

OCT 10 1996



October 9, 1996

Mr. Robert Haslam
Vermont Department of
Environmental Conservation
103 South Main Street
Waterbury, Vermont 05676

RE: Investigation of Methyl-tert butyl ether (MTBE) Contamination in the Wisowaty Residence Drinking Water Well, Monkton, Vermont (VDEC Site # 96-1998).

Dear Mr. Haslam:

Lincoln Applied Geology, Inc. (LAG) has completed the investigation of the MTBE contamination that was discovered in the Wisowaty residence bedrock supply well in April/May 1996. As you are aware, we conducted the work with an emphasis on identifying the source of the MTBE contamination and determining if any other water supplies in the area have been impacted. The Wisowaty residence is located on Hardscrabble Road in Monkton. **Figure 1** is a General Location Map showing the Wisowaty residence location in Monkton.

The investigation did not identify any sources of MTBE contamination in the immediate area of the Wisowaty well but did confirm that no other drinking water supplies have been impacted. However, the concentration data collected indirectly suggest that the source of contamination is relatively small and that the impact will probably be short-lived. We have arrived at this conclusion because concentrations of benzene and toluene have fully dissipated and concentrations of MTBE, although still present, have also significantly declined (from 47 ppb to 6 ppb). If the current trend continues, it is expected that the already low concentrations of MTBE will further decline to non-detect levels within several months.

Three main tasks were completed as a part of our investigation. Each of the tasks are described below:

- Task 1** a detailed background investigation was conducted to obtain information regarding the impacted bedrock well and potential sources of contamination in the area;
- Task 2** samples were collected from water supplies in the area of the impacted well that were deemed at risk of contamination to evaluate if the contamination was widespread;

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Task 3 sampling of the Wisowaty point of entry treatment (POET) system was initiated to track influent levels of MTBE and to aide with routine system operation; and

Task 4 this letter report completes the fourth task that was described in our June 12, 1996 work plan and cost estimate that was approved by you on June 14, 1996.

We sampled 12 additional water supplies in the area because they were deemed potentially at risk. We also initially sampled the POET system on a more frequent basis than was originally estimated to see if the contamination dissipated quickly. This additional work was also verbally approved by you.

Background Information

In April/May 1996, James and Susan Wisowaty noticed a gasoline odor in their water system. They notified the Vermont Water Treatment Company and the Vermont Department of Environmental Conservation (VDEC) about the odor in the water. A VDEC representative conducted a site visit and collected a sample on May 28, 1996. The collected sample was analyzed for VOCs by EPA method 8020 modified to include MTBE. Chemical analyses of the sample indicated that low concentrations of the compounds benzene, toluene, and MTBE were present (benzene- 2 ppb, toluene-1 ppb, and MTBE- 39 ppb). A second sample was collected on June 6, 1996, again by a VDEC representative, which confirmed only the presence of MTBE (47 ppb). The Vermont Health Advisory Guideline concentration for MTBE in drinking water is 40 ppb. Therefore, a POET system was installed on the Wisowaty water system in mid-June 1996 to remove MTBE and any other organic contaminants from the drinking water.

Once the POET was installed, the VDEC requested that LAG submit a work plan and cost estimate to investigate the MTBE contamination and to collect periodic water samples from the POET in order to evaluate its performance and track the concentration of MTBE present in the well.

The following is a description of the investigation that was conducted:



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Environmental Consultants

Revell Drive • Lincoln, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

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State and Town File Reviews

Reviews of State and Town records, interviews conducted with people knowledgeable with the area, and a site visit were performed to locate any potential sources of MTBE contamination. Results of the State and Town file reviews did not reveal any information about potential sources of the contamination, other than one document in the VDEC spill files (spill file #83-082) that described alleged dumping of waste oil at the former kaolin works on Hardscrabble Road (approximately 1 mile from the Wisowaty well). The spill report details that a 20 foot by 20 foot pit was dug in the kaolin works on April 30, 1983 and was filled with about 1,000 gallons of waste oil. The waste oil pit was ignited and used for an exercise that was conducted by the Addison County Fire Fighters Association. The remaining oil in the pit was left for a minimum of 19 days until it was cleaned up and the oil saturated soil was taken to a local landfill. There was no information provided regarding any follow-up investigation that may have been performed.

With the exception of this kaolin works which is over 1 mile uphill of the Wisowaty residence, no other obvious potential sources were noted during the State and Town file review process. LAG believes that many other wells would have also been impacted if the fire pit contamination had reached the ground water table. Therefore, we do not consider this spill a potential source of contamination because it is more than 1 mile from the Wisowaty well and no other wells were impacted. **Figure 2** shows the location to the former Kaolin Works oil pit. **Appendix A** contains copies of the information collected regarding this incident. The Vermont Active Hazardous Wastes Sites List was also consulted, but no active sites in Monkton are close enough to the Wisowaty residence to be considered a potential source.

LAG continued the investigation by conducting a site visit to gather basic information regarding the impacted well and the surrounding area so that any obvious source of the contamination could be identified. Interviews were conducted with people knowledgeable of the site and area. No pertinent information about any potential sources was obtained from the interviews.

During the site visit, seventeen water supplies on the portion of Hardscrabble Road near the Wisowaty residence were deemed potentially threatened because of their close proximity to the contaminated well. Each of these water supplies were sampled on either June 20 and June 27, 1996 to determine if they were impacted with MTBE, except the VanTubergen well which was sampled on July 19, 1996. **Figure 2** shows the locations of each of the surrounding water supplies and their proximity to the



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Wisowaty well. Results of the chemical analysis of these samples shows that none of these water supplies has been impacted with MTBE. **Appendix B** contains copies of the laboratory data and basic information regarding each landowner.

Conceptual Model

The data collected regarding the impacted well and surrounding area were used to develop a conceptual model of the subsurface to help with identifying the route of contamination. During the initial site visit, the Wisowaty water source was visually inspected and found to consist of a 6-inch bedrock well of an unknown depth. Mr. James Wisowaty indicated that he thought the well is 179 feet deep and was drilled, at least, 10 years ago. No well log was found for the Wisowaty well in State of Vermont Water Supply Division (WSD) files, but well log data obtained from surrounding wells indicates that the bedrock surface beneath the immediate area is present at very shallow depths. In fact, bedrock was noted on the surface immediately around the Wisowaty well. This suggests that very little overburden is present at the wellhead and that only a minimum amount of well casing was probably used in the construction of the well (i.e. 10 to 20 feet). Typically, a well casing is installed in a residential well by hammering the casing into a socket 10 feet into competent rock and generally no cement grout seal is used. As a result, it is possible for surface related fluids and/or contamination to directly enter the well around the casing.

The bedrock in the area consists of the Cheshire Quartzite which is Cambrian aged and between 500 and 570 million years old. The Cheshire Quartzite is fracture prone and water supply wells completed in this formation generally develop water from the secondary permeability associated with these features. Wells with higher yields (>10 gpm) generally intercept a network of interconnected fractures that receive recharge from up-slope areas (watershed or recharge areas).

Based on the conceptual model described above, there are two primary routes of transport that may be responsible for the MTBE impact.

- 1) MTBE from a small spill of gasoline near the well traveling vertically down along the well casing and into the well; this may have been facilitated by the lack of a grout seal around the casing and the fact that the well is in close proximity to an area where gasoline is typically used (i.e. lawn, driveway, and Hardscrabble road). The MTBE may have been adsorbed (for sometime) to the soils near the well casing and was mobilized this past spring during high water season.



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- 2) MTBE contamination somewhere in the recharge area of the well (i.e. upgradient of the well and property); this may have migrated downgradient to the well over a longer period of time. In order to reach the well, the MTBE would have had to migrate through the network of interconnected fractures before entering the well. Because there are many other wells upslope of the Wisowaty well that share a common recharge area, it is likely that other water supply wells would have also been impacted if the MTBE migrated a long distance through the fracture network. As presented earlier, no other contamination was detected.

It is therefore likely that the source of MTBE contamination is a small spill in the vicinity of the well that migrated vertically down the well casing or into a shallow bedrock fracture near the well.

POET Sampling

At your request, the POET system was sampled on seven occasions (June 20, July 2, July 10, July 18, August 2, August 21, and September 19, 1996) and analyzed for the presence of VOCs by EPA method 8020 modified to include MTBE. The influent results show that only MTBE was detected in these samples. The highest MTBE concentration was detected in the sample collected on June 6 (the VDEC collected sample which also contained benzene and toluene) and the lowest concentration was detected in the sample collected on September 19, 1996. The interim results show a steadily declining trend. These data are tabulated on **Table 1** and graphically depicted on **Chart 1**. Based on this data trend, it is expected that the concentration may be below the 1 ppb detection limit within several months (6 - 12 months). Copies of the laboratory reports for this POET monitoring are attached as **Appendix C**.

The mid treatment and effluent results have consistently shown that the POET system is operating as designed because no concentrations of MTBE have been detected in any of the samples collected from these points. These data clearly show that there are no gasoline related VOCs in the Wisowaty drinking water after it is treated by the POET system and that the effluent is therefore currently safe for human consumption.



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Mr. Robert Haslam

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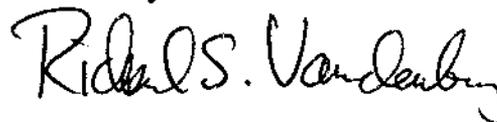
Conclusions and Recommendations

Based on the cumulative data collected during the investigation, we conclude that the Wisowaty well was probably contaminated with MTBE from a small localized source of gasoline that probably entered the Wisowaty well by migrating vertically down and along the well casing. The fact that concentrations of MTBE contamination are currently declining suggests that the impact was relatively small and will continue to decline.

Based on these conclusions, it is recommended that the monthly POET sampling continue until non-detect levels are quantified. After non-detect concentrations are noted, the POET should remain on the water supply until the next high water season (spring 1997) in case concentrations increase. We do not recommend any further investigation to find the source of this contamination unless concentrations dramatically increase.

If you have any questions, or comments with regard to this report please do not hesitate to call me, or Alan Moore, LAG project manager at (802) 453 - 4384.

Sincerely



Richard S. Vandenberg, CPG
Hydrogeologist

RSV/clk

cc: Mr. James Wisowaty



Lincoln Applied Geology, Inc
Environmental Consultants

POET Water Quality Results (ppb)

Data Point	Compound	05/28/96	06/06/96	06/20/96	06/27/96	07/02/96
	Benzene	2	<1	<1	<1	<1
	Toluene	1	<1	<1	<1	<1
	Ethylbenzene	<1	<1	<1	<1	<1
	Xylenes	<1	<1	<1	<1	<1
	MTBE	39.0	47.0	31.0	36.0	30.0
POET Influent	BTEX	<5	<4	<4	<4	<4
	Benzene			<1	<1	<1
	Toluene			<1	<1	<1
	Ethylbenzene			<1	<1	<1
	Xylenes			<1	<1	<1
	MTBE			<1	<1	<1
POET Between	BTEX			<4	<4	<4
	Benzene			<1	<1	<1
	Toluene			<1	<1	<1
	Ethylbenzene			<1	<1	<1
	Xylenes			<1	<1	<1
	MTBE			<1	<1	<1
POET Effluent	BTEX			<4	<4	<4

NOTES:
 The 5/28 and 6/6 results are from tap samples not the POET
 < - Contaminant not detected at specified detection limit

POET Water Quality Results (ppb)

Data Point	Compound	07/10/96	07/18/96	08/02/96	08/21/96	09/19/96
	Benzene	<1	<1	<1	<1	<1
	Toluene	<1	<1	<1	<1	<1
	Ethylbenzene	<1	<1	<1	<1	<1
	Xylenes	<1	<1	<1	<1	<1
	MTBE	26.2	23.4	16.8	11.7	6
POET Influent	BTEX	<4	<4	<4	<4	<4
	Benzene	<1	<1	<1	<1	<1
	Toluene	<1	<1	<1	<1	<1
	Ethylbenzene	<1	<1	<1	<1	<1
	Xylenes	<1	<1	<1	<1	<1
	MTBE	<1	<1	<1	<1	<1
POET Between	BTEX	<4	<4	<4	<4	<4
	Benzene	<1	<1	<1	<1	<1
	Toluene	<1	<1	<1	<1	<1
	Ethylbenzene	<1	<1	<1	<1	<1
	Xylenes	<1	<1	<1	<1	<1
	MTBE	<1	<1	<1	<1	<1
POET Effluent	BTEX	<4	<4	<4	<4	<4

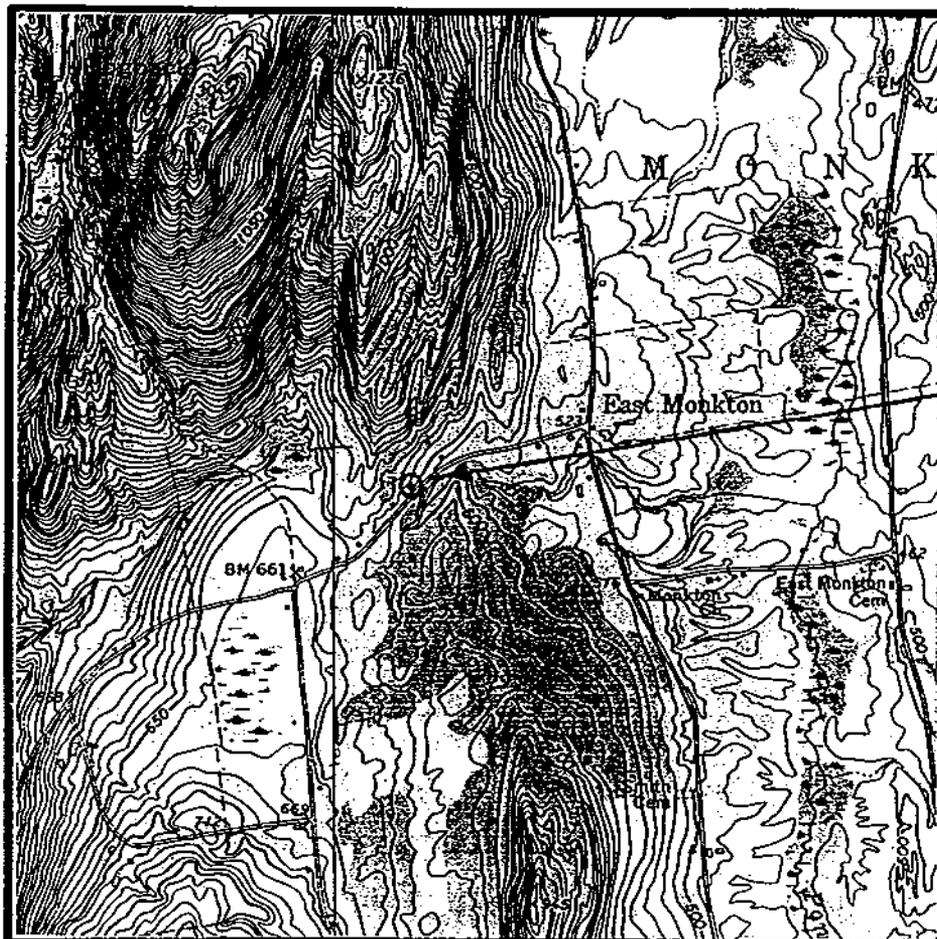
NOTES:
 The 5/28 and 6/6 results are from tap samples not the POET
 < - Contaminant not detected at specified detection limit

Figure 1



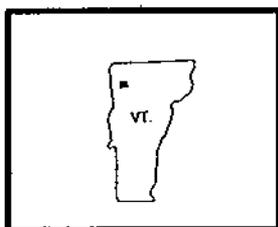
Wisowaty Residence
Monkton, Vermont

GENERAL LOCATION MAP



Source: USGS. 7.5 Min.
Topographic Quadrangles of
Bristol, Vermont

Scale: 1" = 2,000'



Quadrangle Location

Wisowaty Residence
Monkton, Vermont
VDEC Site #96-1998

MTBE Concentrations over Time

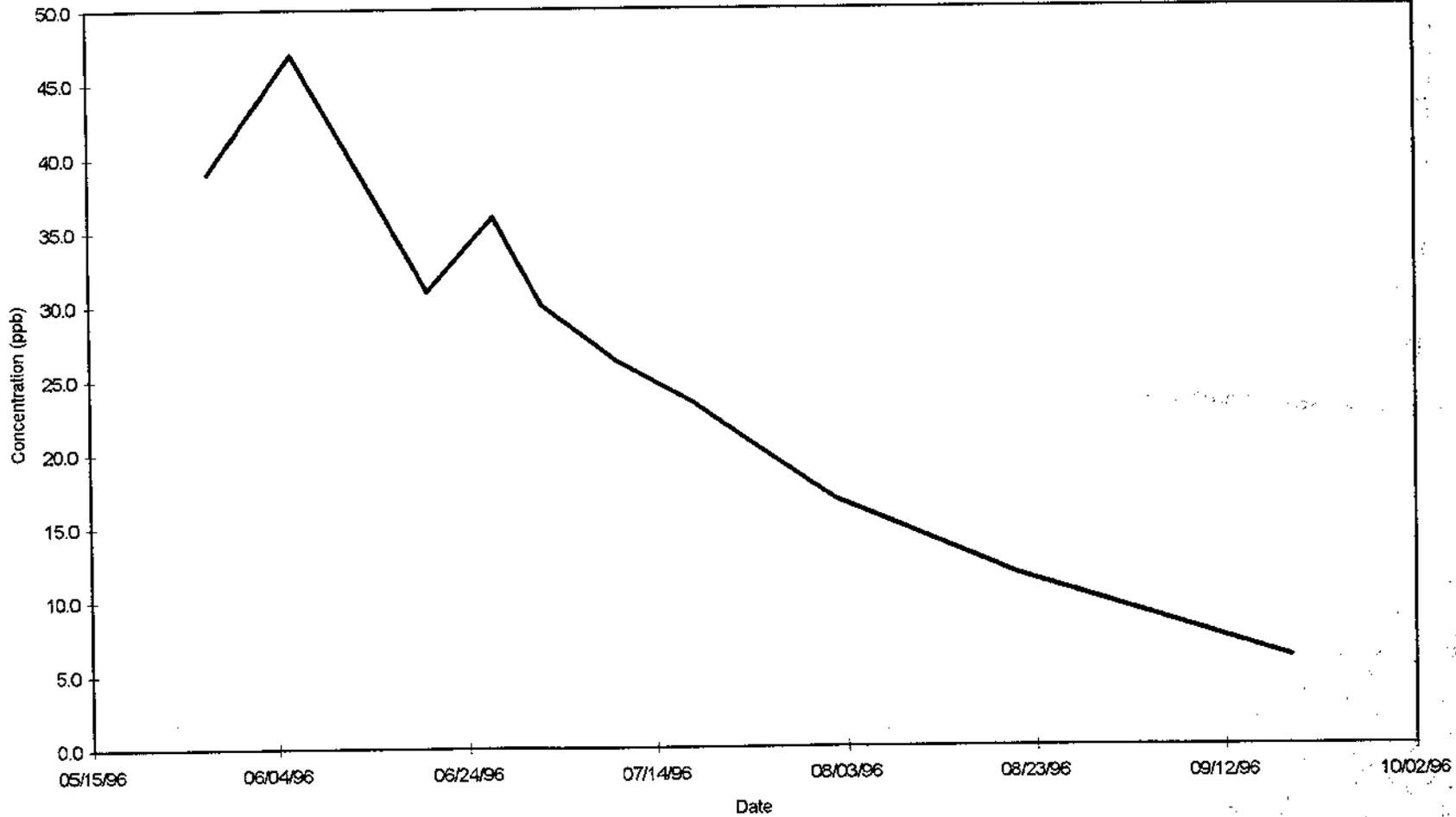


Chart 1

Appendix A

File Review Materials

AGENCY OF
ENVIRONMENTAL
CONSERVATION
MONTPELIERAGENCY MEMORANDUM

SUBJECT

to: John A. Malter

FROM: Gerald DiVincenzo *GD*

Waste Oil Dumping/Monkton, Vermont

DATE: June 22, 1983

On 5/19/83, this office received a call from Carmelita Burrit, the Monkton Town Clerk (435-3800); she had a report from a citizen that there was approximately 500 gallons of waste oil dumped into a 20' X 20' dug pit which was located at the old Kaolin Works on Hardscrabble Road in Monkton. The initial report was that Roland Brace, a local citizen, dug the pit and dumped the oil.

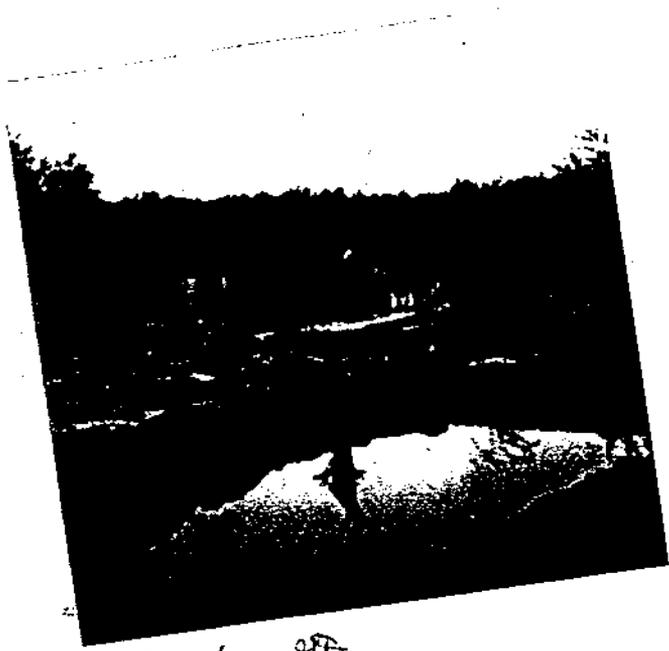
The pit is on property owned by A. Johnson, Co. I went to Monkton, talked to the Town Clerk and received directions to the site. I was unable to contact John Howard, the selectman, who had seen the site. Charles Bergen, a local resident, told me that there was a fire exercise two weeks earlier and showed me the site location. As you can see from the photographs, the site was used for fire training and exercise. Our office files indicated the Addison County Fire Fighters Association conducted a course the weekend of April 30th at Mount Abraham Union High School in Bristol at which time fighting petroleum fires was demonstrated. They had placed in excess of 1000 gallons of waste oil in the pit, conducted their exercise and left the remaining oil.

Later that evening, Alan Clark, Director of the Addison County Fire Fighters Association (453-3108), assured me that the following day that the oil would be removed, the contaminated soil will be taken out to the landfill, and the pit would be covered over. Either the local Water Resources Investigator or I will confirm this has been carried out.

gd/ad

cc: Al Phillip
Richard Jones

enclosures



Mark for 280
5/19/20
Pit with Waste Oil



Mark for 280
5/19/23
Pit with Waste Oil

PULLED FACILITIES

Fac. ID#	Sites ID#	Facility Name	Facility Address	Town	Year Pulled	Tanks Pulled	Code
1111428	890431	Monkton Town Garage	Prison Hollow Road	Monkton	1989	2	C
9990148		Bennett's Garage		Monkton	1986	2	A
9990149		Town of Monkton's Old Garage	Monkton Boro Road	Monkton	1988	1	A
573	890355	Montpelier Dept. of Public Works	3 Prospect Street	Montpelier	1989	6	C
874		Net C.O. (4782-06)	25 School Street	Montpelier	1993	2	A
1419		Vermont Tire and Service, Inc.	90 River Street	Montpelier	1995	1	A
1456	870173	Heney Realtors Building	5 East State Street	Montpelier	1987	2	C
1482	890413	Lauderama	8 Barre Street	Montpelier	1989	2	C
1729		E.T. and H.K. Ides, Inc.	Barre Street	Montpelier	1995	2	A
1808	921333	Interstate Equipment Corporation	280 River Street	Montpelier	1995	2	C
2267		Boutwell Masonic Building Assoc.	156 Main Street	Montpelier	1995	1	A
2301	951747	East Montpelier Garage/Fire Station	Templeton Road	Montpelier	1994/1995	2/2	C
2331		State St Market/Block Building	State Street	Montpelier	1994	1	A
2337	921239	Capitol Plaza Hotel	100 State Street	Montpelier	1994	1	C
2402	941629	Seivright Pharmacy	28 State St	Montpelier	1994	1	C
2232301		S.L. Garand & Co. Inc.	Pioneer Street	Montpelier	1988	1	D
2235562		Residential	45 Foster Street	Montpelier	1995	1	A
9990150		Woodbury College	Elm Street	Montpelier	1988	1	B
9990151		Ashter Properties	147 Main Street	Montpelier	1987	1	B
9990152		Former Woodbury Auto	120 River Street	Montpelier	1988	2	B
9990153		Carr & Son, Inc.	Taylor Street	Montpelier	1991	1	A
9990154	870102	St. Michael's School	Barre Street	Montpelier	1986	2	C
9990156		Johnson Well Drilling	Cumjng Street	Montpelier	1990	2	B
9990157	911010	Right of Way	172 Berlin Street	Montpelier	1991	2	C
9990158	890467	Washco Properties	49 Greenwood Avenue	Montpelier	1989	1	C
9990159	880199	Walker Ford	Route 2	Montpelier	1988	2	C
9990273		Agway Farm and Home Center	Gallison Hill Road	Montpelier	1991	1	A
9990305		City Center	89 Main Street	Montpelier	1992	1	B
9990311		Just Imports	49 Barre Street	Montpelier	1992	1	B
9990313	921266	Secretary of State's Office	26 Terrace Street	Montpelier	1992	1	B
9990396	931411	Former Great American Salvage	3 Main Street	Montpelier	1993	2	C
9990397		Gary Home for the Aged	149 Main Street	Montpelier	1993	2	B
9990447	931478	Commercial Building	12 1/2 Main Street	Montpelier	1993	1	C
9990460		Office & Mercantile Building	27 State Street	Montpelier	1993	1	B
9990465	931541	Bethany Congregational Church	115 Main Street	Montpelier	1993	1	C
9990616		Vermont Hospital Assoc.	Main Street	Montpelier	1994	1	B
9990621	931478	Critics Choice	12 1/2 Main St	Montpelier	1994	1	C

3/25/96

Standard report

Page 1

Code Memo

- A No contamination found (<1 ppm by PID or ND lab results)
- B Contamination found. Below standards (20 ppm gas, 10 ppm diesel/#2)
- C Contamination above standards. Referred to Sites Mgt.
- D No state inspection or site assessment.
- E Tank closed in place.

Cedar Lake



Central Sch.

Borough Cem.

Ridge Cem.

Monkton

BM 638

M O N K T O N

BM 455

Barre

Barre Town

BM 661

Gravel

Yr- #	Date/Time	Town/Location/Waters/Pin#	Responsible Party	Phone/EPA-ID	Date Closed	Code
83-082	5/19/83	MONKTON HARDSCRABBLE RD Description: OIL DUMPING IN PIT Response: FOLLOW UP	ADDISON COUNTY FIRE FIGHTERS 500G FIRE TRAINING EXCERSIZE-OIL IS REMOVED			
90-292	12/11/90 1500	MONKTON MONKTON VERGENNES RD Description: DRUMS FOUND Response: ARRANGE FOR PICK UP	UNK WASTE OIL 70G			
91-274	10/18/91 1100	MONKTON Description: PETROLEUM SMELL IN WATER SUPPY Response: SAMPLES TAKEN.	PETROLEUM			
92-038	2/20/92 0900	MONKTON CEDAR LAKE AREA CEDAR LAKE Description: OIL SPILL Response: JACKMAN TO CLEAN UP	JACKMAN FUEL #2 TANK OVERFILL TO DRIVEWAY & LAKE		3/02/92	
94-HMM373	12/23/94 1600	MONKTON HOLLOW RD RESIDENCE Description: OPEN BURNING-TIRES ETC Response: REPORT TAKEN	EEO-12/30/94		12/23/94	R
96-HMM079	3/26/96	MONKTON BARROWS HILL RD, LAVALLEE Description: POSS PETRO CONTAM DRINKING SUPP Response: SAMPLED 3/19 - NON DETECT	PETROLEUM PRODUCT		3/26/96	1
96-HMM154	5/17/96	MONKTON DOYLE FARM, TYLER BRID RD Description: ABOVE GROUND TANK LEAK Response: ADVISED ON CLEAN UP	DOYLE TYLER BRIDGE RD MONKTON VT DIESEL 100G	453-2847	5/17/96	2

Yr- #	Date/Time	Town/Location/Waters/Pin#	Responsible Party	Phone/EPA-ID	Date Closed	Code
96-HMM162	5/27/96	MONKTON HARDSCRABBLE RD Description: ODOR IN DRINKING WATER WELL UNK Response: MARC ROY TO SAMPLE			5/27/96	R

TOTAL OCCURRENCES THIS REPORT 8

Appendix B

Analytical Data and Basic Information
Obtained from Surrounding Water Supplies

Surrounding Well Owners

Mr. Donald Grace Sr. RD#2, Box 2780 Bristol, VT 05443 (802) 453-6044	Shallow Dug Well	Ms. Theresa Payea RD#2, Box 2690 Bristol, VT 05443 (802) 453-2830	Bedrock Well
Mr. Stan Burritt RD#2, Box 2695 Bristol, VT 05443 (802) 453-3464	Bedrock Well	Mr. Karl Gifaldi RD#2, Box 2730 Bristol, VT 05443 (802) 453-5048	Spring
Mr. Stan Bunal RD#2, Box 2685 Bristol, VT 05443 (802) 453-4162	Bedrock Well	Mr. Niles Bora RD#2, Box 2680 Bristol, VT 05443 (802) 453-2715	Bedrock Well
Ms. Rebecca Stepanik RD#2, Box 2565 Bristol, VT 05443 (802) 453-6101	Bedrock Well	Ms. Desiree Garen RD#2, Box 2675 Bristol, VT 05443 (802) 453-3799	Bedrock Well
Mr. Frank Walsh RD#2, Box 2490 Bristol, VT 05443 (802) 453-4708	Shallow Dug Well	Mr. Leo Steady RD#2, Box 2750 Bristol, VT 05443 (802) 453-4432	
Mr. Gerald Pierce RD#2, Box 2740 Bristol, VT 05443 (802) 453-4516	Dug Well	Mr. Fred Perkins P.O. Box 399 Hinesburg, VT 05461 (802) 453-6398	Spring
Mr. Steve Brown RD#2, Box 2700 Bristol, VT 05443 (802) 453-4343	Spring	Mr. Todd Jennings RD#2, Box 2485 Bristol, VT 05443 (802) 453-5951	Bedrock Well
Ms. Tina Jewell RD#2, Box 4640 Bristol, VT 05443 (802) 453-5645	Bedrock Well	Mr. Martin Clark RD#2, Box 2677 Bristol, VT 05443 (802) 453-3781	Bedrock Well
Mr. Jonathan Vantubergen P.O. Box 15 Monkton, VT 05469 (802) 453-3880		Mr. Mark Poulit P.O. Box 65 Monkton, VT 05469 (802) 453-4115	Bedrock Well

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210

Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

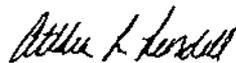
LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	REFERENCE NO.:	0919
ADDRESS:	RD 1 Box 710 Bristol, VT 05443	PROJECT NO.:	NA
SAMPLE LOCATION:	Wisowaty Res.	DATE OF SAMPLE:	06/20/96
SAMPLER:	Rick Vandenberg	DATE OF RECEIPT:	06/21/96
ATTENTION:	Rick Vandenberg	DATE OF ANALYSIS:	06/26-06/28/96
		DATE OF REPORT:	06/28/96

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCl. The trip blank was prepared by the client from reagent water supplied by the laboratory.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:



Althea L. Lindell

Director, Chemical Services

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. # : 0919
STATION: PAYEA RES
ANALYSIS DATE: 06/27/96
DATE SAMPLED: 06/20/96
SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	ND

Surrogate % Recovery: 86.6 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

UNAPPLIED

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. #: 0919
STATION: GRACE RES
ANALYSIS DATE: 06/27/96
DATE SAMPLED: 06/20/96
SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	ND

Surrogate % Recovery: 84.6 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

06/27/96

APPLIED GEOLOGY

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. #: 0919
STATION: GIFALDI RES
ANALYSIS DATE: 06/27/96
DATE SAMPLED: 06/20/96
SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	ND

Surrogate % Recovery: 88.1 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

UNAPPLIED

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. #: 0919
STATION: POULIOT RES
ANALYSIS DATE: 06/27/96
DATE SAMPLED: 06/20/96
SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	ND

Surrogate % Recovery: 96.2 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

3/1

APPENDIX

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. #: 0919
STATION: BURRITT RES
ANALYSIS DATE: 06/27/96
DATE SAMPLED: 06/20/96
SAMPLE TYPE: WATER

GREEN MOUNTAIN LABORATORIES

PARAMETER	PQL ($\mu\text{g/L}$)	Conc. ($\mu\text{g/L}$)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	ND

Surrogate % Recovery: 99.9 %

ND = Not Detected

BPQL = Below Practical Quantitation Limits

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210

Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. #: 0919
STATION: TRIP
ANALYSIS DATE: 06/26/96
DATE SAMPLED: 06/20/96
SAMPLE TYPE: WATER

PARAMETER	PQL ($\mu\text{g/L}$)	Conc. ($\mu\text{g/L}$)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	ND

Surrogate % Recovery: 105 %

ND = Not Detected

BPQL = Below Practical Quantitation Limits

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 -- BTEX and MTBE in Water

GJD

Lab Id: 21304 Report To: Bob Haslam
Location: stepanik

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 111% 4-Bromofluorobenzene . 102%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21307 Report To: Bob Haslam
Location: walch

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α, α, α -Trifluorotoluene 112% 4-Bromofluorobenzene . 98%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21302 Report To: Bob Haslam
Location: bunal

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

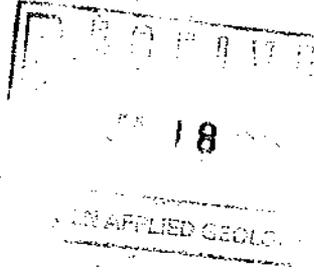
Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 105%

Notes: No second column confirmation used.

JUL 10 2 10 PM '96



Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96.

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21303 Report To: Bob Haslam
Location: bora

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 111% 4-Bromofluorobenzene . 103%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21305 Report To: Bob Haslam
Location: garen

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 104%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21315 Report To: Bob Haslam
Location: Jewell

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/02/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α, α, α -Trifluorotoluene 112% 4-Bromofluorobenzene . 104%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21314 Report To: Bob Haslam
Location: Jennings

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/02/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 111% 4-Bromofluorobenzene . 104%

Notes: No second column confirmation used.

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21313 Report To: Bob Haslam
Location: Perkins

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/02/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 111% 4-Bromofluorobenzene . 105%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21301 Report To: Bob Haslam
Location: brown

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.		1	Y	96
Toluene	1	N.D.		0	Y	99
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 107%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21312 Report To: Bob Haslam
Location: Pierce

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/02/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 105%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21311 Report To: Bob Haslam
Location: Steady

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 113% 4-Bromofluorobenzene . 105%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21316 Report To: Bob Haslam
Location: Clark

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/02/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 111% 4-Bromofluorobenzene 103%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/24/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

SRL

Lab Id: 22050 Report To: Jim Holman@LAG
Location: Wisowaty

Phone: 453-4284 Date Collected: 7/19/96
Program: 41 Chain of Custody? No

Notes:

Vantubergen

Date Analyzed: 7/19/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 110% 4-Bromofluorobenzene . 93%

Notes: No second column confirmation used. Duplicates were run.

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21306 Report To: Bob Haslam
Location: trip

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 118% 4-Bromofluorobenzene 104%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

Appendix C

P.O.E.T. Chemical Analyses Data

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	REFERENCE NO.:	0919
ADDRESS:	RD 1 Box 710 Bristol, VT 05443	PROJECT NO.:	NA
SAMPLE LOCATION:	Wisowaty Res.	DATE OF SAMPLE:	06/20/96
SAMPLER:	Rick Vandenberg	DATE OF RECEIPT:	06/21/96
ATTENTION:	Rick Vandenberg	DATE OF ANALYSIS:	06/26-06/28/96
		DATE OF REPORT:	06/28/96

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCl. The trip blank was prepared by the client from reagent water supplied by the laboratory.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:



Althea L. Lindell
Director, Chemical Services

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. #: 0919
STATION: INFLUENT WISOWATY
ANALYSIS DATE: 06/26/96
DATE SAMPLED: 06/20/96
SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	31

Surrogate % Recovery: 86.2 %

ND = Not Detected

BPQL = Below Practical Quantitation Limits

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
 Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. #: 0919
 STATION: MID TREATMENT WISOWATY
 ANALYSIS DATE: 06/26/96
 DATE SAMPLED: 06/20/96
 SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	ND

Surrogate % Recovery: 81.6 %

ND = Not Detected

BPQL = Below Practical Quantitation Limits

GREEN MOUNTAIN LABORATORIES, INC.

RR 3, BOX 5210
Montpelier, Vermont 05602

Phone (802) 223 - 1468

Fax (802) 223 - 8688

LABORATORY RESULTS

GC/MS METHOD - EPA 8020

GML REF. #: 0919
STATION: EFFLUENT WISOWATY
ANALYSIS DATE: 06/26/96
DATE SAMPLED: 06/20/96
SAMPLE TYPE: WATER

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
m+p-Xylene	2	ND
o-Xylene	1	ND
Chlorobenzene	1	ND
m-Dichlorobenzene	1	ND
p-Dichlorobenzene	1	ND
o-Dichlorobenzene	1	ND
MTBE	5	ND

Surrogate % Recovery: 79.8 %

ND = Not Detected
BPQL = Below Practical Quantitation Limits

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21310 Report To: Bob Haslam
Location: P.O.E.T. Inf

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	36				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α, α, α -Trifluorotoluene 113% 4-Bromofluorobenzene . 104%

Notes: No second column confirmation used.

LINCOLN APPLIED GEOLOGY

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21309 Report To: Bob Haslam
Location: P.O.E.T. Mid

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 110% 4-Bromofluorobenzene . 102%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21308 Report To: Bob Haslam
Location: P.O.E.T. Effluent

Phone: 241-3888 Date Collected: 6/27/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/01/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 103%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21558 Report To: Jim Holman@LAG
Location: Wisowaty POET Inf.

Phone: 453-4384 Date Collected: 7/02/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/03/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	30				
Benzene	1	N.D.		2	Y	98
Toluene	1	N.D.		1	Y	99
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 114% 4-Bromofluorobenzene . 106%

Notes: No second column confirmation used.

FIELD GEOLOGY

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21559 Report To: Jim Holman@LAG
Location: Wisowaty POET Between

Phone: 453-4384 Date Collected: 7/02/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/03/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 105%

Notes: No second column confirmation used.

WISCONSIN GEOLOGY

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/10/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21560 Report To: Jim Holman@LAG
Location: Wisowaty POET Eff.

Phone: 453-4384 Date Collected: 7/02/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/03/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 111% 4-Bromofluorobenzene . 103%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/15/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21783 Report To: Lincoln Applied Geol Phone: 453-4384 Date Collected: 7/10/96
Location: P.O.E.T. Influent Program: 41 1998 Chain of Custody? No

Notes: Project Name: Wisowaty

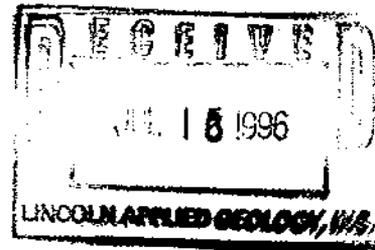
Date Analyzed: 7/11/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	26.2		3		
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 102%

Notes: No second column confirmation used.



Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/15/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21784 Report To: Lincoln Applied Geol Phone: 453-4384 Date Collected: 7/10/96
Location: P.O.E.T. Between Program: 41 1998 Chain of Custody? No

Notes: Project Name: Wisowaty

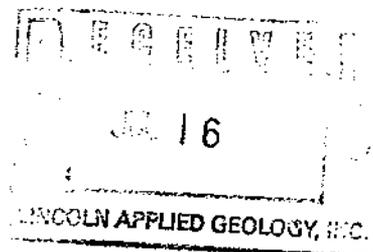
Date Analyzed: 7/11/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 104%

Notes: No second column confirmation used.



Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/15/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 21785 Report To: Lincoln Applied Geol Phone: 453-4384 Date Collected: 7/10/96
Location: P.O.E.T. Effluent Program: 41 1998 Chain of Custody? No

Notes: Project Name: Wisowaty

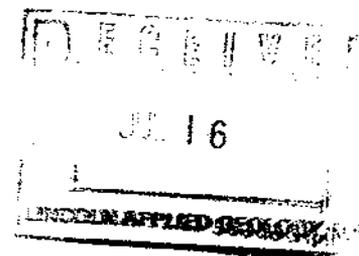
Date Analyzed: 7/11/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 113% 4-Bromofluorobenzene . 96%

Notes: No second column confirmation used.



Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/24/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

SRL

Lab Id: 22037 Report To: Jim Holman @LAG
Location: P.O.E.T between

Phone: 453-4384 Date Collected: 7/18/96
Program: 41 1998 Chain of Custody? No

Notes: JUL 26 1996

Date Analyzed: 7/19/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α-Trifluorotoluene 115% 4-Bromofluorobenzene . 106%

Notes: No second column confirmation used.

10
28
APPLIED SCIENCE

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/24/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

SRL

Lab Id: 22038 Report To: Jim Holman @LAG
Location: P.O.E.T inf

Phone: 453-4384 Date Collected: 7/18/96
Program: 41 1998 Chain of Custody? No

Notes: JUL 26 1996

Date Analyzed: 7/19/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	23.4		3		
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α-Trifluorotoluene 113% 4-Bromofluorobenzene . 108%

Notes: No second column confirmation used.

RECEIVED 08-01-96

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/24/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

SRL

Lab Id: 22050 Report To: Jim Holman@LAG
Location: Wisowaty

Phone: 453-4284 Date Collected: 7/19/96
Program: 41 Chain of Custody? No

Notes:

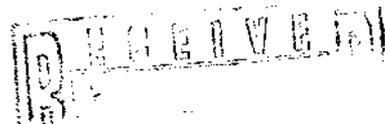
~~JUL 26 1996~~

Date Analyzed: 7/19/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 110% 4-Bromofluorobenzene . 93%



Notes: No second column confirmation used. Duplicates were run.

APPLIED GEOLOGY

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

7/31/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

SRL

Lab Id: 22036 Report To: Jim Holman @LAG
Location: P.O.E.T eff

Phone: 453-4384 Date Collected: 7/18/96
Program: 41 1998 Chain of Custody? No

Notes:

Date Analyzed: 7/19/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.		5	Y	109
Toluene	1	N.D.		5	Y	109
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 114% 4-Bromofluorobenzene . 109%

Notes: No second column confirmation used.

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

8/12/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 22625 Report To: Lincoln Ap. Geol.
Location: Influent Can A

Phone: 453-4384 Date Collected: 8/02/96
Program: 41 1998 Chain of Custody? Yes

Notes: Wisowaty

Date Analyzed: 8/05/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	16.8		5		
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 103%

Notes: No second column confirmation used.

AUG 13 1996

3

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

8/12/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 22626 Report To: Lincoln Ap. Geol. Phone: 453-4384 Date Collected: 8/02/96
Location: Between Program: 41 1998 Chain of Custody? Yes

Notes: Wisowaty

Date Analyzed: 8/05/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dupps ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 111% 4-Bromofluorobenzene . 105%

Notes: No second column confirmation used.

AUG 13 1996

13

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

8/12/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 22627 Report To: Lincoln Ap. Geol.
Location: Total Effluent

Phone: 453-4384 Date Collected: 8/02/96
Program: 41 1998 Chain of Custody? Yes

Notes: Wisowaty

Date Analyzed: 8/05/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α-Trifluorotoluene 114% 4-Bromofluorobenzene . 99%

Notes: No second column confirmation used.

AUG 13 1996

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Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

8/28/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 23296 Report To: RICK VANDENBERG
Location: POET INFLUENT

Phone: 453-4384
Program: 41

Date Collected: 8/21/96
Chain of Custody? Yes

Notes:

Date Analyzed: 8/21/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	11.7		46		
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 96%

Notes: No second column confirmation used.

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APPLIED GEOLOGY, INC.

AUG 28 1996

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

8/28/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 23294 Report To: RICK VANDENBERG
Location: POET EFFLUENT

Phone: 453-4384
Program: 41

Date Collected: 8/21/96
Chain of Custody? Yes

Notes:

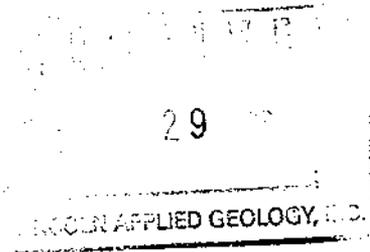
Date Analyzed: 8/21/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α-Trifluorotoluene 112% 4-Bromofluorobenzene . 111%

Notes: No second column confirmation used.



AUG 29 1996

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

8/28/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 23295 Report To: RICK VANDENBERG
Location: POET BETWEEN

Phone: 453-4384
Program: 41

Date Collected: 8/21/96
Chain of Custody? Yes

Notes:

Date Analyzed: 8/21/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α-Trifluorotoluene 111% 4-Bromofluorobenzene . 103%

Notes: No second column confirmation used.

29

APPLIED GEOLOGY

AUG 28 1996

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

10/02/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 24303 Report To: J. Holman @ LAG
Location: Wisowaty Influent

Phone: 453-4384 Date Collected: 9/19/96
Program: 41 1998 Chain of Custody? Yes

Notes:

Date Analyzed: 9/23/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	6				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 114% 4-Bromofluorobenzene . 104%

Notes: No second column confirmation used.

3
COLN APPLIED GEO

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

10/02/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 24302 Report To: J. Holman @ LAG
Location: Wisowaty Between

Phone: 453-4384 Date Collected: 9/19/96
Program: 41 1998 Chain of Custody? Yes

Notes:

Date Analyzed: 9/23/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 110% 4-Bromofluorobenzene . 99%

Notes: No second column confirmation used.

APPLIED GEOTECHNICAL

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve

10/02/96

Department of Environmental Conservation Laboratory
Method 8020 - BTEX and MTBE in Water

GJD

Lab Id: 24301 Report To: J. Holman @ LAG
Location: Wisowaty Effluent

Phone: 453-4384 Date Collected: 9/19/96
Program: 41 1998 Chain of Custody? Yes

Notes:

Date Analyzed: 9/23/96 Over hold? No Dilution: 1

Parameter	Units are ug/l		Remark Code	Rel % Diff.	Spiked Dups ?	Percent Recovery
	PQL	Result				
Methyl-t-butylether	1	N.D.				
Benzene	1	N.D.				
Toluene	1	N.D.				
Ethylbenzene	1	N.D.				
Total Xylenes	1	N.D.				
Total Volatile Hydrocarbons	100	N.D.				

Surrogate Percent Recoveries (S=Surrogate recovery out of range)

α,α,α -Trifluorotoluene 112% 4-Bromofluorobenzene . 103%

Notes: No second column confirmation used.

DLN APPLIED GEOSCIENCE

Remarks: E=Estimated Value J=Value may be in Error O=Value outside Standard Curve