JUN 25 1990

TWM NORTHEAST

Engineers, Scientists, Surveyors & Planners

PROGRESS REPORT
MILLER GULF
ST. ALBANS, VERMONT

June 22, 1990

Prepared By

TWM Northest
2A Williston Park
Williston, Vermont
05495

2A Williston Park
P.O. Box 784
Williston, VT 05495-0784
(802) 879-7733
(802) 879-1742 (Fax)

TWM NORTHEAST

Phillips & Emberley
Wurth Consulting Geologists
Boehm Associates
Jennison Engineering

June 22, 1990

Mr. Richard Spiese
State of Vermont
Agency of Natural Resources
103 South Main Street
Waterbury, VT 05676

Re: Progress Report Miller Gulf
TWM Northeast Project No. G0405.02

Dear Mr. Spiese:

1.0 INTRODUCTION

This progress report has been prepared to update you on the monitoring and remediation activities conducted at the Miller Gulf Site between February 8, 1990 and May 8, 1990. Activities conducted and discussed herein include pumping and treating contaminated groundwater, collecting and analyzing groundwater samples, and various monitoring efforts. Each of these activities are discussed in the following sections.

2.0 SUMMARY OF ACTIVITIES

2.1 Groundwater Treatment

During the period included in this report, a total of five (5) pumping sessions were conducted to treat and discharge groundwater contained in the on-site collection system.

During each session, approximately 230-250 gallons of water was discharged to the St. Albans Municipal Wastewater Treatment Facility in accordance with Discharge Permit No. 7-8907. Prior to discharging all gasoline contaminated water was pumped through a double carbon canister filtration system to achieve allowable discharge levels.

Prior to each pumping event, personnel at the wastewater treatment facility were notified when each discharge would occur, so that a sample could be collected of the treated effluent.

2.2 Sampling Activities

In accordance with the discharge permit noted above, samples were collected for laboratory analysis during each pumping event from the three stages of the filtration system. Water samples collected

from the influent to the system, between the carbon filters; and at the system discharge (effluent), were routinely analyzed by Aquatec, Inc., for benzene, toluene, ethylbenzene, xylene (BTEX), total unsaturated organics and total organics. Additionally, as a Quality Assurance/Quality Control measure, one duplicate sample was collected during each event and submitted to the State of Vermont Department of Health Laboratory for a similar analysis.

The analytical results of the samples collected during this period are summarized on Table 1, and the corresponding laboratory reports are provided in Appendix A.

As indicated in the analytical summary, all discharges to the municipal wastewater treatment facility were conducted within the allowable guidelines, as no compounds were detected in the effluent samples analyzed.

2.3 Monitoring Activities

Monitoring activities normally conducted by TWM include the collection of organic vapor readings from the existing monitoring wells with the use of an organic vapor meter (OVM). Additionally each well is typically inspected for the presence of free product.

During this period, four (4) monitoring events were conducted, however, wells were often inaccessible due to the presence of snowcover, or frozen well caps. The summary of groundwater monitoring results provided on Table 2 is therefore considered inconclusive.

In addition to monitoring groundwater on-site, TWM recently collected OVM readings of the soil stockpile generated by the site excavation activities in July, 1989. This stockpile which consists of approximately 90 cubic yards currently awaits disposal at the St. Dennis pit on Lee River Road in Jericho, where is had been landfarmed since it was excavated.

This OVM survey revealed no detectable levels of relative hydrocarbons, thus indicating it to be free from contamination.

3.0 RECOMMENDATIONS

Due to the continued efforts and associated costs to remediate groundwater underlying this site, TWM recommends the installation of a permanent (continuous) groundwater remediation system.

This system will be designed to operate unattended, thus it will lower labor to bi-weekly inspection and sampling tasks, and periodical canister exchanges. Furthermore, favorable remediation results are expected.

TWM NORTHEAST

TWM proposes to develop a remediation system which consists of a level activated groundwater depression pump and two carbon canisters connected in series, which will intermittently discharge the treated groundwater to the municipal storm drain located on Main Street.

In order to house and protect the proposed system, a temporary building will be constructed over the collection basin (TWM-1) located on the city Right-of-Way. Temporary electrical service will be provided to the building via an adjacent Central Vermont Public Service (CVPS) utility pole. All necessary electrical connections and wiring will be conducted by a licensed electrical contractor.

Monitoring, sampling and maintaining the remediation system will be conducted by TWM personnel on a bi-weekly basis. Samples will be collected twice each month from the influent, mid-canister, and effluent sampling ports. The results from the sampling will determine when breakthrough occurs through the first canister and if the effluent to the storm drain meets the criteria of the discharge permit.

Upon breakthrough of the first canister, TWM will dispose of the canister as a regulated waste. The second canister will be moved into the first canister position; and a new canister will be installed in the second canister's position.

TWM proposes to conduct semi-annual groundwater sampling events to assess the migration of contaminants. Samples will be collected and analyzed for BTEX and MBTE from six (6) pre-existing monitoring wells.

The estimated costs associated with the installation and monitoring/maintenance of the system and the site is provided in Table 3. The average monthly cost of the present system is $2,500 per month. As can be seen by Table 3, the proposed continuing system reduces labor intensity thus reducing the average monthly operating cost to $1,667 per month.

TWM additionally recommends that the referenced stockpiled soils are removed from the current location for appropriate disposal. If requested TWM will provide a cost estimate to load and transport these soils to a site designated by the VTANR.

If you have any questions regarding this project, please contact this office.

Sincerely,

TWM NORTHEAST

Jennifer von Rohr
Environmental Scientist

John R. Diego
Project Manager

re#8:g040502.613

TABLE 1
SUMMARY OF LABORATORY RESULTS
MILLER'S GULF, ST. ALBAN'S, VT

SAMPLE DATE	SAMPLE NUMBER	Results (ug/l) Benzene	Toluene	Ethylbenzene	Xylene	Total* Unsaturated Organics	Total** Organics
2/8/90	Influent	2600	5500	620	16000	43000	48000
	Effluent	ND	ND	ND	ND	ND	ND
	Mid	ND	ND	ND	1.2	ND	ND
	Mid (Dup)	ND	ND	ND	ND	ND	ND
2/26/90	Influent	3100	6500	1100	15000	44000	55000
	Mid	ND	ND	ND	ND	ND	ND
	Effluent	ND	ND	ND	ND	ND	ND
	Mid (Dup)	ND	ND	ND	ND	ND	ND
3/20/90	Influent	1400	2900	410	9600	31000	51000
	Mid	ND	ND	ND	ND	ND	ND
	Effluent	ND	ND	ND	ND	ND	ND
	Influent (Dup)	1500	3400	390	6900	3500	NA
4/5/90	Influent	3700	9400	560	10000	42000	55000
	Mid	ND	ND	ND	ND	ND	ND
	Effluent	ND	ND	ND	ND	ND	ND
	Mid (Dup)	ND	ND	ND	ND	ND	ND
4/20/90	Influent	5900	13000	1300	13000	55000	67000
	Mid	ND	ND	ND	ND	ND	ND
	Effluent	ND	ND	ND	ND	ND	ND

Notes:
- ND indicates not detected.
- NA indicates not analyzed.
- * Total unsaturated organics reported as O-Xylene
- ** Total organics reported as Hexane
- Relative hydrocarbon concentrations may be determined by combining total unsaturated organic and total organic concentrations.
- No contaminants were identified in any effluent sample analyzed.
- All duplicate (dup) samples were analyzed by VTDOH laboratory. All other analysis conducted by Aquatec, Inc.
- Results of the duplicate sample collected on 4/20/90 is not available as of this writing.

TABLE 2
SUMMARY OF GROUNDWATER
VAPOR MONITORING

SAMPLE LOCATION	*Relative Hydrocarbon Concentrations (ppm) 2/8/90	3/20/90	4/5/90	4/20/90
MW-1	-	1	81	126
MW-2	-	ND	19	50.9
MW-3	-	-	-	134
MW-4	-	ND	0.2	ND
MW-5	-	ND	59	-
BRW-1	-	27.9	259	0.2
TW-1	-	-	-	-
TW-2	-	-	-	-
TW-3	-	-	-	-
TW-4	-	-	-	-
CO-1	-	-	ND	ND
CO-2	-	-	1125	508
TWM-1	1635	343		58
NET-1	ND	1.6	0.2	0.2

Notes: Relative hydrocarbon concentrations obtained with the use of an organic vapor meter (OVM).

- indicates no readings obtained.

ND indicates no readings were detected.

TABLE NO. 3
MILLERS GULF
TVM NORTHEAST PROJECT NO. G0405.02
OPINION OF COST

TASK	SUBTASK	FREQUENCY	TVM LABOR COST	SUBCONTRACTOR LABOR COST	EXPENSES (MILEAGE, PID OTHER LISTED)	TOTAL LABOR EXPENSES	TOTAL ANALYTICAL CHEMISTRY	TOTAL
1. Installation of In-Situ remediation System								
	Installation of temporary electricy meterbox	1		920		920		920
	Temporary Building	1			370 est.	370 est.		370
	Installation	1	640			640		640
	Plumbing Supplies	1			150 est.	150 est.		150
	Mileage	1				100		100
	Electrical Hook Up	1		230		230		230
						2382		2410
2. Bi-Weekly Site Visits		26	320		55	9750	6580	16330
3. Semi-Annual Groundwater Sampling		2	120		INC	240	1020	1260
4. Carbon Replacement		As needed	$40/hour as needed & mileage		0.29/mile	Unknown		Unknown

YEARLY COST $20,000
MONTHLY COST $1667

Est. indicates cost provided is an estimate
Unknown indicates actual charges

APPENDIX A

LABORATORY REPORTS

aquatec
ENVIRONMENTAL SERVICES
75 Green Mountain Drive, So. Burlington, VT 05403
TEL. 802/658-1074

RECEIVED FEB 16 1990

BLUE

ANALYTICAL REPORT

TWM - Northeast
2A Williston Park
P.O. Box 784
Williston, VT 05495

Attention : JOHN DIEGO

Date : 02/14/90
ETR Number : 20104
Project No.: 89152
No. Samples: 4
Arrived : 02/08/90
P.O. Number: 10/20/89 AGR

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No.	Sample Description		
110287	Trip Blank:02/08/90 @0915(Water)		
	Method No.	Parameter	Result
	OR209	Benzene	<1.0 a
	OR209	Toluene	<1.0 a
	OR209	Ethylbenzene	<1.0 a
	OR209	Xylenes	<1.0 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a
110288	Influent:02/08/90 @1230(Water)		
	OR209	Benzene	2600 a
	OR209	Toluene	5500 a
	OR209	Ethylbenzene	620 a
	OR209	Xylenes	16000 a
	OR209	Tot Unsat Organics(o-Xyl)	43000 a
	OR209	Total Organics(as hexane)	48000 a
110289	Effluent:02/08/90 @1245(Water)		
	OR209	Benzene	<1.0 a
	OR209	Toluene	<1.0 a
	OR209	Ethylbenzene	<1.0 a
	OR209	Xylenes	<1.0 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a

Comments/Notes

a = ug/l

< Cont. Next Page >

aquatec
ENVIRONMENTAL SERVICES
75 Green Mountain Drive, So. Burlington, VT 05403
TEL. 802/658-1074

ANALYTICAL REPORT

TWM - Northeast
2A Williston Park
P.O. Box 784
Williston, VT 05495

Attention : JOHN DIEGO

Date : 02/14/90
ETR Number : 20104
Project No.: 89152
No. Samples: 4
Arrived : 02/08/90
P.O. Number: 10/20/89 AGR

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No.	Sample Description
112090	Mid:02/08/90 @1240(Water)

Method No.	Parameter	Result
OR209	Benzene	<1.0 a
OR209	Toluene	<1.0 a
OR209	Ethylbenzene	<1.0 a
OR209	Xylenes	1.2 a
OR209	Tot Unsat Organics(o-Xyl)	<50 a
OR209	Total Organics(as hexane)	<50 a

Comments/Notes

a = ug/l

< Last Page > Submitted By : R. Mason McNeer Aquatec Inc.

State of Vermont

AGENCY OF HUMAN SERVICES

DEPARTMENT OF HEALTH
Laboratory
195 Colchester Ave.
PO Box 70
Burlington, VT 05402-0070
(802) 863-7335

ANALYSIS of WATER for VOLATILE ORGANIC COMPOUNDS

**********LABORATORY RESULTS**********

LAB NUMBER: V90-0567 ANALYST: PRC ANALYSIS DATE: 02/16/90

COMMENTS: Results of tests for the compounds listed below indicated that none were present in concentrations greater than the reporting limit (ie, the PQL).

NOTE: See field form for sample information.

****

The analysis performed on the water samples for volatile organic compounds includes testing for the following:

COMPOUND	PQL	COMPOUND	PQL
Benzene	(1)	1,2-Dichloropropane	(2)
Bromobenzene	(2)	2,2-Dichloropropane	(8)
Bromodichloromethane	(3)	1,3-Dichloropropane	(6)
Bromoform	(5)	1,1-Dichloropropene	(3)
Carbon tetrachloride	(4)	cis-1,3-Dichloropropene	(2)
Chlorobenzene	(2)	trans-1,3-Dichloropropene	(2)
Chlorodibromomethane	(4)	Methylene chloride	(5)
Chloroform	(3)	Ethylbenzene	(2)
2-Chlorotoluene	(2)	Styrene	(2)
4-Chlorotoluene	(2)	1,1,1,2-Tetrachloroethane	(4)
Dibromomethane	(3)	1,1,2,2-Tetrachloroethane	(6)
m-Dichlorobenzene	(2)	Tetrachloroethylene	(3)
o-Dichlorobenzene	(2)	1,1,1-Trichloroethane	(3)
p-Dichlorobenzene	(3)	1,1,2-Trichloroethane	(2)
1,1-Dichloroethane	(3)	Trichloroethylene	(2)
1,2-Dichloroethane	(2)	1,2,3-Trichloropropane	(3)
1,1-Dichloroethene	(8)	Toluene	(2)
trans-1,2-Dichloroethene	(2)	m+p-Xylene	(2)
cis-1,2-Dichloroethene	(2)	o-Xylene	(2)

PQL=Current Practical Quantitation Limit; ppb=parts/billion (micrograms/liter)

Date of Report: 02/23/90 Method: VDH Screen Method (GC/FID)

This is a public record. Information contained in this record may be used for statistical purposes, and may be released upon request, pursuant to Vermont access to public documents law (1 V.S.A. § 315 and following sections).

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403
(802) 658-1074

CHAIN OF CUSTODY RECORD

F - 0058

Client: TWM NOR

Address:

Comments:

Project Name: TWM ANALYSIS

Project No.: 89152

Quote No.: —

Collection Date: 2 / 8 / 90

Sampler(s): (Signature) Kevin J Camara

Sample Number	Collection Time	Comp.	Grab	Matrix	Sample Description	Containers No.	Containers Type/Size	Analysis / Remarks
1	1240		✓	water	MID	2	G 40ml	B.T.E.X MTBE + HC

Signature	Company	Date/Time Relinquished	Signature	Company	Date/Time Received
1 Kevin J Camara	Aquatec	2/9/90	1 John Dugo	TWM	2/9/90 0855
2 Joe Cereso	VDH	2/9/90	2		
3			3		

Great Vision

ORGANIC EMICAL ANALYSIS OF PUBLIC WATE UPPLY 863-7335

TOWN: ST. ALBANS

WATER SYSTEM NAME & ADDRESS: MILLERS GULF, S. MAIN ST, ST. ALBANS

'90 FEB 9 AM 8

PWSID

PECIFIC SAMPLE LOCATION: TREATMENT SYSTEM

VT. DEPT. OF HEALTH LAB

JRPOSE OF SAMPLE

- ☐ ROUTINE
- ☐ QUARTERLY
- ☐ MAXIMUM THM POTENTIAL
- ☒ SPECIAL

SAMPLER NAME & TITLE: Camera

CURRENT CHLORINE RESIDUAL

_____ MG/L FREE

_____ MG/L TOTAL

PE OF SAMPLE

- ☐ SOURCE
- ☐ DISTRIBUTION
  - ☐ MAXIMUM RESIDENCE TIME
  - ☐ NORMAL RESIDENCE TIME
- ☒ OTHER effluent from carbon filter

PRE-CHLORINATION

_____ LBS./DAY

DATE OF SAMPLE: 2/8/90

TIME: 1240 O'CLOCK AM (PM)

ARKS BY SAMPLER

w/ HCl (1:1)

Conc. should low < 10 ppb

Results to DEC R. Spiat

REMARKS BY LABORATORY

- MAXIMUM CONTAMINANT LEVEL

K ANALYSES REQUESTED

LABORATORY REPORT

MG/L = MILLIGRAMS PER LITER

PPM = PARTS PER MILLION

☐ TOTAL TRIHALOMETHANES	___.___	☐ METHYLENE CHLORIDE	___.___
☐ CHLOROFORM	___.___	☐ BENZENE	___.___
☐ DIBROMOCHLOROMETHANE	___.___	☐ TOLUENE	___.___
☐ BROMODICHLOROMETHANE	___.___	☐ XYLENES	___.___
☐ BROMOFORM	___.___	☐ CHLORO BENZENE	___.___
☐ TRICHLOROETHYLENE	___.___	☐ ETHYL BENZENE	___.___
☐ TETRACHLOROETHYLENE	___.___	☐ 1,2-DICHLOROETHENE	___.___
	___.___	☐	___.___
	___.___	☐ 1,1-DICHLOROETHANE	___.___
☐ 1,1,1-TRICHLOROETHANE	___.___		___.___
☐ 1,2-DICHLOROETHANE	___.___		___.___
	___.___		___.___
1,1,2,2-TETRACHLOROETHANE	___.___		___.___
☐ CARBON TETRACHLORIDE	___.___		___.___
	___.___		___.___

:'D _____ TIME _____ DATE REPORTED _____

BER V90 0567 LABORATORY DIRECTOR _____

aquatec
ENVIRONMENTAL SERVICES
75 Green Mountain Drive, So. Burlington, Vt 05403
TEL. 802/658-1074

RECEIVED 1990 TWM Northeast

ANALYTICAL REPORT

TWM - Northeast
2A Williston Park
P.O. Box 784
Williston, VT 05495

Attention : JOHN DIEGO

Date : 03/05/90
ETR Number : 20296
Project No.: 89152
No. Samples: 4
Arrived : 02/27/90
P.O. Number: 10/20/89 AGR

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No.	Sample Description		
110980	Influent:02/26/90 @1105(Water)		
	Method No.	Parameter	Result
	OR209	Benzene	3100 a
	OR209	Toluene	6500 a
	OR209	Ethylbenzene	1100 a
	OR209	Xylenes	15000 a
	OR209	Tot Unsat Organics(o-Xyl)	44000 a
	OR209	Total Organics(as hexane)	55000 a
110981	Mid:02/26/90 @1100(Water)		
	OR209	Benzene	<1 a
	OR209	Toluene	<1 a
	OR209	Ethylbenzene	<1 a
	OR209	Xylenes	<1 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a
110982	Effluent:02/26/90 @1050(Water)		
	OR209	Benzene	<1 a
	OR209	Toluene	<1 a
	OR209	Ethylbenzene	<1 a
	OR209	Xylenes	<1 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a

Comments/Notes

a = ug/l

< Last Page > Submitted By : R. Mason McNeil Aquatec Inc.

TWM NORTHEAST
2A Williston Park
P.O. Box 784
Williston, VT 05495-0784
(802)879-7733

CHAIN OF CUSTODY RECORD

No. 000121

Client: VT ANR / MILLER GULF
Address: ST. ALBANS, VT

Project Name: MILLER'S GULF
Project No.: G0405.02

Sampler(s): (Signature) Jennifer von Rom

Comments: COLLECTED BETWEEN 2 CARBON CANISTERS

Collection Date: 2 / 26 / 90

Sample Number	Collection Time	Comp.	Grab	Matrix	Sample Description	Containers No.	Containers Type/Size	Analysis / Remarks
1	1100		X	WATER	MID	2	G / 40ML	BTEX & HYDROCARBONS

Signature	Company	Date/Time Relinquished	Signature	Company	Date/Time Received
1 Jennifer von Rom	TWM	2/27/90 1130	1 M. a. Bluto	Health Lab	2.27.90 11:30
2			2		
3			3		

ORIGINAL — White PROJECT MANAGER — Yellow FILE — Pink

State of Vermont

AGENCY OF HUMAN SERVICES

DEPARTMENT OF HEALTH
Laboratory
195 Colchester Avenue
PO Box 70
Burlington, VT 05402-0070
(802) 863-7335

ANALYSIS of WATER for VOLATILE ORGANIC COMPOUNDS

**********LABORATORY RESULTS**********

LAB NUMBER: V90-0598 ANALYST: PRC ANALYSIS DATE: 2/27/90

COMMENTS: Results of tests for the compounds listed below indicated that none were present in concentrations greater than the reporting limit (ie, the PQL).

NOTE: See field form for certain information.
****

The analysis performed on the water samples for volatile organic compounds includes testing for the following:

COMPOUND	PQL	COMPOUND	PQL
Benzene	(1)	1,2-Dichloropropane	(2)
Bromobenzene	(2)	2,2-Dichloropropane	(8)
Bromodichloromethane	(3)	1,3-Dichloropropane	(6)
Bromoform	(5)	1,1-Dichloropropene	(3)
Carbon tetrachloride	(4)	cis-1,3-Dichloropropene	(2)
Chlorobenzene	(2)	trans-1,3-Dichloropropene	(2)
Chlorodibromomethane	(4)	Methylene chloride	(5)
Chloroform	(3)	Ethylbenzene	(2)
2-Chlorotoluene	(2)	Styrene	(2)
4-Chlorotoluene	(2)	1,1,1,2-Tetrachloroethane	(4)
Dibromomethane	(3)	1,1,2,2-Tetrachloroethane	(5)
m-Dichlorobenzene	(2)	Tetrachloroethylene	(3)
o-Dichlorobenzene	(2)	1,1,1-Trichloroethane	(3)
p-Dichlorobenzene	(3)	1,1,2-Trichloroethane	(2)
1,1-Dichloroethane	(3)	Trichloroethylene	(2)
1,2-Dichloroethane	(2)	1,2,3-Trichloropropane	(3)
1,1-Dichloroethene	(8)	Toluene	(2)
trans-1,2-Dichloroethene	(2)	m+p-Xylene	(2)
cis-1,2-Dichloroethene	(2)	o-Xylene	(2)

PQL=Current Practical Quantitation Limit; ppb=parts/billion (micrograms/liter)

Date of Report: 03/07/90 Method: VDH Screen Method (GC/FID)

This is a public record. Information contained in this record may be used for statistical purposes, and may be released upon request, pursuant to Vermont access to public documents law (1 V.S.A. § 315 et seq.) [illegible].

ORGANIC ' MICAL ANALYSIS OF PUBLIC WATER PPLY 863-7335

WATER SYSTEM NAME & ADDRESS

WSID

ECIFIC SAMPLE CATION Miller's Gulf Main St St Albans, VT.

RPOSE OF SAMPLE

- [x] ROUTINE
- [ ] QUARTERLY
- [ ] MAXIMUM THM POTENTIAL
- [ ] SPECIAL _____

SAMPLER NAME & TITLE [illegible] Van Ronr TWA [illegible]

CURRENT CHLORINE RESIDUAL

_____ MG/L FREE

_____ MG/L TOTAL

E OF SAMPLE

- [ ] SOURCE
- [ ] DISTRIBUTION
  - [ ] MAXIMUM RESIDENCE TIME
  - [ ] NORMAL RESIDENCE TIME
- [ ] OTHER _____

PRE-CHLORINATION

_____ LBS./DAY

DATE OF SAMPLE 2/26/90

TIME 1100 O'CLOCK AM PM

RKS BY SAMPLER

REMARKS BY LABORATORY

V90-0598

- MAXIMUM CONTAMINANT LEVEL ANALYSES REQUESTED

LABORATORY REPORT

MG/L = MILLIGRAMS PER LITER
PPM = PARTS PER MILLION

[ ] TOTAL TRIHALOMETHANES	___.___	[ ] METHYLENE CHLORIDE	___.___
[ ] CHLOROFORM	___.___	[x] BENZENE	___.___
[ ] DIBROMOCHLOROMETHANE	___.___	[x] TOLUENE	___.___
[ ] BROMODICHLOROMETHANE	___.___	[x] XYLENES	___.___
[ ] BROMOFORM	___.___	[ ] CHLORO BENZENE	___.___
[ ] TRICHLOROETHYLENE	___.___	[ ] ETHYL BENZENE	___.___
[ ] TETRACHLOROETHYLENE	___.___	[ ] 1,2-DICHLOROETHENE	___.___
	___.___	[ ]	___.___
	___.___	[ ] 1,1-DICHLOROETHANE	___.___
[ ] 1,1,1-TRICHLOROETHANE	___.___		___.___
[ ] 1,2-DICHLOROETHANE	___.___	HYDROCARBONS	___.___
	___.___		___.___
1,1,2,2-TETRACHLOROETHANE	___.___		___.___
CARBON TETRACHLORIDE	___.___		___.___
	___.___		___.___

)-0598 TIME _____ DATE REPORTED _____

LABORATORY DIRECTOR _____

ESULTS TO RICHARD SPIECE AT VT AIR PETROLEUM SITES DIVISION.

NORTHEAST
2A Williston Park
P.O. Box 784
Williston, VT 05495-0784
(802)879-7733

CHAIN OF CUSTODY RECORD

№ 000121

Client: VT/ANR / MILLER GULF
Address: ST. ALBANS, VT.

Project Name: MILLER'S GULF
Project No.: G0405.02

Sampler(s): (Signature) Jennifer von Rom

Comments: COLLECTED BETWEEN 2 CARBON CANISTERS

Collection Date: 2 / 26 / 90

Sample Number	Collection Time	Comp.	Grab	Matrix	Sample Description	Containers No.	Containers Type/Size	Analysis / Remarks
1	1100		X	WATER	MID	2	G / 40ML	BTEX & HYDROCARBONS

Signature	Company	Date/Time Relinquished	Signature	Company	Date/Time Received
1 Jennifer von Rom	TWM	2/27/90 1130	1 M. A. Bluto	[illegible]	2.27.90 11.30
2			2		
3			3		

ORIGINAL — White PROJECT MANAGER — Yellow FILE — Pink

aquatec
ENVIRONMENTAL SERVICES
75 Green Mountain Drive, So. Burlington, VT 05403
TEL. 802/658-1074

ANALYTICAL REPORT

TWM - Northeast
2A Williston Park
P.O. Box 784
Williston, VT 05495

Attention : JOHN DIEGO

Date : 03/30/90
ETR Number : 20567
Project No.: 89152
No. Samples: 4
Arrived : 03/20/90
P.O. Number: 10/20/89 AGR

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No.	Sample Description		
111902	Influent:03/20/90 @1530(Water)		
	Method No.	Parameter	Result
	OR209	Benzene	1400 a
	OR209	Toluene	2900 a
	OR209	Ethylbenzene	410 a
	OR209	Xylenes	9600 a
	OR209	Tot Unsat Organics(o-Xyl)	31000 a
	OR209	Total Organics(as hexane)	51000 a
111903	Effluent:03/20/90 @1515(Water)		
	OR209	Benzene	<1.0 a
	OR209	Toluene	<1.0 a
	OR209	Ethylbenzene	<1.0 a
	OR209	Xylenes	<1.0 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a
111904	Mid-Canister:03/20/90 @1520(Water)		
	OR209	Benzene	<1.0 a
	OR209	Toluene	<1.0 a
	OR209	Ethylbenzene	<1.0 a
	OR209	Xylenes	<1.0 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a

Comments/Notes

a = ug/l

< Last Page > Submitted By : R. Mason Miller Aquatec Inc.

State of Vermont

AGENCY OF HUMAN SERVICES

DEPARTMENT OF HEALTH
Laboratory
195 Colchester Ave.
PO Box 70
Burlington, VT 05402-0070
(802) 863-7335

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ANALYSIS of WATER for VOLATILE ORGANIC COMPOUNDS

**********LABORATORY RESULTS**********

LAB NUMBER: V90-0633 ANALYST: MJS ANALYSIS DATE: 03/26/90

COMPOUND (S) FOUND	CONC (PPB)
Benzene	1500
Toluene	3400
Ethylbenzene	390
m+p-Xylene	6900
o-Xylene	3500

NOTE: PQL values listed below are 25 fold greater due to contaminated sample.

COMMENTS: Results of tests for all other compounds listed below indicated that none were present in concentrations greater than the reporting limit (ie, the PQL).

NOTE: See field form for sample information.
****

The analysis performed on the water samples for volatile organic compounds includes testing for the following:

COMPOUND	PQL	COMPOUND	PQL
Benzene	(1)	1,2-Dichloropropane	(2)
Bromobenzene	(2)	2,2-Dichloropropane	(8)
Bromodichloromethane	(3)	1,3-Dichloropropane	(6)
Bromoform	(5)	1,1-Dichloropropene	(3)
Carbon tetrachloride	(4)	cis-1,3-Dichloropropene	(2)
Chlorobenzene	(2)	trans-1,3-Dichloropropene	(2)
Chlorodibromomethane	(4)	Methylene chloride	(5)
Chloroform	(3)	Ethylbenzene	(2)
2-Chlorotoluene	(2)	Styrene	(2)
4-Chlorotoluene	(2)	1,1,1,2-Tetrachloroethane	(4)
Dibromomethane	(3)	1,1,2,2-Tetrachloroethane	(5)
m-Dichlorobenzene	(2)	Tetrachloroethylene	(3)
o-Dichlorobenzene	(2)	1,1,1-Trichloroethane	(3)
p-Dichlorobenzene	(3)	1,1,2-Trichloroethane	(2)
1,1-Dichloroethane	(3)	Trichloroethylene	(2)
1,2-Dichloroethane	(2)	1,2,3-Trichloropropane	(3)
1,1-Dichloroethene	(8)	Toluene	(2)
trans-1,2-Dichloroethene	(2)	m+p-Xylene	(2)
cis-1,2-Dichloroethene	(2)	o-Xylene	(2)

PQL=Current Practical Quantitation Limit; ppb=parts/billion (micrograms/liter)

Date of Report: 04/17/90 Method: VDH Screen Method (GC/FID)

This is a public record. Information contained in this record may be used for statistical purposes, and may be released upon request, pursuant to Vermont access to public documents law (I V.S.A. § 315 and following sections).

ORGANIC CHEMICAL ANALYSIS OF PUBLIC WATER SUPPLY 863-7335

OWN ST. ALDANS

WATER SYSTEM NAME & ADDRESS GROUNDWATER MAIN ST. ST. ALDANS

WSID

PECIFIC SAMPLE OCATION GROUNDWATER COLLECTION SYSTEM - MILLER'S GULF, ST. AL

'90 MAR 21 PM 3 31

URPOSE OF SAMPLE

- [x] ROUTINE (Duplicate)
- [ ] QUARTERLY
- [ ] MAXIMUM THM POTENTIAL
- [ ] SPECIAL _____

SAMPLER NAME & TITLE JENNIFER VON KOHR CONSULT (TWM)

CURRENT CHLORINE RESIDUAL

_____ MG/L FREE

_____ MG/L TOTAL

PE OF SAMPLE

- [ ] SOURCE
- [ ] DISTRIBUTION
  - [ ] MAXIMUM RESIDENCE TIME
  - [ ] NORMAL RESIDENCE TIME
- [ ] OTHER _____

PRE-CHLORINATION

_____ LBS./DAY

DATE OF SAMPLE MARCH 20 1990

TIME 3:30 O'CLOCK AM (PM)

MARKS BY SAMPLER (Preserved)

"Influent"

REMARKS BY LABORATORY

- MAXIMUM CONTAMINANT LEVEL

CK ANALYSES REQUESTED

LABORATORY REPORT

MG/L = MILLIGRAMS PER LITER

PPM = PARTS PER MILLION

[ ] TOTAL TRIHALOMETHANES	___.___	[ ] METHYLENE CHLORIDE	___.___
[ ] CHLOROFORM	___.___	[x] BENZENE	___.___
[ ] DIBROMOCHLOROMETHANE	___.___	[x] TOLUENE	___.___
[ ] BROMODICHLOROMETHANE	___.___	[x] XYLENES	___.___
[ ] BROMOFORM	___.___	[ ] CHLORO BENZENE	___.___
[ ] TRICHLOROETHYLENE	___.___	[x] ETHYL BENZENE	___.___
[ ] TETRACHLOROETHYLENE	___.___	[ ] 1,2-DICHLOROETHENE	___.___
	___.___	[ ]	___.___
	___.___	[ ] 1,1-DICHLOROETHANE	___.___
[ ] 1,1,1-TRICHLOROETHANE	___.___		___.___
[ ] 1,2-DICHLOROETHANE	___.___	HYDROCARBONS	___.___
	___.___		___.___
[ ] 1,1,2,2-TETRACHLOROETHANE	___.___		___.___
[ ] CARBON TETRACHLORIDE	___.___		___.___
V90-0633	___.___		___.___

REC'D [redacted] JPC TIME _____ DATE REPORTED _____

NUMBER [redacted] V90-0633 LABORATORY DIRECTOR _____

PLEASE FORWARD ONE COPY OF RESULTS TO RICHARD SPIECE AT VIANO PETROLEUM SITES

TWM NORTHEAST
2A Williston Park
P.O. Box 784
Williston, VT 05495-0784
(802)879-7733

CHAIN OF CUSTODY RECORD

№ 000127

Client: VT ANR / MILLER GULF
Project Name: MILLER GULF
Sampler(s): (Signature) Jennifer Van Rom
Address: St. ALBANS, VT
Project No.: GP405.02

Comments: INFLUENT to CARBON FILTRATION SYSTEM
Collection Date: 3 / 20 / 90

Sample Number	Collection Time	Comp.	Grab	Matrix	Sample Description	Containers No.	Containers Type/Size	Analysis / Remarks
1	1530		X	WATER	INFLUENT	2	40 ml	BTEX & HYDROCARBONS

Signature	Company	Date/Time Relinquished	Signature	Company	Date/Time Received
1 Jennifer Van Rom	TWM	3:25 3/21/90	1 Karen D Frenier		3/21/90 - 3:30 pm
2 J. Teresa	VDH	3:40 pm 3/21/90	2		
3			3		

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TWM NORTHEAST
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APR 19 1990
WILLISTON

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ENVIRONMENTAL SERVICES
75 Green Mountain Drive, So. Burlington, VT 05403
TEL. 802/658-1074

ANALYTICAL REPORT

TWM - Northeast
2A Williston Park
P.O. Box 784
Williston, VT 05495

Attention : John Diego

Date : 04/17/90
ETR Number : 20817
Project No.: 89152
No. Samples: 4
Arrived : 04/06/90
P.O. Number: 10/20/89 AGR

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No.	Sample Description		
112894	Influent:04/05/90 @1510(Water)		
	Method No.	Parameter	Result
	OR209	Benzene	3700 a
	OR209	Toluene	9400 a
	OR209	Ethylbenzene	560 a
	OR209	Xylenes	10000 a
	OR209	Tot Unsat Organics(o-Xyl)	42000 a
	OR209	Total Organics(as hexane)	55000 a
112895	Mid-Canisters:04/05/90 @1505(Water)		
	OR209	Benzene	<1 a
	OR209	Toluene	<1 a
	OR209	Ethylbenzene	<1 a
	OR209	Xylenes	<1 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a
112896	Effluent:04/05/90 @1500(Water)		
	OR209	Benzene	<1 a
	OR209	Toluene	<1 a
	OR209	Ethylbenzene	<1 a
	OR209	Xylenes	<1 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a

Comments/Notes

a = ug/l

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State of Vermont

AGENCY OF HUMAN SERVICES

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DEPARTMENT OF HEALTH
Laboratory
195 Colchester Ave.
PO Box 70
Burlington, VT 05402-0070
(802) 863-7335

ANALYSIS of WATER for VOLATILE ORGANIC COMPOUNDS

**********LABORATORY RESULTS**********

LAB NUMBER: V90-0704 ANALYST: JFH ANALYSIS DATE: 04/09/90

COMMENTS: Results of tests for the compounds listed below indicated that none were present in concentrations greater than the reporting limit (ie, the PQL).

NOTE: See field form for sample information.
****

The analysis performed on the water samples for volatile organic compounds includes testing for the following:

COMPOUND	PQL	COMPOUND	PQL
Benzene	(4)	1,2-Dichloropropane	(6)
Bromobenzene	(2)	2,2-Dichloropropane	(2)
Bromodichloromethane	(1)	1,3-Dichloropropane	(1)
Bromoform	(8)	1,1-Dichloropropene	(2)
Carbon tetrachloride	(4)	cis-1,3-Dichloropropene	(2)
Chlorobenzene	(2)	trans-1,3-Dichloropropene	(2)
Chlorodibromomethane	(2)	Methylene chloride	(8)
Chloroform	(2)	Ethylbenzene	(1)
2-Chlorotoluene	(2)	Styrene	(1)
4-Chlorotoluene	(7)	1,1,1,2-Tetrachloroethane	(1)
Dibromomethane	(2)	1,1,2,2-Tetrachloroethane	(8)
m-Dichlorobenzene	(2)	Tetrachloroethylene	(2)
o-Dichlorobenzene	(2)	1,1,1-Trichloroethane	(7)
p-Dichlorobenzene	(1)	1,1,2-Trichloroethane	(8)
1,1-Dichloroethane	(2)	Trichloroethylene	(3)
1,2-Dichloroethane	(2)	1,2,3-Trichloropropane	(7)
1,1-Dichloroethene	(2)	Toluene	(2)
trans-1,2-Dichloroethene	(4)	m+p-Xylene	(5)
cis-1,2-Dichloroethene	(2)	o-Xylene	(1)

PQL=Current Practical Quantitation Limit in ppb (parts per billion) (micrograms/liter)

Date of Report: APR 26 1990 Method: EPA Method 524.2 (GC/MS)

This is a public report. Information contained in this record may be used for statistical purposes, and may be released upon request, pursuant to Vermont access to public documents law (1 V.S.A. § 315 and following sections).

ORGANIC CHEMICAL ANALYSIS OF PUBLIC WATER SUPPLY 863-7335

Ground

WATER SYSTEM NAME & ADDRESS

WSID 12.30 PM

IFIC SAMPLE
IION Ground Water / Mid-Cannister St. Albans - Gulf Station LAB

OSE OF SAMPLE

- ☐ ROUTINE
- ☐ QUARTERLY
- ☐ MAXIMUM THM POTENTIAL
- ☐ SPECIAL _____

SAMPLER NAME & TITLE Kevin Camera TWM

CURRENT CHLORINE RESIDUAL

_____ MG/L FREE

_____ MG/L TOTAL

OF SAMPLE

- ☐ SOURCE
- ☐ DISTRIBUTION
  - ☐ MAXIMUM RESIDENCE TIME
  - ☐ NORMAL RESIDENCE TIME
- ☐ OTHER _____

PRE-CHLORINATION

_____ LBS./DAY

DATE OF SAMPLE 4/9/90

TIME 15:05 O'CLOCK AM PM

KS BY SAMPLER

Results to: TWM NE

REMARKS BY LABORATORY

MAXIMUM CONTAMINANT LEVEL ANALYSES REQUESTED

LABORATORY REPORT

MG/L = MILLIGRAMS PER LITER
PPM = PARTS PER MILLION

☐ TOTAL TRIHALOMETHANES	___.___	☐ METHYLENE CHLORIDE	___.___
☐ CHLOROFORM	___.___	☐ BENZENE	___.___
☐ DIBROMOCHLOROMETHANE	___.___	☐ TOLUENE	___.___
☐ BROMODICHLOROMETHANE	___.___	☐ XYLENES	___.___
☐ BROMOFORM	___.___	☐ CHLORO BENZENE	___.___
☐ TRICHLOROETHYLENE	___.___	☐ ETHYL BENZENE	___.___
TETRACHLOROETHYLENE	___.___	☐ 1,2-DICHLOROETHENE	___.___
	___.___	☐	___.___
	___.___	☐ 1,1-DICHLOROETHANE	___.___
1,1,1-TRICHLOROETHANE	___.___		___.___
1,2-DICHLOROETHANE	___.___	_____	___.___
	___.___	_____	___.___
1,1,2,2-TETRACHLOROETHANE	___.___	_____	___.___
CARBON TETRACHLORIDE	___.___	_____	___.___
	___.___	_____	___.___

D 4/6/90 VC

V90-0704

TIME _____ DATE REPORTED _____

LABORATORY DIRECTOR _____

V90-0704

TWM NORTHEAST
2A Williston Park
P.O. Box 784
Williston, VT 05495-0784
(802)879-7733

CHAIN OF CUSTODY RECORD

№ 000184

Client: TWM NOR

Project Name: TWM ST ALBANS

Sampler(s): (Signature)

Address:

Project No.: 89169

Comments:

Collection Date: 4/5/90

Sample Number	Collection Time	Comp.	Grab	Matrix	Sample Description	Containers No.	Containers Type/Size	Analysis / Remarks
1	1505		✓	ground water	MID-CANISTER	2	40ml	BTEX

Signature	Company	Date/Time Relinquished	Signature	Company	Date/Time Received
1	Aquatec	4/5/90 1600	1	TWM	4/5/90 1600
2	TWM	4/6/90 1400	2	TWM	4/6/90 14:00
3	VDH	4/6/90 2:30 PM	3	TWM	4/6/90 14:30

ORIGINAL — White PROJECT MANAGER — Yellow FILE — Pink

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TWM
APR 26 1990
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ANALYTICAL REPORT

TWM - Northeast
2A Williston Park
P.O. Box 784
Williston, VT 05495

Attention : JOHN DIEGO

Date : 04/25/90
ETR Number : 21019
Project No.: 89152
No. Samples: 4
Arrived : 04/23/90
P.O. Number: 10/20/89 AGR

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No.	Sample Description		
113597	Trip Blank:04/20/90 @0810		
	Method No.	Parameter	Result
	OR209	Benzene	<1 a
	OR209	Toluene	<1 a
	OR209	Ethylbenzene	<1 a
	OR209	Xylenes	<1 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a
113598	Influent:04/20/90 @1345		
	OR209	Benzene	5900 a
	OR209	Toluene	13,000 a
	OR209	Ethylbenzene	1300 a
	OR209	Xylenes	13,000 a
	OR209	Tot Unsat Organics(o-Xyl)	55,000 a
	OR209	Total Organics(as hexane)	67,000 a
113599	Mid-Canisters:04/20/90 @1350		
	OR209	Benzene	<1 a
	OR209	Toluene	<1 a
	OR209	Ethylbenzene	<1 a
	OR209	Xylenes	<1 a
	OR209	Tot Unsat Organics(o-Xyl)	<50 a
	OR209	Total Organics(as hexane)	<50 a

Comments/Notes

a = ug/l

< Cont. Next Page >

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75 Green Mountain Drive, So. Burlington, VT 05403
TEL. 802/658-3074

ANALYTICAL REPORT

TWM - Northeast
2A Williston Park
P.O. Box 784
Williston, VT 05495

Attention : JOHN DIEGO

Date : 04/25/90
ETR Number : 21019
Project No.: 89152
No. Samples: 4
Arrived : 04/23/90
P.O. Number: 10/20/89 AGR

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No.	Sample Description
113600	Effluent:04/20/90 @1400

Method No.	Parameter	Result
OR209	Benzene	<1 a
OR209	Toluene	<1 a
OR209	Ethylbenzene	<1 a
OR209	Xylenes	<1 a
OR209	Tot Unsat Organics(o-Xyl)	<50 a
OR209	Total Organics(as hexane)	<50 a

Comments/Notes

a = ug/l

< Last Page > Submitted By : R. Mason Murray Aquatec Inc.