

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

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**Elkton SHA  
2024 E. Old Philadelphia, Elkton  
Cecil County, Maryland  
Case No. 2002-0998CE**

The Maryland Department of the Environment (MDE) Oil Control Program (OCP) in coordination with Cecil County Health Department (CCHD) is currently evaluating the impact of methyl tertiary-butyl ether (MTBE) at the State Highway Administration's (SHA)-Elkton Shop. Operations at this State facility include a repair shop and dispensing of motor fuel.

The SHA-Elkton Shop is an active maintenance shop. In 2002, MDE oversaw the removal of a 550-gallon fiberglass-reinforced plastic used oil underground storage tanks (USTs). Due to a leaking tank-top valve, this UST was removed and replaced with another 550-gallon fiberglass-reinforced plastic used oil tank. Currently, there are five (5) USTs registered by the State Highway Administration; two 10,000-gallon diesel, a 10,000-gallon gasoline, a 10,000-gallon heating oil, and a 1,000-gallon diesel tank. These UST systems comprise of double walled fiberglass reinforced plastic tanks with piping material of either flexible plastic, double-walled with secondary containment or galvanized steel.

The Department first became aware of environmental issues upon receiving the August 2005 groundwater sampling results for the on-site monitoring well network. MTBE was detected at 170 parts per billion (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 based on taste and odor of 20 to 40 ppb. Although the EPA has not established a regulated Maximum Contaminant Level (MCL) for MTBE, the Department has adopted an action level of 20 ppb.

Currently there are nine monitoring wells on-site. Although the facility is serviced by municipal water, adjacent properties are served by private drinking water wells. Groundwater flow at the site is westerly and depth to groundwater is four (4) to ten (10) feet. 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 4, 2002. MDE site visit upon notification of a tank test failure. A 1,000-gallon used oil UST was tested and found to contain fifteen (15) inches of water. The UST was removed from service.
- May 14, 2002. MDE received notification for removal of a 550-gallon waste oil UST.
- April 3, 2002. MDE observed the removal of a 550-gallon waste oil UST.
  - No perforations were noted in the tank
  - However the valve on top of the tank was found to be leaking.
  - This UST was replaced with a new 550-gallon UST.
- July 23, 2002. MDE received draft design for the replacement of the hydraulic truck lift in the maintenance shop.
- January 27-29, 2003. MDE site visit to observe the abandonment of the existing hydraulic lift system.
  - Impacted soils were to be removed to four (4) feet below grade.
  - Borings conducted at each corner of the pit.
- February 4, 2003. MDE site visit to observe progress of lift replacement.
  - No visible signs of oil or groundwater infiltration into lift pit.
- February 14, 2003. MDE received the results of sampling results from the hydraulic lift removal.
  - Soil samples:

- Boring 2 (5 ft): TPH-DRO at 14,000 ppm; TPH-GRO at 50,000 ppm
  - Boring 2 (9 ft): TPH-GRO at 2,300 ppm
- Groundwater samples:
  - Boring 1 TPH- DRO at 13000 ppb
  - Boring 3 TPH-DRO at 2000 ppb; TPH-GRO at 1200,000 ppb
- May 10, 2004. MDE site visit. Advised that monitoring wells were installed prior to construction of the facility.
- December 2005. SHA submitted *MTBE Groundwater Assessment Report – December 2005*.
  - Facility served by municipal water, while several immediate neighbors utilize drinking water supply wells;
  - Three (3) 4 inch diameter monitoring wells installed for the new Emergency Regulations.
  - Three (3) soil samples collected. Results below regulatory levels for petroleum constituents.
  - A half-mile well survey identified forty-two (42) drinking water wells in the area;
  - 08/19/05 sampling data provided (*see Sampling Table*);
  - Groundwater flow westerly;
  - Six (6) additional monitoring wells were proposed to further delineate the site.
- January 23, 2006. MDE directive letter to SHA 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;
  - MDE also approved the installation of 6 new monitoring wells.
- February 13, 2006. MDE site visit to review proposed monitoring well locations.
- March 17, 2006. MDE received UST systems testing data.
  - UST system testing results:
    - Catchment basin: passed 2/10-21/06 (one failed, to be repaired and re-tested)
    - Containment sumps: passed 2/10-21/06
    - Helium test: passed 2/9/06
- March 28, 2007. MDE site visit. The approved monitoring wells were installed on-site.
- April 9, 2007. MDE received *MTBE Groundwater Assessment Report – May 2006 through January 2007*.
  - Soil samples collected from each monitoring well, all below regulatory levels for petroleum compounds;
  - March, and June, and December 2006 groundwater sampling events (*See table*).
- July 26, 2007. MDE site visit to observe and record properties adjacent to SHA facility.
- January 8, 2008. MDE directive letter to SHA requiring off-site supply well sampling and continued quarterly groundwater monitoring on-site.
- February 19, 2008. MDE received *MTBE Groundwater Assessment Reports – August & November 2007 and Off-site Potable Well Sampling Letter – February 12, 2008*.
  - Helium testing to be completed in February 2008 and containment sumps and catchment basins to be tested in accordance with SHA’s Consent Order with MDE.
    - Inspection of facility to be conducted by 05/09/08.
    - Repairs to facility to be conducted by 11/06/09.
  - June and October 2007 groundwater sampling events (See table).

**Future Updates:**

- Future updates on this case investigation will be posted at [www.mde.state.md.us](http://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
- Cecil County Health Department (CCHD) at 410-996-5160

**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 Data at the Elkton SHA at 2024 E. Old Philadelphia Road**

<b>Groundwater Sampling Data</b>	<b>Sampling Event</b>	<b>Benzene MCL at 5 ppb</b>	<b>MTBE State's Action Level at 20 ppb</b>	<b>Other petroleum constituents of concern Ethylbenzene – MCL at 700 ppb Toluene – MCL at 1000 ppb Xylenes – MCL at 10,000 ppb</b>
<b>MW1</b> 4 in. diameter well; Borehole depth 22 ft. Screen depth 5 to 20 ft; Casing depth 0-5 ft.	8/19/05	ND	4.4	---
	3/23/06	ND	3.7	---
	6/8/06	ND	3.2	---
	12/14/06	ND	2.9	---
	6/20/07	ND	2.8	---
	10/1/07	ND	1.2	---
<b>MW2</b> 4 in. diameter well ; Borehole depth 22 ft. Screen depth 5 to 22 ft; Casing depth 0-5 ft.	8/19/05	ND	170	---
	3/23/06	ND	99	---
	6/8/06	ND	150	---
	12/14/06	ND	250	---
	6/21/07	ND	100	---
	10/2/07	ND	95	---
<b>MW3</b> 4 in. diameter well ; Borehole depth 32 ft. Screen depth 15 to 30 ft ; Casing depth 0-15 ft.	8/19/05	ND	74	---
	3/23/06	ND	44	---
	6/8/06	ND	57	---
	12/14/06	ND	80	---
	6/21/07	ND	72	---
	10/2/07	ND	64	---
<b>MW4</b> 4 in. diameter well ; Borehole depth 22 ft. Screen depth 7 to 22 ft ; Casing depth 0-7 ft.	3/23/06	ND	ND	---
	6/8/06	ND	ND	---
	12/14/06	ND	ND	---
	6/20/07	ND	ND	---
	10/1/07	ND	ND	---
<b>MW5</b> 4 in. diameter well ; Borehole depth 22 ft. Screen depth 7 to 22 ft ; Casing depth 0-7 ft.	3/23/06	ND	6.7	---
	6/8/06	ND	8.8	---
	12/13/06	ND	8.0	---
	6/20/07	ND	4.4	---
	10/1/07	ND	7.1	---
<b>MW6</b> 4 in. diameter well ; Borehole depth 25 ft. Screen depth 10 to 25 ft ; Casing depth 0-10 ft.	3/23/06	ND	7.7	---
	6/8/06	ND	8.4	---
	12/13/06	ND	6.8	---
	6/20/07	ND	4.7	---
	10/1/07	ND	3.9	---
<b>MW7</b> 4 in. diameter well ; Borehole depth 28 ft. Screen depth 13 to 28 ft ; Casing depth 0-13 ft.	3/23/06	ND	150	---
	6/8/06	ND	110	---
	12/14/06	ND	160	---
	6/21/07	ND	120	---
	10/2/07	ND	190	---
<b>MW8</b> 4 in. diameter well ; Borehole depth 37 ft. Screen depth 22 to 37 ft ; Casing depth 0-22 ft.	3/23/06	ND	ND	---
	6/8/06	ND	ND	---
	12/13/06	ND	ND	---
	6/20/07	ND	ND	---
	10/1/07	ND	ND	---
<b>MW9</b> 4 in. diameter well ; Borehole depth 20.5 ft. Screen depth 5.5 to 20.5 ft ; Casing depth 0-5.5 ft.	3/23/06	ND	1.5	---
	6/8/06	ND	46	---
	12/13/06	ND	ND	---
	6/20/07	1	ND	---
	10/1/07	ND	ND	---
<b>Tank field Monitoring Pipes</b>				
<b>TF-1 (unknown depth) or TFW-W</b>	6/9/06	ND	190	---
	12/13/06	ND	14	---
	6/21/07	ND	21	---
	10/2/07	ND	15	---
<b>TF-2 or TFW-E</b>	10/2/07	ND	4.4	---