

MARYLAND DEPARTMENT OF THE ENVIRONMENT

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DRINKING WATER SAMPLING AND ENVIRONMENTAL INVESTIGATION

Little George's Market/George's Deli & Gas

602 Deer Park Road

Westminster, Maryland

(MDE Case Nos. 1999-1824-CL & 1988-1564-CL; 2007-0096-CL)

Since 1988, the Maryland Department of the Environment (MDE), Oil Control Program (OCP), in coordination with the Carroll County Health Department (CCHD), has been evaluating the impact of petroleum hydrocarbons to several off-site drinking water receptors in the vicinity of the former Little George's Market. MDE case 1988-1824-CL started in February 1988, when MDE-OCP received a complaint of domestic well contamination on the adjacent Gist property, located at 2173 Sykesville Road.

Gasoline retail activities have been ongoing for over 25 years at 602 Deer Park Road. According to title records, on May 26, 1980, Helen Oleksinski sold the gas pumps and lease arrangements as fixtures of the property to George and Patricia Mezardash. Subsequently GM Smallwood Inc. and Little George Market Inc. leased the property and conducted gasoline retail activities. It appears that historically, the three (3) bare steel underground storage tanks (USTs) were operated by previous property owners and lessees. These three (3) USTs (two 10,000-gallon gasoline and one 5,000-gallon diesel) were removed on January 27, 1999 by Little George's Market Inc.

On February 4, 1999, the property was sold to George Ader who is a co-operator of George's Deli & Gas. Currently, three UST systems are in operation: one 6,000-gallon diesel; one 8,000-gallon gasoline, and one 12,000-gallon gasoline. These USTs are ACT 100 buffhide tanks (composite steel with fiberglass) with double-walled flexible piping, secondary containment, and Stage I and Stage II vapor recovery systems.

As part of the site investigation efforts, six monitoring wells have been installed (five on-site wells and one off-site well on the Gist property) and a pilot scale in-situ chemical remediation was implemented in November 2003 to address the high dissolved petroleum hydrocarbons. Granular activated carbon treatment systems are currently in-place on the non-community supply well, which services George's Deli and the domestic well at the Gist residence to eliminate petroleum constituents from the drinking water. Three additional monitoring wells were installed in June 2005 by the current operator/owner of the facility.

Ownership History of USTs

- August 6, 1986. Three bare steel gasoline tanks (two 10,000-gallon and one 5,000-gallon) registered to GM Smallwood Inc.
- June 18, 1990. Three bare steel gasoline tanks (two 10,000-gallon and one 5,000-gallon) registered to GM Smallwood Inc.
- December 12, 1998. Three bare steel gasoline tanks registered by Little George's Market Inc. (two 10,000-gallon and one 5,000-gallon) but tanks have no insurance coverage.
- January 27, 1999. Three bare steel gasoline tanks registered by Little George's Market Inc. (two 10,000-gallon and one 5,000-gallon).
- March 29, 1999. Newly installed tanks registered by George's Deli and Gas (one 10,000-gallon gasoline, one 8,000-gallon gasoline, and one 6,000-gallon diesel). UST systems are double walled comprising composite steel with double walled piping comprising flexible plastic. UST systems are commercially insured.

Chronology

- February 29, 1988. Mr. Gist (2173 Sykesville Road) complains of domestic well contamination to MDE. The CCHD collects a water sample from the Gist residence, which detects the following:
 - Benzene at 1,300 ppb; toluene at 2,220 ppb; ethylbenzene at 67 ppb; xylene at 2,960 ppb; and TPH at 7,400 ppb.
- April 4, 1988. MDE-OCP issues Site Complaint (*SC-000441*) to Little George's Market requiring a precision test of the USTs and the installation of four (4) monitoring wells.
- April 14, 1988. CCHD forwards analytical results to MDE-OCP.
 - Sample collected March 14, 1988:
 - Little George's Market (602 Deer Park Road): petroleum constituents non-detect; MTBE not analyzed
- May 25, 1988. CCHD forwards analytical results to MDE-OCP.
 - Samples collected April 18, 1988:
 - Gist Residence (2173 Sykesville Road) MTBE at 93 ppb; benzene at 23 ppb; toluene at 8 ppb; ethylbenzene at 1 ppb; and xylene at 27 ppb.
 - Little George's Market (602 Deer Park Road) Petroleum constituents non-detect; MTBE not analyzed.
 - Ditman Residence (2167 Sykesville Road) Petroleum constituents non-detect; MTBE not analyzed.
- June 13, 1988. MDE-OCP site visit to Gist residence and Little George's Market.
 - Gist residence drinking water well 95 feet deep.
 - Heating oil aboveground storage tank in the basement of Gist residence.
 - Interview with Mr. Gist MDE-OCP informed that old tanks were removed.
 - Contractor for Little George's Market installed 3 monitoring wells on the property.
- October 13, 1988. Handex (Environmental Consultant) informed MDE-OCP of an unreported leak at Little George's Market.
- October 18, 1988. MDE-OCP had a verbal discussion with Little George's Market manager about a leak that occurred September 18, 1988 and informed that leak had been repaired.
- October 19, 1988. MDE-OCP documents failure to report repairs to submersible pump.
- October 26, 1988. MDE-OCP site visit required Little George's Market to provide treatment system to Gist domestic well.
- October 26, 1988. *Subsurface Investigation Hydrocarbon Investigation – October 26, 1988* prepared by Handex.
 - 4 MWs installed (H1A to replace the existing H1, H2, H-3; H4a to replace the existing H4). H1 and H4 proved not to be viable groundwater monitoring wells and were replaced by drilled wells on 07/06/88.
 - H1a 40 feet deep, screened 20-40 feet bgs.
Product identified at 4.7 to 8.2 feet during 09/02 – 10/19/88. No measurable product identified on 10/19/88.
 - H1 63 feet deep, screened 24-65 feet bgs (slated to be abandoned)*.
 - H2 56 feet deep, screened 38-56 feet bgs.
 - H3 57 feet deep, screened 38-58 feet bgs.
 - H4 54 feet deep, screened 34-56 feet bgs (slated to be abandoned)*.
 - H4a 87 feet deep, screened 47-87 feet bgs.
 - Depth to groundwater 47 to 62 feet.
 - Groundwater flow west-northwesterly.
 - Fingerprint analyses performed on product collected from H1A. Results closely matched regular unleaded gasoline.
 - H1A MTBE - NA; benzene at 4,000 ppb; toluene at 10,000 ppb; ethylbenzene at 900 ppb; xylene at 7000 ppb.
 - H3 MTBE - NA; Petroleum constituents non-detect.
 - H4A MTBE - NA; benzene at 41 ppb; toluene at 3 ppb; ethylbenzene at 5 ppb; xylene at 26 ppb.
 - Supply well on-site MTBE - NA; Petroleum constituents non-detect.

- Gist residence MTBE-NA; benzene at 73 ppb; toluene at 51 ppb; ethylbenzene at 7 ppb; xylene at 100 ppb.
- November 3, 1988. MDE-OCP site visit required Little George's Market to install monitoring wells to investigate the extent of groundwater contamination. Indicated intent to install a treatment system on the impacted Gist domestic well.
 - Sample collected November 3, 1988:
 - Little George's DW MTBE at 197 ppb; benzene at 76 ppb; toluene at 6 ppb; ethylbenzene at 2ppb; xylene at 87 ppb
- November 29, 1988. MDE-OCP informed Little George's Market that treatment system on the Gist drinking water well must be installed no later than December 20, 1988.
- December 6, 1988. MDE-OCP site visit to witness the installation of two (2) monitoring wells.
- December 1988. Granular activated carbon (GAC) system installed on the Gist domestic well.
- January 30, 1989. CCHD letter to resident on sampling results.
 - Samples collected December 14, 1988:
 - Gist (2173 Sykesville Road) post-filter Toluene at 2 ppb; MTBE - NA; other constituents non-detect.
- January 3, 1989. MDE-OCP site visit to discuss the design of the recovery system.
- February 6, 1989. MDE-OCP notified Little George's Market Inc. of the Gist post-treatment sample results.
- February 13, 1989. CCHD letter to resident on sampling results.
 - Samples collected January 13, 1989:
 - Gist (2173 Sykesville Road) post-filter Petroleum constituents non-detect; MTBE – NA.
- January 15, 1990. *Subsurface Hydrocarbon Investigative Report – January 15, 1990* prepared by R.E. Wright (Environmental Consultant).
 - 2 MWs installed (H5 and H6) and sampled on the Little George's site:
 - H5 76 feet deep, well screened 38 to 76 feet. MTBE at 1,300 ppb; benzene at 1,900 ppb; toluene at 60 ppb; ethylbenzene at 3 ppb; xylene at 600 ppb.
 - H6 72 feet deep, well screened 32 to 72 feet. MTBE at 1,800 ppb; benzene at 4,000 ppb; toluene at 2,900 ppb; ethylbenzene at 340 ppb; xylene at 3,100 ppb.
 - Pump test and vapor extraction test performed on well H1A on 04/19/89.
 - Depth to groundwater 43 to 52 feet.
 - Recommendations included a groundwater and vapor extraction system installed in H1A, which had the highest dissolved concentrations and product thickness.
- September 21, 1990. MDE-OCP site visit to observe the installation of a new carbon treatment system. Following items required: installation of UV light; regular maintenance schedule; and quarterly testing of the system.
- September 21, 1990. MDE-OCP issued Notice of Violation *NV-91-044* to Little George's Market to complete the following:
 - Install recovery system and sample groundwater discharge water to ensure levels are below discharge limits for petroleum constituents;
 - Within 45 days, submit a CAP including a pump test and long-term remediation plans; and
 - Continue to maintain the treatment system at the Gist residence (2173 Sykesville Road).
- September 24 and 25, 1990. MDE-OCP attempted delivery of NOV to Little George's Market.
 - General water chemistry testing of the Gist residential well (pH, nitrates, solids).

- October 5, 1990. *Remedial Site Assessment Report – September, 1990* prepared by R.E. Wright.
 - Well sampled on the Little George’s Market site:
 - H1 MTBE at 2,400 ppb; benzene at 2,900 ppb; toluene at 8,250 ppb; ethylbenzene at 1,300 ppb; xylene at 8,550 ppb; TPH at 75,000 ppb;
 - H2 MTBE at 290 ppb; non-detect for other petroleum constituents;
 - H3 Non-detect for petroleum constituents;
 - H4 MTBE - ND; benzene at 65 ppb; toluene at 2 ppb; ethylbenzene at 4 ppb; xylene at 202 ppb; 1,2-DCA at 2 ppb;
 - H5 MTBE at 1,000 ppb; benzene at 2,200 ppb; toluene at 170 ppb; ethylbenzene at 10 ppb; xylene at 1,700 ppb; and TPH at 14,000 ppb;
 - H6 MTBE at 470 ppb; benzene at 2,850 ppb; toluene at 7,400 ppb; ethylbenzene at 1,000 ppb; xylene at 6,770 ppb; TPH at 60,500 ppb;
 - DW Non-detect for petroleum constituents;
 - Gist MTBE at 680 ppb; benzene at 2,400 ppb; toluene at 5,900 ppb; ethylbenzene at 300 ppb; xylene at 1,700 ppb; and TPH at 54,000 ppb.
 - Concluded that the site had no measurable free product and that the highest dissolved concentrations were present in H1A and H6.
 - Groundwater contaminant plume is migrating southwesterly towards the Gist residence.
 - Recommended the installation of a groundwater and SVE system. Groundwater recovery system proposed for H6. Treatment of contaminated groundwater through GAC.
 - Little George’s site is underlain by the Marburg Formation.
 - Water table 30 to 60 feet with substantial seasonal fluctuations.
- October 24, 1990. MDE-OCP site visit revealed recovery system installation had not yet occurred. Carbon tank was changed out at the Gist residence.
- October 26, 1990. MDE-OCP site visit revealed that recovery system installation had not yet occurred.
- October 31, 1990. CCHD letter to Little George’s Market’s contractor concerning approval of the proposed remediation plan provided the water disposal trench was properly cited.
- November 2, 1990. CCHD letter to Mr. Gist concerning overall water chemistry testing of domestic wells.
- November 14, 1990. MDE-OCP site visit revealed that trenching work had been completed but recovery system installation had not yet occurred.
- June 19, 1990. MDE-OCP site visit required the following tasks be performed: monthly effluent sample of GAC system; monthly gauging of monitoring wells; and quarterly reporting to MDE.
- July 2, 1991. *Progress Report Little George’ Remediation – July 2, 1991* by R.E. Wright submitted to MDE-OCP. Pump-and-treat system began June 1991. Gist sampled 05/31/91.
 - Gist (2173 Sykesville Road) MTBE at 300 ppb; benzene at 590 ppb; toluene at 160 ppb; ethylbenzene at 20 ppb; xylene at 540 ppb; and TPH at 6,000 ppb.
- October 7, 1991. *Quarterly Report Little George’s Remediation – October 1, 1991* prepared by R.E. Wright, submitted to MDE-OCP.
 - Gist well was brought directly on line to the recovery system on July 13, 1991 when dropping water levels caused the pump in well (H-6) to fail.
- January 10, 1992. *Quarterly Report Little George’s Remediation – January 8, 1992* prepared by R.E. Wright submitted to MDE-OCP.
 - 99,000 gallons of groundwater treated and 1.47 pounds of mass hydrocarbons removed. BTEX levels declining.
- May 29, 1992. *Quarterly Report Little George’s Remediation – May 22, 1992* prepared by R.E. Wright submitted to MDE-OCP.
 - BTEX and MTBE concentrations increased, with the water levels rising into the zone of contaminated soils.

- Cumulatively, 112,800 gallons of groundwater treated and 1.75 pounds of hydrocarbon mass removed. The hydrocarbon removal rate has increased in the past 4 months.

- June 23, 1992. MDE-OCP met on site with R.E. Wright to request the discontinuation of pumping from the former domestic well because of the effect of water levels in Mr. Gist's new domestic well. Consultant indicated that sampling would be done at Little George's Market and Mr. Gist's 2 wells.

- July 27, 1992. *Quarterly Report Little George's Remediation – July 24, 1992.*

- Well H-1A required to be reconstructed and deepened to ensure adequate yields for the recovery system.
- Gist shallow domestic well, which was being used as part of the recovery system, was discontinued due to low yields and well problems in his deeper domestic well. Recommended monitoring the Gist well in the future.
- July 9, 1992 sampling event (Note H6 is the Gist old drinking water well converted to a monitoring well):

	H-1A	H3	H4A	H5	H6	Gist DW well
- Benzene	2,300	6	23	280	470	450
- Ethylbenzene	400	ND	1	ND	150	ND
- Xylene	6,200	2	2	510	2,750	470
- TPH	35,000	ND	300	3,500	12,000	4,000
- Toluene	2,300	ND	ND	5	540	35
- MTBE	2,600	25	180	250	500	200

- March 25, 1993. *Quarterly Report Little George's Remediation- March 25, 1993.* Well H-1A converted to a recovery well, original 4-inch diameter PVC well excavated, and the 8-inch well deepened to a depth of approximately 71 feet below grade. This yielded an increase of 3 to 5 gallons per minute.
- April 21, 1993. R.E. Wright letter (04/19/93) to MDE-OCP regarding the GAC system on the pump-and-treat recovery system, which was sampled and showed low concentrations of petroleum constituents.
- June 14, 1993. R.E. Wright letter (06/14/93) to MDE-OCP requesting permission to remove vacuum extraction system.
- September 15, 1994. R.E. Wright letter (09/13/93) to MDE-OCP requesting case closure, biannual sampling to confirm that groundwater is clean, and a proposal to drill another replacement well for the neighboring Gist residence.

MDE-OCP responded to attorney for Mr. Gist regarding several options: a new well; remove system from Little George's; keep treatment system on Little George's Market well permanently; resample all wells including Mr. Gist's old and new wells in 6 months; and re-evaluation of case closure.

- March 7, 1994. *Quarterly Report Little George's Remediation – March 3, 1994* submitted to MDE-OCP requesting shut down of the remedial system while the GAC system is in place on the Gist well.
- February 1994. *Quarterly Report Little George's Remediation – February 1994* submitted to MDE-OCP.
 - Vacuum extraction system shut down in November 1993; and
 - Effluent concentrations decreasing.
- August 1994. *Quarterly Report Little George's Remediation – August 1994.* Concluded the following:
 - Remediation system to be shut down due to diminishing volume of recoverable product/dissolved hydrocarbons;
 - Semi-annual sampling of the Gist well for 1 year;
 - Maintenance of GAC systems on the Gist and Little George's Market drinking water wells; and/or
 - Replace the Gist well and close case with no further monitoring.
- October 14, 1994. *Little George's Remediation – October 13, 1994* submitted to MDE-OCP stated that raw water is clean in the recovery system (BTEX and TPH non-detect).

- April 6, 1995. *Site Closure Report – April 5, 1995* stating that remedial endpoint has been reached because further pumping and/or venting is unproductive.

- Monitoring wells gauged on-site. Depth to groundwater 100 feet.
- GIST potable well is >200 feet deep and concentrations in this well exceeded the on-site well (H6).
- Requested shut down of the pump-and-treat system.
- Proposed bi-annual monitoring for a year to confirm groundwater concentrations prior to closure.
- February 22, 1995 sampling event. (Note H6 is the Gist old drinking water well converted to a monitoring well):

	H3	H4	H5	H6	Gist DW (200')
- Benzene	ND	7.6	82	30	91
- Ethylbenzene	4.1	8.1	4.2	6	ND
- Xylene	34	65	51	188	457
- TPH	ND	199	254	607	1,770
- Toluene	13	37	14	26	8.8
- MTBE	NA	NA	NA	NA	NA

- November 2, 1995. MDE letter to Little George's Market requesting sampling of all monitoring wells, onsite domestic well, and wells on surrounding properties for BTEX and MTBE within 30 days.
 - Recovery system due to electrical problems was shutdown in summer 1995; and
 - Based on sampling results, case to be re-evaluated for additional remedial activities or closure.

- February 29, 1996. *Site Closure Report* – February 26, 1996.
 - Mr. Gist refused to let their personnel on-site to sample wells.
 - Lockard property appeared to be abandoned and the water shut off.
 - On-site monitoring wells and pre-treated water at Little George's Market sampled.
 - February 1996 sampling event:

	H-1A	H2	H3	H4	H5	Little G. DW
- Benzene	12	ND	ND	160	ND	ND
- Ethylbenzene	7	ND	ND	ND	ND	ND
- Xylene	102	ND	ND	390	ND	ND
- TPH	630	670	ND	1,300	270	ND
- Toluene	14	ND	ND	190	ND	ND
- MTBE	120	3,800	ND	78	930	ND

- October 7, 1996. MDE-OCP confirmed with CCHD that Mr. Gist denied sampling on his property. CCHD will make another attempt.
- October 15, 1996. MDE visit to Gist residence. Access to sample denied.
- November 2, 1998. CCHD letter dated 10/29/98 to Mr. Gist stating that a *Certificate of Potability* cannot be issued until treatment has been installed for nitrate removal.
 - VOC sample collected on 08/26/98 indicated low levels of MTBE in pre- and post-treatment samples.
 - Recommended that filter be routinely serviced.
- December 10, 1998. MDE received notification from Petro Service (Tank Repair Company) concerning the removal and replacement of USTs pursuant to the sale of the property.
- January 27, 1999. MDE-OCP site visit to oversee the removal of three bare steel USTs:
 - Two 10,000-gallon gasoline and One 5,000-gallon diesel;
 - No holes observed in tanks, no additional action required.

- February 2, 1999. Fax on lab results for Little George's Market analytical results for wells on-site.
 - January 29, 1999 sampling results (note samples only analyzed for BTEX, MTBE; *elevated detection levels)

	*H-1A	H3	H4	H5	Little G. DW (?pre-treatment sample)
- Benzene	5,050	ND	ND	705	84
- Toluene	ND	ND	ND	ND	11
- Ethylbenzene	ND	ND	ND	ND	11
- Xylene	ND	ND	ND	ND	113

- MTBE	1,120	15	114	395	23
- TPH	12,700	ND	ND	1,150	3,910

■ February 19, 1999. Precision test performed on the new USTs.

■ June 18, 1999. MDE-OCP site visit, permission granted to remove the old remediation shed.

- H-1A 70.65' total depth
- H2 56.26' total depth
- H3 56.54' total depth
- H4 86.65' total depth
- H5 71.31' total depth
- H6 70.65' total depth

(off-site well on Gist property converted from drinking water to monitoring well).

■ July 27, 1999. Fax on lab results for Little George's Market analytical results for wells on-site.

- June 18, 1999 sampling results (note samples only analyzed for BTEX and MTBE; *elevated detection levels):

	*H-1A	H3	H4	H5	Little G. DW (raw sample)
- Benzene	1,450	ND	ND	555	137
- Toluene	61	ND	ND	14	11
- Ethylbenzene	28	ND	ND	23	11
- Xylene	335	ND	ND	157	448
- MTBE	473	8.7	664	476	369
- TPH	4,370	ND	ND	1,600	4,480

■ September 9, 1999. MDE-OCP received fax from the property owner confirming that the facility name change from Little George's Market to George's Deli & Gas.

■ January 9, 2001. Letter from SAIC (Environmental Consultant) to Little George's Market dated 08/28/2000 for analytical results for wells on-site.

- Determined that the GAC unit was appropriate capacity for the Gist drinking water well;
- Calculated based on MTBE levels of 108 ppb;
- Lbs/day of carbon usage or 3lbs/month or 36.5B per day;
- 9-inch carbon units to be replaced with 12-inch diameter unit, each with 50 lbs. of carbon; and
- Treatment system to be serviced annually.

■ November 26, 2001 – January 3, 2002. MDE-OCP received groundwater lab results collected by CCHD.

- Sampling results for the period October 31, – December 18 and 21, 2001. Note 10/31/01 sample results for Gamber exceeded holding time and therefore invalidated.

	11/24/01		12/18/01		10/31/01	12/27/01	
	Gist GAC system		Little G. DW		Gamber	Little G. DW	Little G. DW
	(Pre)	(Mid)	(Post)	(raw)	(raw)	(raw)	(store room)
- Benzene	ND	ND	ND	ND	ND	ND	ND
- Toluene	ND	ND	ND	ND	ND	ND	ND
- Ethylbenzene	ND	ND	ND	ND	ND	ND	ND
- Xylene	ND	ND	ND	ND	ND	ND	ND
- MTBE	ND	35.97	3.58	99.4	25.9e	82.45-99.4	79.8
- TAME	ND	ND	ND	1.92	ND	2.22	2.09

■ January 8, 2002. MDE notified CCHD to inform Little George's Market that based on analytical results of MTBE at 82.46 ppb and TAME at 2.22 ppb, it will be necessary to install carbon filtration.

■ January 22, 2002. CCHD notified property owner of 606 Deer Park Road (Rash property), of the potential petroleum impact to the on-site drinking water well and that, before a building permit can be issued, this well needs to be sampled.

- March 5, 2002. CCHD collected sample from 606 Deer Park Road, which showed non-detect for all petroleum constituents.
- June 17, 2002. Oxidation Pilot Study – June 10, 2002 submitted by Solerex (Environmental Consultant) for Little George’s Market site:
 - Proposal to inject a catalyst using low levels of hydrogen peroxide; and
 - May 9, 2002 results for a well at Little George’s Market and Gist showed increasing levels of petroleum constituents (BTEX, MTBE, chemical oxygen demand):
 - Note no raw lab results accompanied the results;
 - On-site monitoring well (?) MTBE at 4,800 ppb; and
 - Gist domestic well MTBE at 1,400 ppb.
- July 3, 2002. MDE requests proof of safety using Oxidation Pilot process and verifiable case studies using this technology.
 - If successful, must demonstrate a decline in all on-site monitoring wells; and
 - Site must also have at least 4 quarters of post-remedial monitoring for BTEX, MTBE, and TBA.
- July 23, 2002. CCHD received letter from Sweeney Builders’ (developer for Walkling Subdivision/Victoria Estates) consultant (Scientific Applications International Corporation). Letter report concluded the following:
 - A hydrogeological investigation must be completed since 3 supply wells were being proposed for this new development within 150 feet uphill of Little George’s Market property;
 - Groundwater samples collected on the southern boundary of the Walkling property showed volatile organic compound (VOC) contamination (Note: no sampling results were attached to the letter.); and
 - Consultant recommended that a water table contour map, a groundwater model design showing withdrawal rates for existing and proposed wells to assess the potential for contamination to migrate, and water level data collection be conducted. Fractured bedrock complicates groundwater interpretations.
- August 29, 2002. CCHD faxed copies of analytical results to MDE.
 - Groundwater samples collected by CCHD:
 - George’s Deli & Gas DW (raw) MTBE at 206 ppb and TAME at 3.25 ppb; and
 - Gist DW (raw?) MTBE at 2.14 ppb; non-detect for other petroleum constituents.
- December 18, 2002. CCHD approval letter for implementing the Pilot Oxidation Process contingent upon MDE’s approval of the technology.
- December 10, 2002. CCHD faxed copies of George’s Deli & Gas analytical results to MDE.
 - Groundwater samples collected by CCHD:
 - George’s Deli & Gas DW (post-treated) MTBE at 0.99 ppb; non-detect for other petroleum constituents;
 - (mid-treated) MTBE at 346 ppb; non-detect for other petroleum constituents; and
 - (pre-treated) MTBE at 558 ppb and TAME at 10.7 ppb.
- April 30, 2003. MDE-OC approved the *Oxidation Pilot Study – June 10, 2002* contingent upon several requirements.
- May 2, 2003. CCHD faxed copies of George’s Deli & Gas analytical results to MDE.
 - Groundwater samples collected by CCHD in April 2003:
 - George’s Deli & Gas DW (post-treated) MTBE at 793 ppb; non-detect for other petroleum constituents;
 - (mid-treated) MTBE at 722 ppb and TAME at 1.44 ppb; and
 - (pre-treated) MTBE at 785 ppb and TAME at 8.12 ppb.
- May 9, 2003. CCHD letter to the operator of George’s Deli & Gas concerning breakthrough in GAC system showing elevated MTBE levels (722 to 793 ppb) in mid- and post-treatment samples. County recommended the following:
 - Discontinue using water until adequate filtration is installed;
 - Upgrade GAC system (must be approved by CCHD); and
 - Operate and maintain the GAC system (sample biweekly for VOCs initially; pre-, mid-, and post-treatment).

- May 6, 2003. CCHD faxed copies of George's Deli & Gas analytical results to MDE.
 - Groundwater samples collected on May 2, 2003:
 - George's Deli & Gas DW (post-treated) MTBE detected; non-detect for other petroleum constituents.
- September 2, 2003. *Oxidation Pilot Study Addendum – August 20, 2003.*
 - Injection of the Solerox VTX catalyst and diluted hydrogen peroxide in well H1A;
 - H4 to be utilized as an alternate well if pressure and temperature increases limit injection in H1A;
 - Injection will comprise diluted chemicals 10 (10% Solarex and 3.5% H₂O₂): 1 water; and
 - Pilot study to be completed within 3 to 5 days.
- November 13, 2003. MDE letter to Mr. Higgs approving the *Oxidation Pilot Study Addendum – August 20, 2003*, contingent upon pressure/temperature not exceeding 150°F and/or 40 psi. Pre- and post-remedial monitoring will be required of all monitoring and domestic wells (BTEX, MTBE, TBA).
- November 18, 2003. MDE-OCP site visit to observe equipment set up; 2 wells inaccessible; select wells sampled prior to injection.

- January 21, 2004. *Oxidation Pilot Study Implementation Report – January 15, 2004.* Study did not meet objectives.
 - 1,890 gallons of dilute hydrogen peroxide and catalyst injected in three events in H1A;
 - <100-gallons of this solution injected in H4 in two events; and
 - Pre- and post-injection samples collected from H1A, H4, and H6:

	Pre-H1A	post-H1A	pre-H4	post-H4	pre-H6	post-H6
- Benzene	190	ND	80	ND	ND	ND
- Toluene	16	ND	ND	ND	ND	ND
- Ethylbenzene	6.9	ND	ND	ND	ND	ND
- Xylene	110	ND	ND	ND	ND	ND
- MTBE	5,800	16	310	7.5	490	13

- July 19, 2004. CCHD faxed copies of Gist analytical results to MDE.
 - Groundwater samples collected by CCHD on June 11, 2004:
 - Gist (kitchen sink/post-treated) MTBE at 590 ppb; TAME at 51.1 ppb; benzene at 2.29 ppb; trimethylbenzene at 3.59 ppb; and
 - Gist deep well (>200 feet deep) MTBE at 2,053 ppb; TAME at 60.7 ppb; benzene at 2.92 ppb; trimethylbenzene at 3.84 ppb; butylbenzene at 0.80 ppb.
- July 20, 2004. MDE-OCP contacted Little George's Market in reference to GAC system at Gist residence.
- July 2004. *Subsurface Investigation – July 20, 2004* prepared by Marshall & Miller Associates.
 - Focused sampling along the eastern property boundary in the vicinity of the pump island.
 - Eight (8) borehole locations, refusal at 19 feet. No elevated field screen readings or visual evidence of staining.
 - Two composite soil samples collected from GP5 and GP6.
 - Soil samples were non-detect for TPH-GRO and MTBE.
 - Note, no groundwater samples were collected.
- July 21, 2004. CCHD faxed sampling results for two test wells on the adjacent Victoria Estates/Walking subdivision (2139 Old Sykesville Road).
 - Groundwater samples collected June 15, 2004:
 - Test Well #7 MTBE at 3,320 ppb; xylene at 7.1 ppb; benzene at 21.9 ppb; isopropylbenzene at 1.1 ppb; naphthalene at 2.1 ppb.
 - Test Well #4 MTBE at 0.6 ppb; no other petroleum constituents detected.
- July 29, 2004. MDE-OCP conducted site inspection to verify operational compliance of the USTs. Several outstanding issues were identified:
 - Correct weepings on all shear valves and verify ball float installation;

- Monitoring pipes may not be as deep as the tank bottom; and
 - Inventory records required.
- August 11, 2004. CCHD informed MDE that Mr. Sweeney (developer for Victoria Estates) was given an order to cease and desist discharging well water from contaminated well. CCHD faxed copy of Victoria farms workplan proposal to MDE.
 - August 16, 2004. MDE received copies of precision test results for George's Deli & Gas to certify operational compliance of the USTs.
 - August 23, 2004. Meeting amongst MDE representatives (OCP, Water Supply Program), CCHD, Mr. Sweeney (developer), and his consultant (Advanced Land & Water) to discuss the groundwater contamination issue, which is impacting the development of the adjacent Victoria Estates residential development.
 - August 25, 2004. Meeting amongst representatives for MDE-OCP, CCHD, and Little George's Market Inc. to discuss the status of the groundwater contamination issue at the former Little George' Market site.

MDE letter to the current owner/operator of George's Deli & Gas detailing discrepancies and outstanding issues, which were identified during the July 29, 2004 compliance assistance inspection.

- September 1, 2004. CCHD letter to Mr. Sweeney (developer) dated 8/27/2004 in reference to recorded off-conveyances #1 and #2 to drill test wells. Special conditions outlined:
 - Conduct a linear feature/fracture trace analysis;
 - Test wells must be constructed with a minimum of 100-ft. casing, properly grouted from the casing to the surface;
 - A pump test of at least 6 hours must be performed;
 - Test wells must be sampled for full suite VOCs after 3 well volumes are purged;
 - If results show that pumping of these wells will not pose a risk to future dwellers or that concentrations are not likely to change or that these wells will not interfere with the Little George's remediation project then consideration will be given for approving building permits for the two conveyances.
- September 2, 2004. MDE letter to Little George's Market Inc. requesting the following:
 - Submit a *Subsurface Investigation Work Plan* no later than September 20, 2004;
 - Submit an *Environmental Assessment Report* no later than November 30, 2004;
 - Operation and maintenance of the GAC system on the Gist residence (2173 Skyseville Road) would be the responsibility of Little George's; and
 - During the week of August 16, 2004, the GAC system at Gist residence was retrofitted with three carbon tanks in series to remove petroleum constituents from the deep domestic well (330 feet deep). Samples must be collected pre-, mid-, and post-treatment. Sample for full suite VOCs using EPA Method 524.2 on a monthly basis.
- September 8, 2004. CCHD letter to Country Side Developing LLC, dated 10/02/2004, regarding the August 23, 2004 meeting, in which potential petroleum contamination impact to the proposed Victoria Farms Subdivision was discussed.
 - CCHD unable to approve or disapprove the proposed Victoria Farms until an evaluation has been completed concerning the likelihood of future potable wells not being impacted by off-site contamination.
 - CCHD recommended that the developers of the Victoria Farm project initiate their own evaluation of this problem.
- September 17, 2004. Little George's Market petition's MDE-OCP for an extension to implement the *Phase I Study* and *Work Plan* due to financial constraints and no insurance.
- September 21, 2004. MDE-OCP letter to George's Deli & Gas outlining outstanding items that must be addressed:
 - Provide a copy of the records when the weeping dispenser shear valves are repaired;
 - Perform a leak detection test;
 - Install two groundwater monitoring wells and sample; and
 - Upgrade the Stage I vapor recovery system due to vapors detected.

- September 24, 2004. MDE granted an extension to Little George's Market to submit a *Phase I Study and Work Plan* no later than November 15, 2004.
- October 26, 2004. MDE received a proposal for a *Phase I Study and Work Plan* from Little George's Market consultant's, Triad Engineering, Inc.
- November 23, 2004. Faxed site map showing proposed 3 well locations on the northern portion of the former Little George's Market property.
- November 29, 2004. Letter dated 10/11/04 from Mr. Sweeney's attorney regarding the responsibilities of property owners/operators of the former Little George's Market site being required to incur expenses associated with off-site impacts from groundwater contamination associated with past/present gasoline retail activities.
- December 17, 2004: MDE-OCP approval of the *Limited Phase I Study and Subsurface Investigation Work Plan-October 6, 2004* for implementation contingent upon several modifications. Submit an *Environmental Assessment Report* no later than March 15, 2005; The Work Plan included the following:
 - Sampling the two off-site drinking water wells (Gist and Lockard properties);
 - Sampling three test wells on the Victoria Farms Subdivision;
 - Installing three additional monitoring wells on the former Little George's property;
 - Sampling all on-site monitoring wells and the non-community supply well that services the convenience store;
 - Collecting limited soil samples; and
 - A fracture trace analyses.
- December 20, 2004: MDE-OCP files reviewed by Mr. Sweeney's new consultant (ENSAT).
- December 21, 2004: Faxed results received by MDE-OCP for the Gist well results (12/8/04) .
 - Pre-treatment: MTBE at 1900 ppb; TAME at 56.5 ppb; benzene at 1.8; xylene at 5.2 ppb; naphthalene at 2.6 ppb.
 - Mid-treatment: MTBE at 121 ppb; all other petroleum constituents not detected.
 - Post-treatment: MTBE at 131 ppb; all other petroleum constituents not detected.
- December 30, 2004. MDE-Attorney General's Office to Mr. Sweeney's attorney in response to the 10/11/2004 letter, clarifying the Department's limited authority to order a responsible party to reimburse funds to a third party for work completed for due diligence purposes on an adjacent property.
- February 14, 2005: Faxed results received by MDE-OCP for the Gist well results (2/2/05).
 - Pre-treatment: MTBE at 1010 ppb; TAME at 31.6 ppb; naphthalene at 1.4 ppb; xylenes 0.9ppb.
 - Mid-treatment: All parameters were non-detect.
 - Post-treatment: All parameters were non-detect.
- March 3, 2005: MDE-OCP received notice that a private lawsuit was filed by Country Side Development (Mr. Sweeney) against Little George's Market Inc.
- March 24, 2005: Faxed results received by MDE-OCP for the Gist well results (3/10/05).
 - Pre-treatment: MTBE at 1230 ppb; TAME at 41.5 ppb; benzene not detected; xylene at 2.6 ppb; naphthalene at 1.8 ppb.
 - Mid-treatment: MTBE at 3 ppb; all other petroleum constituents not detected.
 - Post-treatment: no petroleum constituents detected.
- April 5, 2005. MDE-OCP issued a Notice of Violation (NV 91-044 Addendum) to Little George's Market Inc. (previous operator) requiring the approved *Proposal for Limited Phase I Study and Subsurface Investigation – October 6, 2004* be implemented no later than April 15, 2005. Failure to implement field activities pursuant to the development CAP will result in additional enforcement action.

- April 14, 2005. MDE-OCP received and granted a request for extension for implementing the *NOV-91-044 Addendum*.
- May 6, 2005. MDE-OCP received letter Little George's Market, Inc. attorney concerning further investigative and remediation activities without financial assistance. Client cannot move forward with the actions as required in NOV-91-044 Addendum and there may be contributing parties.
- May 18, 2005. MDE responded to Little George's Market Inc. attorney regarding our disappointment that responsible parties will not be moving forth with the investigation and corrective actions.
- August 8, 2005. CCHD forwards letter to MDE-OCP for the Gist well results 6/30/05.
 - Pre-treatment MTBE at 1647 ppb; TAME at 107 ppb; naphthalene at 2.07 ppb; benzene at 0.98ppb.
 - Post-treatment no petroleum constituents detected.
- October 13, 2005. MDE received copy of a letter from ENSAT to the CCHD regarding the wells for off-conveyance lots 1 and 2 of the Victoria Farms Subdivision.
- November 8, 2005. CCHD forwards copies of letters regarding the Victoria Farms Subdivision
- November 8, 2005. MDE received *Groundwater Monitoring Well Installation and Sampling Results-July 20, 2005*.
 - Three groundwater monitoring wells installed by the current operator/owner. Wells are 2 inches in diameter.
 - New wells installed 06/30/2005.
 - Sampling event 07/12/05.
 - MW1 (85 ft) MTBE – 50,000 ppb, Benzene – 175 ppb, Naphthalene – 12 ppb, TAME – 1,200 ppb
 - MW2 (85 ft) MTBE – 4,700 ppb, TAME 80 ppb
 - MW3 (78 ft) MTBE – 60 ppb
 - PW(pre-treatment) MTBE – 6 ppb
- November 30, 2005. MDE received results of testing conducted at the facility
 - Pressure decay log for Stage II Vapor Recovery testing conducted on 7/24/05 - passed
 - Leak detector test record dated 7/24/05 – passed
 - Results of air to liquid testing for the Stage II Vapor Recovery dated 7/24/05 – passed
 - Liquid line testing dated 7/24/05 – passed
 - Spill bucket hydrostatic testing for fill and Stage I dated 6/15/05 – passed
 - Helium test log dated 11/23/05 – passed
 - Dispenser sump hydrostatic test dated 11/23/05 – passed
 - Submersible sump hydrostatic test dated 11/23/05 - passed
- December 5, 2005. MDE directive letter to the current operator/owner:
 - Sample the three new monitoring wells and tank field observation pipes.
 - Sample the on-site drinking water supply well every six months.
 - Conduct a self audit of the UST system no later than January 6, 2006.
 - Conduct a ½ mile drinking water well survey no later than January 30, 2006.
- January 17, 2006. Letter to MDE dated 01/13/06 from George's Gas and Deli attorney.
- January 20, 2006. MDE-Oil Control Program and CCHD met with attorneys for the potential responsible parties and the developer for Victoria Farms to discuss the current status of future actions.
- January 23, 2006. MDE received *December 2005 Groundwater Sampling Results-Little George's Market, Inc.-January 2006*.
 - Sampling event 12/16 and 28/2005
 - MW1 MTBE – 9600 ppb, benzene – 660 ppb, Naphthalene – 12 ppb, TPH/GRO – 2200 ppb,

- TAME – 680 ppb
 - MW2 MTBE – 7400 ppb, TAME - 230 ppb.
 - MW3 MTBE – 27 ppb
 - Tank field monitoring pipes (TF1 and TF2) dry
 - PW (pre-treatment) MTBE – 15 ppb
(mid and post-treatment) non detect for petroleum constituents
- January 30, 2006. MDE received via fax, *Well Search Summary – January 27, 2006*.
 - Approximately 20 of the wells are located down gradient of the facility.
 - Groundwater flow is generally towards the west/northwest
- May 8, 2006. MDE received *Evidence of New Petroleum Release – May 3, 2006*.
- June 3, 2006. MDE-OCP received a copy of the 04/05/2006 letter from Little George’s Market to the homeowner at 2713 Sykesville Road, which, due to financial hardships the GAC will no longer be maintained.
- July 7, 2006. MDE site visit to check on the operation and maintenance of the GAC system at 2173 Sykesville Road (Gist residence). An access agreement was provided to the homeowner.
- July 14, 2006. MDE-OCP letter to the property owner at 2173 Sykesville Road requesting authorization for the State to take over future maintenance and sampling of the GAC system. Drinking water sample results were also provided.
 - Sampling event on 05/26/06
 - DW (pre-treatment) MTBE – 254 ppb estimated, TAME – 49.5 ppb
(mid-treatment) MTBE – 3.37 ppb
(post-treatment) non-detect for petroleum constituents (ND)

Current Activities:

- July 27, 2006. MDE received a signed *Access Agreement* from the property owner at 2713 Sykesville Road authorizing the State to take over the GAC system.
- August 4, 2006. MDE received the *June 2006 Groundwater Sampling Results – August 2, 2006*.
 - Sampling event on 06/30/06
 - MW-1 MTBE – 26000 ppb, TAME 1620 ppb, TBA 20300 ppb.
 - MW-2 MTBE – 940 ppb, TAME 24 ppb, TBA 157 ppb.
 - MW-3 MTBE – 4.3 ppb, toluene 2.1 ppb.
 - PW (pre-treatment) MTBE – 24 ppb
(mid and post-treatment) non detect for petroleum constituents
 - Tank field monitoring pipes (TF1 and TF2) dry
- August 4, 2006. Letter from the Office of the Attorney General, to all the current operator/owners attorney regarding the MDE’s position on the *Summary of Findings and Comments on the Source and Timing of a Release – May 12, 2006*
- August 7, 2006. Letter from the Office of the Attorney General, to the attorneys of potential responsible parties regarding the status of remediation efforts at the site.

Future activities:

- The next sampling event is scheduled for December 2006.
- MDE has opened a new case – *Case No. 2007-0096CL*.

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.