woodbine Road (*see table for results*)
- January 3, 2007. MDE-OCP letter regarding the status of the proposed infiltration gallery
- January 29, 2007. MDE-OCP received the *Potable Well and Carbon Treatment Sampling Report- January 26, 2007*. (*see table for results*)
- January 30 and 31, 2007. MDE-OCP site visit to observe geophysical investigation.
- February 12, 2007. MDE-OCP received the *Fourth Quarter 2006 Monitoring and Sampling Report-February 5, 2007*.
 - Groundwater remediation system reactivated on 12/19/06 per MDE approval- previously shut down 08/14/06
 - Waste water from remediation system being pumped to AST and removed for off-site disposal
 - In-situ bioremediation discontinued on 09/22/06
 - Permit submitted to the CCHD for the purpose of installing a new potable supply well at 7633 Woodbine Road
- February 23, 2007. MDE-OCP received the results of water samples collected from the potable supply wells at 7637 and 7639 Woodbine Road. (*see table for results*)
- February 23, 2007. MDE-OCP received *Groundwater Recovery System Re-activation Update-February 23, 2007*.
 - Extracting groundwater from P-1 (former Shopping Center well)
- March 13, 2007. MDE-OCP received the results of samples collected from the drinking water supply wells at 7637 Woodbine Road. (*see table for results*)
- March 30, 2007. MDE-OCP received the *Borehole Geophysics Report-March 27, 2007*.
 - Bedrock underlying the site is highly fractured
 - Primary fractures strike in a northeast trend
 - Secondary fracture set is striking east/west
 - Access currently being sought for off-site properties for monitoring well installation
- April 13, 2007. MDE-OCP received the results of samples collected from the drinking water supply wells at 7637 and 7639 Woodbine Road on 03/28/07 (*see table for results*)
- April 24, 2007. MDE-OCP met with 7-Eleven's consultants to discuss the status of the site investigation activities.
- April 24, 2007. MDE-OCP received the *First Quarter 2007 Monitoring and Sampling Report-April 20, 2007*.
 - Groundwater sampling completed on 03/14/07. (*see table for results*)
- May 7, 2007. MDE-OCP received the results of samples collected from the drinking water supply wells at 7637 and 7639 Woodbine Road on 04/25/07 (*see table for results*)
- May 8, 2007. MDE-OCP received the results of a water sample collected from the Shopping Center potable supply well on 03/14/07. (*see table for results*)

- May 17, 2007. MDE-OCP received the application to amend NPDES Permit 2003-ORG-0803.
 - Amendment request is to allow for surface water discharge of treated groundwater to a nearby storm drain
- May 22, 2007. MDE-OCP conducted a field survey to determine the outfall location for the storm drain.
 - Storm drain appears to discharge unto private property.
- May 22, 2007. MDE-OCP teleconference call with the attorneys representing the property owner at 7633 Woodbine Road.
 - Use of the former potable well as a groundwater monitoring point
 - Installation of a replacement well for drinking water purposes
- May 31, 2007. MDE-OCP received notification via email that the SVE permit has been approved. SVE system to be activated June 11, 2007. SVE progress reports will be included in the quarterly groundwater monitoring reports.
- June 8, 2007. MDE-OCP letter to the attorney representing the property owner at 7633 Woodbine Road regarding the installation of a new drinking water supply well at the property and the use of the impacted supply well as a groundwater monitoring point.
- June 12, 2007. MDE-OCP received results of water samples collected at 7637 and 7639 Woodbine Road on 05/30/07. (*see table for results*)
- June 15, 2007. MDE-OCP received correspondence from attorney representing property owners at 7633 Woodbine Road.
 - Property owners do not object to the use of the unused drinking water well as a groundwater monitoring point
 - Property owners undecided about installation of a new drinking water well and would like assurances that regular testing would be completed for bacteria.
 - Concern expressed that UV light is not being used on the current tanker system.
- July 11, 2007. MDE-OCP received the results of samples collected from private drinking water wells in June 2007. (*see table for results*)
- July 20, 2007. MDE-OCP correspondence to attorney representing property owners at 7633 Woodbine Road regarding new drinking water well installation.
 - New well location and must be approved by the CCHD and constructed in accordance with COMAR 26.04.04.01-.07
 - Responsible party will be required to collect monthly samples for bacteria and full suite VOCs for the first 12 months following well installation- to be re-evaluated and adjusted accordingly.
- July 23, 2007. MDE-OCP site visit to confirm the location of two off-site groundwater monitoring wells at 7637 Woodbine Road.
- August 6, 2007. MDE-OCP received the *Second Quarter 2007 Monitoring and Sampling Report and SVE Pilot Testing Summary-August 1, 2007*.
 - Groundwater monitoring completed on 06/19 and 06/20/07. (*see table for results*)
 - Geophysical surveys of former injection wells INJ-G and INJ-C completed during second quarter – data to be submitted under separate cover.
 - Soil Vapor Extraction Pilot Studies completed on 04/12/07. Results included in the report.
 - MW2 showed greatest concentration of recoverable vapor-phase hydrocarbons
 - MW5 showed minimal concentrations of recoverable vapor-phase hydrocarbons
 - north and south areas of the tank field are not connected based on SVE data
 - Groundwater remediation system remains in operation discharging to a Frac tank
 - Semi-annual sampling of 28 private supply wells completed during June 2007. (*see table for results*)
 - Installation of new potable well at 7633 Woodbine Road remains unresolved

- August 8, 2007. MDE-OCP received the results of samples collected from the private well at 7639 Woodbine Road on 07/25/07. *(see table for results)*
- August 30, 2007. MDE-OCP received the *Work Plan for Groundwater Injection-August 29, 2007*, for the proposed injection of groundwater at the site.
 - Proposed installation of two deep groundwater injection wells and two additional deep monitoring wells for injection monitoring.
 - These newly installed injection and monitoring wells will be subject to geophysical and acoustic testing
 - Groundwater samples will be collected from all borings
- September 10, 2007. MDE-OCP received the results of samples collected from the off-site monitoring wells (MW7 and MW7-D) installed at 7637 Woodbine Road in July 2007. *(see table for results)*
- September 13, 2007. MDE-OCP received the results of samples collected from the off-site drinking water wells at 7637 and 7639 Woodbine Road in August 2007. *(see table for results)*
- September 13, 2007. MDE-OCP on-site for the purpose of reviewing the locations for the proposed injection wells and corresponding monitoring wells for the purpose of discharging the treated water generated during the site remedial activities.
 - Contractor for 7-Eleven on-site gauging and sampling the groundwater monitoring well network
 - MDE-OCP collected a sample of the formerly used drinking water well at 7633 Woodbine Road- sample also collected from the alternative water supply tanker. Results received for alternative supply on 09/28/07. Results received for the formerly used drinking water well on 10/09/07 *(see table for results)*
 - MDE-OCP attempted to make site contact with residents at 7634 and 7642 Woodbine Road to discuss the installation of off-site monitoring wells – no response received from these property owners
- September 19, 2007. MDE-OCP received correspondence dated 09/18/07 from the legal counsel representing the property owner at 7633 Woodbine Road. Issues raised include proper sample collection procedures and the options being explored to find a potable supply for this residential property
- October 2, 2007. MDE-OCP received a copy of the correspondence between counsel for 7-Eleven and counsel for the property owner at 7633 Woodbine Road regarding the site access agreement.
- October 2, 2007. MDE-OCP received the results of samples collected from the two off-site monitoring wells (MW7 and MW7D) installed at 7637 Woodbine Road *(see table for results)*
- October 4, 2007. MDE-OCP received, via email, correspondence from the CCHD to property owners at 7633 Woodbine Road. CCHD will not approve a variance for the installation of a new well within 100 feet of the septic systems.
- October 9, 2007. MDE-OCP received the results of samples collected from private drinking water wells at 7637 and 7639 Woodbine Road. *(see table for results)*
- October 30, 2007. MDE-OCP correspondence to Mary Koch, Esq. Responding to concerns raised regarding the Department's sampling protocol. Included analytical results for the sample collected from the private drinking water well at 7633 Woodbine Road on 09/13/07. *(see table for results)*
- November 13, 2007. MDE-OCP received the *Third Quarter 2007 Monitoring and Sampling Report-October 31, 2007*.
 - Groundwater remediation system remains in operation discharging to a Frac tank
 - Groundwater monitoring completed on 09-13 and 14, 2007. *(see table for results)*

- November 14, 2007. MDE-OCP received the results of samples collected from private drinking water wells at 7637 and 7639 Woodbine road. (*see table for results*)
- December 10, 2007. MDE-OCP received, via email, a brief chronology of events relating to a complaint from Mr. and Mrs. Harrison regarding odors in the water from the tanker truck.
- December 12, 2007. MDE-OCP received the results of samples collected from private drinking water wells at 7637 and 7639 Woodbine road. (*see table for results*)
- December 17, 18, and 19, 2007. MDE-OCP personnel on-site to collect samples from the formerly used drinking water well at 7633 Woodbine Road and from selected monitoring wells at the 7-Eleven. (*see table for results*)
- January 8, 2008. MDE-OCP received the results of samples collected from nearby drinking water wells in December 2007. (*see table for results*)
- January 11, 2008. MDE-OCP received the results of samples collected from nearby private drinking water wells in December 2007. (*see table for results*)
- January 14, 2008. MDE-OCP received the *Borehole Geophysics Report-January 10, 2008*.
 - Borehole geophysics completed using injection wells C and G and deep monitoring well 7D (off-site)
 - Wide open fractures detected in injection well C at 73.7 ft below ground surface (bgs) strike N46E, dip 55SE and 74.1 ft bgs strike N42E, dip 59SE with other partially open fractures detected
 - Partially open fractures determined in injection well G generally striking to the NE and dipping to the NW
 - Continuous open fracture determined at 141.7 ft bgs and striking N23E, dip 31SE.
 - Injection wells C and G are no longer used as injection points
- January 14, 2008. MDE-OCP letter to 7-Eleven regarding the additional testing requirement for active UST systems located in high-risk groundwater use areas.
- January 18, 2008. MDE-OCP received the results of samples collected from nearby private drinking water wells in January 2008. (*see table for results*)
- January 22, 2008. MDE-OCP received the results of samples collected from the formerly used drinking water well at 7633 Woodbine Road on 12/17/07 and 12/19/07. (*see table for results*)
- January 29, 2008. MDE-OCP received the *Fourth Quarter 2007 Monitoring and Sampling Report-January 25, 2008*.
 - Groundwater monitoring completed on December 18-19, 2007 (*see table for results*)
 - Sampling of off-site private residential wells completed in December/January- access refused at 7731 Woodbine Road
 - Groundwater recovery system continues to operate with treated groundwater being sent for proper off-site disposal
 - SVE being tested at the site using MW2
- February 5, 2008. MDE-OCP received information in response to the HRGUA letter dated 01/14/08
 - UST system testing completed, Helium testing 11/15/07, spill catchment basins 02/28/07, Sumps RUL and Kerosene 06/12/06 all others 03/21/05- minor repairs completed
 - Facility is in a HRGUA
- February 13, 2008. MDE-OCP received the results of samples collected from off-site private drinking water wells in January 2008. (*see table for results*)
- March 10 and 18, 2008. MDE-OCP received the results of samples collected from off-site private drinking water wells in March 2008. (*see table for results*)

- March 25, 2008. MDE-OCP personnel met with ENSR personnel to collect samples from the formerly used drinking water well at 7633 Woodbine Road. (*see table for results*)
- April 7, 2008. MDE-OCP received the results of samples collected from the off-site private drinking water well at 7633 (unused) and 7637 Woodbine Road on 03/26/08. (*see table for results*)
- April 9, 2008. MDE-OCP correspondence to 7-Eleven regarding approval of the *Work Plan* with the following modification.
 - Phase I involves the installation of three additional carbon tanks on the existing remediation system followed by three months of sampling to evaluate their effectiveness.
 - Phase II includes the installation of two deep injection wells and three deep monitoring wells. Conductivity probes will be installed in the deep injection and monitoring wells
 - Phase III involves twice per month sampling of the treated water prior to injection and sampling of the supply wells for the Woodbine Shopping Center and 7-Eleven Store.
- April 10, 2008. MDE-OCP received the results of samples collected from the off-site private drinking water well at 7639 Woodbine Road on 03/26/08. (*see table for results*)
- April 21, 2008. MDE-OCP received the results of samples collected from the formerly used off-site private drinking water well at 7633 Woodbine Road on 03/26/08. (*see table for results*)
- May 2, 2008. MDE-OCP received the *First Quarter 2008 Monitoring and Sampling Report-April 30, 2008*.
 - Groundwater monitoring completed on 03/18/08. (*see table for results*)
- May 9, 2008. MDE-OCP received the *Renewal of Oil Operations-May 7, 2008*. Notice of intent to discharge treated groundwater from a petroleum contaminated source. Permit No. 2003-OGR-8033 and NPDES permit number MGD918033.
- May 12, 2008. MDE-OCP received, via email, from 7-Eleven's consultant a request to extend the deadline for submittal of the Phase II report and therefore installation of the monitoring and injection wells and the corresponding geophysical survey and report.
- May 13, 2008. MDE-OCP received the results of samples collected from the off-site private drinking water well at 7637 Woodbine Road on 03/26/08. (*see table for results*)
- May 19, 2008. MDE-OCP received the results of samples collected from the off-site private drinking water well at 7639 Woodbine Road on 05/07/08. (*see table for results*)
- May 30, 2008. MDE-OCP received, via email, the passing results of UST system testing (helium, spill catchment basins) completed on 02/25/08.
- June 10, 11 and 17, 2008. MDE-OCP received the results of samples collected from off-site private drinking water wells in Woodbine. (*see table for results*)
- June 25, 2008. MDE-OCP received the results of split samples collected by 7-Eleven's consultant from the formerly used drinking water well at 7633 Woodbine Road on June 12, 2008. Results of split samples collected by MDE-OCP received on 07/08/08 (*see table for results*)
- July 8, 2008. MDE-OCP received the results of samples collected from off-site private drinking water well at 7637 Woodbine Road on 06/25/08. (*see table for results*)
- July 15, 2008. MDE-OCP received the results of samples collected from off-site private drinking water well at 7639 Woodbine Road on 07/02/08. (*see table for results*)

- August 12, 2008. MDE-OCP received the results of samples collected from off-site private drinking water wells at 7637 and 7639 Woodbine Road on 07/30/08. *(see table for results)*
- September 10, 2008. MDE-OCP received the results of samples collected from off-site private drinking water wells at 7637 and 7639 Woodbine Road on 08/27/08. *(see table for results)*
- September 11, 2008. MDE-OCP received the *Groundwater Injection Work Plan Phase I Groundwater Treatment Report-September 9, 2008*.
 - Phase I involved the upgrade of the air stripping unit to include three (3) 500lb carbon units to replace the two (2) original 200lb units
 - 90-day treatability study completed indicating effective treatment of the groundwater
- October 7, 2008. MDE-OCP received the results of samples collected from off-site private drinking water wells at 7637 and 7639 Woodbine Road on 09/24/08. *(see table for results)*
- November 2008. MDE-OCP received the *Third Quarter 2008 Monitoring and Sampling Report-October 31, 2008*
 - Groundwater monitoring completed in September 2008. *(see table for results)*
- January 5, 2009. MDE-OCP received copies of samples collected from off-site private drinking water wells in December 2008. *(see table for results)*
- February 10, 2009. MDE-OCP received copies of samples collected from off-site private drinking water wells (7637, 7639 Woodbine Road) in January 2009. *(see table for results)*
- February 2, 2009. MDE-OCP received the *Phase II Groundwater Injection Well Installation and Geophysical Surveys-January 30, 2009*.
 - Two additional injection wells (INJ A; INJ B) and three deep monitoring wells (MW8D; MW9D; MW10D) installed on-site in October 2008.
 - Geophysical evaluation of the open boreholes completed in October 2008.
 - Majority of fractures at the site strike NE/SW and dip to the SE
 - Groundwater monitoring completed on 12/15/08.
- February 4, 2009. MDE-OCP received the *Fourth Quarter 2008 Monitoring and Sampling Report-January 30, 2009*
 - Groundwater monitoring completed in December 2008. *(see table for results)*
 - Request to allow for the reinjection of bioaugmentation products
 - Request to allow for a 24-hour pump test to evaluate former site potable well P-2 as a recovery point
- February 10, 2009. MDE-OCP received the *Request for Sampling Reduction-February 9, 2009*.
 - Proposed reduction of analyses for TPH-DRO from quarterly to annually in the site groundwater monitoring wells.
 - Proposed reduction of analyses for TPH-DRO from monthly to semi-annually in the private drinking water wells with GAC treatment systems (7637; 7639 Woodbine Rd)
 - Additionally, TPH-DRO samples would only be collected pre-filtration unless the results indicate the need for mid- and post-filtration samples.
 - Proposed reduction of TPH-DRO analyses from semi-annual to annual when sampling the other private off-site drinking water wells
- February 26, 2009. MDE-OCP received the *Request for trial shutdown of SVE system-February 23, 2009*.
 - SVE pilot test activities initiated at MW 2 in April 2007 with long term operation continuing to the present
 - Approximately 2.5 lbs. of hydrocarbons removed during the Fourth Quarter 2008
 - Request to shut down the SVE system for six (6) months and then restarted for one month
 - The influent air and effluent air to be sampled once and screened twice with a PID meter during one month startup period

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Future Activities:

- Groundwater pump and treat continues to operate with containerization of all treated groundwater for disposal at an approved facility. Access for use of an infiltration gallery has been denied. Discharge to the storm water management system is not feasible due to its discharge onto private property. Influent concentrations of MTBE have increased from 5900 to 22,000 ppb, indicating effective capture at 2 gpm.
- SVE system has been installed and is operating to extract vapors from MW-2. Pilot testing indicates the tank field pipes and MW-5 are not appropriate points for SVE.
- Bioremediation activities have ceased on the property.
- Access has not been granted for the installation of additional off-site monitoring wells on select properties.

Related closed cases:

- *1989-0733CL, 1992-0069 CL*

Future Updates:

- Future updates on this case investigation will be posted at www.mde.state.md.us [at the MDE home page, (select) Land, (select) Program, (select) Oil Control, (select) Remediation Sites].

Contacts:

- Maryland Department of the Environment (MDE): 410-537-3443 (Oil Control Program)
- Carroll County Health Department (CCHD): 410-876-1884

Disclaimer

The intent of this fact sheet is to provide the reader a summary of site events as they are contained within documents available to MDE. To fully understand the site and surrounding environmental conditions, MDE recommends that the reader review the case file that is available at MDE through the Public Information Act. The inclusion of a person or company's name within this fact sheet is for informational purposes only and should not be considered a conclusion by MDE on liability, involvement in a wrongful act or contribution to environmental damage.

Monitoring Wells at the 7-Eleven Woodbine/Hilltop Shopping Center

Well Information	Sample Dates (---) not sampled	Depth to groundwater	Benzene (MCL -5 ppb)	MTBE (Action Level - 20 ppb)	TBA An unregulated compound	TPH-GRO (ppb)
MW1 70 ft, 4" diameter screened 30 -70 ft Installed 05/01/02	05/07/02	45.87 ft	ND	ND	ND	200
	09/17/02	47.55 ft	ND	ND	ND	280
	12/17/02	47.02 ft	ND	ND	ND	ND
	03/11/03	42.69 ft	ND	ND	ND	ND
	06/25/03	36.04 ft	ND	ND	ND	ND
	09/03/03	37.25 ft	ND	11	ND	ND
	12/22/03	35.43 ft	ND	83	43	ND
	03/24/04	37.77 ft	1	300	120	300
	06/09/04	36.04 ft	ND	270	91	270
	09/14/04	41.07 ft	ND	45	44	ND
	12/21/04	43.16 ft	ND	8	ND	ND
	03/21/05	41.82 ft	ND	24	ND	ND
	06/09/05	39.91 ft	ND	45	31	ND
	09/22/05	42.32 ft	2	91	43	110
	12/28/05	41.95 ft	ND	64	ND	ND
	03/14/06	39.69 ft	2	170	81	ND
	06/28/06	41.42 ft	1	130	ND	ND
	09/08/06	41.80 ft	ND	100	13	ND
	12/27/06	41.68 ft	ND	170	ND	ND
	03/14/07	42.22 ft	ND	6	ND	ND
	06/19/07	41.16 ft	ND	140	ND	ND
	09/13/07	44.55 ft	ND	160	ND	ND
	12/19/07	47.33 ft	ND	81	110	ND
03/18/08	47.57 ft	ND	13	ND	ND	
06/13/08	43.62 ft	ND	39	ND	ND	
09/15/08	45.88 ft	ND	45	ND	ND	
12/15/08	48.13 ft	ND	22	ND	ND	
MW2 70 ft, 4" diameter screened 30 -70 ft Installed 05/01/02	05/07/02	43.27 ft	86	22000	14000	26000
	09/17/02	44.39 ft	110	31000	28000	61000
	12/17/02	43.68 ft	100	32000	24000	31000
	03/11/03	39.64 ft	110	34000	56000	29000
	06/25/03	32.68 ft	210	80000	160000	34000
	09/03/03	32.4 ft	750	66000	200000	110000
	12/22/03	31.58 ft	280	93000	96000	170000
	03/24/04	33.86 ft	210	32000	41000	130000
	06/09/04	32.68 ft	140	70000	66000	84000
	09/14/04	37.38 ft	160	95000e	110000e	70000
	12/21/04	40.2 ft	190	83000	160000	79000
	03/21/05	40.71 ft	ND	66000	84000e	82000
	06/09/05	37.00 ft	100	76000	38000	72000
	09/22/05	38.80 ft	120	96000e	140000e	76000
	12/28/05	39.43 ft	91	73000e	210000e	80000
	03/14/06	36.65 ft	110	82000e	160000e	3300
	06/28/06	38.82 ft	13	32000e	65000e	2000
	09/08/06	39.01 ft	25	43000	120000	3100
	12/27/06	39.74 ft	19	ND	130000e	3900
	03/14/07	39.39 ft	19	13000 e	6500e	3400
	06/19/07	37.7 ft	21	12000 e	8200 e	1700
	09/13/07	42.36 ft	ND	39000 e	63000 e	2200
	12/19/07	47.52 ft	ND	24000	32000	1500
03/19/08	47.10 ft	10	9000e	7400e	23000	
06/13/08	41.84 ft	ND	16000	19000	3500	
09/16/08	41.72 ft	2	8400	38000	2600	
12/15/08	44.23 ft	4	3300 e	19000 e	9100	

Well Information	Sample Dates --- not sampled	Depth to groundwater	Benzene (MCL -5 ppb)	MTBE (Action Level - 20 ppb)	TBA An unregulated compound	TPH-GRO (ppb)
MW3 70 ft, 4" diameter screened 30 -70 ft Installed 05/02/02	05/07/02	40.22 ft	13	9100	4600	4800
	09/17/02	41.35 ft	22	8200	8200	9800
	12/17/02	40.69 ft	31	16000	6400	8500
	03/11/03	36.43 ft	ND	5900	7400	5700
	06/25/03	28.31 ft	ND	1300	2500	1500
	09/03/03	29.63 ft	18	1800	5600	2300
	12/22/03	26.32 ft	ND	7700	4400	5200
	03/24/04	30.30 ft	1	5700	3200	3500
	06/09/04	28.31 ft	ND	2400e	1200	2500
	09/14/04	34.68 ft	ND	4000e	3500	4400
	12/21/04	36.7 ft	ND	5200	3400	6100
	03/21/05	36.73 ft	ND	3300	3000e	4100
	09/22/05	35.45 ft	8	2400	2400	2400
	12/28/05	36.19 ft	8	3100e	3100e	4000
	03/14/06	33.33 ft	8	2400e	2400e	280
	06/28/06	34.75 ft	6	3100	1300	260
	09/08/06	35.53 ft	5	1800	3300	180
	12/27/06	36.31ft	4	2000e	2900e	170
	03/14/07	36.1 ft	1	910	370	ND
	06/19/07	36.47 ft	ND	840	250	ND
09/13/07	40.92 ft	ND	100	15	ND	
12/19/07	44.75 ft	ND	4600	12000	310	
03/18/08	44.79 ft	ND	24	ND	ND	
06/13/08	39.98 ft	ND	16	ND	ND	
09/15/08	40.19 ft	ND	43	ND	ND	
12/15/08	41.29 ft	ND	5	ND	ND	
MW4 70 ft, 4" diameter screened 30 -70 ft Installed 09/04/02	05/07/02	39.52 ft	ND	14	ND	ND
	09/17/02	40.71 ft	ND	80	81	320
	12/17/02	40.19 ft	ND	590	630E	510
	03/11/03	35.89 ft	ND	950	1000	1100
	06/25/03	27.81 ft	ND	850	2000	740
	09/03/03	29.47 ft	ND	1100	3300	710
	12/22/03	26.9 ft	3j	1500	1000	960
	03/24/04	29.9 ft	3	1900	5600	1800
	06/09/04	27.81 ft	ND	1600	770	1600
	09/14/04	34.46 ft	1	1300	830	1100
	12/21/04	36.56 ft	ND	1100	1500	1300
	03/21/05	36.36 ft	ND	1300	820	1500
	06/09/05	33.25 ft	3	1200	1100	1400
	09/22/05	35.31 ft	2	1500	690	1700
	12/28/05	36.1 ft	3	1400e	430e	1800
	03/14/06	33.14 ft	2	1400e	710e	ND
	06/28/06	35.05 ft	2	1600	310e	140
	09/08/06	35.66 ft	1	820	320e	ND
	12/27/06	35.83 ft	1	780e	280e	ND
	03/14/07	35.41 ft	ND	170	280	ND
06/19/07	35.09 ft	ND	120	ND	ND	
09/13/07	40.11 ft	ND	51	ND	ND	
12/19/07	43.7 ft	ND	89	23	ND	
03/18/08	43.52 ft	ND	10	ND	ND	
06/13/08	38.96 ft	ND	4	20	ND	
09/15/08	39.92 ft	ND	3	ND	ND	
12/15/08	40.82 ft	ND	3	ND	ND	

Well Information	Sample Dates --- not sampled	Depth to groundwater	Benzene (MCL -5 ppb)	MTBE (Action Level - 20 ppb)	TBA An unregulated compound	TPH-GRO
MW5 70 ft, 4" diameter screened 30 -70 ft Installed 05/01/02	09/17/02	43.17 ft	12	5300	5600	6500
	12/17/02	42.47 ft	5	2600	1900	1800
	03/11/03	38.35 ft	11	8200	13000	6900
	06/25/03	30.55 ft	ND	200	410	240
	09/03/03	31.65 ft	ND	820	2000	820
	12/22/03	39.77 ft	ND	3700	2300j	2200
	03/24/04	36.9 ft	5	6800	3400	4500
	06/09/04	30.55 ft	ND	3200	1500	3300
	09/14/04	36.56 ft	3	5100	3300	4700
	12/21/04	40.65 ft	ND	18000	ND	26000
	03/21/05	38.49 ft	ND	20000e	18000e	33000
	06/09/05	37.59 ft	30	20000	16000	980
	09/22/05	42.69 ft	3	1500	610	1700
	12/28/05	38.48 ft	34	11000e	16000e	20000
	03/14/06	38.01 ft	8	5400e	5300e	230
	06/28/06	42.19 ft	5	11000	12000	900
	09/08/06	37.7 ft	11	11000	14000	810
	12/27/06	44.68 ft	24	8000e	26000e	930
	03/14/07	42.91 ft	18	7000e	3000e	1100
	06/19/07	46.72 ft	13	6900e	12000e	720
09/14/07	49.42 ft	ND	11000	10000	710	
12/19/07	55.54 ft	ND	ND	5000	6000	400
03/19/08	50.9 ft	3	3	4800e	3800e	6400
06/13/08	47.66 ft	ND	ND	3500	2200	890
09/16/08	50.6 ft	ND	ND	2400	2000	770
12/16/08	46.13 ft	ND	ND	1400e	1200e	1600
MW6 70 ft, 4" diameter screened 30 -70 ft Installed 05/01/02	09/17/02	47.46 ft	ND	26	ND	ND
	12/17/02	46.98 ft	ND	64	150	ND
	03/11/03	42.7 ft	ND	70	370	120
	06/25/03	36.16 ft	ND	120	120	130
	09/03/03	37.31 ft	ND	96	190	110
	12/22/03	35.65 ft	1j	460	350	280
	03/24/04	37.81 ft	3	760	660	750
	06/09/04	36.16 ft	ND	850	440	830
	09/14/04	40.97 ft	6	1400	1300	1500
	12/21/04	43.06 ft	ND	2000	2300e	2200
	03/21/05	41.51 ft	ND	1100	810	1400
	06/09/05	39.74 ft	4	990	830	980
	09/22/05	42.31 ft	2	320	240e	360
	12/28/05	41.99 ft	4	990e	1400e	1200
	03/14/06	39.61 ft	8	2300e	1900e	180
	06/28/06	41.3 ft	3	1300	650	ND
	09/08/06	41.67 ft	4	1300	950e	110
	12/27/06	41.58 ft	ND	1400	ND	120
	03/14/07	40.13 ft	ND	310	230	ND
	06/19/07	40.49 ft	ND	350	160	ND
09/13/07	44.59 ft	3	860 e	340 e	ND	
12/19/07	47.16 ft	ND	410	130	ND	
03/19/08	47.2 ft	ND	420	ND	430	
06/13/08	62.78 ft	ND	300	ND	ND	
09/16/08	57.36 ft	1	610	310	ND	
12/16/08	47.92 ft	4	1400e	680e	1800	
MW7 70 ft, Screened 30-70 ft Installed 07/07 Quarterly	08/01/07	57.8 ft	ND	110	ND	ND
	09/13/07	60.24 ft	ND	19	ND	ND
	12/18/07 - MDE	64.23 ft	ND	5.64	ND	Not sampled (NS)
	12/18/07- ENSR	64.23 ft	ND	ND	ND	ND
	03/19/08	65.82 ft	ND	3	ND	ND
	06/12/08	62.78 ft	ND	2	ND	ND
	09/16/08	57.36 ft	ND	2	ND	ND
	12/16/08	58.2 ft	ND	2	2	ND

Well Information	Sample Dates --- not sampled	Depth to groundwater	Benzene (MCL -5 ppb)	MTBE (Action Level - 20 ppb)	TBA An unregulated compound	TPH-GRO (ppb)
MW7- D Open hole 100-200 ft 200 ft. Installed 07/07 Quarterly	08/01/07	64.51 ft	ND	38	13	ND
	09/13/07	67.52 ft	ND	75	23	ND
	12/18/07- MDE	72.75 ft	ND	78.8	ND	ND
	12/18/07-ENSR	72.75 ft	ND	88	18	ND
	03/19/08	74.59 ft	ND	57	ND	ND
	06/12/08	69.75 ft	ND	27	ND	ND
	09/16/08	62.85 ft	ND	22	ND	ND
	12/15/08	63.82 ft	ND	11	ND	ND
MW8-D Installed 10/07/08 Casing to 64 ft Total depth 200 ft	12/16/08	45 ft	ND	ND	ND	ND
MW9-D Installed 10/03/08 Casing to 70 ft Total depth 200 ft	12/16/08	48.83 ft	ND	ND	ND	ND
MW10-D Installed 10/02/08 Casing to 60 ft Total depth 200 ft	12/16/08	50.71 ft	ND	ND	ND	ND
P1 Well Tag # CL92-0151 (former supply well serving the Shopping Center) 400 ft, 6" diameter open borehole 77 -400 ft Installed 10/27/93 11/2003 Converted to a Recovery Well Depth 153.5 ft Open bore hole 68-153.5 ft	01/18/02			4254.61e (TAME - 188.22 e)		
	12/17/02	44.88 ft	ND	1000	490	760
	03/11/03	----	ND	---	----	---
	06/25/03	36.16 ft	12	5600	12000	4600
	09/03/03	32.6 ft	46	5400	84000	6800
	12/22/03	41.03 ft	8	15000	----	10
	03/24/04	35.25 ft	12	23000e	22000	16000
	06/09/04	33.06 ft	ND	12000e	10000e	13000
	09/14/04	37.46 ft	17	41000e	39000	21000
	12/21/04	41.65 ft	ND	20000	ND >25000	29000
	03/21/05	39.39 ft	ND	19000	17000	20000
	06/09/05	Not gauged	28	18000	15000	20000
	09/22/05	44.1 ft	26	13000	11000	12000
	12/28/05	39.53 ft	23	11000e	17000e	18000
	03/14/06	40.52 ft	11	9500e	12000e	640
	06/28/06	37.68 ft	1	9300	9600	780
	09/08/06	41.8 ft	3	7300	8800	570
	12/27/06	54.7 ft	ND	22000	25000	950
	03/14/07	49.99 ft	17	7500 e	3200 e	790
	06/19/07	60.1 ft	8	6200 e	11000 e	460
	09/14/07	54.65 ft	8	7500	8000	490
	12/19/07	51.24 ft	ND	6700	5800	410
	03/18/08	56.62 ft	ND	4000e	4400e	6200
06/12/08	53.82 ft	ND	3400	2200	920	
09/16/08	53.01 ft	ND	3000	3200	990	
12/16/08	49.72 ft	ND	1700e	1800e	2100	

Well Information	Sample Dates --- not sampled	Depth to groundwater	Benzene (MCL -5 ppb)	MTBE (Action Level - 20 ppb)	TBA An unregulated compound	TPH-GRO (ppb)	
P2 Well Tag # CL73-3973 (former supply well serving the Shopping Center) 165 ft, 6" diameter open borehole 60-165 ft Installed 03/1976 Depth 101.25 Open bore hole 60-101.25 ft	09/17/02	47.24 ft	ND	3100	3000	2200	
	12/17/02	46.51 ft	5	5100	1600	3400	
	03/11/03	42.51 ft	12	8900	12000	7500	
	06/25/03	35.12 ft	21	10000	29000	7900	
	09/03/03	36.31 ft	120	14000	31000	18000	
	12/22/03	36.62 ft	56	24000	20000	23000	
	03/24/04	37.75 ft	65	33000	65000	43000	
	06/09/04	35.12 ft	57	29000	23000	42000	
	09/14/04	41.06 ft	64	18000	17000	36000	
	12/21/04	43.62 ft	72	38000	ND >25000	35000	
	03/21/05	43.02 ft	ND	33000	30000	39000	
	06/09/05	40.25 ft	68	48000	38000	33000	
	09/22/05	42.09 ft	69	48000	42000	39000	
	12/28/05	42.65 ft	73	14000e	31000e	46000	
	03/14/06	40.25 ft	89	20000e	38000e	3000	
	06/28/06	41.77 ft	68	6100e	4400e	3000	
	09/08/06	42.03 ft	60	32000	39000	3300	
	12/27/06	43.39 ft	ND	55000e	51000e	3200	
	03/14/07	42.88 ft	ND	49000	53000	3500	
	06/19/07	43.76 ft	63	12000 e	4700 e	2700	
	09/14/07	47.59 ft	47	9600 e	3400 e	2400	
	09/14/07 (duplicate)			13	10000 e	7900 e	2100
	12/19/07	51.24 ft	ND	17000	22000	1200	
03/19/08	50.90 ft	30	9100e	9100e	24000		
06/13/08	46.66 ft	ND	17000	15000	3800		
09/16/08	47.11 ft	27	17000	22000	5000		
12/15/08	48.05 ft	26	4600e	1800e	15000		

Well Information	Sample Dates --- not sampled	Depth to groundwater	Benzene (MCL -5 ppb)	MTBE (Action Level - 20 ppb)	TBA An unregulated compound	TPH-GRO (ppb)
P3 Well Tag # CL73-5213 (former supply well serving the Shopping Center) 165 ft, 6" diameter open borehole 70-165 ft Installed 12/1976 Depth 115.8 ft Open bore hole 77-115.8 ft	09/17/02	45.69 ft	ND	3300	3500	2600
	12/17/02	45.01 ft	ND	2000	1400	1400
	03/11/03	40.84 ft	ND	120	410	190
	06/25/03	33.24 ft	5	3400	7600	2800
	09/03/03	37.31 ft	8	4000	9400	3400
	12/22/03	37.21 ft	3j	3600	3100	2100
	03/24/04	37.2 ft	4	3200	2500	2900
	06/09/04	33.24 ft	ND	2300	1400	2500
	09/14/04	39.49 ft	3	2800	2000	2400
	12/21/04	43.02 ft	ND	3600	ND	3900
	03/21/05	41.4 ft	ND	3500	2500	4500
	06/09/05	38.4 ft	3	2100	2400e	2600
	09/22/05	40.15 ft	9	5900	4500	5400
	12/28/05	40.83 ft	5	3100e	4400e	3600
	03/14/06	38 ft	2	1700e	1500e	ND
	06/28/06	40.83 ft	ND	360	540e	ND
	09/08/06	39.9 ft	ND	490e	260	ND
	12/27/06	43.73 ft	ND	1100	ND	ND
	03/14/07	43.07 ft	ND	130	130	ND
	06/19/07	44.52 ft	ND	1000	610e	ND
09/14/07	48.39 ft	1	1000 e	950 e	ND	
12/19/07	52.86 ft	1e	710	430	ND	
03/19/08	51.91 ft	ND	6	ND	ND	
06/13/08	46.61 ft	ND	170	22	ND	
09/16/08	46.51 ft	ND	97	51	ND	
12/15/08	47.28 ft	ND	100	32	ND	
INJ-G 8" diameter open borehole 47-91.8 ft	06/19/07	36.42 ft	1	1400	210	ND
	09/14/07	42.76 ft	ND	ND	ND	ND
	12/18/07	46.46 ft	ND	210	53	ND
	03/18/08	46.04 ft	ND	230	59	230
	06/12/08	41.54 ft	ND	100	24	230
	09/16/08	41.62 ft	ND	59	ND	ND
12/15/08	42.96 ft	ND	28	ND	ND	
INJ-C	06/19/07	39.70 ft	ND	19	ND	ND
	09/14/07	43.92 ft	ND	29	ND	ND
	12/18/07	46.63 ft	ND	41	16	ND
	03/18/08	46.28 ft	ND	38	ND	ND
	06/12/08	42.69 ft	ND	1	ND	ND
	09/16/08	44.55 ft	ND	5	ND	ND
12/15/08	46.76 ft	ND	4	ND	ND	
INJ A Installed 10/07/08 Casing to 56 ft Total depth 153 ft	12/15/08	47.25 ft	ND	ND	ND	ND
INJB Installed 10/07/08 Casing to 78 ft Total depth 180 ft	12/15/08	49.45 ft	ND	1	ND	ND

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb – action level)	Other petroleum constituents
Woodbine Shopping Center				
Quarterly	7-Eleven Supply Well Well Tag # CL81-2447 125 ft deep	CCHD - 01/24/02	0.63	
		CCHD - 01/31/02	0.59	
		03/12/02	0.6	
		06/24/02	ND	
		10/03/02	ND	
		01/17/03	ND	
		03/23/03	ND	
		06/23/03	ND	
		12/22/03	ND	
		03/24/04	2.1	
		06/09/04	ND	
		09/14/04	2	
		09/27/04	0.7	
		12/21/04	ND	
		03/21/05	0.6	
		06/29/05	ND	
		09/22/05	0.8	
		12/29/05	ND	
		03/14/06	ND	
		06/29/06	ND	
		09/08/06	ND	
		12/27/06	ND	
		03/14/07	ND	
06/20/07	ND			
09/13/07	ND			
12/18/07	ND			
03/19/08	ND			
05/28/08	ND			
09/15/08	ND			
Quarterly	New Shopping Center Well 425 ft deep Installed 01/2004	02/16/04	ND	
		06/30/04	ND	
		09/27/04	ND	
		12/29/04	ND	
		03/31/05	ND	
		06/29/05	ND	
		09/22/05	ND	
		12/29/05	ND	
		03/14/06	ND	
		06/29/06	ND	
		09/08/06	ND	
		12/27/06	ND	
		03/14/07	ND	
		06/20/07	ND	
		09/13/07	ND	
		7-Eleven – 12/18/07	ND	
		03/19/08	ND	
05/28/08	ND			
09/15/08	ND			
Private Wells				
	6560 Woodbine Road	CCHD - 06/04/02	ND	
	7552 Woodbine Road	7-Eleven - 06/23/03	ND	
Semi-annual	7606 Woodbine Road	7-Eleven - 06/23/03	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/06	ND	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	

Semi-annual	7610 Woodbine Road	7-Eleven – 03/26/03	2	
		7-Eleven – 06/23/03	ND	
		7-Eleven - 06/30/04	1.6	
		7-Eleven - 06/29/05	1.2	
		7-Eleven - 06/29/06	0.8	
		7-Eleven – 12/27/06	0.8	
		7-Eleven – 06/27/07	0.7	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	
Semi-annual	7611 Woodbine Road	CCHD - 02/06/02	ND	
		CCHD - 03/12/02	ND	
		7-Eleven – 06/30/04	1.6	
		7-Eleven - 06/29/05	0.9	
		7-Eleven - 06/29/06	0.9	
		7-Eleven – 12/27/06	2.2	
		7-Eleven – 06/27/07	1.7	
		7-Eleven – 12/18/07	1.4	PCE – 0.5 ppb
		7-Eleven – 05/28/08	ND	ND

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb – action level)	Other petroleum constituents
Private Wells				
Semi-annual	7614 Woodbine Road	CCHD- 02/01/02	3.68	
		CCHD - 03/05/02	3.6	
		7-Eleven – 04/16/02	3.3	
		7-Eleven - 06/05/02	3.6	
		7-Eleven - 09/30/02	4.1	
		7-Eleven – 03/26/03	ND	
		7-Eleven - 06/30/04	1.5	
		7-Eleven - 06/29/05	1.4	
		7-Eleven - 06/29/06	0.7	
		7-Eleven – 12/27/06	1.3	
		7-Eleven – 06/27/07	0.9	
		7-Eleven - 12/18/07	0.7	
		7-Eleven - 05/28/08	0.6	
Semi-annual	7620 Woodbine Road	CCHD- 02/01/02	6.3	
		CCHD - 03/05/02	9	
		7-Eleven – 04/16/02	5.2	
		7-Eleven - 06/05/02	0.9	
		7-Eleven – 03/26/03	0.5	
		7-Eleven - 06/30/04	0.5	
		7-Eleven - 06/29/05	ND	
		7-Eleven - 06/29/06	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 01/07/08	ND	
				7-Eleven – 05/28/08
Semi-annual	7624 Woodbine Road	CCHD- 04/2002	ND	
		7-Eleven - 06/30/04	ND	TCE a chlorinated solvent – 0.7 ppb
		7-Eleven - 06/29/06	ND	
		7-Eleven – 12/27/06	Not sampled (NS)	
		7-Eleven – 06/27/07	NS	
Semi-annual	7628 Woodbine Road	CCHD - 02/06/02	6.12	
		CCHD - 03/05/02	7.45	
		7-Eleven – 04/16/02	3.3	
		7-Eleven - 06/05/02	3.6	
		7-Eleven - 09/30/02	5.4	
		7-Eleven – 03/26/03	0.7	
		7-Eleven – 06/30/04	ND	
		7-Eleven - 06/29/05	ND	
		7-Eleven - 06/29/06	ND	
		7-Eleven - 12/27/06	NS	
		7-Eleven – 06/27/07	ND	

✓	7633 Woodbine Road (King/Harrison) GAC changed out 06/05/03	CCHD - 01/31/02	8.65	
		CCHD- 02/01/02	0.59	
		CCHD - 03/05/02	12.8	
		7-Eleven - 04/16/02	9.4	
		7-Eleven - 06/04/02	10	
		7-Eleven - 07/10/02	13.3	
		7-Eleven - 09/30/02	24	
		7-Eleven - 11/27/02	38	
		7-Eleven - 12/23/02	54	
		7-Eleven - 01/29/03	52	
		7-Eleven - 02/26/03	77	
		7-Eleven - 03/26/03	76	
		7-Eleven - 04/30/03	88	
		7-Eleven - 05/28/03	71	
		7-Eleven 06/23/03	75 (pre-filter) ND (mid-filter) ND (post-filter)	TBA - 38 (pre-filter)
7-Eleven 06/31/03	71 (pre-filter) 2 (mid-filter) ND (post-filter)			

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb - action level)	Other petroleum constituents
Private Wells				
	7633 Woodbine Road (cont)	7-Eleven 08/29/03	85 (pre-filter) 8 (mid-filter) ND (post-filter)	TBA - 26 (pre-filter)
	GAC changed out 12/10/03. A 3 RD GAC was added	7-Eleven 09/24/03	73 (pre-filter) 12 (mid-filter) ND (post-filter)	TBA - 47 (pre-filter) TBA - 7 (mid-filter)
	GAC changed out 02/18/04	7-Eleven 10/30/03	89.4 (pre-filter) 19.1 (mid-filter) ND (post-filter)	TBA - 77 (pre-filter)
	GAC changed out 08/20/04	7-Eleven - 11/26/03 permission requested to install a 3 rd GAC	120 (pre-filter) 12 (mid-filter) ND (post-filter)	TBA - 64 (pre-filter) TBA - 6 (pre-filter)
	GAC changed out 09/24/04	7-Eleven - 12/17/03	122.3 (pre-filter) 13.4 (mid-filter) ND (post-filter)	TBA - 72.9 (pre-filter) TBA - 11.8 (pre-filter)
	GAC changed out 10/29/04	7-Eleven - 01/29/04	175.1 (pre-filter) ND (mid-filter) ND (post-filter)	TBA - 91 (pre-filter)
	GAC changed out 02/04/05. And a 4 th GAC was added.	7-Eleven - 02/25/04	175.1 (pre-filter) ND (mid-filter) ND (post-filter)	TBA - 91 (pre-filter)
	GAC changed out 05/01/05	7-Eleven - 03/31/04	190.2 (pre-filter) ND (mid-filter) ND (post-filter)	TBA - 170 (pre-filter)
	GAC changed out 07/27/05	7-Eleven - 04/28/04	360 (pre-filter) ND (mid-filter) ND (post-filter)	TBA - 240; TAME - 6 (pre-filter)
	GAC changed out 09/27/05	7-Eleven - 05/26/04	260 (pre-filter) ND (mid-filter) ND (post-filter)	TBA - 210; DIPE - 1; TAME - 4 (pre-filter)
	GAC changed out 12/28/05. GAC units rebedded. A 5 th and 6 th GAC unit were added.	7-Eleven - 06/30/04	410e (pre-filter) 0.7 (mid-filter) ND (post-filter)	TBA - 160; TAME - 8 (pre-filter)
		7-Eleven - 07/28/04	630 (pre-filter) 0.7 (mid-filter) ND (post-filter)	TBA - 180; TAME - 9 (pre-filter)
		7-Eleven - 09/01/04	600 (pre-filter) 2.7 (mid-filter) 11 (post-filter)	TBA - 290; TAME - 6 (pre-filter) Naphthalene 1.2 (mid-filter)
		7-Eleven - 09/27/04	620 (pre-filter) 3.8 (mid-filter) 4.7 (post-filter)	TBA - 280; TAME - 5 (pre-filter)
		7-Eleven - 11/03/04	460 (pre-filter)	TBA - 300; TAME - 10 (pre-filter)
		7-Eleven - 11/30/04	560 (pre-filter)	TBA - 460; TAME - 14 (pre-filter)
		7-Eleven - 12/29/04	510e (pre-filter)	TBA - 380e; TAME - 10 (pre-filter)
		7-Eleven - 02/23/05	830 (pre-filter)	TBA - 500; TAME - 18 (pre-filter)
		7-Eleven - 03/30/05	640 (pre-filter)	TBA - 280; TAME - 12 (pre-filter)

		7-Eleven – 04/27/05	390 (pre-filter)	TBA – 160; TAME – 9 (pre-filter)
		7-Eleven – 05/25/05	110 (pre-filter)	TBA – 70 (pre-filter)
		7-Eleven – 06/29/05	340 (pre-filter)	TBA – 190e; TAME – 6 (pre-filter)
		7-Eleven – 08/01/05	250 (pre-filter)	TBA – 130 TAME – 11 (pre-filter)
		7-Eleven – 08/31/05	750 (pre-filter)	TBA – 440 TAME – 14 (pre-filter)
		7-Eleven – 09/28/05	1500 (pre-filter)	TBA – 880 TAME – 38 (pre-filter)
		7-Eleven – 10/26/05	910 (pre-filter)	ND –Detection levels elevated >100 ppb
		7-Eleven – 11/30/05	960 (pre-filter) 51 (mid-filter) ND (post-filter)	TBA – 280; TAME – 20 (pre-filter) TBA – 73 (mid-filter)

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern		
			MTBE (20 ppb – action level)	Other petroleum constituents Benzene (MCL 5 ppb)	
Private Wells					
7633 Woodbine Road (cont) GAC changed out 03/10/06 GAC changed out 07/10/06 GAC changed out 07/27/06. The home has been temporarily placed a tanker of water. 08/2006 Coal based carbon tanks were removed. replaced with coconut-based carbon. Configured as 3 GAC units in parallel series.		7-Eleven – 12/29/05	1300 (pre-filter)	TAME – 28 (pre-filter)	
		7-Eleven – 01/25/06	630 (pre-filter)	TBA – 15 ;TAME – 11 (pre-filter)	
		7-Eleven 0/22/2006	1300 (pre-filter) 210 (mid-filter) 4 (post-filter)	TBA -26 ppb ; TAME –21 ppb (pre-filter); TBA – 65 ppb (mid-filter) TBA – 30 ppb (mid-filter)	
		7-Eleven – 03/29/06	520 (pre-filter)	TBA – 110 ;TAME – 16 (pre-filter)	
		7-Eleven – 04/26/06	840e (pre-filter)	TBA – 680e ;TAME – 26 (pre-filter)	
		7-Eleven – 05/31/06	1600 (pre-filter)	TBA – 1100e ;TAME – 48 (pre-filter)	
		7-Eleven – 07/12/06	1100e (pre-filter)	TBA – 510 ;TAME – 37 (pre-filter)	
		7-Eleven – 07/21/06	2000 (pre-filter)	TBA – 1100e ;TAME – 51 (pre-filter)	
		CCHD 07/26/06	2021e (pre-filter) 66 (mid-filter) 92 (post-filter)	TBA – 105e (pre-filter) TAME – 0.93; Naphthalene – 1.77 (mid-filter) TBA – 0.98 (pre-filter)	
		7-Eleven 07/28/06	1600 (pre-filter) 3 (mid-filter A1) 3 (post-filter)	TBA – 1200e ;TAME – 56 (pre-filter)	
		7-Eleven 08/22/06 Metal analyses pH 6.2	1500e (pre-filter) 3 (mid-filter A1); ND (mid-filter B1); ND (post-filter)	Benzene 1.1 ppb; Naphthalene – 0.6 TBA – 630e ;TAME – 55 (pre-filter); pH 3.4 (pre-filter) Naphthalene – ND (mid-filter A1); pH 6.2 Naphthalene – 1.5 (post-filter); pH 6.7	
		Grab from former drinking water well	7-Eleven – 06/19/07	0.8	---
		Sample from former well following 30 minute purge	MDE – 09/13/07	893	Benzene – 1.49 ppb, TAME – 27.3
notation	Sample from tank truck following 10 minute purge Alternative potable water supply (tank truck) provided on 08/07/06	MDE-09/13/07	ND	ND	
	Sample from former well following 30 minute purge	MDE-12/17/07	806e	TAME – 31.3 ppb	
	Sample from former well following 30 minute purge	MDE-12/19/07	744e	TAME – 34.2 ppb	
	Sample from former well following 30 minute purge	MDE- 03/25/08	478	TAME – 15.7 ppb	
	Sample from former well following 30 minute purge	7-Eleven- 03/25/08	370	TPH/GRO – 480 ppb	
	Sample from former well following 30 minute purge	7-Eleven- 06/12/08	17	ND	
	Sample from former well following 30 minute purge	MDE- 06/12/08	17.2	ND	
Semi-annual	7634 Woodbine Road	CCHD – 07/03/02	2.87		
		7-Eleven – 09/30/02	2.8		
		7-Eleven – 12/30/02	3.1		
		7-Eleven – 03/26/03	4		
		7-Eleven – 07/21/03	4		
		7-Eleven - 08/01/03	1	TCE a chlorinated solvent – 1 ppb	
		7-Eleven – 09/24/03	2		
		7-Eleven – 03/31/04	1.6	TCE a chlorinated solvent – 0.7 ppb	
		7-Eleven – 06/30/04	1.7	PCE – 0.6 ppb , TCE –0.6 ppb (chlorinated solvent)	
		7-Eleven – 09/27/04	1.7		
		7-Eleven – 06/29/05	1.6		
		7-Eleven - 12/29/05	2		
		7-Eleven - 06/29/06	0.9		
		7-Eleven – 09/08/06	0.6	PCE – 1.0 ppb (chlorinated solvent)	
		7-Eleven – 12/30/06	ND	PCE – 2.0 ppb	
		7-Eleven – 06/27/07	ND	PCE – 2.2 ppb	
		7-Eleven - 12/18/07	ND	PCE – 1.8 ppb	
		7-Eleven - 05/28/08	ND	PCE – 3 ppb	
Semi-annual	7636 Woodbine Road	09/24/03	ND		
		7-Eleven 06/30/04	ND		
		7-Eleven - 06/29/05	ND		
		7-Eleven - 06/29/06	ND		

		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	3.1	ND
		7-Eleven – 05/28/08	ND	ND
GAC installed by 7-Eleven in 05/2002 ✓	7637 Woodbine Road GAC changed out 11/27/02 3 rd GAC installed on 12/2002 GAC changed out 12/15/02	CCHD – 02/07/2002	9.3 (pre-filter)	
		CCHD - 03/05/02	20.79 (pre-filter)	
		7-Eleven – 04/16/02	59.5 (pre-filter)	
		7-Eleven – 05/22/02	17 (pre-filter)	
		7-Eleven - 06/04/02	73.6 (pre-filter)	
		7-Eleven - 06/14/02	15 (pre-filter)	
		7-Eleven - 07/10/02	19.3 (pre-filter)	
		7-Eleven - 07/24/02	21 (pre-filter)	
		7-Eleven – 08/28/02	13 (pre-filter)	
		7-Eleven – 09/30/02	227 (pre-filter)	
		7-Eleven – 10/30/02	78 (pre-filter)	
		7-Eleven – 11/27/02	99 (pre-filter)	
		7-Eleven – 12/10/02	92 (pre-filter)	
		7-Eleven – 12/17/02	74 (pre-filter)	

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb – action level)	Other petroleum constituents
Private Wells				
	7637 Woodbine Road	7-Eleven – 01/29/03	90 (pre-filter)	
		7-Eleven – 02/26/03	24 (pre-filter)	
		7-Eleven – 03/26/03	19 (pre-filter)	
		7-Eleven – 04/30/03	17 (pre-filter)	
		7-Eleven – 05/28/03	14 (pre-filter)	
	GAC changed out 07/21/03 GAC to be replaced in 04/10/04 GAC changed out 06/29/04 GAC changed out 08/02/04 GAC changed out 09/25/04 GAC changed out 01/29/05	7-Eleven 06/25/03	11 (pre-filter) 9 (mid-filter) ND (post-filter)	TBA – 6 (pre-filter)
		7-Eleven 07/31/03	17 (pre-filter) ND (mid-filter) 1 (post-filter)	
		7-Eleven 08/29/03	----	
		7-Eleven 09/17/03	15 (pre-filter) ND (mid-filter) ND (post-filter)	TBA – 13 (pre-filter)
		7-Eleven 10/30/03	19 (pre-filter) 2 (mid-filter) ND (post-filter)	TBA – 10 (pre-filter)
		7-Eleven – 11/26/03	25 (pre-filter)	TBA – 15 (pre-filter)
		7-Eleven – 12/17/03	17.6 (pre-filter) 4.4 (mid-filter) ND (post-filter)	TBA – 7.7 (pre-filter)
		7-Eleven 01/28/04	26 (pre-filter) 6.2 (mid-filter) ND (post-filter)	
		7-Eleven 02/25/04	38.2 (pre-filter) 1 (mid-filter) ND (post-filter)	TBA – 22 (pre-filter)
		7-Eleven - 03/31/04	70.8e (pre-filter) 2.3 (mid-filter) ND (post-filter)	
		7-Eleven 04/28/04	129 (pre-filter) 2.2 (mid-filter) ND (post-filter)	TBA – 89 (pre-filter)
		7-Eleven 05/26/04 GAC to be changed out	110 (pre-filter) 4.3 (mid-filter) 2 (post-filter)	TBA – 87 (pre-filter)
		7-Eleven 06/30/04	204.2 (pre-filter) 9.6 (mid-filter) 0.6 (post-filter)	TBA – 78 (pre-filter)
		7-Eleven 07/28/04	180 (pre-filter) 31.9 (mid-filter) 4.4 (post-filter)	TBA – 68 (pre-filter) TBA – 11 (mid-filter)
		7-Eleven 08/30/04 GAC to be changed out 10/2004	200 (pre-filter) 39 (mid-filter) 1.1 (post-filter)	TBA – 100 (pre-filter)
		7-Eleven 09/27/04	150e (pre-filter) 2.8 (mid-filter) ND (post-filter)	TBA – 83 (pre-filter)

		7-Eleven 11/03/04	160 (pre-filter)	TBA – 59 (pre-filter)
		7-Eleven 11/30/04	32 (pre-filter)	TBA – 19 (pre-filter)
		7-Eleven 12/29/04	150e (pre-filter)	TBA – 100 (pre-filter)
		7-Eleven 02/03/05	54 (pre-filter) 1.2 (mid-filter) 1.3 (post-filter)	TBA – 25 (pre-filter)
		7-Eleven 02/23/05	150 (pre-filter) ND (mid-filter) ND (post-filter)	TBA – 92 (pre-filter)

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb – action level)	Other petroleum constituents
Private Wells				
Monthly	7637 Woodbine Road GAC changed out 07/27/05 GAC changed out 10/03/05	7-Eleven 03/30/05	ND	ND
		7-Eleven 04/27/05	140E (pre-filter)	TBA – 72 (pre-filter)
		7-Eleven 05/25/05	140 (pre-filter)	TBA – 76 (pre-filter)
		7-Eleven 06/29/05	210 (pre-filter)	TBA – 110 (pre-filter)
		7-Eleven 08/01/05	200 (pre-filter)	TBA – 88 (pre-filter)
		7-Eleven 08/31/05	150 (pre-filter)	TBA – 54 (pre-filter)
		7-Eleven 09/28/05	200 (pre-filter)	TBA – 72 (pre-filter)
		7-Eleven 10/26/05 (3 carbon tanks in series)	190 (pre-filter) 0.9 (mid-filter) 2 (post-filter)	
		7-Eleven 11/30/05	200 (pre-filter) 6 (mid-filter) ND (post-filter)	
		7-Eleven 07/2006	200 (pre-filter) 4 (mid-filter) 0.5 (post-filter)	
		7-Eleven 12/29/05	200 (pre-filter)	TBA – 40 (pre-filter)
		7-Eleven 01/25/06	99 (pre-filter)	ND
		7-Eleven 02/22/06	130 (pre-filter)	ND
		7-Eleven 03/29/06	110 (pre-filter)	ND
		7-Eleven 04/26/06	100e (pre-filter)	TBA – 42 (pre-filter)
		7-Eleven 05/31/06	32 (pre-filter)	TBA – 11 (pre-filter)
		7-Eleven 07/12/06	42 (pre-filter)	TBA – 21 (pre-filter)
		7-Eleven 08/22/06	36 (pre-filter) ND (mid-filter) ND (mid-filter)	ND
		7-Eleven 08/30/06	41 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 09/27/06	55e (pre-filter) ND (mid-filter A) ND (mid-filter B) ND (post-filter)	ND
		7-Eleven 10/25/06	66 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 11/29/06	85 e (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 12/23/06	57 e (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 01/31/07	100 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 02/28/07	57 (pre-filter) ND (mid-filter) ND (post-filter)	TBA – 22
		7-Eleven 03/28/07	22 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 04/25/07	11 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 05/30/07	14 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 06/27/07	19 (pre-filter) ND (mid-filter) ND (post-filter)	---
		7-Eleven 08/31/07	18 (pre-filter) ND (mid-filter) ND (post-filter)	ND
7-Eleven 09/26/07	11 (pre-filter) ND (mid-filter) ND (post-filter)	ND		

Monthly	7637 Woodbine Road	7-Eleven 10/31/07	20 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 11/28/07	29 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 12/18/07	45 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 01/30/08	33 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 02/27/08	22 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 03/26/08	28 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 04/30/08	15 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 05/27/08	7 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 06/25/08	ND (pre-filter) 2.9 (mid-filter) ND (post-filter)	ND
		7-Eleven 07/30/08	2.2 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 08/27/08	4 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 09/24/08	3.1 (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 12/22/08	4.8 (pre-filter) 0.6 (mid-filter) ND (post-filter)	ND
		7-Eleven – 01/28/09	3.7 (pre-filter) 0.6 (mid-filter) ND (post-filter)	ND
Semi-annual	7638 Woodbine Road	7-Eleven – 09/24/03	ND	
		7-Eleven - 06/30/04	ND	
		7-Eleven - 06/29/05	ND	
		7-Eleven - 06/29/06	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven 12/18/07	ND	
		7-Eleven – 05/28/07	ND	
7-Eleven – 12/16 /08	ND			

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb – action level)	Other petroleum constituents
✓ GAC installed by 7-Eleven in 06/2002 GAC changed out 11/27/02 GAC changed out 05/29/04 GAC changed out 06/29/04 GAC changed out 01/05/05	7639 Woodbine Road	CCHD - 04/2002	20.37	
		CCHD - 06/04/02	23.2	
		7-Eleven - 06/14/02	20 (pre-filter)	
		7-Eleven - 07/10/02	17.6 (pre-filter)	
		7-Eleven - 07/24/02	13 (pre-filter)	
		7-Eleven - 08/28/02	25 (pre-filter)	
		7-Eleven - 09/30/02	19 (pre-filter)	
		7-Eleven - 10/30/02	17 (pre-filter)	
		7-Eleven - 12/11/02	15 (pre-filter)	
		7-Eleven - 01/29/03	8 (pre-filter)	
		7-Eleven - 02/26/03	8 (pre-filter)	
		7-Eleven - 03/26/03	6 (pre-filter)	
		7-Eleven - 04/30/03	5 (pre-filter)	
		7-Eleven - 05/28/03	5 (pre-filter)	
		7-Eleven 06/25/03	3 (pre-filter) 0.6 (mid-filter) ND (post-filter)	
		7-Eleven - 07/30/03	ND (pre-filter)	
		7-Eleven - 08/29/03	0.6 (pre-filter)	
		7-Eleven - 09/24/03	0.9 (pre-filter)	
		7-Eleven - 10/30/03	0.5 (pre-filter)	
		7-Eleven - 11/26/03	0.8 (pre-filter)	
		7-Eleven - 12/24/03	0.6 (pre-filter)	
		7-Eleven - 01/28/04	0.9 (pre-filter)	
		7-Eleven - 02/25/04	0.9 (pre-filter)	
		7-Eleven - 03/31/04	0.6 (pre-filter)	
		7-Eleven - 04/28/04	0.8 (pre-filter) 0.7 (mid-filter)	
		7-Eleven - 05/26/04	ND (pre-filter)	
		7-Eleven - 06/28/04	0.7 (pre-filter)	
		7-Eleven - 09/01/04	0.7 (pre-filter)	
		7-Eleven - 09/29/04	0.8 (pre-filter)	
		7-Eleven - 11/03/04	0.8 (pre-filter)	
		7-Eleven - 11/30/04	150e (pre-filter)	TBA - 98 (pre-filter)
		7-Eleven - 12/29/04	ND (pre-filter)	
		7-Eleven - 02/03/05	ND (pre-filter)	
		7-Eleven - 02/23/05	ND (pre-filter)	
		7-Eleven - 03/30/05	170 (pre-filter)	TBA - 77 (pre-filter)
		7-Eleven - 04/27/05	ND (pre-filter)	
		7-Eleven - 05/25/05	ND (pre-filter)	
		7-Eleven - 06/29/05	ND (pre-filter)	
		7-Eleven - 08/01/05	ND (pre-filter)	
		7-Eleven - 08/31/05	ND (pre-filter)	
7-Eleven - 09/28/05	ND (pre-filter)			
7-Eleven - 10/26/05	ND (pre-filter)			
7-Eleven - 11/30/05	ND (pre-filter)			
7-Eleven - 12/29/05	ND (pre-filter)			
7-Eleven - 01/25/06	ND (pre-filter)			
7-Eleven - 02/22/06	ND (pre-filter)			
7-Eleven - 03/29/06	ND (pre-filter)			
7-Eleven - 04/26/06	ND (pre-filter)			
7-Eleven - 05/31/06	ND (pre-filter)			
7-Eleven - 06/29/06	ND (pre-filter)			

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb – action level)	Other petroleum constituents
Monthly	7639 Woodbine Rd	7-Eleven – 08/30/06	ND (pre-filter) ND (mid-filter) ND (post-filter)	
		7-Eleven – 09/27/06	ND (pre-filter) ND (mid-filter) ND (post-filter)	
		7-Eleven – 10/25/06	0.5 e (pre-filter) ND (mid-filter) ND (post-filter)	
		7-Eleven – 11/29/06	ND (pre-filter) ND (mid-filter) ND (post-filter)	
		7-Eleven – 12/27/06	ND (pre-filter) ND (mid-filter) ND (post-filter)	
		7-Eleven – 01/31/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 03/31/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 04/25/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 05/30/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 06/27/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 07/25/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 08/31/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 09/26/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 10/31/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 11/30/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 12/18/07	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven 01/30/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 03/05/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 03/26/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
		7-Eleven – 05/07/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND
7-Eleven – 05/27/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND		
7-Eleven – 07/02/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	ND		

7639 Woodbine Rd	monthly	7-Eleven 07/30/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	
		7-Eleven 08/27/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	
		7-Eleven 09/24/08	ND (pre-filter) ND (mid-filter) ND (post-filter)	
		7-Eleven – 01/29/09	ND (pre-filter) ND (mid-filter) ND (post-filter)	
Semi-annual	7640 Woodbine Road	7-Eleven – 03/26/03	ND	
		7-Eleven - 06/30/04	ND	
		7-Eleven - 06/29/05	ND	
		7-Eleven - 06/29/06	ND	
		7-Eleven – 12/30/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 01/07/08	ND	
Semi-annual	7642 Woodbine Road	7-Eleven 03/26/03	ND	
		7-Eleven 08/29/06	4	
		7-Eleven 12/30/06	4	
		7-Eleven – 06/28/07	1.5	
		7-Eleven – 12/29/07	1.0	
		7-Eleven – 06/02/08	ND	
Semi-annual	7644 Woodbine Road	7-Eleven - 06/30/04	ND	
		7-Eleven - 06/29/05	ND	
		7-Eleven - 06/29/06	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven - 06/27/07	ND	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	
Semi-annual	7646 Woodbine Road	7-Eleven - 06/30/04	ND	
		7-Eleven - 06/29/05	0.8	
		7-Eleven – 08/14/06	ND	
		7-Eleven – 12/30/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven - 12/18/07	ND	

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb – action level)	Other petroleum constituents
Private Wells				
Semi-annual	7653 Woodbine Road shares well with 7651	CCHD 06/05/02	9.89	
		7-Eleven 06/17/02	10.4	
		7-Eleven 09/30/02	10	
		7-Eleven – 06/23/03	13	
		7-Eleven – 09/24/03	11	
		7-Eleven – 12/17/03	11.4	
		7-Eleven – 03/31/04	5.2	
		7-Eleven – 06/30/04	5.4	
		7-Eleven – 10/03/04	5.5	
		7-Eleven – 10/12/05	ND	
		7-Eleven – 12/29/05	ND	
		7-Eleven – 03/29/06	ND	
		7-Eleven – 06/29/06	ND	
		7-Eleven – 09/08/06	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	ND	
7-Eleven – 12/29/07	ND			
7-Eleven – 05/28/08	ND			
7-Eleven – 12/17/08	ND			
Semi-annual	7654 Woodbine Road	7-Eleven – 12/23/02	0.76	Benzene – 2.3 ppb
		7-Eleven – 03/26/03	ND	
		7-Eleven – 06/30/04	ND	
		7-Eleven – 06/29/05	1.1	
		7-Eleven – 06/29/06	2	

		7-Eleven – 12/27/06	4.4	
		7-Eleven – 06/27/07	1.8	
		7-Eleven – 12/18/07	1	
		7-Eleven – 05/28/08	0.6	
Semi-annual ?	7658 Woodbine Road	7-Eleven – 06/30/04	ND	
		7-Eleven – 06/29/05	0.5	
		7-Eleven – 06/29/06	ND	
		7-Eleven – 12/27/06	0.6	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	
Semi-annual	7700 Woodbine Road	7-Eleven – 03/26/03	0.8	
		7-Eleven – 06/30/04	ND	
		7-Eleven – 06/29/05	ND	
		7-Eleven – 06/29/06	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 01/07/08	ND	
		7-Eleven – 06/02/08	ND	
Semi-annual	7704 Woodbine Road	7-Eleven – 03/26/03	2	
		7-Eleven – 07/21/03	6	
		7-Eleven – 09/24/03	1	
		7-Eleven – 12/17/03	1.1	
		7-Eleven – 03/31/04	1.5	
		7-Eleven – 06/30/04	4.2	
		7-Eleven – 09/27/04	ND	
		7-Eleven – 11/17/04	1.1	
		7-Eleven – 03/31/05	ND	
		7-Eleven – 06/29/05	0.8	
		7-Eleven – 10/12/05	ND	
		7-Eleven – 12/29/05	0.6	
		7-Eleven - 03/29/06	0.5	
		7-Eleven - 06/29/06	0.6	
		7-Eleven – 09/08/06	0.6	
		7-Eleven – 12/27/06	1.1	
		7-Eleven – 06/27/07	1	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	
		7-Eleven - 12/01/08	0.6	

Semi-annual	7706 Woodbine Road	7-Eleven – 03/26/03	ND	
		7-Eleven - 06/30/04	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	
	7710 Woodbine Road	7-Eleven – 06/23/03	ND	

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern			
			MTBE (20 ppb – action level)	Other petroleum constituents		
Private Wells						
Semi-annual	7711 #1 Woodbine Road	7-Eleven - 06/17/02	2.1			
		CCHD - 07/03/02	2.06			
		7-Eleven 09/30/02	2.7			
		7-Eleven 12/23/02	2.9			
		7-Eleven 03/26/03	1			
		7-Eleven – 06/23/03	ND			
		7-Eleven – 06/30/04	0.8			
		7-Eleven – 06/29/05	ND			
		7-Eleven - 06/29/06	NS			
		7-Eleven – 12/27/06	ND			
		7-Eleven – 06/27/07	ND			
		7-Eleven – 12/29/07	ND			
		7-Eleven – 06/02/08	ND			
		7-Eleven – 12/17/08	ND			
Semi-annual	7711 #2 Woodbine Road (smaller house)	7-Eleven 06/17/02	1.9			
		7-Eleven 09/30/02	1.6			
		7-Eleven 12/23/02	2.8			
		7-Eleven 09/24/03	1			
		7-Eleven 12/17/03	ND			
		7-Eleven 03/31/04	ND			
		7-Eleven - 06/30/04	ND			
		7-Eleven - 06/29/05	ND			
		7-Eleven - 06/29/06	NS			
		7-Eleven – 12/27/06	ND			
		7-Eleven – 06/27/07	ND			
		7-Eleven – 05/28/08	ND			
		Semi-annual	7717 Woodbine Road	CCHD 03/26/03	9	
				7-Eleven 06/23/03	4	
7-Eleven 09/24/03	4					
7-Eleven – 12/17/03	0.7					
7-Eleven 03/31/04	1.3					
7-Eleven 06/30/04	1					
7-Eleven 09/27/04	1.8					
7-Eleven 12/29/04	1.3					
7-Eleven 03/31/05	1					
7-Eleven 06/29/05	0.6					
7-Eleven – 10/12/05	0.7					
7-Eleven - 12/29/05	1					
7-Eleven - 03/29/06	ND					
7-Eleven - 06/29/06	ND					
7-Eleven – 09/08/06	0.5					
7-Eleven – 12/27/06	ND					
7-Eleven – 06/27/07	0.6					
7-Eleven – 12/19/07	ND					
7-Eleven – 05/29/08	ND					
Semi-annual	7721 Woodbine Road (Woodbine Gospel Church)	CCHD 07/03/02	1.36			
		7-Eleven 07/03/02	1.4			
		7-Eleven 09/30/02	2			
		7-Eleven – 06/23/03	2			
		7-Eleven – 12/17/03	1.5			
		7-Eleven 03/31/04	1.9			
		7-Eleven – 06/30/04	0.8			
		7-Eleven 09/27/04	0.8			
		7-Eleven – 12/29/05	ND			
		7-Eleven – 03/31/05	ND			
		7-Eleven – 06/29/05	ND			

		7-Eleven – 10/12/05	ND	
		7-Eleven – 03/29/06	ND	
		7-Eleven - 06/29/06	ND	
		7-Eleven – 09/08/06	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	
		7-Eleven – 12/18/08	ND	
Semi-annual	7727 Woodbine Road	CCHD 05/14/02	0.64	
		7-Eleven 08/09/02	0.6	
		7-Eleven 09/30/02	0.9	
		7-Eleven – 03/26/03	0.9 ppb	
		7-Eleven 08/01/03	0.9	
		7-Eleven - 06/30/04	ND	
		7-Eleven - 06/29/05	ND	
		7-Eleven - 06/29/06	ND	
		7-Eleven – 12/30/06	ND	
		7-Eleven – 06/28/07	ND	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	

Drinking Water Sampling results near the 7-Eleven Woodbine/Hilltop Shopping Center

GAC System Installed	Sample location	Sample dates	Petroleum constituents of Concern	
			MTBE (20 ppb – action level)	Other petroleum constituents
Private Wells				
Semi-annual	7731 Woodbine Road	7-Eleven – 08/14/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 05/28/08	ND	
Semi-annual	7735 Woodbine Road	7-Eleven 09/30/02	1.8	
		7-Eleven – 06/23/03	3	
		7-Eleven 09/24/03	ND	
		7-Eleven 03/31/04	ND	
		7-Eleven 08/14/06	ND	
		7-Eleven – 12/30/06	ND	
		7-Eleven – 06/28/07	ND	
		7-Eleven – 12/18/07	ND	
Semi-annual	7737 Woodbine Road	? 03/26/03	2	
		7-Eleven 06/23/03	3	
		7-Eleven 12/17/03	ND	
		7-Eleven 03/31/04	ND	
		7-Eleven - 06/30/04	ND	
		7-Eleven - 06/29/05	----	
		7-Eleven - 06/29/06	----	
		7-Eleven – 08/14/06	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	Not sampled	
		7-Eleven – 12/18/07	ND	
		7-Eleven – 05/28/08	ND	
Semi-annual	7741 Woodbine Road	7-Eleven – 03/26/03	ND	
		7-Eleven - 06/30/04	ND	
		7-Eleven - 06/29/05	ND	
		7-Eleven - 06/29/06	ND	
		7-Eleven- 12/27/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 12/18/07	ND	Toluene 0.9 ppb
		7-Eleven – 05/28/08	ND	TCE 1.1 ppb
Semi-annual	7746 Woodbine Road (Toro Lawn Center)	7-Eleven – 03/26/03	0.8	
		7-Eleven - 06/30/04	0.8	
		7-Eleven - 06/29/05	0.8	
		7-Eleven - 06/29/06	ND	
		7-Eleven – 12/27/06	ND	
		7-Eleven – 06/27/07	ND	
		7-Eleven – 12/18/07	0.8	

