

MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore Maryland 21230-1719

1-800-633-6101 • <http://www.mde.state.md.us>

Environmental Investigation
Winfield BP (a.k.a. Winfield Amoco)
1631 Liberty Road
Winfield, Carroll County, Maryland
Case No. 2006-0466CL

The Maryland Department of the Environment (MDE), Oil Control Program (OCP), in coordination with the Carroll County Health Department (CCHD), is evaluating the impact of methyl tertiary-butyl ether (MTBE) at the Winfield BP. The Winfield BP is an active gasoline retail facility and also a small bulk plant facility with a loading rack operating under Oil Operations Permit (2005-OPT-4507).

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.

In August 2005, the MDE-OCP was made aware of environmental problems at the Winfield BP station upon receiving groundwater sampling results from the three newly installed monitoring wells. MTBE contamination was detected in the monitoring wells at up to 58 ppb. The station's supply well was first sampled in July 2005. Two petroleum constituents were detected in the on-site drinking water well, MTBE at 1,900 ppb and benzene at 6 ppb. Tevis Oil, the registered facility operator, moved forward with the installation of a granular activated carbon (GAC) treatment system on the station's transient non-community supply well. A new drinking water well was drilled in April 2006. The new drinking water well was most recently sampled in January 2007 and was non-detect for petroleum constituents. The monitoring wells and drinking water supply well continue to be sampled on a semi-annual basis. The former drinking water well was used as a recovery point for contaminated groundwater. The groundwater was collected in aboveground tanks and taken off-site for proper disposal. This use of the former drinking water well has been discontinued.

The Winfield BP gasoline station/bulk plant facility currently operates seven (7) underground storage tank systems (USTs). In the 1980s, four (4) underground storage tanks (USTs) were removed from the premises (a 550-gallon waste oil tank, a 2000-gallon diesel tank and two 4,000-gallon gasoline tanks). In 1976, two heating oil tanks with storage capacities of 30,000 gallons were installed. A 550-gallon bare steel heating oil tank was installed in 1984; while, in 1986, 5 new USTs comprising of cathodically protected steel tank with fiberglass reinforced plastic piping were installed (three 8,000-gallon gasoline tanks, one 10,000-gallon diesel tank and one 4000-gallon kerosene tank). In October 2006, MDE-OCP oversaw the removal of the two 30,000-gallon heating oil USTs and the installation of a replacement fiberglass coated steel double walled 30,000-gallon heating oil UST with fiberglass reinforced plastic double walled piping. Currently, the facility is in full operational compliance with existing regulations and has the required three groundwater monitoring wells.

Based on the elevated levels of petroleum contaminants in the station's groundwater monitoring network the MDE opened a new case, issued a directive letter to the responsible party, and notified the CCHD of petroleum impacts. This facility is located in a high-risk groundwater use area comprising a mixture of commercial/residential properties served by private drinking water wells.

In August 2005, the CCHD proactively sampled four (4) nearby private wells and no petroleum constituents were detected above Federal drinking water standards or the State of Maryland's action levels. At this time, the MDE-OCP does not anticipate expanding the off-site residential sampling effort beyond sampling needed to ensure community safety.

Chronology:

- October 3, 2002. MDE-OCP conducted a compliance assistance inspection at the facility. Several outstanding issues identified:
 - Provide cathodic protection data;
 - Clean out all catchment basins and sumps;
 - Check vent pipes and repair Stage I pipe.
- August 18, 2005. MDE-OCP received Tevis Oil's letter dated 08/16/05 regarding groundwater sample results at the Winfield BP. Samples were collected on 07/13/05. (*See table for results*).
- September 2, 2005. MDE-OCP received fax from CCHD regarding drinking water sample results for several nearby properties collected in 08/2005.
- September 30, 2005. MDE received CCHD Letter 09/2005 to a nearby property owner regarding drinking water sample results collected in 08/2005.
- December 16, 2005. Tevis Oil Letter to MDE – OCP indicating that a *Corrective Action Plan* will be submitted.
 - MW1 (80 ft) drilled on June 20, 2006
 - MW2 (80 ft) drilled on June 20, 2006
 - MW3 (120 ft) drilled on June 20, 2006
 - PW (no well log available)
- January 6, 2006. MDE-OCP issued directive letter to Tevis Oil 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 (facility already had a GAC system in place);
 - Perform a half-mile well survey.
- January 11, 2006. MDE-OCP conducted a site visit to follow-up on the status of the on-site drinking water supply well and corrective measures.
- January 13, 2006. MDE-OCP received drinking well sampling results collected on 12/12/05 from the station's well (*see table for results*). GAC treatment system to be serviced followed by additional sampling.
- February 1, 2006. MDE-OCP received copies of the citizen notifications sent by the CCHD in response to the contamination identified on-site.
- February 9, 2006. MDE received the following information in response to the MDE-OCP letter dated 01/6/06
 - Helium test conducted 10/19/05 – passed
 - Containment system testing conducted on 9/20/05. Spill basins for the regular and kerosene fills failed
 - Tightness testing records for tanks, lines and sensors for 12/2004-12/2005 – passed
 - Self-audit completed on 10/10/05, five nozzles replaced – passed
 - Repair of rectifier and re-testing of the impressed current system completed - 12/2005
 - Samples collected from the monitoring wells on 1/19/06 and supply well on 12/13/05 (*see table for results*)

- March 7, 2006. MDE-OCP received results of the ½ mile radius well search, with a focus on the properties immediately adjacent to the station.
- March 17, 2006. MDE-OCP required the installation of another monitoring well downgradient of the drinking water supply well.
- May 1, 2006. MDE-OCP received CCHD Letter 03/01/06 to a nearby property owner (1707/1709 Liberty Rd.) granting approval for the installation of a replacement well.
- July 11, 2006. Tevis Oil notified MDE-OCP via fax of pending UST removal for the two 30,000 gallon heating oil tanks.
- August 4, 2006. MDE-OCP received the result of the groundwater sampling event conducted on 7/13/06 (*see table for results*).
- August 24, 2006. MDE-OCP letter to Tevis Oil, Inc. requesting a Subsurface Investigation Work Plan including the following:
 - Semi-annual sampling of the drinking water supply well, monitoring wells and tankfield pipes.
 - Evaluation of the old drinking water supply well as a monitoring point
 - Sampling of the new drinking water supply well and submittal of the well completion report
- October 27, 2006. MDE-OCP on-site to witness the removal of two 30,000-gallon #2 heating oil USTs. Perforations were noted in the second UST. Soil samples collected for submittal to a laboratory. Petroleum impacted soils were excavated.
- June 8, 2007. MDE-OCP received correspondence from Tevis Oil regarding soil removal activities in conjunction with the removal of the 30,000-gallon USTs.
- June 14, 2007. MDE-OCP received, via email, the *Semi-annual Monitoring Report – November 30, 2006*.
 - Groundwater samples were collected 07/13/06 from the four (4) groundwater monitoring wells and the on-site supply well (*see table for results*).
 - Tevis Oil drilled an additional drinking water supply well on 04/18/06.
 - The historic potable well has been converted to a groundwater recovery well. By 11/30/06 approximately 4,000-gallons of petroleum impacted water has been pumped for off-site disposal.
 - February 2006, a former floor drain and on oil/water separator pit was located and properly abandoned.
 - November 2006, two 30,000-gallon #2 heating oil USTs were removed. Soil and water samples were collected at the time of removal.
- June 20, 2007. MDE-OCP received *Semi-annual Monitoring Report – June 18, 2007*.
 - Groundwater samples collected 01/02/07 (*see table for results*)
 - Former potable well PW-1 utilized as a groundwater recovery well since the new potable well (PW-2) was drilled in April 2006.
 - A total of 10,000-gallons of petroleum impacted water had been pumped from former PW-1 since April 2006, for off-site disposal.
 - A *Work Plan* included proposed the installation of additional monitoring wells on-site.
- June 22, 2007. MDE-OCP received (2) *30,000-Gallon UST Closure Report – June 22, 2007*.
 - All UST associated piping was removed from the ground.
 - Eight soil samples collected, all Non-detect for petroleum constituents.
 - A total of 146.9 tons of petroleum impacted soils were excavated for off-site disposal

- June 27, 2007. MDE –OCP received e-mail confirmation from Tevis Oil Inc. that pumping of the former supply well was discontinued in December 2006. In addition all impacted water was containerized for proper disposal off-site.
- July 16, 2007. MDE-OCP site visit. Confirmed that the former drinking water well no longer being used as a groundwater recovery point.

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

Groundwater Sample Results at the Winfield BP Station located at 1631 Liberty Road

On-site Monitoring Wells at the Winfield BP station	Sampling Date	Benzene <i>MCL – 5 ppb</i>	MTBE <i>Action Level – 20 ppb</i>	Other Constituents of Concern <i>TPH-DRO – 47 ppb</i>
MW1 Installed 06/2005 Total Depth – 80 ft	07/13/05	ND	0.7 j	ND
	01/19/06	ND	1j	6,600 ppb
	05/18/06	NS (not sampled)	NS	NS
	07/13/06	ND	13	ND
	01/02/07	ND	12	ND
MW2 Installed 06/2005 Total Depth – 80 ft	07/13/05	ND	58	ND
	01/19/06	ND	97	9,800 ppb
	05/18/06	NS	NS	NS
	07/13/06	ND	2j	ND
	01/02/07	ND	0.79j	ND
MW3 Installed 06/2005 Total Depth – 120 ft	07/13/05	ND	3j	ND
	01/19/06	ND	110	7,500 ppb
	05/18/06	ND	ND	ND
	07/13/06	ND	ND	ND
	01/02/07	ND	ND	ND
MW4 Installed 04/2006 Total Depth – 85 ft Screen 10-85 ft.	05/18/06	ND	ND	50 ppb j
	07/13/06	ND	ND	NS
	01/02/07	ND	ND	ND
Tank field observation Pipes				
TF1	01/02/07	Dry		
TF2	01/02/07	Dry		

Drinking Water Sampling results near the Winfield BP at 1631 West Liberty Road.

Sample location	Sample dates	Petroleum constituents of Concern	
		MTBE <i>(20 ppb – State’s Action level)</i>	Other petroleum constituents <i>(Benzene - MCL – 5bbp) (TAME is an unregulated compound) 1,2 Dichloroethane – MCL at 5 ppb Naphthalene – Action Level at 10 ppb</i>
Winfield BP			
1631 Liberty Road GAC installed Aug/Sept. 2005 (Old PW or PW1) No longer used for drinking water after 04/06	Tevis Oil – 07/13/05	1900	Benzene - 6 ppb
	Tevis Oil – 12/13/05	3860 (pre-filter) 1970 (mid-filter) 17.4 (post-filter)	Benzene - 28.1; TAME – 105 ppb
	Tevis Oil – 02/16/07	3320	Benzene 33 ppb
New well installed in April 2006 (PW-1A) Total depth- 305 feet; Steel casing to 178 feet	EA – 05/18/06	3.1	NS
	EA – 07/13/06	2.2	NS
	EA – 01/02/07	ND	ND
Off-Site Private Wells			
4707 Woodbine Rd.	CCHD- 08/2005	ND	1,2 dichloroethane – 0.55 ppb
1621 W. Liberty Rd.	CCHD- 08/2005	ND	ND
1627 W. Liberty Rd.	CCHD- 08/2005	ND	ND
*1709 W. Liberty Rd. (New replacement well to be drilled in 2006)	CCHD- 08/2005	0.59	Naphthalene –1.77 ppb
	CCHD- 09/2005	0.63	ND