MARIN
ENVIRONMENTAL

SCIENTISTS
ENGINEERS
GIS SPECIALISTS

1700 REGEMAN AVENUE
COLCHESTER VT 05446
1.802.655.0011
1.800.520.6065
FAX 1.802.655.6076

116 CONSUMER SQUARE
SUITE 174
PLATTSBURGH NY 12901
1.518.566.8297
1.800.520.6065

7 ISLAND DOCK ROAD
HADDAM CT 06438
1.860.345.4578
1.800.524.9256
FAX 1.860.345.3854

600 CHARLTON STREET
SOUTHBRIDGE MA 01550
1.508.764.8755
1.800.676.3707
FAX 1.508.764.4054

114 SOUTH STATE STREET
PO BOX 1414
CONCORD NH 03302
1.603.224.8871
1.800.636.6030
FAX 1.603.224.8688

INTERNET
WWW.MARINENV.COM

APR 5 10 34 AM '99

30 March 1999

Mr. Chuck Schwer
State of Vermont DEC
Waste Management Division
103 South Main Street, West Building
Waterbury, VT 05671-0404

98-2505

Re: *Initial Site Investigation Report*
United Church of Newport, Newport, Vermont

Dear Mr. Schwer:

Enclosed is a copy of the *Initial Site Investigation Report* for the United Church of Newport, located on Third Street in Newport, Vermont. If you have any questions, please feel free to contact me at 655-0011.

Sincerely,

Marin Environmental, Inc.

Jason Bierly
Field Scientist

enclosure

Cc. Paul Jordan, United Church of Newport (less previously transmitted report)

Ref: 98130c02.doc

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FAX 1.603.224.8688

INTERNET
WWW.MARINENV.COM

APR 5 10 14 AM '99

23 March 1999

Mr. Paul Jordan
United Church of Newport
12 Third Street
Newport, VT 05855

Re: *Initial Site Investigation,*
United Church, 12 Third Street, Newport, VT

Dear Mr. Jordan:

Marin Environmental, Inc. (**Marin**) has conducted an initial site investigation at the above-referenced property, following the discovery of subsurface petroleum contamination at the property during removal of a 1,000-gallon heating-oil underground storage tank (UST). The investigation was performed under the Vermont Department of Environmental Conservation (VT DEC) accelerated site-investigation program, commonly referred to as the "Expressway" program, and was intended to address the scope of work requested by the VT DEC in a letter to United Church dated November 24, 1998.

Summary of Findings and Recommendations

The findings of this work suggest that the residual petroleum contamination has not migrated down to ground water, that no sensitive receptors (such as drinking-water supplies, surface-water bodies, building interior air or underground utilities) appear to be at risk, and that natural processes will prove sufficient at reducing the residual soil contamination to acceptable levels and preventing future impact to sensitive receptors. There was, however, an approximately six cubic yard soil pile observed on site. The soil pile was properly covered with 6-mil plastic, and had been created to accommodate the new tank, which is now covered by a concrete slab. Due to the weather at the time of the site visit, the pile was frozen solid and no samples were taken.

On the basis of these findings, Marin recommends that no further investigation is needed on site. The soil pile should be screened with a PID in the spring of 1999. If no elevated PID readings are measured in the pile, VT DEC approval to thin spread the pile on site should be requested, and the site should be considered for Sites Management Activity Completed (SMAC) designation. If PID readings above 1.0 parts per million are detected the soil pile should be relocated to an appropriate location or properly disposed of.

Site Background

Evidence of a petroleum release at the site was discovered on 14 September 1998, during the removal of a 1,000-gallon fuel-oil underground storage tank (UST).

The UST appeared to be in fair condition at the time of removal, with some surface rust, but no visible pitting or holes. Petroleum odors were detected in soils surrounding the UST, however. Evidence of volatile petroleum compounds in soils surrounding the UST was also indicated by photoionization detection (PID) readings of up to 640 parts per million (ppm).

The extent of soil contamination could not be defined during tank closure activities, so all excavated soils were scheduled to be backfilled in accordance with VT DEC guidance documents. Ground water was not encountered to the bottom of the excavation, at nine feet below ground surface (bgs).

In a letter dated November 24, 1998, the VT DEC requested that the United Church retain an environmental consultant to perform an initial site investigation to evaluate the degree and extent of soil and groundwater contamination and any risks posed to nearby sensitive receptors.

Scope of Work

The following scope of work was performed to complete the initial site investigation:

- Installation of a soil boring at the former UST location;
- Screening of soil samples collected from the boring with a photoionization detector (PID) to evaluate the vertical extent of soil contamination, and to evaluate whether contamination had migrated downward to the water table;
- Collection of a soil sample from beneath the apparent limits of petroleum contamination, as defined by the PID screening;
- Laboratory analysis of the soil sample for volatile petroleum compounds by EPA Method 8021B and for Total Petroleum Hydrocarbons (TPH) by EPA Method 8015 DRO, to confirm the field-screening results; and
- Screening of indoor air in the basement of the on-site church building, to evaluate whether vapor-phase petroleum compounds in the soil are entering into the building.

Soil Boring Installation

On 5 February 1999, a soil boring (SB-1) was completed in the former UST location at the site to a depth of approximately 22 feet below ground surface (bgs), (Figure 1, Attachment A). In general, medium to fine sands were encountered beneath the site. The soil boring, which was completed within the previous UST excavation, yielded PID readings of 0.0 to 2.4 ppm in the

upper 14 feet of the soil column. Below this depth, PID levels remained non-detect down to the boring's terminus at 22 feet bgs. Headspace screening results are provided below in Table 1, and on the soil boring log (Attachment B).

TABLE 1
PID Soil Screening Results

Depth	PID Reading
(feet bgs)	SB-1
2-4	1.5
6-8	1.2
8-10	2.1
10-12	2.4
12-14	2.4
14-16	0.0
20-22	0.0

Ground water was not encountered to a depth of 22 feet below ground surface, so a soil sample was collected from the bottom of the boring for laboratory analysis to confirm that the apparent limits of soil contamination had been met.

No volatile petroleum compounds or total petroleum hydrocarbons (TPH) were detected in the soil sample. Laboratory analytical reports are included in Attachment C.

The soil boring was installed by Tri-State Drilling and Boring of West Burke, Vermont, under the supervision of **Marin** personnel. The soil boring was advanced with hollow-stem augers, with continuous split-spoon sampling. Split-spoon samples were descriptively logged and screened for the possible presence of VOCs with a Photovac Model 2020 PID equipped with a 10.6 eV lamp. The PID was calibrated on site prior to screening with 100 ppm isobutylene span gas, referenced to benzene.

Soil samples were submitted to Endyne, Inc. (Williston, Vermont) for testing by EPA Methods 8021B and 8015 DRO (Diesel Range Organics) for volatile organic compounds and TPH, respectively.

Sensitive Receptor Survey and Risk Assessment

Marin conducted a survey to identify potential sensitive receptors in the vicinity of the United Church of Newport, and assessed the risks posed by the subsurface contamination to these receptors. The findings of this work are summarized as follows:

- The church building is located approximately five feet north of the former tank location. The structure has a full, poured concrete basement, with no apparent floor drains and/or cracking. A residence on the adjacent property to the east has a granite-walled, poured concrete floor basement. On 14 September 1998, **Marin** personnel screened indoor air in the basements of the on-site building and neighboring residence with a PID. No PID readings above background were detected in these basements.

- Lake Memphremagog is located approximately 950 feet north of the former UST location. Based on the distance from the former UST to Lake Memphremagog and the fact that soil contamination does not appear to extend down to the water table, Lake Memphremagog is not considered likely to be impacted.

- The site and all surrounding buildings are served by a public water supply and sewer system.

- No preferential pathways for contaminant migration (such as curtain drains, drainage swales, storm drains or other underground utilities) were identified.

Findings

Our findings are as follows:

- A 22-foot deep soil boring in the UST excavation extended did not encounter ground water.
- The residual petroleum contamination beneath the former UST appears to be limited to a vertical zone of approximately 14 foot around the former UST, and does not appear to have migrated to ground water. PID readings on soil samples collected from the borings decreased to 0.0 parts per million at about 14 feet bgs. No petroleum compounds were detected in the laboratory analysis of the soil sample collected at 20-22 feet bgs.
- No sensitive receptors appear to be at risk from the residual petroleum soil contamination. No elevated PID readings were measured in the building basement. The site and all nearby properties are served by public water systems, and no preferential migration pathways (such as curtain drains, drainage swales, storm drains or other underground utilities) to the nearby Lake Memphremagog have been identified.

- The natural processes of biodegradation, adsorption, dilution and dispersion are likely to be sufficient to reduce the residual soil contamination to acceptable levels and prevent any future impact to any identified sensitive receptors.
- During the drilling, an approximately six cubic yard soil pile was observed on site. The soil was apparently stockpiled to accommodate the new UST. It was found to be covered by 6-mil plastic.

Marin has appreciated the opportunity to assist you on this issue. Please call me if you have any questions. Upon receiving your approval, I will forward a copy of this report to the VT DEC.

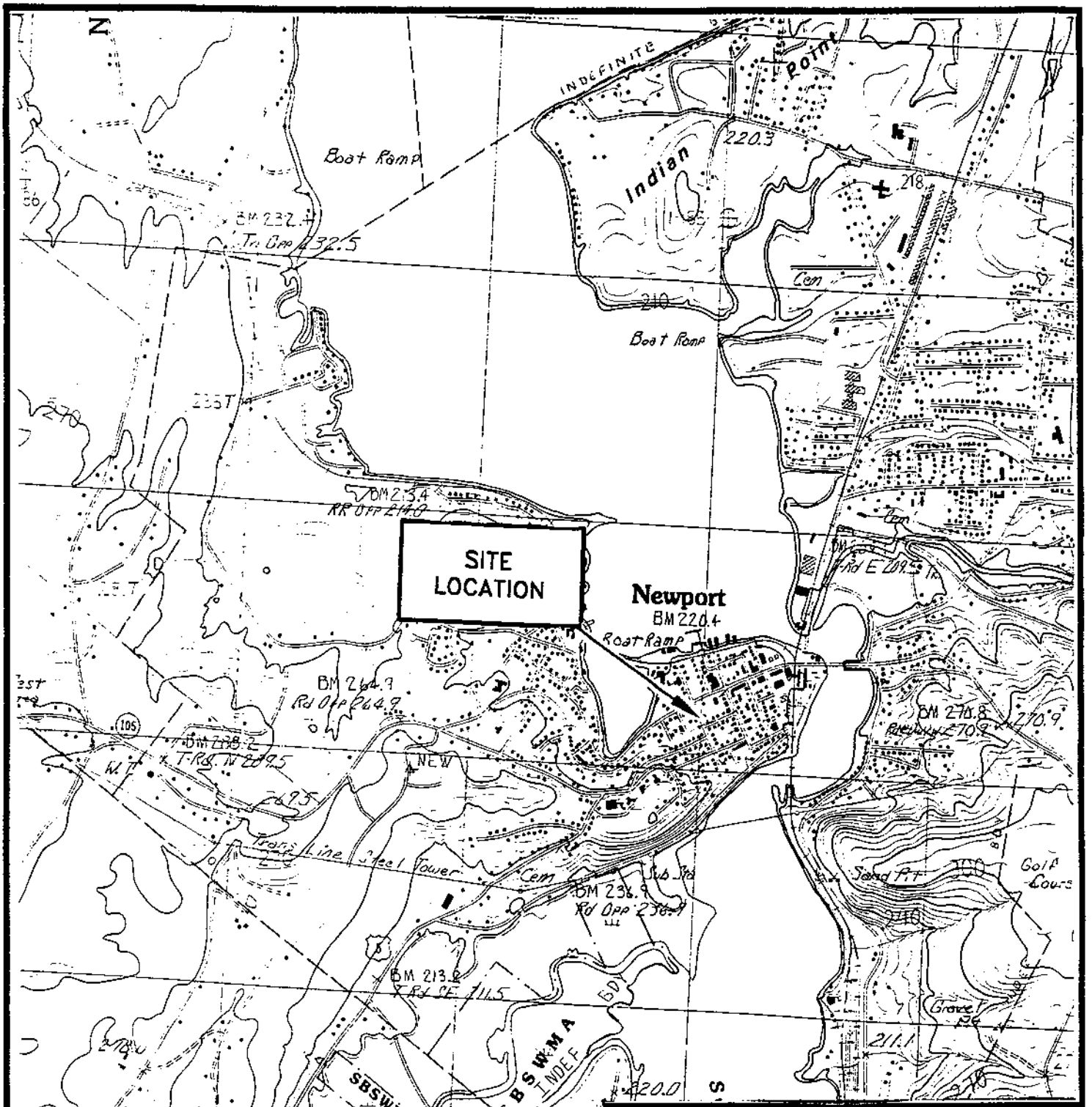
Sincerely,

Marin Environmental, Inc.

Jason Bierly
Field Scientist

Ref:98130r01.doc

APPENDIX A
SITE LOCATION MAPS



MARIN
ENVIRONMENTAL

TITLE: FIGURE 1. Site Location Map

Source: U.S.G.S. Topographic Map
Newport Quadrangle, Vermont-Orleans Co., 7.5' Series, Provisional Edition 1986.

SITE: UNITED CHURCH OF NEWPORT

QUADRANGLE LOCATION

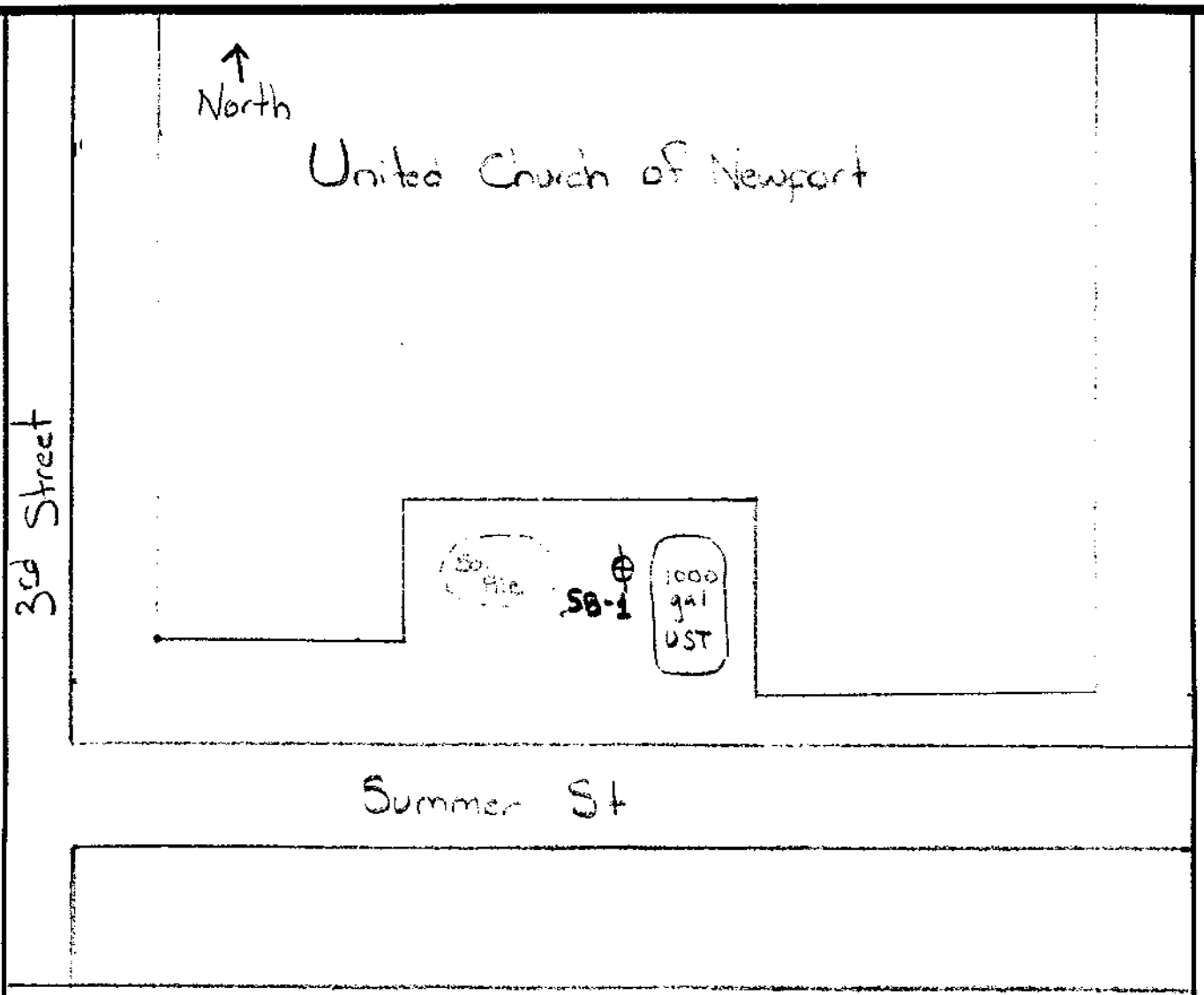
DRAWN BY: MJB	DATE: 03/10/99	SCALE: 1"= 2000'
APPROVED BY: JB		FILE No.: 98130sloc

Marin Environmental, Inc.

7 Island Dock Road
Haddam, CT 06438

PREPARED BY	DATE	CHECKED BY	DATE	PROJECT NO.
JB	3/10/99			VT98-0130

SUBJECT: United Church ISI - SB-1



-all locations approximate

Scale: 1 inch = 20 feet

0 20
feet

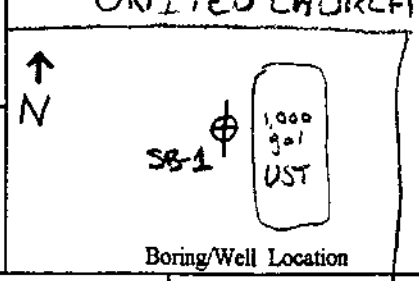
Figure 2

APPENDIX B
SOIL BORING LOG

Marin Environmental, Inc.

SITE NAME: United Church
LOCATION: 3rd Street, Newport, VT
JOB NO. VT98-0130
DATE: Feb 5 1999
DRILLING METHOD: Hollow Stem
BORING DIAMETER: 4"

BORING NO: SB-1
TOTAL DEPTH: 22'
DEPTH TO WATER: Not Encountered
FIELD SUPERVISOR: Jay Gonyaw
CONTRACTOR: Tri-State
DRILLERS: Neil



Boring/Well Location

Depth	SN	BLOW COUNTS PER 6" (0-6)	(6-12)	(12-18)	(18-24)	Rec.	SAMPLE DESCRIPTION/COMMENTS	WELL DETAIL	PID (ppm)
1									
2									
3		3	3				- Dry, no odor		
4				2	2	10"			1.5
5		2	2				- no recovery		
6				1	2	0.0			
7		3	3				- med-fine sand, Dry		
8				4	5	11"			1.2
9		5	8				- medium sand, dry		
10				6	8	2"			2.1
11		5	5				- medium sand, light brown, dry		
12				8	7	18"			2.4
13		4	4				- grey medium sand, dry		
14				3	3	15"			2.4
15		4	4				- grey medium sand, dry		
16				3	3	15"			0.0
17									
18									
19									
20									
21		3	5				- well sorted med-fine grey/brn sand		
22				6	8	17"	- no odor, dry		0.0
25									
30									
35									
40									

AND	33-50%
SOME	20-33%
LITTLE	10-20%
TRACE	0-10%

BLOW COUNT	
0 - 4	VERY LOSE
4 - 10	LOOSE
10 - 30	MEDIUM
30 - 50	DENSE
> 50	VERY DENSE

MATERIALS USED	SIZE/TYPE	QUANTITY
WELL SCREEN		
SLOT SIZE		
RISER	- No well installed	
GRADED SAND		
BENTONITE PELLETS		
BENTONITE GROUT		

Tri-State Drilling & Boring, Inc.

RR#2 Box 113, Gaskell Hill
West Burke,Vermont 05871
802-467-3123

BIT # FTG
BIT # FTG

SHEET 1

TO Marin Environmental Address
DATE 2/5/99
PROJECT NAME Location East Corith
HOLE NO. S/B1
REPORT SENT TO PROJECT # Newport
LINE & STA.
SAMPLES SENTTO OUR JOB #
OFFSET

GROUND WATER OBSERVATIONS
AT AFTER HRS
AT AFTER HRS

	CASING	SAMPLER	CORE BAR
TYPE			
SIZE ID			
HAMMER WT.			BIT
HAMMER FALL			

SURFACE ELEV.
DATE STARTED 2/5/99
DATE COMPLE. 2/5/99
BORING FOREMAN Neil
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	CASING BLOWS PER/FT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM TO 0-6	6-12	12-18	18-24	MOISTURE DENSITY/ CONSIST.	NO.	PEN.	REC.	SOIL IDENTIFICATION REMARKS, INCLUDE COLOR, GRADATION, TYPE OF SOIL ROCK-COLOR, TYPE, CONDITION, HARNESS, DRILLING TIME, SEAMS AND ETC.
	0-2			3	3	2	2	Dry			10"	Brown sand
	2-4			2	2	1	2	Dry			0	
	6-8			3	3	4	5	Dry				Fine sand
	8-10			5	8	6	8	Dry			2"	Fill, brick
	10-12			5	5	8	7	Dry			18"	Medium sand
	12-14			4	4	3	3	Moist			10"	Medium sand
	14-16			4	4	3	3	Dry			15"	Medium sand
	20-22			3	5	6	8	Moist			17"	Fine sand

WELL REPORT

Screen 15' to 5', Riser to surface, #1 sand 15' to 4', chips to 2'

GROUND SUFACE TO
SAMPLE TYPE
C=DRY C=CORED W=WASHED
UP=UNDISTURBED PISTON
SP=TEST PIT A=AUGER V=VANE TEST
T=UNDISTURBED THINWALL

USED
PROPORTIONS USED
TRACE 0 TO 10%
LITTLE 10 TO 20%
SOME 20 TO 35%
AND 35 TO 50%

CASING: THEN
140LB WT. X30" FALL ON 2' O.D. SAMPLER

COHESIONLESS DENSITY		COHESIVE CONSISTENCY
0-10	LOOSE	0-4 SOFT
10-30	MED.DENSE	4-8 M/STIFF
30-50	DENSE	8-15 STIFF
50+	VERY DENSE	15-30 VERY STIFF

SUMMARY
EARTH BORING
ROCK CORING
SAMPLES

MATERIALS USED

SCREEN	10	SAND	3.5	ROAD BOX	1
RISER	5	BENTONITE	1	WELL GUARDS	
CAPS	1	HOLE PLUG		MIS:	
L.PLUG	1	ENV GROUT			

RECEIVED
FEB 25 1999

APPENDIX C
LABORATORY REPORTS

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

CLIENT: Marin Environmental
PROJECT: United Church
REPORT DATE: February 18, 1999

ORDER ID: 1332
DATE RECEIVED: February 11, 1999

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

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

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

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

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

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

RECEIVED
FEB 22 1999

enclosures

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

CLIENT: Marin Environmental
PROJECT: United Church
REPORT DATE: February 18, 1999

ORDER ID: 1332
DATE RECEIVED: February 11, 1999
SAMPLER: JG
ANALYST: 820

Ref. Number: 134691 | Site: SB-1 | Date Sampled: February 5, 1999 | Time: 10:30 AM

Parameter	Result	Unit	Method	Analysis Date
TPH 8015 DRO	< 5.0	mg/Kg	SW 8015B	2/16/99

ENDYNE, INC.

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

20g
28492

CHAIN-OF-CUSTODY RECORD

Project Name: United church Site Location:	Reporting Address: 170 Hamilton Ave colchester	Billing Address:
Endyne Project Number: 1332	Company: Main Env. Contact Name/Phone #: D. B.	Sampler Name: Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
134691	SB-1	soil	X		2/5/91 1030	2	40 ml VOA's		30		

Relinquished by: Signature	Received by: Signature Allison Towers	Date/Time 2/11/91 11:40
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes ____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): FC 213 + TPH by 8015 DCS										

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

CLIENT: Marin Environmental
PROJECT: United Church
REPORT DATE: February 19, 1999

ORDER ID: 1332
DATE RECEIVED: February 11, 1999

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

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

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

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

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

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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FEB 23 1999

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

CLIENT: Marin Environmental
PROJECT: United Church
REPORT DATE: February 19, 1999

ORDER ID: 1332
DATE RECEIVED: February 11, 1999
SAMPLER: JG
ANALYST: 725

Ref. Number: 134691 | Site: SB-1 | Date Sampled: February 5, 1999 | Time: 10:30 AM

Parameter	Result	Unit	Method	Analysis Date
Naphthalene	< 50.0	ug/Kg, dry	SW 8021B	2/17/99
MTBE	< 20.0	ug/Kg, dry	SW 8021B	2/17/99
Benzene	< 10.0	ug/Kg, dry	SW 8021B	2/17/99
Toluene	< 10.0	ug/Kg, dry	SW 8021B	2/17/99
Ethylbenzene	< 10.0	ug/Kg, dry	SW 8021B	2/17/99
Xylenes, Total	< 20.0	ug/Kg, dry	SW 8021B	2/17/99
1,3,5 Trimethyl Benzene	< 10.0	ug/Kg, dry	SW 8021B	2/17/99
1,2,4 Trimethyl Benzene	< 10.0	ug/Kg, dry	SW 8021B	2/17/99
UIP's	0.		SW 8021B	2/17/99
Percent Solid	95.	%	SW 8021B	2/17/99
Surrogate 1	98.	%	SW 8021B	2/17/99

ENDYNE, INC.

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

CHAIN-OF-CUSTODY RECORD

2 Org

28492

Project Name: Site Location: [illegible] church	Reporting Address: [illegible]	Billing Address:
Endyne Project Number: 1332	Company: [illegible] Contact Name/Phone #: [illegible]	Sampler Name: [illegible] Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
134191	SB-1	soil	X		0/1/94 10:00	2	100 ml 8oz		30		

Relinquished by: Signature	Received by: Signature [illegible]	Date/Time 2/11/09 11:40
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes ____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): 8021B + TPH by EPA 8015										

ENDYNE, INC.
32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY RECORD

28492

Project Name: Site Location:	Reporting Address:	Billing Address:
Endyne Project Number:	Company: Contact Name/Phone #:	Sampler Name: Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				

Relinquished by: Signature	Received by: Signature	Date/Time
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes ____ No ____

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
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3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										