

MARYLAND DEPARTMENT OF THE ENVIRONMENT

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**Environmental Investigation
High's Store No. 130
4101 Norrisville Road, Madonna
Harford County, Maryland
MDE Case No. 2006-0442HA**

The Maryland Department of the Environment (MDE), Oil control Program (OCP), in coordination with the Harford County Health Department (HCHD), is evaluating the impact of methyl tertiary-butyl ether (MTBE) at High's Store No. 130.

In November 2005, the MDE-OCP received groundwater sampling results from the three newly installed monitoring wells. MTBE contamination was detected in a monitoring well up to 1,300 ppb. Since June 2005, the station's drinking water supply well has been sampled semi-annually (two times per year). All sampling results were non-detect for petroleum constituents.

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.

This High's store, operated by High's of Baltimore, Inc., has been an active store and service station since September 1992 when four underground storage tank (UST) were installed: a 10,000-gallon gasoline; two 8,000-gallon gasoline; and a 10,000 gallon compartmentalized diesel/kerosene. The UST system comprises double-walled composite steel with fiberglass-reinforced plastic and double-walled flexible plastic piping. Three monitoring wells, four tank field observation pipes, and a transient non-community drinking water supply well are located on-site.

Chronology

- September 28, 2005. MDE-OCP received electronic notification from High's consultant's of preliminary groundwater sampling data collected at 18 facilities operated by High's of Baltimore. The preliminary data included sampling results for the on-site drinking water well and monitoring well network located at the Madonna High's #130.
 - In June 2005 monitoring wells installed pursuant to the new MTBE emergency regulations
 - June 23, 2005 sampling event.
 - PW (on-site drinking water supply well) non-detect for petroleum constituents (ND)
 - July 15, 2005 Sampling event:
 - MW-1 MTBE at 1300 ppb
 - MW-2 MTBE at 9 ppb
 - MW-3 MTBE at 180 ppb
- November 14, 2005. MDE-OCP received the detailed sampling results in *Monitoring Well Installation and Sampling Report - November 3, 2005*.
 - Groundwater flow northwesterly.

- November 30, 2005. MDE-OCP issued directive letter to High's requiring the following:
 - Perform a helium test to check vapor leaks in the gasoline UST system;
 - Test all spill catchment basins and containment sumps;
 - Conduct a self-audit of UST system;
 - Conduct semi-annual (every 6 months) sampling of all monitoring wells and tank field monitoring pipes;
 - Conduct semi-annual sampling of the transient non-community drinking water supply well on-site;
 - Identify the drinking water supply well on a site map; and
 - Perform a half-mile survey.

- January 24, 2006. MDE-OCP received the storage system test results, well receptor survey, and well sampling results – *January 18, 2006*.
 - UST system testing results:
 - Stage II Pressure Decay: passed 12/28/05
 - Air to Liquid Ratio Test: passed 11/29/05
 - Line leak detector test: passed 12/20/05
 - Tank tightness test: passed 11/29/05
 - Line tightness test: passed 11/29/05
 - Helium test: passed 12/30/05 (repaired swivel adaptors, ATG caps)
 - Catch basin test: passed 8/9/05 (k-1); 9/16/05 (reg, mid); 1/3/06 (mid, super)
 - December 28, 2005 sampling event (*see Table*).

- February 8, 2006. MDE-OCP received additional well receptor survey information.

- August 3, 2006. MDE-OCP received *Semi-Annual Monitoring Well and Domestic Well Sampling Report - July 14, 2006*.
 - June 15, 2006 Sampling event (*see Table*).

- November 13, 2006. MDE-OCP received the storage system test results.
 - UST system testing results:
 - Helium test: passed 9/22/06 (tightened ATG caps and sealed vent risers)
 - Product line test: passed 9/22/06
 - Leak detectors: passed 9/22/06
 - Stage II Pressure Decay: passed 9/22/06
 - Air to Liquid Ratio Test: passed 9/22/06

- February 2, 2007. MDE-OCP received *Semi-Annual Monitoring Well and Domestic Well Sampling Report – January 29, 2007*.
 - January 15, 2007 Sampling event (*see Table*).

- March 16, 2007. MDE-OCP received the results of spill basin and containment sump testing, performed 7/21/06. All spill basins and containment sumps passed.

- August 31, 2007. MDE-OCP received *Semi-Annual Monitoring Well and Domestic Well Sampling Report – August 28, 2007*.
 - July 31, 2007 Sampling event (*see Table*).

- December 24, 2007. MDE-OCP received the results of spill basin testing, performed 12/20/07. All spill basins passed.

- January 24, 2008. MDE-OCP email request to provide helium test data for 2007.

- February 11, 2008. MDE-OCP received the results of the January 23, 2008 sampling event (*see Table*).

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
- Harford County Health Department (HCHD) at 443-643-0322 or 443-643-0321

Other Related Cases:

- Highs No. 130 – 4101 Norrisville Road, MDE Case No. 1995-2737HA (*closed*)

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.

Groundwater Sampling Results for High's No. 130 at 4101 Norrisville Road

Well Information	Sample Dates	Benzene (MCL –5 ppb)	MTBE (Action Level – 20 ppb)	Other petroleum constituents of concern Ethylbenzene – MCL at 700 ppb Toluene – MCL at 1000 ppb Xylene – MCL at 10,000 ppb
Monitoring Wells				
MW-1 <i>HA-94-7037</i> 4 in. diameter well; borehole depth 33 ft. Screen depth 10 to 3 ft; casing depth 0 – 10 ft.	7/13/05	ND	1,300	---
	12/28/05	ND	1,600	---
	6/15/06	ND	1,200	ND
	1/17/07	ND	140	ND
	7/13/07	ND	190	ND
	1/23/08	ND	76	ND
MW-2 <i>HA-94-7038</i> 4 in. diameter well; borehole depth 38 ft. Screen depth 8 to 38 ft; casing depth 0 – 8 ft.	7/13/05	ND	9	---
	12/28/05	9	15	---
	6/15/06	ND	26	ND
	1/17/07	ND	42	ND
	7/13/07	ND	4	ND
	1/23/08	ND	2	ND
MW-3 <i>HA-94-7039</i> 4 in. diameter well; borehole depth 40 ft. Screen depth 9 to 40 ft; casing depth 0 – 9 ft.	7/13/05	ND	180	---
	12/28/05	6	280	---
	6/15/06	ND	330	ND
	1/17/07	ND	140	ND
	7/13/07	ND	190	---
	1/23/08	ND	69	ND
Tank field Monitoring Pipes				
TF-1 (unknown depth)	7/13/07	Dry	Dry	Dry
TF-2 (unknown depth)	7/13/07	Dry	Dry	Dry
TF-3 (unknown depth)	7/13/07	Dry	Dry	Dry
TF-4 (unknown depth)	7/13/07	Dry	Dry	Dry
Transient Non-community Supply well				
High's Station's Supply Well (unknown depth)	6/23/05	ND	ND	ND
	12/28/05	ND	ND	ND
	6/15/06	ND	ND	ND
	1/15/07	ND	ND	ND
	7/31/07	ND	ND	ND
	1/23/08	ND	ND	ND