SITE MONITORING REPORT
LONDONDERRY CITGO
LONDONDERRY, VERMONT

VT DEC SITE NO. 96-2015

JANUARY 2004 - MARCH 2004

Prepared For:

Rice Oil Company
24 Montague City Road
Greenfield, Massachusetts

Reference No. VT96-0093R17
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Prepared By:

65 Millet Street Suite 301 Richmond, VT 05477
802.434.4500 Fax: 802.434.6076 www.ecsconsult.com

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EXECUTIVE SUMMARY

This report summarizes the progress of remedial efforts at Londonderry Citgo located in Londonderry Center, Vermont conducted by Environmental Compliance Services, Inc. (ECS) during the period of January 2004 through March 2004. Activities that took place during this reporting period include: quarterly sampling of nearby supply well treatment systems, semi annual groundwater sampling, annual residential supply well sampling, and the evaluation, start-up, and troubleshooting of the air sparging and soil vapor extraction (AS/SVE) system. Activities and findings from the annual residential supply well sampling will be summarized in a separate report. ECS findings during this report period are summarized as follows:

- Results indicate that residual gasoline related volatile organic compound (VOC) contamination is still present within the surficial and bedrock aquifer.

- The Vermont Groundwater Enforcement Standard (VGES) for at least one petroleum hydrocarbon continue to be exceeded in site monitoring wells MW-8, SP-1, and SP-2. The gasoline additive methyl tert butyl ether (MTBE) continues to be detected in monitoring wells MW-3, MW-7, MW-8, MW-S2, MW-S3, SP-1, and SP-2.

- No groundwater samples were collected from SP-3 and SP-4 because ice was in the well casing and could not be accessed to sample. Monitoring well MW-6 was not sampled because it was in a large plowed snow bank and could not be located. MW-5 was also not sampled, because it was taken off the sampling plan.

- Analytical results from the March 2004 site visit indicate that with the exception of MTBE no other petroleum hydrocarbons were detected in the shopping center's main drinking water supply well treatment system samples.

- MTBE continues to be detected in samples collected from the shopping center's main drinking-water supply well's influent, mid-carbon and effluent at concentrations below the Vermont Health Advisory (VHA) of 40 micrograms per liter (µg/L). Water Works, who services the treatment system, was notified verbally of the treatment system break-through on 4 May 2004. It was also discussed with Water Works, that historical sampling results demonstrate that the current treatment system has not been effective at eliminating MTBE.

- ECS had previously received permission to sample the well, however, no one was home at the Thorne-Thomsen residence during the March 2004 site visit, and therefore, the treatment system was not sampled. ECS will attempt to sample the Thorne-Thompsen well again during the June 2004.

- The SVE portion of the AS/SVE system was restarted 18 February 2004 using a smaller ½ horsepower temporary blower. The system's original 1 ½ horsepower blower was unable to be repaired. At the request of the VTDEC, ECS sought a cost effective replacement. ECS found a replacement blower that was installed on 11 May, 2004 and turned on both the AS and SVE portions of the system. Shortly after, Mr. Robert Waite, owner of the Mountain Market, contacted ECS and indicated the sparge system was blowing off sparge well roadbox lids and well plugs. ECS made a site visit to turn off the air sparge system.

EXECUTIVE SUMMARY

On the basis of these findings, ECS makes the following recommendations:

1. Groundwater sampling and analysis of all onsite monitoring wells should continue on a semi-annual. The next sampling event should be conducted in September 2004.

2. Quarterly sampling of nearby supply well treatment systems should continue, with the next sampling event to be conducted in June 2004. In addition, ECS should repair the sparge wells and reactivate the AS system.

3. Once both the air sparge and soil vapor extraction portions of the system are fully operational, system checks and maintenance should be conducted on a bi monthly basis.

4. The supply well treatment system for the Londonderry Shopping Center should be reevaluated and upgraded given historical MTBE contaminant breakthrough.

1.0 INTRODUCTION

This report details the results of site remediation and monitoring at Londonderry Citgo, located at the intersection of Vermont Routes 11 and 100 South in the town of Londonderry, Vermont (Figure 1) during January 2004 through March 2004. This report has been prepared by Environmental Compliance Services, Inc. (ECS) under the direction of Mr. Gary Thurston, of Rice Oil Company.

ECS conducted an initial site investigation in the Fall of 1996, after gasoline compounds were identified in three bedrock supply wells located near the Londonderry Citgo (Figure 2). The results of the initial site investigation suggested that gasoline had been released in the vicinity of the underground storage tank (UST) system at the Citgo station. The release or releases appeared to have impacted the nearby bedrock supply wells, and posed a risk of contamination to other supply wells, Utley Brook located approximately 200 feet northeast of the Citgo station, and the West River located approximately 400 feet south of the Citgo station.

Historical groundwater analytical results indicate that the overburden aquifer beneath the site is contaminated with gasoline compounds. The Vermont Groundwater Enforcement Standards (VGESs) for several VOCs have been exceeded in the groundwater sample collected from monitoring well MW-2, located approximately 20 feet south of the pump island. Methyl-tertiary butyl ether (MTBE) has also repeatedly been detected at concentrations above the VGES at MW-S2, which is located approximately 220 feet downgradient of the former UST system.

Groundwater from the bedrock aquifer is the sole source of drinking water for the site and surrounding properties. Eighteen individual bedrock supply wells are located within 1,000 feet of the site. Analytical results of samples collected from the adjacent supply wells in November 1996 indicated that five shallow bedrock supply wells near the site were contaminated with gasoline compounds: two on-site supply wells and three off-site supply wells. One on-site and one off-site well — the shopping center's main supply well and the Thorne-Thomsen residential well, contained benzene at concentrations that exceeded the VGES of 5 micrograms per liter (µg/L), as well as detectable levels of MTBE.

In May 1998, the Vermont Department of Environmental Conservation (VTDEC) approved ECS's Corrective Action Plan (CAP) for the site, which recommended air sparging and soil vapor extraction (AS/SVE) at the source area, with the continued operation of point-of-use carbon treatment systems at the shopping center's main supply well and the Thorne-Thomsen residential well. Installation of the subsurface components of the remediation system was completed in May 1998, construction of the treatment shed was completed in August 1998, and the system started operation in January 1999.

The AS/SVE system operated intermittently until it was shut down September 2000 when mass removal rates decreased to asymptotic levels. Since system shutdown, groundwater VOC concentrations have rebounded in wells primarily limited to the former UST source area, and an area immediately west of the pump island. An attempt to restart the system was made in January 2004 but the system's blower was broken. The remedial system was restarted after system evaluation and trouble shooting on February 18, 2004 using a temporary ½ HP blower.

2.0 SCOPE OF WORK

The work completed during this report period involved the following activities:

- Collection and submittal of groundwater samples from the on-site monitoring wells for laboratory analysis of volatile organic compounds VOCs by EPA method 8021B, on 16 March 2004;

- Collection and submittal of quarterly supply well samples from the treatment system installed at the Shopping Center's main supply well for laboratory analysis of VOCs;

- The annual collection and submittal of bedrock supply well samples from nine business' and residences within 1,000 feet of the site. A summary of these results will be submitted in a separate letter report. Owners of the supply wells sampled will be notified of the analytical results by mail;

- Evaluation, trouble shooting, and restart of the AS/SVE system;

- Preparation of this summary report, which details the work performed, and provides conclusions and offers recommendations for further action.

3.0 INVESTIGATIVE PROCEDURES AND RESULTS

3.1 DETERMINATION OF GROUNDWATER FLOW DIRECTION AND GRADIENT

On 16 March 2004, groundwater in the unconfined surficial aquifer directly beneath the site continued to be flowing in a southerly direction, toward the West River, with an average horizontal hydraulic gradient of about 3.5 percent. Water-level measurements and elevation calculations for 16 March 2004 are presented in Table 1. The groundwater contour map presented as Figure 3 was prepared using these data.

The depth to water in the unconfined surficial aquifer on 16 March 2004 varied from 4.95 feet (SP-1) to 9.61 feet (MW-S2) below top-of-casing (TOC). Static water-table elevations were computed for each monitoring well by subtracting the measured or corrected depth-to-water readings from the surveyed top-of-casing elevations, which are relative to an arbitrary site datum of 100.00 feet.

3.2 MONITORING WELL SAMPLING AND ANALYSIS

Groundwater analytical results of samples collected from water-table monitoring wells indicate that the unconfined surficial aquifer beneath the site remains contaminated with gasoline compounds. During the 16 March 2004 semi-annual sampling event, the VGES[1] for benzene was exceeded in MW-8 and SP-1. VGES for the gasoline additive MTBE was exceeded in monitoring well samples MW-8, SP-1, and SP-2.

MTBE was detected at levels below the VGES in monitoring wells MW-3, MW-7, MW-S2, and MW-S3, during this sampling event. 1,2,4 trimethyl benzene (TMB) was detected in monitoring wells MW-8, SP-1, and SP-2 at levels exceeding the VGES. The VGES were also exceeded in monitoring wells MW-8 and SP-2 for 1,3,5 TMB and naphthalene.

A contaminant distribution map for the 16 March 2004 monitoring well sampling event is presented as Figure 4. The analytical results for groundwater samples are summarized on Table 2A and on the time-series graphs in Figures 5 through 16. Laboratory report forms are included in Appendix A.

3.3 WATER SUPPLY TREATMENT SYSTEM SAMPLING AND ANALYSIS

Analytical results of the influent samples collected from bedrock supply well treatment systems at of the site indicate that the shallow bedrock aquifer beneath the site continues to be contaminated with gasoline compounds. During this monitoring period (January 2004 through March 2004), no benzene was detected in samples collected from the Shopping Center's main supply well treatment system. MTBE was detected at levels below the Vermont Health Advisory of 40 µg/L in samples collected from Shopping Center's main supply well treatment system. The Thorne-Thomsen residential supply well was not sampled during this period because ECS could not gain access. The Thorne-Thomsen residential supply well will be sampled during the next quarterly sampling event in June. The analytical results for the treatment system influent samples are summarized on the time-series graphs in Figures 15 and 16.

[1]The Vermont Department of Environmental Conservation (VT DEC) has established Groundwater Enforcement Standards (VGESs) for eight petroleum related VOCs, as follows: benzene - 5 µg/L; toluene - 1,000 µg/L; ethylbenzene - 700 µg/L; Total Xylenes - 10,000 µg/L; MTBE, a gasoline additive, - 40 µg/L; 1,3,5-trimethylbenzene - 4 µg/L; 1,2,4- trimethylbenzene - 5 µg/L; and naphthalene - 20 µg/L.

Laboratory report forms are included in Appendix A. A summary of the monitoring results for the individual treatment systems collected during this monitoring period is included on Table 3 and discussed below.

Thorne-Thomsen Residential Well: The treatment system at this location is a point-of-entry system designed primarily for VOC removal by adsorption to granular activated carbon. This system was installed and is maintained by Vermont Water Treatment Systems of Bristol, Vermont.

Shopping Center Main Supply Well: The treatment system at this location is a granular activated carbon based system, designed for VOC removal. This system was installed and is maintained by Vermont Water Works of Manchester, Vermont.

During the report period, this system failed to remove all detectable concentrations of gasoline-related compounds from the drinking water. Gasoline-related additive MTBE was detected in the treatment system influent, mid carbon, and effluent samples at concentrations of 27.7, 28.9, and 16.9µg/L, respectively. All concentrations were below the MCL for MTBE of 40µg/L. No other gasoline compounds were detected during this monitoring period. .

3.4 QUALITY ASSURANCE/QUALITY CONTROL

Trip blank and duplicate samples were collected and analyzed for VOCs by EPA Method 8021B to ensure that adequate quality assurance/quality control (QA/QC) standards were maintained. Analytical results from the QA/QC samples indicate that adequate QA/QC was maintained during sample collection and analysis. No VOCs were detected in the trip blanks, and the analytical results for the field duplicate samples collected from MW-8 was within 15 percent of the original sampling results, which is with the EPA 30 percent acceptable range.

3.5 REMEDIAL SYSTEM OPERATION AND PERFORMANCE

Site remediation is achieved with the use of a combined air-sparging and soil-vapor extraction remedial system. Since the remediation system had been shut down since September 2000, a preliminary system evaluation was conducted and determined that the system's existing blower had seized and needed to be replaced. ECS put a smaller horsepower blower online temporarily until a cost effective replacement was found. The SVE portion of the AS/SVE system was restarted 18 February 2004. The AS portion of the system was down because of the wiring requirements for the temporary SVE blower. The air sparging was restarted after installing the replacement blower 11 May 2004.

An estimated 42 pounds of gasoline mass were recovered from the subsurface by the AS/SVE System between 18 February 2004 and 16 March 2004, bringing the total gasoline mass recovered since January 1999 to 380 pounds (Figure 23, Appendix A). Estimated mass-recovery rates during this reporting period ranged from 0.098 to 2.056 pounds per day (lbs./day) (Figure 25, Appendix A). The SVE system was operational 100 percent of the operating period.

The vapor-destruction efficiency of the carbon-treatment system was evaluated during each site visit, when the system was running, by measuring influent and effluent vapor concentrations with a photoionization detector (PID) concentrations. VT DEC guidance documents require that vapor treatment systems show either at least 95% destruction or effluent PID concentrations below five parts per million (ppm). During this reporting period, all effluent PID readings were below five ppm.

A trained ECS field technician continued to monitor the remedial system during site visits throughout this operating period, checking and recording system operating parameters and making repairs and adjustments as necessary. Measurements during each scheduled visit included: VOC concentrations in each SVE line and downstream of the manifold using a PID (Table 5, Appendix A); vacuum levels in each SVE line (Table 6, Appendix A); and influent and effluent PID readings on the carbon treatment system (Table 7, Appendix A), and SVE flow rates (Table 8, Appendix A). The PID was calibrated on each day of use to a benzene reference using an isobutylene standard gas.

The SVE portion of the system consists of five horizontal vapor extraction wells operating continuously. The combined piping comes to the surface in the treatment shed where it is manifolded together. The subsurface vapors are drawn through the piping by using a temporary 0.5 horsepower (HP) Rotron regenerative blower, which removes air from the subsurface at a rate of approximately 65 standard cubic feet per minute (scfm). Hydrocarbons in the blower effluent air are treated through two 55-gallon drums of activated carbon, connected in series, prior to being discharged to the atmosphere.

4.0 CONCLUSIONS

ECS's findings during this report period are summarized as follows:

- Results indicate that residual gasoline related volatile organic compound (VOC) contamination is still present within the surficial and bedrock aquifer.

- The Vermont Groundwater Enforcement Standard (VGES) for at least one petroleum hydrocarbon continue to be exceeded in site monitoring wells MW-8, SP-1, and SP-2. The gasoline additive methyl tert butyl ether (MTBE) continues to be detected in monitoring wells MW-3, MW-7, MW-8, MW-S2, MW-S3, SP-1, and SP-2.

- No groundwater samples were collected from SP-3 and SP-4 because ice was in the well casing and could not be accessed to sample. Monitoring well MW-6 was not sampled because it was in a large plowed snow bank and could not be located. MW-5 was also not sampled, because it was taken off the sampling plan.

- Analytical results from the March 2004 site visit indicate that with the exception of MTBE no other petroleum hydrocarbons were detected in the shopping center's main drinking water supply well treatment system samples.

- MTBE continues to be detected in samples collected from the shopping center's main drinking-water supply well's influent, mid-carbon and effluent at concentrations below the Vermont Health Advisory (VHA) of 40 micrograms per liter (µg/L). Water Works, who services the treatment system, was notified verbally of the treatment system break-through on 4 May 2004. It was also discussed with Water Works, that historical sampling results demonstrate that the current treatment system has not been effective at eliminating MTBE.

- ECS had previously received permission to sample the well, however, no one was home at the Thorne-Thomsen residence during the March 2004 site visit, and therefore, the treatment system was not sampled. ECS will attempt to sample the Thorne-Thompsen well again during the June 2004.

- The SVE portion of the AS/SVE system was restarted 18 February 2004 using a smaller ½ horsepower temporary blower. The system's original 1 ½ horsepower blower was unable to be repaired. At the request of the VTDEC, ECS sought a cost effective replacement. ECS found a replacement blower that was installed on 11 May, 2004 and turned on both the AS and SVE portions of the system. Shortly after, Mr. Robert Waite, owner of the Mountain Market, contacted ECS and indicated the sparge system was blowing off sparge well roadbox lids and well plugs. ECS made a site visit to turn off the air sparge system.

5.0 RECOMMENDATIONS

On the basis of these findings, ECS makes the following recommendations:

5. Groundwater sampling and analysis of all accessible onsite monitoring wells should continue semi-annually. The next sampling event should be conducted in September 2004.

6. Quarterly sampling of nearby supply well treatment systems should continue, with the next sampling event to be conducted in June 2004. In addition, ECS should repair the sparge wells and reactivate the AS system.

7. Once both the air sparge and soil vapor extraction portions of the system are fully operational, system checks and maintenance should be conducted on a bi monthly basis.

8. The supply well treatment system for the Londonderry Shopping Center should be reevaluated and upgraded given historical MTBE contaminant breakthrough.

TABLE 1. GROUNDWATER ELEVATION CALCULATIONS

Londonderry Citgo
Londonderry, Vermont

Monitoring Date:
16 March 2004

Well I. D.	Top of Casing Elevation *	Depth to Water (feet, TOC)	Ground Water Elevation
MW-1	**DESTROYED or PAVED OVER**		
MW-2	**DESTROYED or PAVED OVER**		
MW-3	98.69	5.35	93.34
MW-4	**Restored 9/25/03 will sample next event.**		
MW-5	98.48	NS	NS
MW-6	95.13	NS	NS
MW-7	98.40	9.15	89.25
MW-8	99.66	5.77	93.89
MW-S1	**DESTROYED or PAVED OVER**		
MW-S2	94.89	9.61	85.28
MW-S3	94.41	9.12	85.29
SP-1**	99.07	4.95	94.12
SP-2**	99.23	5.29	93.94
SP-3**	99.50	NS	NS
SP-4**	99.64	NS	NS

*Top of casing (TOC) and ground water elevations are relative to an arbitrary site datum of 100.00 feet.
**Sparge points (SP) screened below water-table.
MW-1 and MW-2 were destroyed during installation of the new UST system
MW-S1 and were destroyed during snow removal.
MW-5 was not sampled due to change in scope of work.
MW-6 was not located.
NS = Well Not Sampled.

TABLE 2. ANALYTICAL MONITORING RESULTS
GROUNDWATER MONITORING WELL SAMPLES

Londonderry Citgo
Londonderry, Vermont

Monitoring Date:
16 March 2004

Sample Location	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 Trimethyl Benzene	1,2,4 Trimethyl Benzene	Naphthalene
Volatile Petroleum Hydrocarbons by EPA Method 8021B									
MW-S2	ND	**16.5**	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
MW-3	ND	**1.5**	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
MW-S3	ND	**8.8**	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
MW-5	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-7	ND	**19.4**	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
MW-8	**541**	**178**	**12.6**	**16.9**	**217**	**294**	**184**	**360**	**77.2**
SP-1	**118**	**258**	**105**	13.3	ND<4.0	ND<8.0	ND<4.0	**7.5**	ND<4.0
SP-2	**203**	**125**	ND<5.0	**10.2**	**104**	**88.5**	**25.1**	**200**	**30.2**
SP-3	NS	NS	NS	NS	NS	NS	NS	NS	NS
SP-4	NS	NS	NS	NS	NS	NS	NS	NS	NS
VGES	***---***	***40***	***5.0***	***1,000***	***700***	***10,000***	***4.0***	***5.0***	***20***
Quality Assurance/Quality Control Samples by EPA Method 8021B									
Duplicate (Dup.)	**497**	**178**	**13.3**	**15.8**	**203**	**265**	**169**	**325**	**89.6**
MW-8	**541**	**178**	**12.6**	**16.9**	**217**	**294**	**184**	**360**	**77.2**
% Difference	***8***	***0***	***5***	***7***	***7***	***10***	***8***	***10***	***15***
trip blank	ND	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0

Notes:
All Samples collected by ECSMarin and analyzed by Endyne, Inc. for volatile petroleum hydrocarbons by EPA Method 8021B.
Results given in micrograms per liter (µg/L).
ND - None detected at indicated detection limit.
TBQ - Trace below indicated quantitation limit.
VGES - Vermont Groundwater Enforcement Standards.
Shaded concentrations exceed VGES.
MW-5 was not sampled due to a change in the scope of work.
SP-4 was not sampled because well was dry on 9/25/03.

TABLE 3
Drinking-Water Analytical Results
Londonderry Citgo
Londonderry Center, Vermont
Monitoring Date:
16 March 2004

Supply Well	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX	1,3,5 -TMB	1,3,5 -TMB	Naphthalene
Shopping Center Main									
- system influent	**27.7**	ND <1	ND <1	ND <1	ND <2	**ND**	ND <1	ND <1	ND <1
- system mid	**28.9**	ND <1	ND <1	ND <1	ND <2	**ND**	ND <1	ND <1	ND <1
- system effluent	**16.9**	ND <1	ND <1	ND <1	ND <2	**ND**	ND <1	ND <1	ND <1
Thorne-Thomsen - system influent	NS	NS	NS	NS	NS	**NS**	NS	NS	NS
- system mid	NS	NS	NS	NS	NS	**NS**	NS	NS	NS
- system effluent	NS	NS	NS	NS	NS	**NS**	NS	NS	NS
MCL	---	5	1,000	700	10,000	---	---	---	---
VHA	40	---	---	---	---	---	5	4	20
VAL	---	1	---	---	---	---	---	---	---

Notes:

Results given in parts per billion (ppb).

NS - Not sampled, could not contact owner for access.

ND - None detected at indicated detection limit.

TBQ - Trace below quantitation limit indicated.

All samples collected by ECS and analyzed by Endyne, Inc.

MCL - Enforceable U.S. EPA Maximum Contaminant Levels for chemicals of concern in drinking water.

VHA - Vermont Health Advisories - guidelines for concentrations of chemicals in drinking water that do not have MCLs.

VAL - Vermont Action Levels for eight chemicals of specific health concern in public water systems, established by the Vermont Dept. of Health.

TABLE 4. SPARGE SYSTEM PRESSURE AND AIRFLOW READINGS

DATE	SP-1	SP-2	SP-3	SP-4
02/22/00	0.5	6	3	5.5
03/09/00	1	5	4	4
07/17/00	6	4	4.5	4.5
07/26/00	4	5	4.5	6
08/14/00	5	6.5	7	5
09/19/00	3	5.5	5	4.5
02/18/04	--	--	--	--
03/08/04	--	--	--	--
03/16/04	--	--	--	--
04/22/04	--	--	--	--

Note: Readings in pounds per square inch (psi).
N/A: Data not available
--: Sparge leg not running

DATE	SP-1	SP-2	SP-3	SP-4
02/22/00	12.5	9.5	10	9
03/09/00	12.5	9.75	9	10
07/17/00	8.0	10.5	9.0	9.5
07/26/00	13	12	10.5	10
08/14/00	11	17	11	6
09/19/00	11.5	22	17	7
02/18/04	--	--	--	--
03/08/04	--	--	--	--
03/16/04	--	--	--	--
04/22/04	--	--	--	--

Note: Readings in standard cubic feet per minute (scfm).
N/A= Data not available
--: Sparge leg not running

TABLE 5. SVE SYSTEM PID READINGS

DATE	SVE-1	SVE-2	SVE-3	SVE-4	SVE-5	Total
11/19/99	3.2	16.2	0.7	6.1	1.2	5.8
12/03/99	6.5	4.9	9.8	5.5	4.1	2.5
12/14/99	4.5	6.2	1.8	6.8	2.2	4.2
01/19/00	1.5	24.2	0.0	1.5	0.1	1.6
02/22/00	0.7	0.0	0.5	0.7	0.5	--
03/09/00	--	6.3	--	4.1	--	--
07/17/00	0.1	0.9	0.2	1.7	0.9	2.8
07/26/00	10.4	4.3	13.8	2.0	0.0	0.0
08/14/00	0.3	0.4	15.1	2.8	6.8	5.4
09/19/00	6.1	4.0	4.2	3.0	5.0	2.1
02/18/04	65.0	76.6	79.7	595.0	437.0	117.0
03/08/04	0.2	23.8	0.2	51.6	18.4	13.2
03/16/04	0	5.5	0.1	69.4	27.5	15.6
04/22/04	0	0	0	8.0	16.0	11.0

Notes: Readings in parts per million (ppm) by photoionization detector
System readings are prior to dilution.
N/A= Data not available
--: SVE leg not running

TABLE 6. SVE SYSTEM VACUUM READINGS

DATE	SVE-1	SVE-2	SVE-3	SVE-4	SVE-5	TOTAL
02/10/99	---	---	---	---	---	---
12/14/99	2.0	1.0	1.0	3.0	1.0	N/A
01/19/00	1.75	1.5	1.0	3.0	1.0	N/A
02/22/00	1.5	1.0	1.0	3.0	1.0	48.5
03/09/00	2.0	1.5	1.5	4.0	1.0	--
07/17/00	1.2	1.2	1.0	1.6	1.0	17
07/26/00	1.2	1.3	1.1	1.0	1.6	13.5
08/14/00	1.7	1.8	1.6	2.1	1.7	17
09/19/00	1.3	1.4	1.2	1.9	1.5	7.2
02/18/04	2.0	2.0	2.0	2.0	2.0	2.0
03/08/04	0.1	0.1	0.1	0.1	0.1	0.9
03/16/04	0.1	0.1	0.1	0.1	0.1	1.0
04/22/04	2.0	2.0	2.0	2.0	2.0	2.0

Note: ---: SVE leg not running
N/A= Data not available
All vacuum readings reported as inches of water column

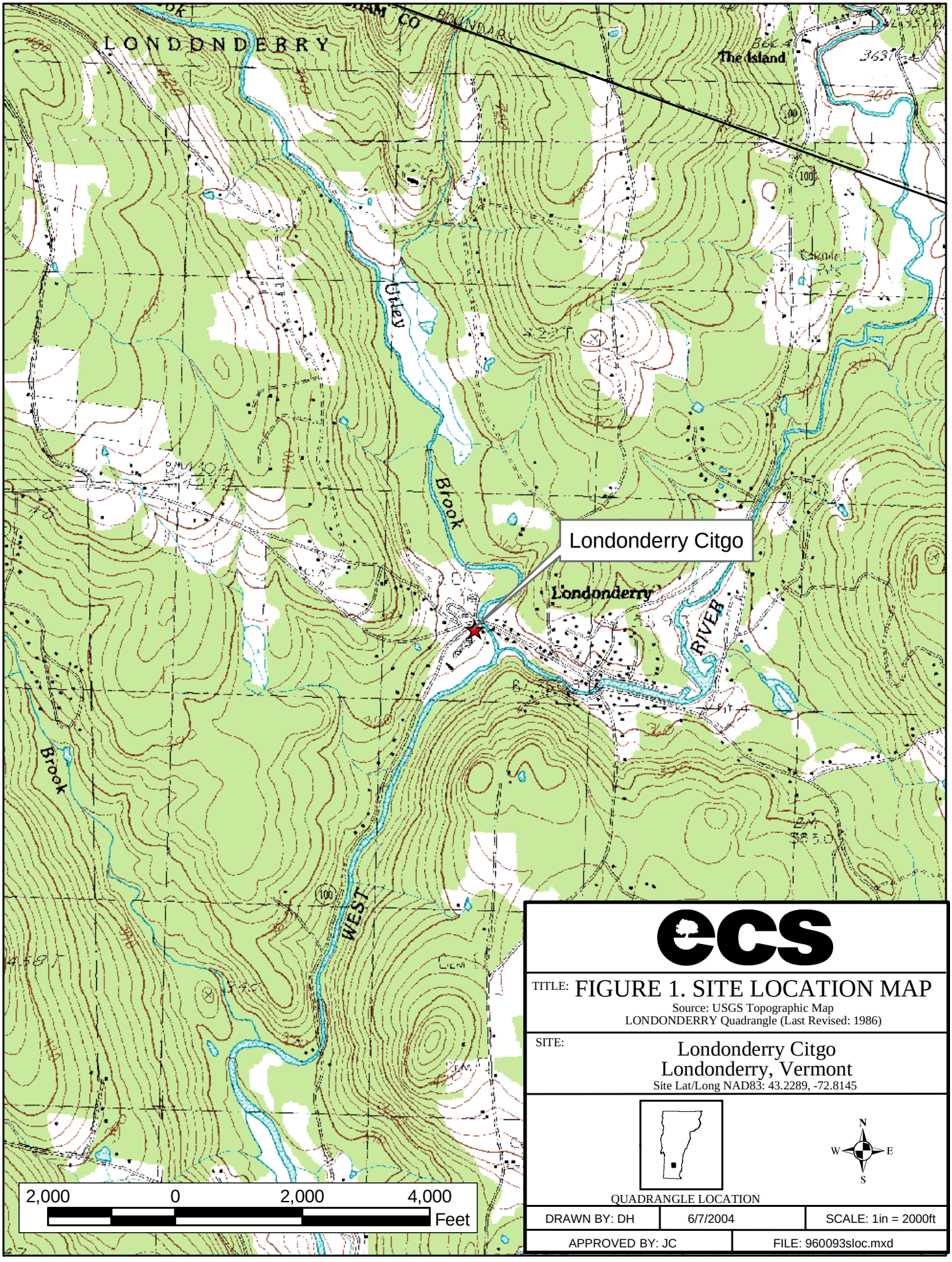
TABLE 7. SVE SYSTEM VOC DESTRUCTION EFFICIENCY

DATE	INFL	EFF	REMOVAL (%)
02/22/00	4.4	1.3	70.5
03/09/00	7.1	0	100
07/17/00	1.3	0.2	85
07/26/00	0	0	100
08/14/00	4.5	1.2	64
09/19/00	1.9	1	48
02/18/04	117	3	97
03/08/04	4.6	4.2	91
03/16/04	3.1	3.1	3.1
04/22/04	3.1	4.5	3.1

TABLE 8. SVE SYSTEM AIRFLOW READINGS

DATE	SVE-1	SVE-2	SVE-3	SVE-4	SVE-5	C-1 INFL
12/03/99	5.3	2.6	7.5	31.7	8.4	0.0
12/14/99	11.1	4.4	5.4	40.4	7.5	0.0
01/19/00	19.0	2.9	10.9	44.9	11.8	0.0
02/22/00	N/A	N/A	N/A	N/A	N/A	N/A
03/09/00	33.4	14.8	18.2	75.5	24.9	104
07/17/00	15.9	15.2	27.2	55.3	48.1	123.2
07/26/00	12.0	12.9	21.3	36.0	39.2	109.0
08/14/00	1.5	1.5	11.7	44.1	52.1	93.4
09/19/00	10.3	10.2	19.8	33.6	37.3	88.0
02/18/04	1.3	0.9	4.5	0.2	9.7	48.60
03/08/04	1.5	1.5	5.3	0.1	9.7	41.0
03/16/04	1.8	1.7	4.7	0.2	9.7	42.8
04/22/04	0.5	0.5	0.5	0.5	12.0	48.6

Notes: Flow rates reported in cubic feet per minute (cfm)
System readings are prior to dilution.
System readings are prior to dilution
--- SVE leg not running
N/A Data not available



ecs

TITLE: FIGURE 1. SITE LOCATION MAP

Source: USGS Topographic Map
LONDONDERRY Quadrangle (Last Revised: 1986)

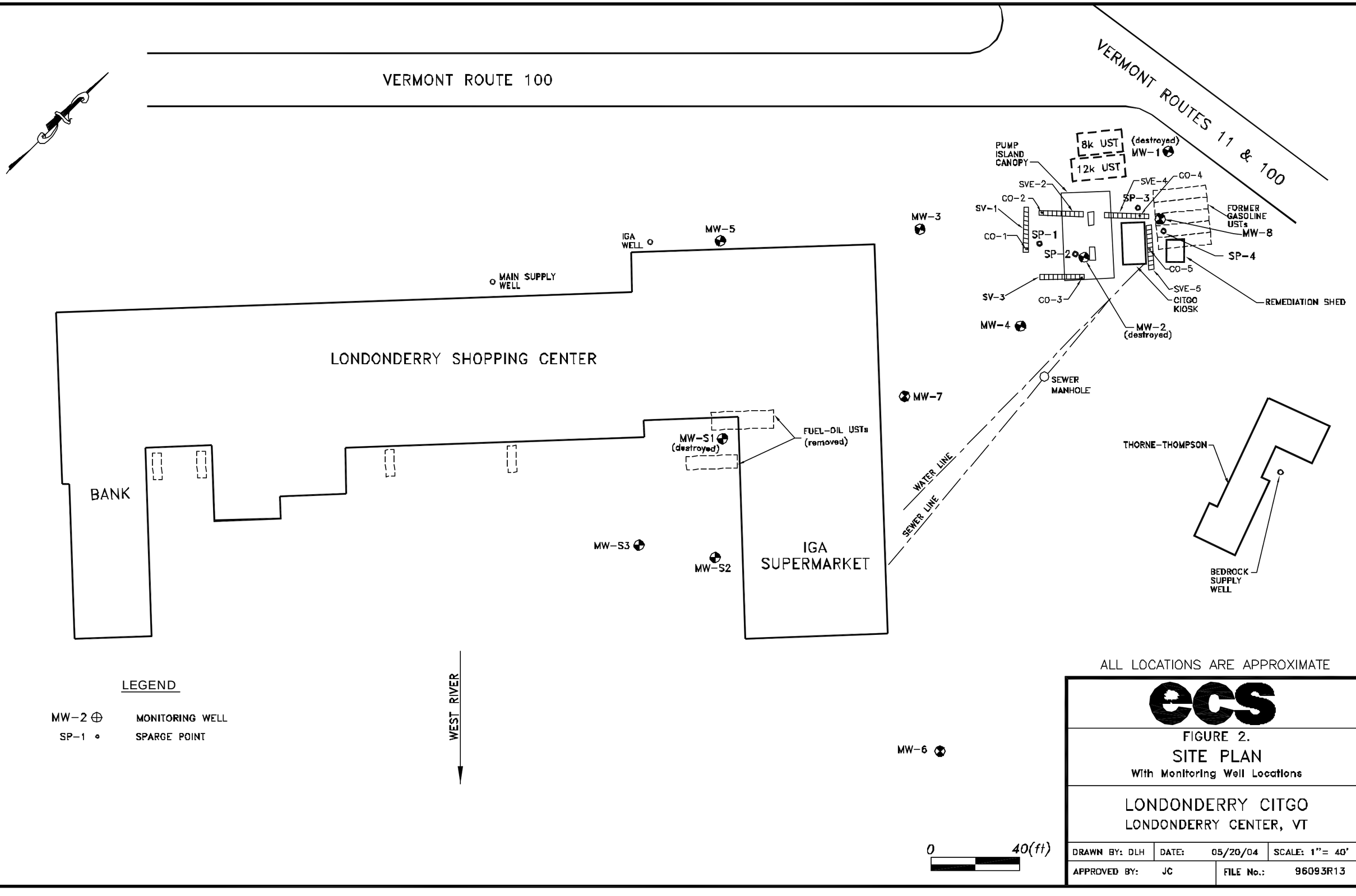
SITE:

Londonderry Citgo
Londonderry, Vermont
Site Lat/Long NAD83: 43.2289, -72.8145

QUADRANGLE LOCATION

N
W E
S

DRAWN BY: DH	6/7/2004	SCALE: 1in = 2000ft
APPROVED BY: JC		FILE: 960093sloc.mxd



ALL LOCATIONS ARE APPROXIMATE

ecs

FIGURE 2.

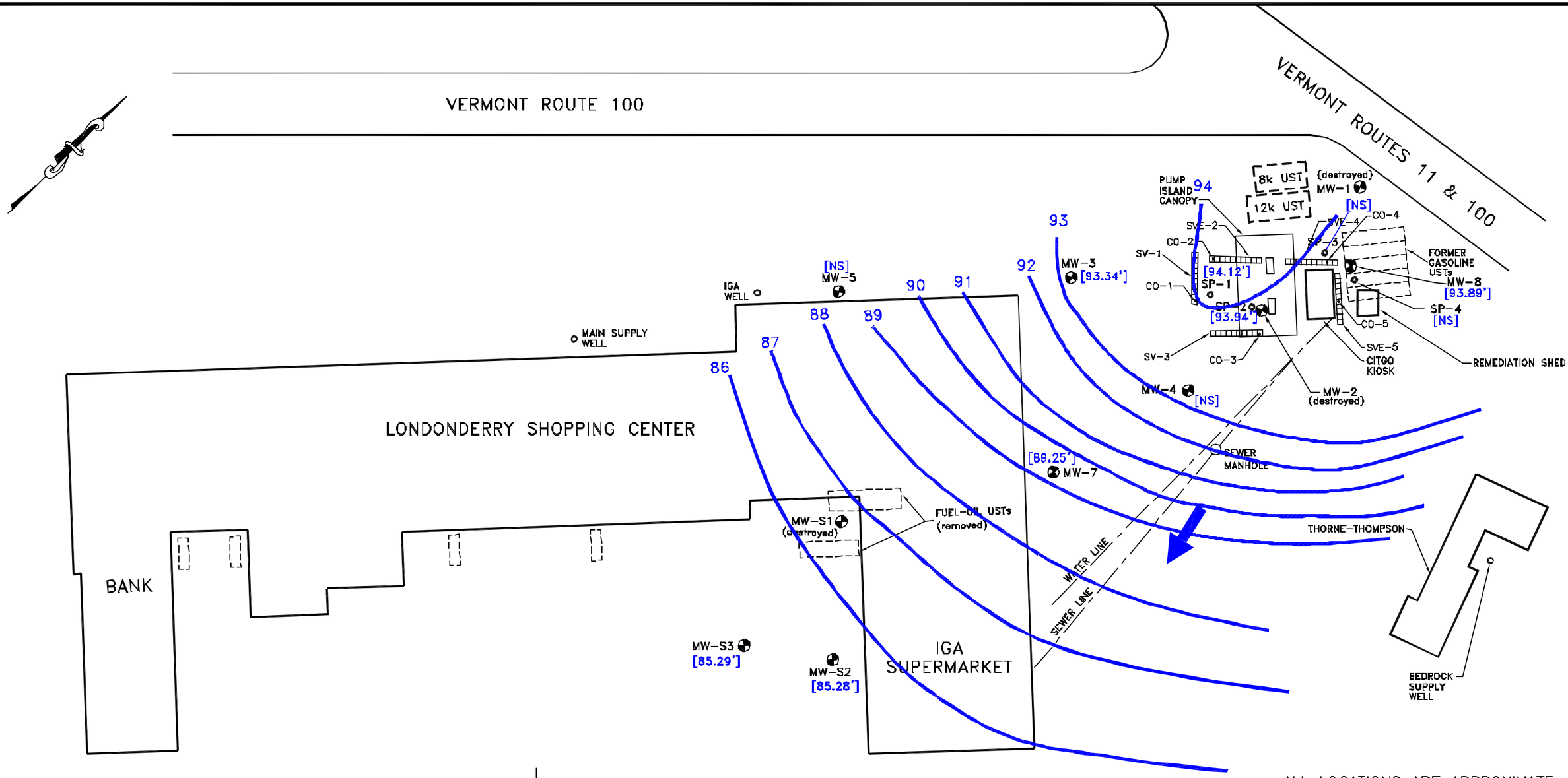
SITE PLAN

With Monitoring Well Locations

LONDONDERRY CITGO

LONDONDERRY CENTER, VT

DRAWN BY: DLH	DATE: 05/20/04	SCALE: 1"= 40'
APPROVED BY: JC	FILE No.: 96093R13	



ALL LOCATIONS ARE APPROXIMATE

LEGEND

MW-2 ⊕	MONITORING WELL
SP-1 ∘	SPARGE POINT
[84.34']	GROUND WATER ELEVATION (FT.)
86.0'	GROUND WATER ELEVATION CONTOUR (FT.)
	INFERRED GROUND WATER FLOW DIRECTION

NOTE: SP-1 THRU SP-4 DATA IS NOT INCLUDED IN DETERMINATION OF GROUND WATER ELEVATION CONTOURS BECAUSE THEY ARE SPARGE WELLS SCREENED BENEATH THE WATER TABLE.

0 40(ft)

ecs

FIGURE 3.
GROUND WATER ELEVATION MAP
Monitoring Date: 16 March 04

LONDONDERRY CITGO
LONDONDERRY CENTER, VT

DRAWN BY: DLH	DATE: 05/20/04	SCALE: 1"= 40'
APPROVED BY: JC	FILE No.:	96093R13

VERMONT ROUTE 100

VERMONT ROUTES 11 & 100

LONDONDERRY SHOPPING CENTER

BANK

IGA SUPERMARKET

MAIN SUPPLY WELL

IGA WELL

MW-5 NS

MW-S1 (destroyed)

FUEL-OIL USTs (removed)

MW-S3 BTEX= ND MTBE= 8.8

MW-S2 BTEX= ND MTBE= 16.5

MW-6 NS

MW-7 BTEX= ND MTBE= 19.4

MW-3 BTEX= ND MTBE= 1.3

MW-1 (destroyed) NS

MW-8 BTEX= 541 MTBE= 178

MW-4 BTEX= 203 MTBE= 125

MW-2 (destroyed) BTEX= 118 MTBE= 258

8k UST

12k UST

PUMP ISLAND CANOPY

SP-1

SP-2

SP-3

SP-4 NS

SV-1

SV-2

SV-3

SVE-2

SVE-4

SVE-5

CO-1

CO-2

CO-3

CO-4

CO-5

FORMER GASOLINE USTs

CITGO KIOSK

REMEDIATION SHED

SEWER MANHOLE

WATER LINE

SEWER LINE

THORNE-THOMPSON

BEDROCK SUPPLY WELL

WEST RIVER

LEGEND

MW-2 ⊕	MONITORING WELL
SP-1 ∘	SPARGE POINT
BTEX= 515.4	BENZENE, TOLUENE, ETHYL BENZENE AND XYLENES
MTBE= 294	METHYL TERTIARY BUTYL ETHER
ND	NONE DETECTED AT INDICATED DETECTION LIMIT
NS	NOT SAMPLED

0 40(ft)

ALL LOCATIONS ARE APPROXIMATE

ecs

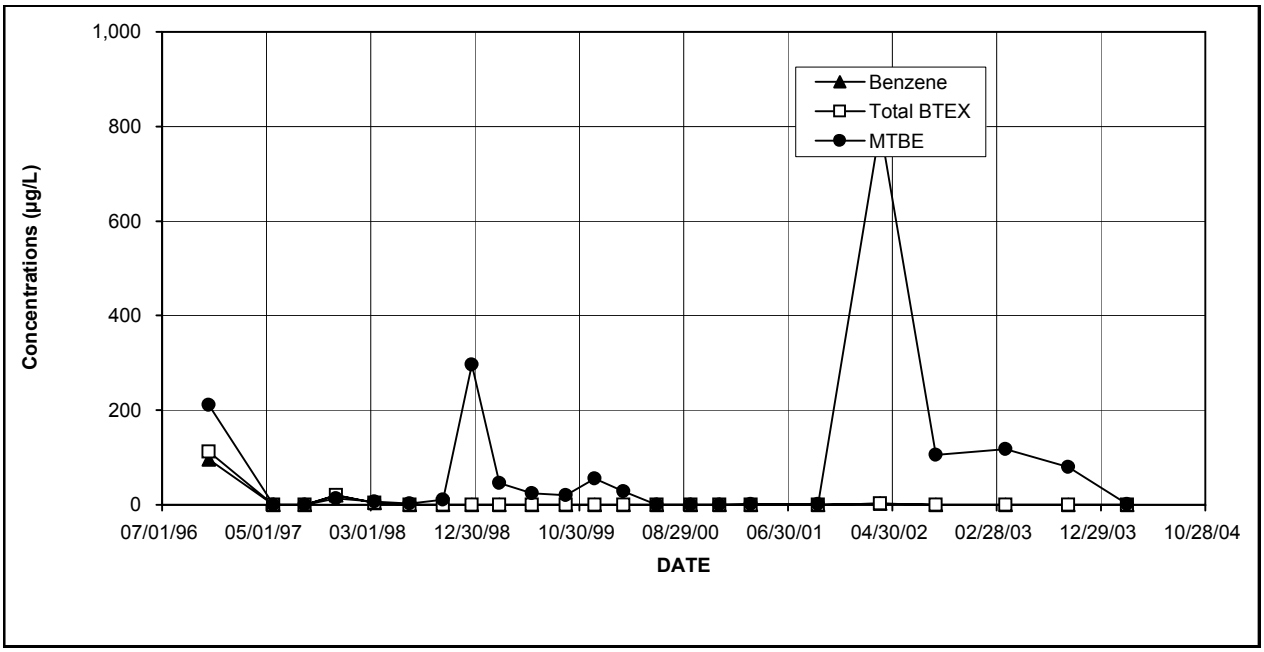
FIGURE 4.
CONTAMINANT DISTRIBUTION MAP
Monitoring Date: 16 March 04

LONDONDERRY CITGO
LONDONDERRY CENTER, VT

DRAWN BY: DLH	DATE: 05/20/04	SCALE: 1"= 40'
APPROVED BY: JC	FILE No.: 96093R13	

FIGURE 5. MW-3
VOC Concentrations

Londonderry Citgo
Londonderry, VT

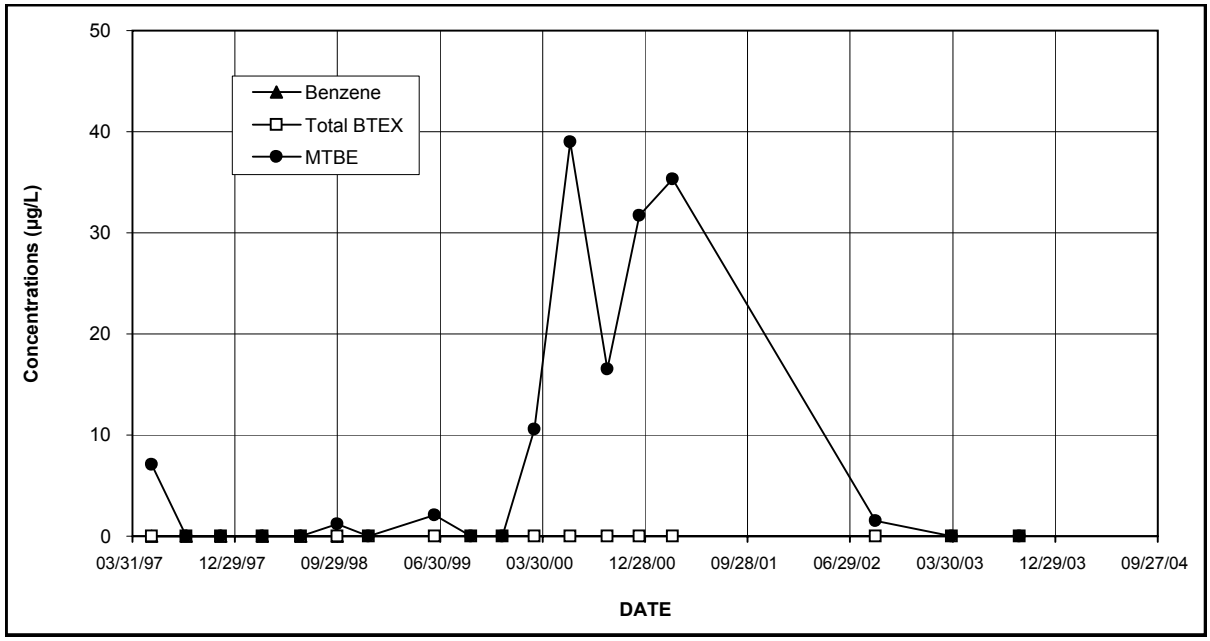


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
03/08/00	ND	**27.9**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
06/12/00	ND	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
09/19/00	ND	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
12/13/00	ND	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
03/13/01	ND	**1.7**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
09/25/01	ND	**1.83**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
03/26/02	**3.2**	**798**	**3.2**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
09/05/02	ND	**106**	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
03/27/03	ND	**118**	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
09/25/03	ND	**80.2**	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
03/16/04	ND	**1.5**	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L)
ND - None detected at indicated detection limit
TBQ- Trace below quantitation limit indicated.
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
TMB - Trimethyl Benzene
Shaded concentrations exceed VGES.

FIGURE 6. MW-6
VOC Concentrations

Londonderry Citgo
Londonderry, VT

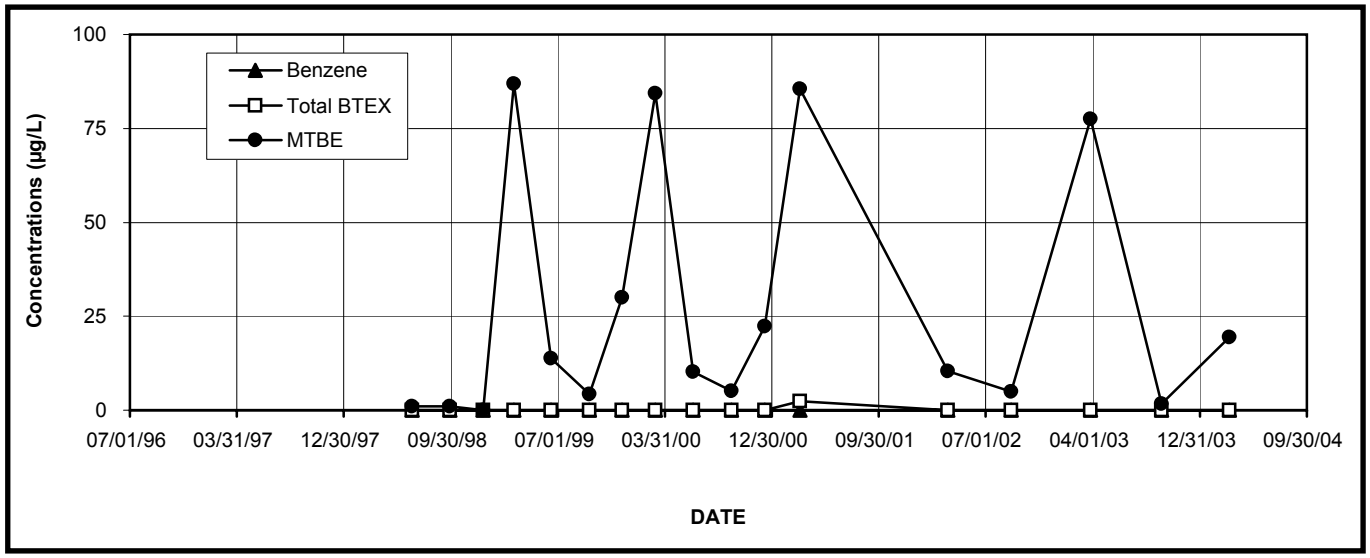


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
03/08/00	ND	**10.6**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
06/12/00	ND	**39.0**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
09/19/00	ND	**16.5**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
12/13/00	ND	**31.7**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
03/13/01	ND	**35.3**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
09/05/02	ND	**1.5**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
03/27/03	NS	NS	NS	NS	NS	NS	NS	NS	NS
09/25/03	ND	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0
03/16/047	NS	NS	NS	NS	NS	NS	NS	NS	NS
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L)
ND - None detected at indicated detection limit.
TBQ - Trace below quantitation limit indicated.
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
TMB - Trimethyl Benzene
* Well installed 14 May 1997
** MW-6 not located.
NS- Unable to locate the well due to excessive snow stock piled from plowing, therefore not sample

FIGURE 7. MW-7
VOC Concentrations

Londonderry Citgo
Londonderry, VT

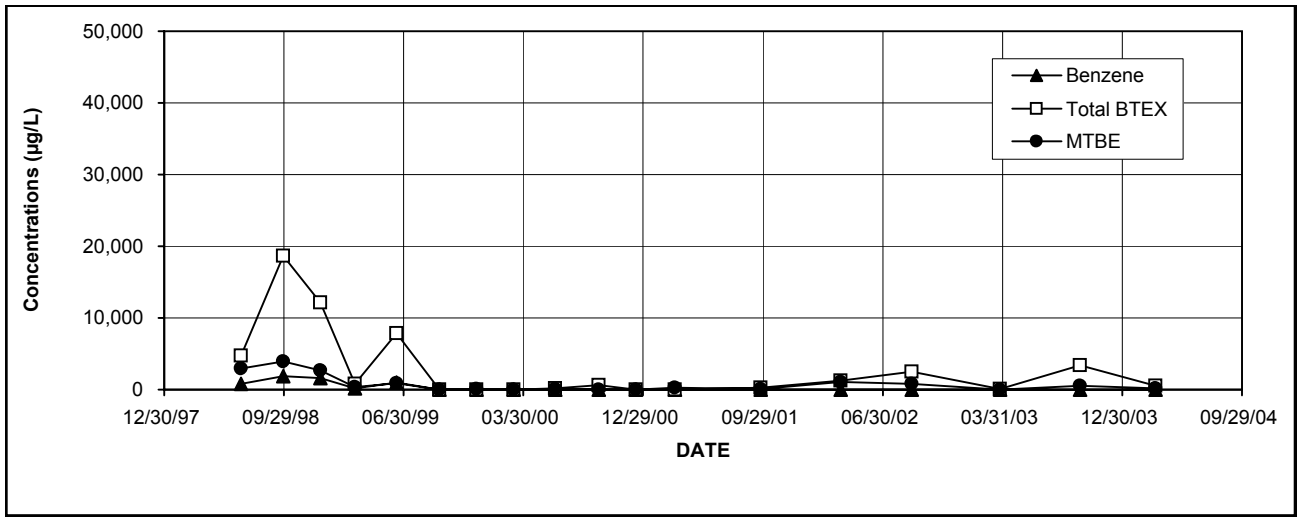


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
03/08/00	ND	**84.3**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND<1.0
06/12/00	ND	**10.2**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND<1.0
09/19/00	ND	**5.1**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND<1.0
12/13/00	ND	**22.3**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND<1.0
03/13/01	**2.4**	**85.5**	ND<1.0	ND<1.0	ND<1.0	**2.4**	ND<1.0	ND<1.0	ND<1.0
03/26/02	ND	**10.4**	ND<1.0	ND<1.0	ND<1.0	ND <1.0	ND<1.0	ND<1.0	ND<1.0
09/05/02	ND	**4.9**	ND<1.0	ND<1.0	ND<1.0	ND <2.0	ND<1.0	ND<1.0	ND<1.0
03/27/03	ND	**77.5**	ND<1.0	ND<1.0	ND<1.0	ND <2.0	ND<1.0	ND<1.0	ND<1.0
09/25/03	ND	**1.72**	ND<1.0	ND<1.0	ND<1.0	ND <2.0	ND<1.0	ND<1.0	ND<1.0
03/16/04	ND	**19.4**	ND<1.0	ND<1.0	ND<1.0	ND <2.0	ND<1.0	ND<1.0	ND<1.0
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L)
ND - None detected at indicated detection limit.
TBQ - Trace below quantitation limit indicated.
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
TMB - Trimethyl Benzene
* Well installed 23 April 1998
**MW-7 not sampled because it was damaged.

FIGURE 8. MW-8
VOC Concentrations

Londonderry Citgo
Londonderry, VT

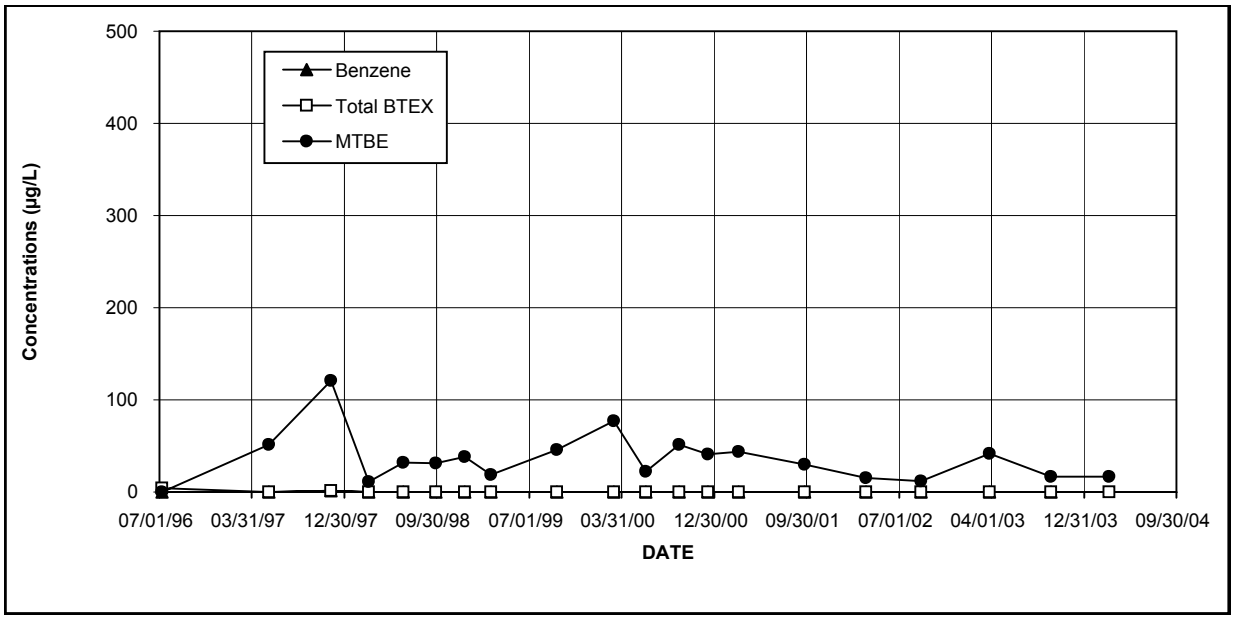


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
03/08/00	ND	**1.2**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
06/12/00	**188.2**	**53.1**	**10.2**	**7.9**	**31.1**	**139**	**37.9**	**46.8**	**10.9**
09/19/00	**625.8**	**24.4**	**10.8**	**117**	**129**	**369**	**31.5**	**103**	**19.0**
12/13/00	ND	**24.7**	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
03/13/01	**44.5**	**264**	**5.9**	ND<2.0	**18.6**	**20.0**	**10.6**	**12.3**	**4.2**
09/25/01	**295.4**	**68.1**	**4.3**	**15.1**	**116**	**160**	**32.5**	**92.1**	**18.8**
03/26/02	**1,294.3**	**1,080**	**11.2**	**35.1**	**178**	**1,070**	**180**	**422**	**146**
09/05/02	**2,514.2**	**814**	**20.2**	**206.0**	**588**	**1,700**	**222**	**696**	**153**
03/27/03	**55.2**	**38.4**	**1.0**	**1.7**	**5.9**	**46.6**	**8.0**	**16.2**	**4.1**
09/25/03	**3,362.0**	**556**	ND<25.0	**116**	**824**	**2,422**	**581**	**1,690**	**376**
03/16/04	**540.5**	**178**	**12.6**	**16.9**	**217**	**294**	**184**	**360**	**77.2**
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L)
ND- None detected at indicated detection limit.
TBQ - Trace below quantitation limit indicated.
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
* Well installed 23 April 1998
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
TMB - Trimethyl Benzene
Shaded concentrations exceed VGES.

FIGURE 9. MW-S2
VOC Concentrations

Londonderry Citgo
Londonderry, VT

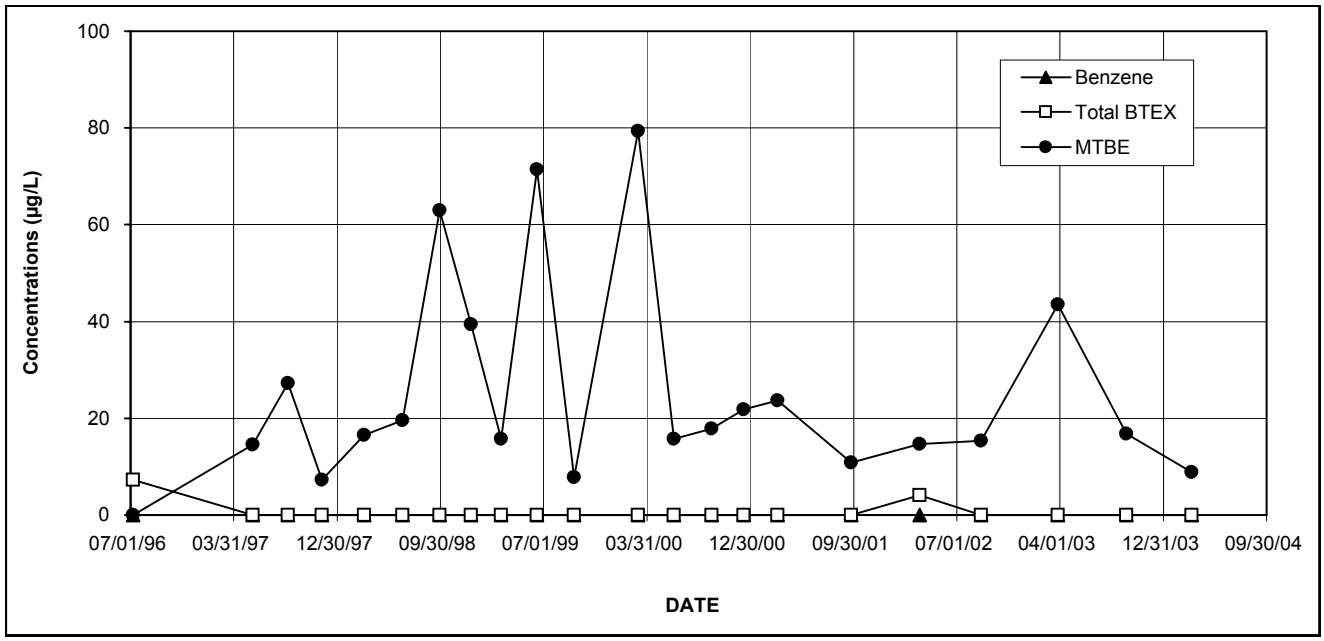


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
03/08/00	ND	**76.8**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
06/12/00	ND	**22.0**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
09/19/00	ND	**51.3**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
12/13/00	ND	**40.7**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
03/13/01	ND	**43.9**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
09/25/01	ND	**29.6**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
03/26/02	ND	**15.6**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
09/05/02	ND	**11.6**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
03/27/03	ND	**41.6**	ND <1.0	ND <1.0	ND <1.0	ND <2.0	ND <1.0	ND <1.0	ND <1.0
09/25/03	ND	**17.0**	ND <1.0	ND <1.0	ND <1.0	ND <2.0	ND <1.0	ND <1.0	ND <1.0
03/16/04	ND	**16.5**	ND <1.0	ND <1.0	ND <1.0	ND <2.0	ND <1.0	ND <1.0	ND <1.0
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L)
ND- None detected at indicated detection limit.
TBQ - Trace below quantitaion limit indicated
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
TMB - Trimethyl Benzene
Shaded concentrations exceed VGES.
Unable to be located during Dec '99 site visit

FIGURE 10. MW-S3
VOC Concentrations

Londonderry Citgo
Londonderry, VT

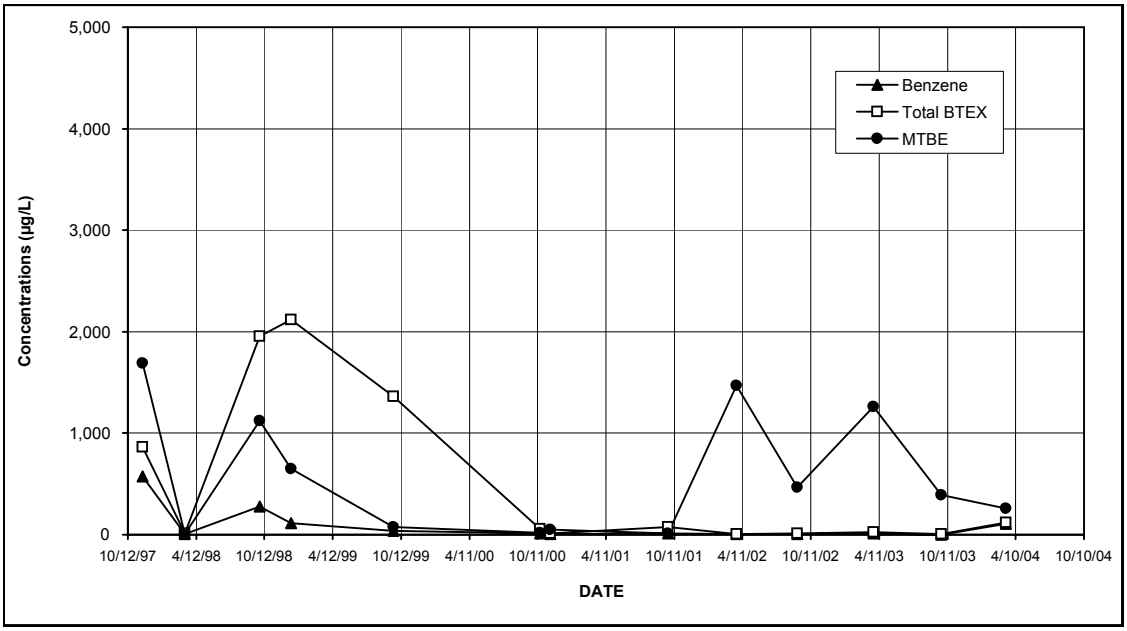


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naphthalene
03/08/00	ND	**79.4**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
06/12/00	ND	**15.7**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
09/19/00	ND	**17.9**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
12/13/00	ND	**21.8**	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0	ND <1.0
03/13/01	ND	**23.7**	ND <1.0	ND <1.0	ND <1.0	ND<1.0	ND<1.0	ND<1.0	ND <1.0
09/25/01	ND	**10.9**	ND <1.0	ND <1.0	ND <1.0	ND<1.0	ND<1.0	ND<1.0	ND <1.0
03/26/02	**4.1**	**14.7**	ND <1.0	ND <1.0	**1.3**	**2.8**	ND<1.0	ND<1.0	ND <1.0
09/05/02	ND	**15.4**	ND <1.0	ND <1.0	ND <1.0	ND<2.0	ND<1.0	ND<1.0	ND <1.0
03/27/03	ND	**43.5**	ND <1.0	ND <1.0	ND <1.0	ND<2.0	ND<1.0	ND<1.0	ND <1.0
09/25/03	ND	**16.8**	ND <1.0	ND <1.0	ND <1.0	ND<2.0	ND<1.0	ND<1.0	ND <1.0
03/16/04	ND	**8.8**	ND <1.0	ND <1.0	ND <1.0	ND<2.0	ND<1.0	ND<1.0	ND <1.0
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L)
ND- None detected at indicated detection limit.
TBQ - Trace below quantitaion limit indicated
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
TMB - Trimethyl Benzene
Shaded concentrations exceed VGES.
Unable to be located during Dec '99 site visit

FIGURE 11. SP-1
VOC Concentrations

Londonderry Citgo
Londonderry, VT

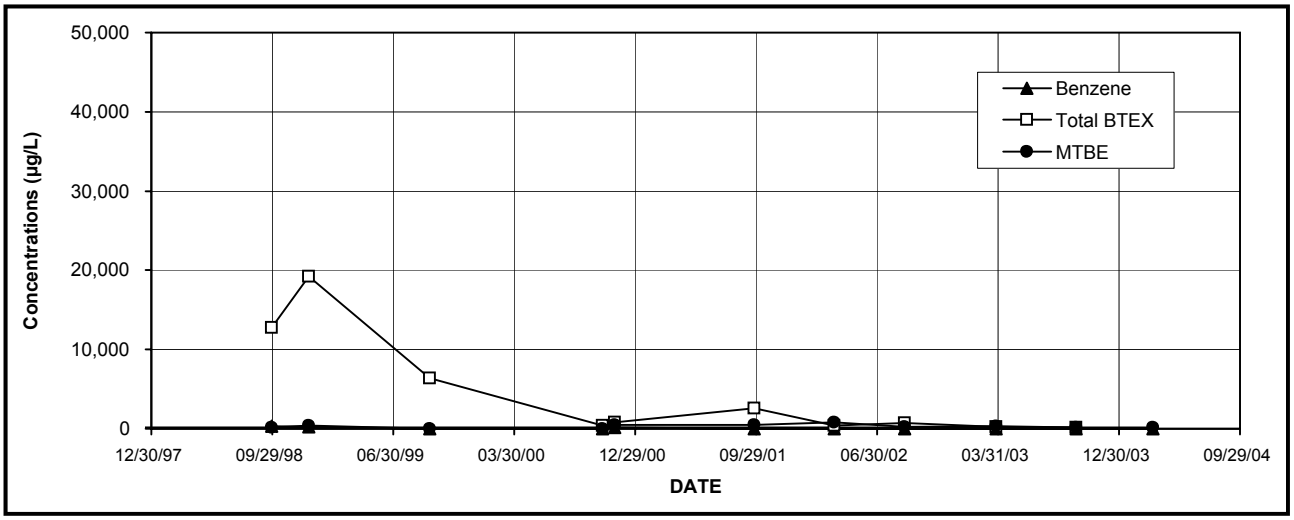


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
11/21/97	**863.9**	**1,690**	**575**	**121**	**93.5**	**74.4**	---	---	---
03/13/98	**11.9**	**4.7**	**6.9**	**1.6**	**3.4**	**TBQ<1**	---	---	---
09/29/98	**1,954**	**1,120**	**278**	**129**	**1,000**	**547**	**227**	**384**	**247**
12/22/98	**2,121**	**651**	**111**	**163**	**966**	**881**	**400**	**1,020**	**155**
09/21/99	**1,361**	**77**	**35.3**	**60.8**	**474**	**791**	**323**	**620**	**58**
10/17/00	**53.8**	**18**	**10.0**	**1.5**	**31.3**	**11.0**	**25.7**	**90.7**	**9.5**
11/14/00	**11.9**	**47.9**	**9.3**	ND<1.0	**2.6**	ND<1.0	**1.3**	**3.7**	**4.5**
09/25/01	**77.8**	**11.8**	**9.6**	**3.1**	**37.1**	**28.0**	**24.3**	**72.2**	**5.2**
03/26/02	**6.2**	**1,470**	**6.2**	ND <2.0	ND <2.0	ND <2.0	ND <2.0	ND <2.0	ND <2.0
09/05/02	**10.3**	**467**	**5.1**	ND <4.0	**5.2**	ND <8.0	ND <4.0	ND <4.0	ND <4.0
03/27/03	**24.0**	**1,260**	**14.0**	**5.2**	**4.8**	ND<8.0	**5.8**	**13.1**	ND<4.0
09/25/03	**6.4**	**392**	ND<5.0	ND<5.0	**6.4**	ND<10.0	ND<5.0	ND<5.0	**7.4**
03/16/04	**118.3**	**258**	**105**	**13.3**	ND <4.0	ND <8.0	ND <4.0	**7.5**	ND <4.0
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L).
ND- None detected at indicated detection limit.
TBQ - Trace below quantitation limit indicated.
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
6/23/98 and 3/9/00 - Not Sampled
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - methyl tertiary butyl ether
TMB - Trimethyl Benzene
All samples collected by Marin and analyzed by Endyne, Inc.
Shaded concentrations denote VGES exceedences

FIGURE 12. SP-2
VOC Concentrations

Londonderry Citgo
Londonderry, VT

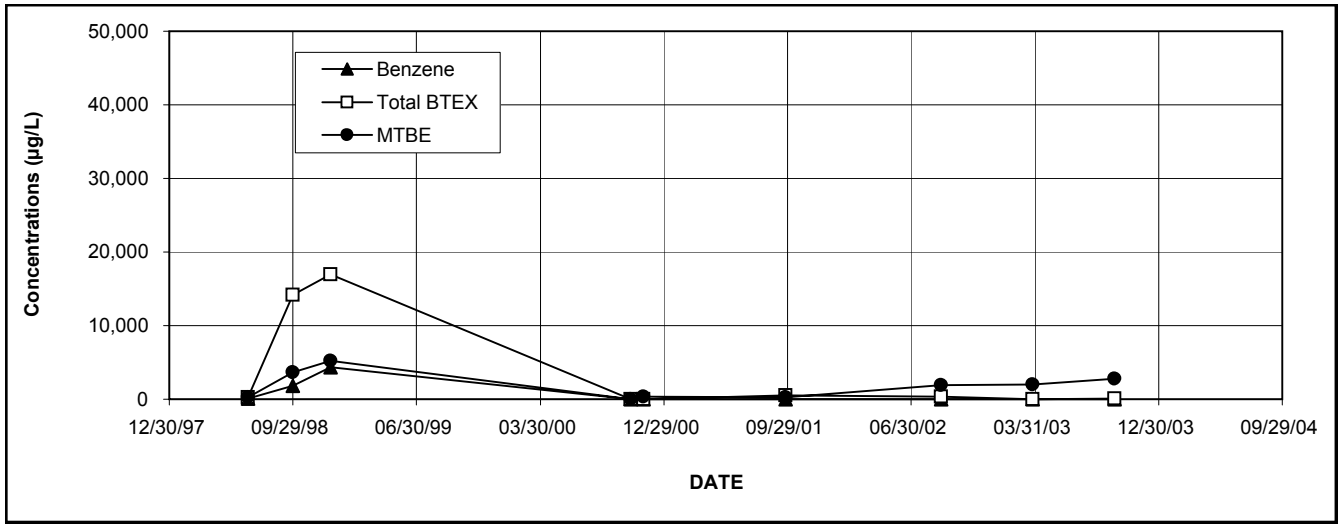


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
09/29/98	**12,751**	**195**	**291**	**1,430**	**4,040**	**6,990**	**958**	**2,840**	**835**
12/22/98	**19,211**	**429**	**271**	**2,430**	**5,810**	**10,700**	**1,120**	**3,520**	**638**
09/21/99	**6,407**	ND<50	ND<50	**367**	**1,980**	**4,060**	**618**	**1,730**	**261**
10/17/00	**409**	**6.7**	**5.0**	**15.7**	**167**	**221**	**85.6**	**244**	**27.8**
11/14/00	**816.3**	**513**	**200**	**54.3**	**402**	**160**	**129**	**555**	**161**
09/25/01	**2580**	**452**	ND<20.0	**130**	**1,050**	**1,400**	**365**	**1,060**	**126**
03/26/02	**399.4**	**789**	**12.3**	**17.1**	**238**	**132**	**96.4**	**174**	**48.2**
09/01/02	**725**	**225**	**13.8**	**41.2**	**347**	**323**	**103**	**387**	**72.7**
03/27/03	**260.8**	**305**	**16.2**	**66.2**	**50.4**	**128**	**23.6**	**68.8**	**12.6**
09/25/03	**140.95**	**149**	ND<2.5	**3.45**	**92.2**	**45.3**	**23.2**	**137**	**20.4**
03/16/04	**202.7**	**125**	ND<5.0	**10.2**	**104**	**88.5**	**25.1**	**200**	**30.2**
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter(µg/L)
ND- None detected at indicated detection limit.
TBQ - Trace below quantitation limit indicated.
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
* Well installed 23 April 1998
TMB - Trimethyl Benzene
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
Shaded concentrations exceed VGES.
All samples collected by Marin and analyzed by Endyne, Inc.
03/13/01 - not sampled

FIGURE 13. SP-3
VOC Concentrations

Londonderry Citgo
Londonderry, VT

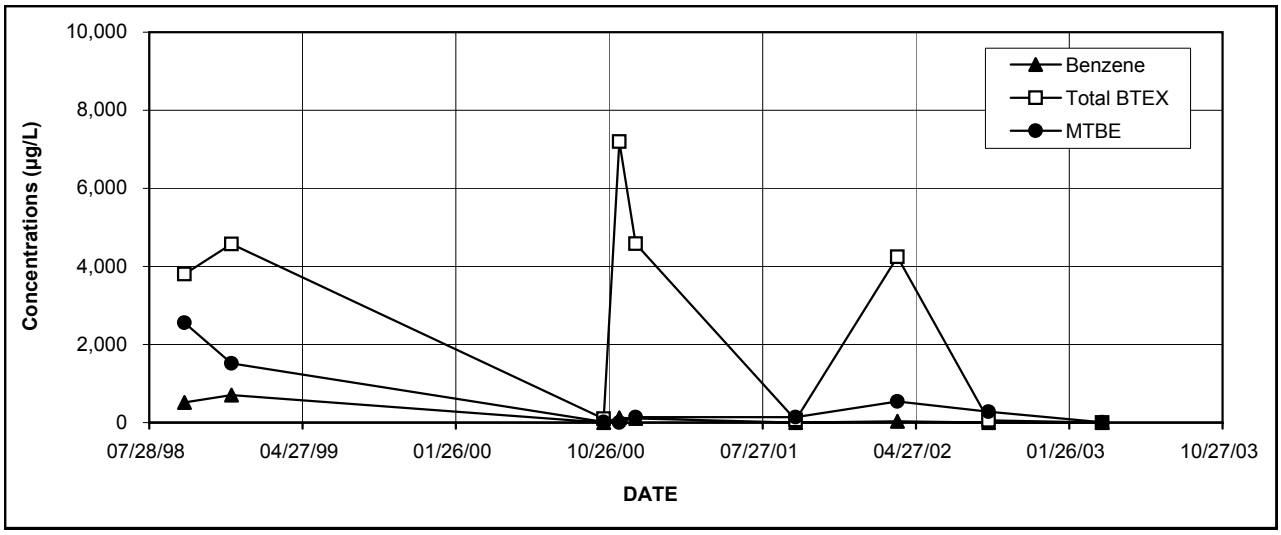


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
06/23/98	**291.7**	**256**	**80.9**	**13.0**	**80.8**	**117**	**---**	**---**	**---**
09/29/98	**14,150**	**3,690**	**1,840**	**4,980**	**1,430**	**5,900**	**634**	**1,620**	**345**
12/22/98	**16,920**	**5,200**	**4,360**	**4,980**	**1,620**	**5,960**	**634**	**1,750**	**343**
10/17/00	**29.5**	**6**	**<1.0**	**<1.0**	**10.2**	**19.3**	**7.5**	**25.5**	**3.9**
11/14/00	ND	**338**	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	**13.7**	ND<5.0
09/25/01	**515.4**	**294**	**8.0**	**37.4**	**177**	**293**	**121**	**112**	**75.1**
09/05/02	**355.4**	**1,920**	**27.3**	**10.1**	**119**	**199**	**165**	**142**	**36**
03/27/03	**19.4**	**1,970**	**19.4**	ND<10.0	ND<10.0	ND<20.0	ND<10.0	ND<10.0	ND<10.0
09/25/03	**51.5**	**2,750**	ND<25.0	ND<25.0	ND<25.0	**51.5**	**45**	**136**	ND<25.0
03/01/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L).
ND- None detected at indicated detection limit.
TBQ - Trace below quantitation limit indicated.
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
* Well installed 23 April 1998
TMB - Trimethyl Benzene
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
Shaded concentrations exceed VGES.
All samples collected by Marin and analyzed by Endyne, Inc.
3/9/00 and 3/13/01 - Not sampled

FIGURE 14. SP-4
VOC Concentrations

Londonderry Citgo
Londonderry, VT

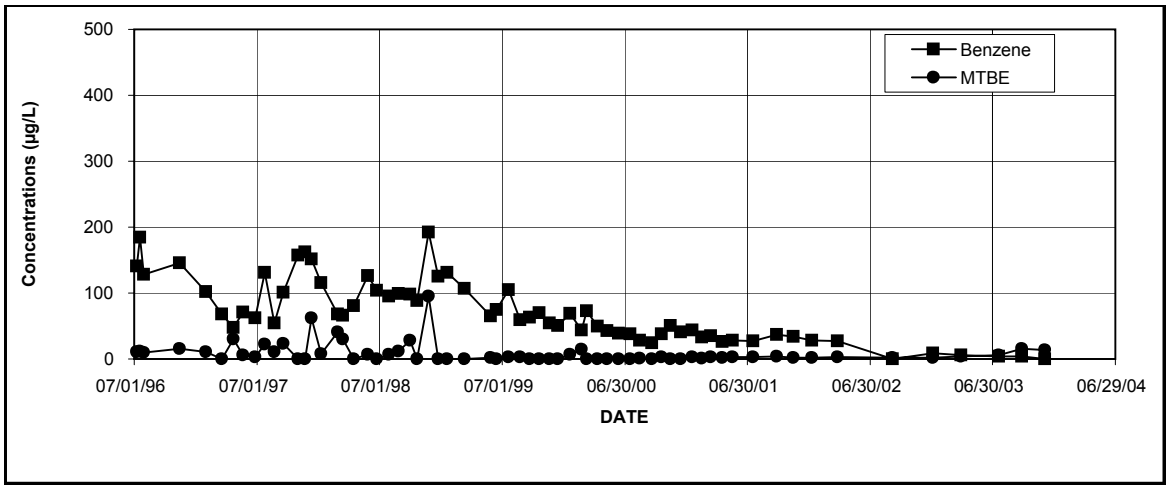


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5 TMB	1,2,4 TMB	Naph-thalene
09/29/98	**3,800**	**2,560**	**515**	**TBQ <50**	**945**	**2,340**	**1,180**	**2,940**	**734**
12/22/98	**4,570**	**1,520**	**706**	**774.0**	**1,130**	**1,960**	**966**	**2,040**	**357**
10/17/00	**95**	**13.7**	**2.3**	**7.4**	**32.9**	**52.4**	**18.3**	**38.1**	**13.7**
11/14/00	**7,193**	ND<40.0	**127**	**386**	**1,480**	**5,200**	**823**	**2,550**	**490**
12/13/00	**4,583**	**137**	**109**	**394**	**1,220**	**2,860**	**551**	**1,470**	**366**
09/25/01	**66.3**	**143**	**4.0**	ND<2.0	**49.4**	**12.9**	**31.3**	**9.2**	**39.8**
03/26/02	**4,244.8**	**544**	**29.8**	**290**	**845**	**3,080**	**524**	**1,330**	**348**
09/05/02	**53.7**	**275**	**3.7**	ND<2.0	**40.0**	**10.0**	**18.1**	**22.2**	**18.0**
03/27/03	**3.6**	**12.0**	ND<1.0	ND<1.0	**3.6**	ND<2.0	**1.4**	**1.5**	**1.9**
09/25/03	NS	NS	NS	NS	NS	NS	NS	NS	NS
03/16/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
VGES	**---**	**40**	**5**	**1,000**	**700**	**10,000**	**4**	**5**	**20**

Notes: Results given in micrograms per liter (µg/L).
ND- None detected at indicated detection limit.
TBQ - Trace below quantitation limit indicated.
All samples collected by Marin and analyzed by Endyne, Inc.
VGES - Vermont Groundwater Enforcement Standards
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
TMB - Trimethyl Benzene
Shaded concentrations exceed VGES.
3/09/00 and 3/13/01 - Not Sampled
9/25/03 - Not samped, well was dry.

FIGURE 15. LONDONDERRY SHOPPING CENTER
MAIN SUPPLY WELL
Influent VOC Concentrations

Londonderry Citgo
Londonderry, Vermont

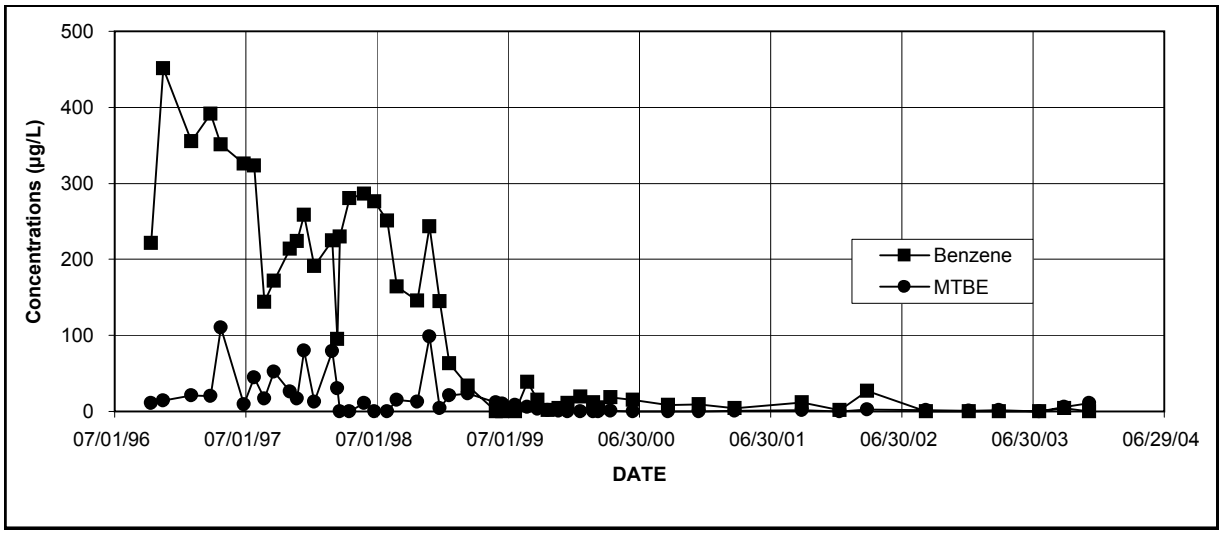


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,2,4-TMB	1,3,5 TMB	Naphthalene
09/19/00	**23.8**	ND<1	**23.8**	ND<1	ND<1	ND<1	ND <1	ND<1	ND<1
10/17/00	**38.0**	**2.8**	**38.0**	ND<1	ND<1	ND<1	**1.7**	ND<1	ND<1
11/14/00	**50.2**	ND<1	**50.2**	ND<1	ND<1	ND<1	**3.5**	ND<1	ND<1
12/13/00	**40.6**	ND<1	**40.6**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
01/17/01	**43.9**	**3.3**	**43.9**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
02/14/01	**33.2**	**1.4**	**33.2**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
03/13/01	**34.9**	**2.9**	**34.9**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
04/17/01	**26.3**	**2.0**	**26.3**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
05/17/01	**29.6**	**2.5**	**28.2**	ND<1	ND<1	**1.4**	ND<1	ND<1	ND<1
07/17/01	**27.2**	**2.7**	**27.2**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
09/25/01	**36.9**	**3.6**	**36.9**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
11/14/01	**33.5**	**2.2**	**33.5**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
01/08/02	**28.1**	**2.3**	**28.1**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
03/26/02	**27.0**	**2.8**	**27.0**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
09/05/02	**ND**	**2.1**	ND<1	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
01/03/03	**8.4**	**1.9**	**8.4**	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
03/27/03	**6.2**	**3.6**	**6.2**	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
07/18/03	**3.7**	**5.6**	**3.7**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
09/25/03	**4.1**	**15.4**	**4.1**	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
12/03/03	**ND**	**13.2**	ND<1	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
03/16/04	ND	**27.7**	ND<1	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
MCL	**--**	**--**	**5**	**1,000**	**700**	**10,000**	**--**	**--**	**--**
VHA	**--**	**40**	**--**	**--**	**--**	**--**	**5**	**4**	**20**
VAL	**--**	**--**	**1**	**--**	**--**	**--**	**--**	**--**	**--**

Notes:
Results given in micrograms per liter (µg/L)
ND- None detected at indicated detection limi
TBQ - Trace below quantitation limit indicatec
BTEX - Benzene, toluene, ethyl benzene, & xylene
MTBE - Methyl tertiary butyl ethe
TMB - Trimethyl Benzene
MCL-Enforceable U.S. EPA Maximum Contaminant Levels for chemicals of concern in drinking water
VHA-Vermont Health Advisories- guidelines for chemicals in drinking water that do not have MCL
VAL-Vermont Action Levels for eight chemicals of specific health concern in public water systems, established b
the Vermont Dept. of Health.

FIGURE 16.
THORNE-THOMPSON SUPPLY WELL
Influent VOC Concentrations

Londonderry Citgo
Londonderry, Vermont

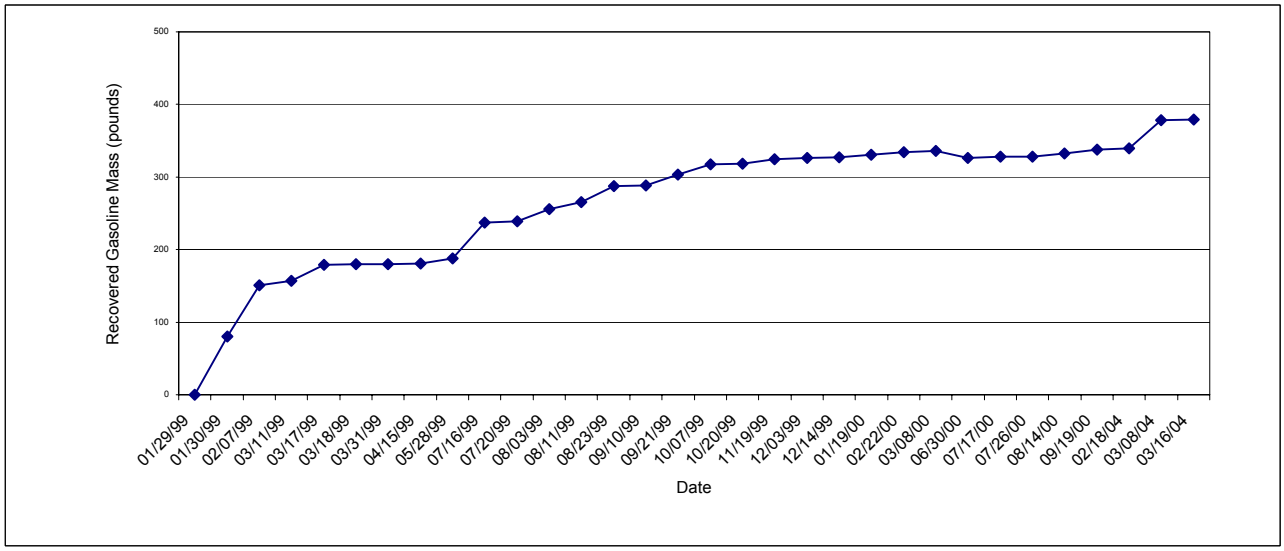


Date	Total BTEX	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes	1,2,4-TMB	1,2,4-TMB	Naphthalene
09/19/00	**8.7**	ND<1	**8.7**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
12/13/00	**9.0**	ND<1	**9.0**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
03/22/01	**4.6**	**1.0**	**4.6**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
09/25/01	**12.0**	**1.38**	**12.0**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
01/08/02	**2.0**	ND<1	**2.0**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
03/26/02	**27.0**	**2.8**	**27.0**	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
09/05/02	ND	**2.0**	ND<1	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
01/03/03	ND	**1.2**	ND<1	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
03/27/03	ND	**1.6**	ND<1	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
07/18/03	NS	NS	NS	NS	NS	NS	NS	NS	NS
09/25/03	**4.1**	**5.5**	**4.1**	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
12/03/03	ND	**10.7**	ND<1	ND<1	ND<1	ND<2	ND<1	ND<1	ND<1
03/16/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
MCL	**--**	**--**	**5**	**1,000**	**700**	**10,000**	**--**	**--**	**--**
VHA	**--**	**40**	**--**	**--**	**--**	**--**	**5**	**4**	**20**
VAL	**--**	**--**	**1**	**--**	**--**	**--**	**--**	**--**	**--**

Notes:

Results given in micrograms per liter (µg/L).
NS - Not Sampled
ND- None detected at indicated detection limit.
TBQ - Trace below quantitation limit indicated.
BTEX - Benzene, toluene, ethyl benzene, & xylenes
MTBE - Methyl tertiary butyl ether
TMB - Trimethyl Benzene
MCL-Enforceable U.S. EPA Maximum Contaminant Levels for chemicals of concern in drinking water.
VHA-Vermont Health Advisories- guidelines for chemicals in drinking water that do not have MCLs
VAL-Vermont Action Levels for eight chemicals of specific health concern in public water systems, established by the Vermont Dept. of Health.
Shading indicates exceedance of MCL, VHA and/or VAL

Figure 17.
Cumulative Gasoline Mass Recovery by AS/SVE System



Date	PID	Air Flow Rate	Gasoline Recovery Rate	Cumulative Recovered Gasoline Mass
	(ppm)	(scfm)	(lb / day)	(lb)
01/29/99				0
01/30/99	456.0	77	11.473	80
02/07/99	352.0	77	8.856	151
03/11/99	248.0	77	6.240	157
03/17/99	40.0	75	3.576	179
03/18/99	40.0	75	0.980	180
03/31/99	0.2	25	0.002	180
04/15/99	9.0	22	0.035	180
05/28/99	4.9	134	0.177	188
07/16/99	41.1	134	1.007	237
07/20/99	33.3	111	1.208	239
08/03/99	33.3	111	1.208	255
08/11/99	31.9	115	1.204	265
08/23/99	79.4	89	1.855	287
09/10/99	58.8	70	1.345	289
09/21/99	58.8	70	1.345	303
10/07/99	1.3	105	0.859	317
10/20/99	5.4	112	0.119	319
11/19/99	5.8	93	0.188	324
12/03/99	2.5	88	0.123	326
12/14/99	4.2	93	0.099	327
01/19/00	1.6	104	0.093	331
02/22/00	4.4	104	0.102	334
03/08/00	7.1	104	0.136	336
06/30/00	--	--	--	326
07/17/00	1.3	123.2	0.118	328
07/26/00	0.0	109.0	0.108	328
08/14/00	4.5	93.4	0.109	333
09/19/00	1.9	88.0	0.108	338
02/18/04	325.0	16.4	1.736	340
03/08/04	4.6	60.0	2.056	379
03/16/04	5.4	60.0	0.098	380

Notes:
eq. 1.) Recovery Rate = (ppm volume) (1xe-6) (cfm) (1440 min/day) (86 lbs/mole) / (379 cf/moles of gas)
2.) 2/22/00 air flow rate estimated based on 1/19/00 and 3/09/00 data

APPENDIX A

LABORATORY REPORT FORMS

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

ECS Marin
65 Millet Street
Richmond, VT 05477
Attn: Jaymi Cleland

PROJECT: Londonderry Citgo/960093
ORDER ID: 28388
RECEIVE DATE: March 17, 2004
REPORT DATE: April 20, 2004

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

PROJECT: Londonderry Citgo/960093
DATE RECEIVED: March 17, 2004
REPORT DATE: April 20, 2004

ANAL. METHOD: SW 8021B
SAMPLER: BB/RK
ANALYST: 420

Site: MW-7
Ref. Number: 227026
Date Sampled: 3/16/04
Time Sampled: 11:45 AM
Analysis Date: 3/24/04

Parameter	Results ug/L
MTBE	19.4
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	105.%

Site: MW-S2
Ref. Number: 227029
Date Sampled: 3/16/04
Time Sampled: 1:10 PM
Analysis Date: 3/24/04

Parameter	Results ug/L
MTBE	16.5
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	117.%

Site: SP-2
Ref. Number: 227032
Date Sampled: 3/16/04
Time Sampled: 12:15 PM
Analysis Date: 3/24/04

Parameter	Results ug/L
MTBE	125.
Benzene	< 5.0
Toluene	10.2
Ethylbenzene	104.
Xylenes, Total	88.5
1,3,5 Trimethyl Benzene	25.1
1,2,4 Trimethyl Benzene	200.
Naphthalene	30.2
UIP's	> 10.
Surrogate 1	103.%

Site: MW-3
Ref. Number: 227027
Date Sampled: 3/16/04
Time Sampled: 11:50 AM
Analysis Date: 3/24/04

Parameter	Results ug/L
MTBE	1.5
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	107.%

Site: MW-8
Ref. Number: 227030
Date Sampled: 3/16/04
Time Sampled: 12:29 PM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	178.
Benzene	12.6
Toluene	16.9
Ethylbenzene	217.
Xylenes, Total	294.
1,3,5 Trimethyl Benzene	184.
1,2,4 Trimethyl Benzene	360.
Naphthalene	77.2
UIP's	> 10.
Surrogate 1	113.%

Site: Dup
Ref. Number: 227033
Date Sampled: 3/16/04
Time Sampled: 12:30 PM
Analysis Date: 3/24/04

Parameter	Results ug/L
MTBE	178.
Benzene	13.3
Toluene	15.8
Ethylbenzene	203.
Xylenes, Total	265.
1,3,5 Trimethyl Benzene	169.
1,2,4 Trimethyl Benzene	325.
Naphthalene	89.6
UIP's	> 10.
Surrogate 1	103.%

Site: MW-S3
Ref. Number: 227028
Date Sampled: 3/16/04
Time Sampled: 1:20 PM
Analysis Date: 3/24/04

Parameter	Results ug/L
MTBE	8.8
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	106.%

Site: SP-1
Ref. Number: 227031
Date Sampled: 3/16/04
Time Sampled: 11:15 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	258.
Benzene	105.
Toluene	13.3
Ethylbenzene	< 4.0
Xylenes, Total	< 8.0
1,3,5 Trimethyl Benzene	< 4.0
1,2,4 Trimethyl Benzene	7.5
Naphthalene	< 4.0
UIP's	> 10.
Surrogate 1	100.%

Site: Trip
Ref. Number: 227034
Date Sampled: 3/16/04
Time Sampled: 7:00 AM
Analysis Date: 3/24/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	108.%

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

PROJECT: Londonderry Citgo/960093
DATE RECEIVED: March 17, 2004
REPORT DATE: April 20, 2004

ANAL. METHOD: SW 8021B
SAMPLER: BB/RK
ANALYST: 420

Site: Rowley
Ref. Number: 227035
Date Sampled: 3/16/04
Time Sampled: 12:00 PM
Analysis Date: 3/24/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	107.%

Site: Junker
Ref. Number: 227038
Date Sampled: 3/16/04
Time Sampled: 10:55 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	109.%

Site: Platt
Ref. Number: 227041
Date Sampled: 3/16/04
Time Sampled: 9:25 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	112.%

Site: 2nd Cong. Church
Ref. Number: 227036
Date Sampled: 3/16/04
Time Sampled: 10:17 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	108.%

Site: Rogers
Ref. Number: 227039
Date Sampled: 3/16/04
Time Sampled: 11:10 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	22.1
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	112.%

Site: Gordon
Ref. Number: 227042
Date Sampled: 3/16/04
Time Sampled: 11:46 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	107.%

Site: Church Store
Ref. Number: 227037
Date Sampled: 3/16/04
Time Sampled: 10:07 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	108.%

Site: Jelly
Ref. Number: 227040
Date Sampled: 3/16/04
Time Sampled: 9:37 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	111.%

Site: Abbott
Ref. Number: 227043
Date Sampled: 3/16/04
Time Sampled: 9:55 AM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	< 1.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	112.%

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

PROJECT: Londonderry Citgo/960093
DATE RECEIVED: March 17, 2004
REPORT DATE: April 20, 2004

ANAL. METHOD: SW 8021B
SAMPLER: BB/RK
ANALYST: 420

Site: Shopping Center System Eff
Ref. Number: 227044
Date Sampled: 3/16/04
Time Sampled: 12:45 PM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	16.9
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	108.%

Site: Shopping Center System Mid
Ref. Number: 227045
Date Sampled: 3/16/04
Time Sampled: 12:50 PM
Analysis Date: 3/25/04

Parameter	Results ug/L
MTBE	28.9
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 2.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	105.%

ENDYNE, INC.
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CHAIN-OF-CUSTODY-RECORD

Special Reporting Instructions: PDF

1 of 2 58511

Project Name: VTTC-0093-00-04 Londonderry City2

Reporting Address: 73 Millet St. Richmond, VT.

Billing Address: Same.

Endyne Order ID: (Lab Use Only) 08388

1-O
-I
-S

Company: ECS

Contact Name/Phone #: Jaymi Cleland / 8005206065

Sampler Name: BrianBachmann/RandellK.

Phone #: 8005206065

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
	MW-66B.7	GW	X		3/16/04 1145	2	VOA		19	HCl	
	MW-3				1150						
	MW-53				1320						
	MW-52				1310						
	MW-18				1229						
	SP-1				1115						
	SP-2				1215						
	Dup				1230						
	Trip				0700						
	Rowley				1200						

Relinquished by: Brian Bachmann Date/Time 3/16/04 1700

Received by: WP Date/Time 3/16/04 952AM

Received by: J Correia Date/Time 3/17/04 1:50

New York State Project: Yes _____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	19	8021B	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	
31	Metals (As Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Tl, V, Zn										
32	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)					33					
34	Other										

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1 of 2

CHAIN-OF-CUSTODY-RECORD

58512

≡ ENDYNE, INC.
160 James Brown Drive
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(802) 879-4333

Special Reporting Instructions: PDF

Project Name: VT960093-00-04 Londonderry Citgo	Reporting Address: 73 Miller St. Richmond, VT.	Billing Address: ~~SAME~~ SAME
Endyne Order ID: (Lab Use Only) 28388 ' -O -I -S	Company: ECS Contact Name/Phone #: Jaymi Clelan 2 / 8005206065	Sampler Name: Brian Buchman / Randall Reed Phone #: 8005206065

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
	2nd Cong. Chruch.	GW	X		3/16/04 1017	2	VOA		8/9	HCl	
	Chruch Stor				1007						
	Junker				1055						
	Roger's				1110						
	Jelly				0937						
	Platt				0925						
	Gordon				1146						
	Abbott				0955						
	System off shopping Center				1245						
	shoppingcenter System Mid				1250						

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
Brian Buch	3/16/04 1700	CMP	3/16/04	9 52AM	3/17/04 1:02

New York State Project: Yes _____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	(19)	8021B	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	
31	Metals (As Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Tl, V, Zn										
32	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)					33					
34	Other										

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Laboratory Services

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LABORATORY REPORT

ECS Marin
65 Millet Street
Richmond, VT 05477
Attn: Jaymi Cleland

PROJECT: Londonderry Citgo/960093
ORDER ID: 28393
RECEIVE DATE: March 17, 2004
REPORT DATE: April 20, 2004

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: ECS Marin
PROJECT: Londonderry Citgo/960093
REPORT DATE: April 20, 2004

ORDER ID: 28393
DATE RECEIVED: March 17, 2004
SAMPLER: BB/RK
ANALYST: 420

Ref. Number: 227057 | Site: System Effluent | Date Sampled: March 16, 2004 | Time: 2:55 PM

Parameter	Result	Unit	Method	Analysis Date
MTBE	27.7	ug/L	SW 8021B	3/23/04
Benzene	< 1.0	ug/L	SW 8021B	3/23/04
Toluene	< 1.0	ug/L	SW 8021B	3/23/04
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/23/04
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/23/04
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/23/04
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/23/04
Naphthalene	< 1.0	ug/L	SW 8021B	3/23/04
UIP's	0.		SW 8021B	3/23/04
Surrogate 1	81.%	%	SW 8021B	3/23/04

ENDYNE, INC.

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

58794

Special Reporting Instructions:

Project Name: Londonderry	Reporting Address: 73 Mallet St. Richmond, VT	Billing Address: SAME
Endyne Order ID: (Lab Use Only) 28393	L -O / -I / -S	Company: EDS Contact Name/Phone #: Jayson Cleland / 8005206065
		Sampler Name: Brian Bachmann / Randall Kemp Phone #: 8005206065

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
	System eff	GW	X		3/16/04 2:55	2	VOA		19	HCl	

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
Brian Bachmann	3/16/04 1700		3/17/04 952AM		3/17/04 1:00

New York State Project: Yes _____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	19	8021B	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	

31	Metals (As Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Tl, V, Zn	
32	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)	33
34	Other	

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