

Land and Materials Administration • Oil Control Program

DRINKING WATER SAMPLING AND ENVIRONMENTAL INVESTIGATION

**Charlie's Service Station
11024 Liberty Road, Randallstown
Baltimore County, Maryland
Case No. 1995-1777BA1**

The Maryland Department of the Environment (MDE), Oil Control Program (OCP), is evaluating the impact from several petroleum constituents at the Charlie's Service Station located in northwest Baltimore County. This active gasoline retail station has been in operation since the 1980s. Prior to May 1981, this facility operated as an ExxonMobil. There were tank removal activities at the site in July 1981 and February 1995. The facility has been independently owned and operated by several entities including Sellman Smirk & Conrey Inc. (1995 to 2004) and Charlie's Service Station (2004 to present).

In June 2007, the MDE-OCP became aware of a new report of groundwater contamination at the Charlie's Service Station upon receiving sampling results from three newly installed monitoring wells. Petroleum constituents detected included benzene at 239 parts per billion (ppb), ethylbenzene at 771 ppb and MTBE at 2,664 ppb. The station's drinking water supply well was last sampled in September 2008 and clean.

Benzene and ethylbenzene are both petroleum constituents. The U.S. Environmental Protection Agency (EPA) has established a Maximum Contaminant Level (MCL) for benzene at 5 ppb and for ethylbenzene at 700 ppb. 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 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. MTBE was removed from Maryland's gasoline supply in the Summer-2006.

There is historic documented evidence of petroleum contamination in the vicinity of the facility. In the 1980s, Baltimore County conducted several rounds of sampling of the residential neighborhood and several drinking water wells were determined to be below regulatory levels for petroleum constituents. In February 1995, underground storage tanks (USTs) were removed under the oversight of the MDE's Oil Control program. These five steel tanks stored gasoline of vary capacities (three 2000-gallon, a 3000-gallon and, a 4000 gallon).

A new compartmentalized 15,000-gallon fiberglass reinforced plastic tank with flexible plastic piping material was installed in October 1996. In May 2007, the current operator - Charlie's Service Station registered the 15,000 UST system. Currently there is only one storage system in operation at the facility. Three monitoring wells and a transient non-community drinking water supply well are also located on-site. Depth to groundwater is approximately 24 to 25 feet and groundwater flow is to the east.

Based on the levels of petroleum contaminants, found in the newly installed monitoring wells and pursuant to Section 4-411.2 of the Environment Article, Annotated Code of Maryland, the MDE opened a case, issued a directive letter to the responsible party, and notified the Baltimore County Department of Environmental Protection and Resource Management (BADEPRM) of petroleum impacts.

The site is located in an area served by private drinking water wells. Historic samplings of several nearby drinking water wells have found no exceedances for petroleum constituents. At this time, the MDE-OCP does not anticipate expanding the off-site drinking water sampling effort beyond sampling needed to ensure community safety.

Chronology:

- February 2, 1995. *Case No. 95-1777BA1* was opened in response to MDE-OCPs oversight of tank removal activities.
 - Five gasoline UST systems removed (three 2000-gallon, a 3000 gallon and a 4000 gallon tank)
 - Field screening of impacted soil detected 2500 units with the photoionization detector (PID) at 4 ft below the tank bottom.
 - Impacted soil was removed.
 - No perforations observed in any of the tanks.
 - The Department required the installation of a downgradient monitoring well.
- February 24, 1995. MDE-OCP site visit follow-up on UST removal and the installation of a monitoring well.
- March 9, 1995. MDE-OCP site visit to approve the installation of a monitoring well. Requested the collection of soil and groundwater samples.
- March 29, 1995. MDE-OCP received letter from Sellman Smirk & Conrey Inc. dated 03/27/95 and 04/04/95 regarding a second estimate for installation of a monitoring well per the Department's directive.
- May 5, 1995. MDE-OCP telephoned Sellman Smirk & Conrey Inc. regarding the status of the installation of two on-site monitoring wells and sampling the on-site supply well.
 - Sampling of off-site private wells required.
- February 1, June 10, September 19, and October 1996. MDE-OCP site visits. The required monitoring wells had not yet been installed.
- November 13, 1996. MDE-OCP issued a *Notice of Violation (NV-97-058)* to Sellman Smirk & Conrey Inc. requiring the following:
 - Install two groundwater monitoring wells
 - Sample each monitoring well for petroleum constituents.
- December 9, 1996. MDE-OCP discussion with the property owner's attorney about the installation of monitoring wells.
- January 23, 1997. Monitoring wells being installed on-site.
- July 22, 1997. MDE-OCP received fax-outlining attempts to drill two monitoring wells on-site in 02/1997.
 - Both boreholes were abandoned because no water was encountered according to drilling logs.
 - Well Tag No. BA 94-2335 –*abandoned 02/1997*
 - Well Tag No. BA 94-2336 –*abandoned 02/1997*
- December 14, 1999. MDE-OCP field reconnaissance of homes in the area
 - Property owner at 4509 and 4511 Wards Chapel Road informed the Department that a new domestic well was installed on their properties in circa 1989.
 - Bottled water was being used for consumptive purposes.
 - Circa 1979, Exxon settled a lawsuit for damage to impacted drinking water wells via monetary compensation.
 - Carbon filters were subsequently installed at the homeowner's expense.
 - Several homes in the area have treatment systems in place.
- February 19, 1999. MDE-OCP site visit related to historic groundwater contamination (1980s Exxon).
- August 14, 2000. MDE-OCP site visit related to historic groundwater contamination (1980s Exxon).

- July 16, 2004. MDE-OCP received citizen complaint of petroleum contamination in a private drinking water supply well. Problem had been previously reported to the County since 1988
 - Approximately 18 private wells were sampled by the County.
 - Several homes in the area already have been retrofitted with treatment systems.
 - Mixture of heat pump and oil heat source heat homes in the area.

- July 22, 2004. MDE-OCP conducted a compliance assistance inspection. Several outstanding issues were identified.
 - The 15,000 gallon UST was not properly registered
 - Submit inventory records, leak detector test results and last tank line test results
 - Install a spill bucket on the Stage I vapor recovery system.

- July 30, 2004. MDE-OCP received UST Compliance Data for the facility in response to the 07/22/04 compliance inspection.

- August 9, 2004. MDE-OCP received UST Compliance Data for the facility in response to the 07/22/04 compliance inspection.
 - All product lines tested tight.
 - Tank tested tight.
 - Inventory records passed.

- September 14, 2004. MDE-OCP received a letter from ExxonMobil stating.
 - Site was Exxon Station 2-2555.
 - Site was closed in 5/31/81.
 - Tanks removed 7/15/81.

- April 2, 2007. MDE-OCP received *Third Party Compliance Inspection Report* conducted at the facility on 03/21/07 from a certified tester. Operational violations were identified.
 - Containment sumps need testing
 - Spill prevention equipment needs calibration.
 - Tank needs helium test.

- June 5, 2007. Active UST systems tested by contractor. All systems passed tightness test. Helium test for vapor leaks passed after repairs. One fill pipe spill containment basin failed test and was scheduled for replacement.

- June 27, 2007. MDE received *Report of Monitoring Well Install, Gauging and Sampling –June 2007*.
 - Three monitoring wells installed in response to the Emergency Regulations.
 - Depth to groundwater 24.62 to 25.09 ft
 - Groundwater flow is easterly.
 - Sampling event May –June 2007.
 - On-site supply well (PW) MTBE at 2.07 ppb
 - MW-1 (24 ft) MTBE - 10.3 ppb
 - MW-2 (24 ft) MTBE –2,664 ppb; di-isopropyl ether (DIPE) - 15.8 ppb (an unregulated compound); TPH-GRO - 2733 ppb
 - MW-3 (24 ft) MTBE – non detect; benzene - 238 ppb; ethylbenzene – 771 ppb; naphthalene - 204 ppb; TPH-GRO - 11650 ppb

- July 2, 2007. MDE-OCP notified BADEPRM of this new petroleum impact pursuant to Section 4-411.2 of the Environmental Article, Annotated Code of Maryland, for a regulated facility in a high-risk groundwater use area.

- On July 2, 2007. MDE issued a letter to Mr. Charlie Brocato requiring completion of the following activities:
 - Sample select off-site private wells located immediately adjacent to the facility and submit sampling results no later than August 31, 2007.
 - Conduct a half-mile well survey and submit results no later than August 31, 2007.

- Sample all existing monitoring wells and tank field observation pipes every six months (semi-annually).
 - Sample the on-site supply well every six months (semi-annually).
- October 10, 2007. MDE-OCP issued a *Notice of Violation Addendum* letter to Mr. Charlie Brocato concerning the requests made in the letter dated July 2, 2007. The Department requires the following activities to be completed:
 - No later than November 30, 2007, provide documentation to support the failures identified during the Third Party Compliance Inspection on March 21, 2007 have been corrected. Specifically the spill prevention and tank field monitoring pipe failures.
 - No later than November 30, 2007, submit the drinking water sample results from adjacent properties as well as the half-mile radius well receptor survey.
 - No later than January 15, 2008, submit the second round of semi-annual groundwater monitoring well and on-site supply well samples along with all pertinent well logs in a formal report.
 - October 23, 2007. MDE-OCP received the *Receptor Well Survey* identifying 38 off-site private supply wells within one-quarter mile of the subject property; fifteen of these wells were located within 500-ft of the site.
 - October 10, 2007 sampling event
 - 11100 Liberty Road - non-detect for all petroleum constituents
 - 11023 Liberty Road - non-detect for all petroleum constituents
 - 4507 Wards Chapel Road - non-detect for all petroleum constituents
 - 11012 Churchview Avenue - non-detect for all petroleum constituents
 - December 31, 2007. MDE-OCP performed a Third Party Follow-up Inspection on the site. The station passed all tests including; the facility inspection, the helium test, the sump test and the supreme spill bucket test. Monitoring wells were also properly installed on-site.
 - April 7, 2008. MDE-OCP received the *Report of Monitoring Well Gauging and Sampling-April 2, 2008*. (See Table Below for Results)
 - Maximum concentration of MTBE detected in MW-2 at 7400ppb.
 - September 22, 2008. MDE-OCP received the *Report of Monitoring Well Install, Gauging and Sampling-September 12, 2008*. (See Table Below for Results)
 - Maximum concentration of MTBE detected in MW-2 at 8400ppb.

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) - Oil Control Program: 410-537-3443
- Baltimore County Department of Environmental Protection and Resource Management (BADEPRM): 410-887-2762

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 guilt, involvement in a wrongful act or contribution to environmental damage.

**Drinking Water Sampling results in the vicinity of Charlie's Service Station located in Randallstown
Baltimore County**

Sample location	Sample dates	Petroleum Constituents of Concern		
		MTBE (20 ppb – action level)	Benzene (MCL at 5 ppb)	Other constituents 1,2 DCA – MCL at 5 ppb Naphthalene – Action Level at 10 ppb Ethylbenzene – MCL at 700 ppb TPH-GRO – Action Level 47 ppb
On-site Transient Non-Community Supply Well				
Charlie's Service Station Drinking Water Supply Well (PW)	05/31/07	2.07	2.07	ND
	03/21/08	0.6	ND	ND
	08/26/08	ND	ND	ND
Off-site Drinking Water Wells				
4508 Churchview Avenue	5/12/88 BADEPRM	NA	---	PCE at 1 ppb
	08/06/90 BADEPRM	NA	---	PCE at 1 ppb
4509 Churchview Avenue	08/06/90 BADEPRM	NA	---	---
4513 Churchview Avenue	05/13/88 BADEPRM	NA	---	PCE at 2 ppb
	08/16/90 BADEPRM	NA	---	---
11012 Churchview Avenue	10/05/07 – RP	ND	ND	ND
4507 Wards Chapel Road <i>Complaint of strong odors in water initiated sampling at this site</i>	06/23/86 -BADEPRM	NA	19	1,2 DCA - 9; TPH at 120 ppb
	07/21/86 -BADEPRM	NA	44	1,2 DCA - 7; TPH at 230 ppb
4507 Wards Chapel Road	07/21/88 BADEPRM	NA	ND	ND
	10/05/07 – RP	ND	ND	ND
4508 Wards Chapel Road	05/12/88 BADEPRM	NA	ND	---
4509 Wards Chapel Road	03/16/88 BADEPRM (raw)	NA	7	1,2 DCA at 2 ppb
	08/01/88 –BADEPRM	Bacteria tests revealed coliform County recommended measures to ensure the integrity of the supply		
	07/24/89 BADEPRM	NA	ND	---
4513 Wards Chapel Road	08/06/90 BADEPRM	NA	ND	PCE at 2 ppb
4601 Wards Chapel Road	10/19/88 BADEPRM	NA	---	1,2 DCA at 3 ppb; PCE at 1 ppb
	08/06/90 BADEPRM	NA	2	1,2 DCA at 2ppb
4603 Wards Chapel Road	10/19/88 BADEPRM	NA	---	PCE at 1 ppb
4609 Wards Chapel Road	11/10/86 BADEPRM Treatment recommended by the County	NA	18	1,2 DCA - 19; TPH at 120 ppb; PCE at 2ppb
11100 Liberty Road	10/05/07 – RP	ND	ND	ND
11023 Liberty Road	10/05/07 – RP	ND	ND	ND

**Sampling Data for the On-Site Wells at Charlie's Service Station located at 11024 Liberty Road in
Randallstown, Baltimore County**

Sample location	Sample dates	Petroleum constituents of Concern		
		MTBE (20 ppb – Action level)	Benzene MCL at 5 ppb	Other petroleum constituents Naphthalene – MDE Action Level at 10 ppb Ethylbenzene – MCL at 700 ppb TPH-GRO – Action Level 47 ppb
Monitoring Wells				
Monitoring Well- MW1 Depth 32 ft	06/15/07	10.3	ND	---
	03/21/08	4.98	ND	---
	08/26/08	ND	ND	---
Monitoring Well - MW2 Depth 35 ft	05/31/07	2664	ND	TPH-GRO - 2733
	03/21/08	7400	ND	TAME -86.9; TBA -6360; TAA -180
	08/26/08	8400	417	TPH-GRO- 20430; Toluene- 60.1; TBA-10600
Monitoring Well - MW3 Depth 28 ft	05/31/07	ND	238	Naphthalene – 204 ; Toluene - 771 TPH-GRO - 11650
	03/21/08	DRY		
	08/26/08	DRY		

Tank field Monitoring Pipes				
MP1	Not sampled to date			
MP2	Not sampled to date			