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OCT 27 11 08 AM '97

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23 October, 1997

Mr. Larry Royer Sr.
P.O. Box 70A
Irasburg, VT 05845

RE: Initial Site Investigation Report,
Royer's Service Garage

Dear Larry:

Enclosed is one bound copy of the Initial Site Investigation Report for the above-referenced site. This report outlines the findings of the expressway investigation completed in September 1997.

Please contact me or Ron Miller, Regional Manager, if you have any questions or comments regarding this report.

Sincerely,

Bruce Hamilton

Bruce Hamilton
Environmental Engineer

enclosure

cc: Chuck Schwer

Ref: 96105R01.DOC



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INITIAL SITE INVESTIGATION REPORT

Royer's Service Garage

Route 5

Irasburg, Vermont 05845

(VT DEC SITE #97-2139)

23 October 1997

Prepared for:

Larry Royer Sr.

P.O. Box 70A

Irasburg, VT 05845

Phone: 802-754-2871

Prepared by:

Marin Environmental, Inc.

Ground Water of Vermont Division

1700 Hegeman Avenue

Colchester, VT 05446

Contact: Bruce Hamilton

(802) 655-0011

MARIN Project #V96-105

Ref. 96105R02.DOC

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EXECUTIVE SUMMARY

Marin Environmental, Inc. (MARIN) has conducted an initial site investigation of subsurface petroleum contamination at Royer's Service Garage located on US Route 5 in Irasburg, Vermont. Field investigations following removal of three in-service petroleum underground storage tanks (USTs) included three soil borings, field screening of subsurface soils for the possible presence of volatile organic compounds (VOCs), and sampling and analysis of subsurface soils from the borings.

This Initial Site Investigation Report presents the results of this investigation, as well as MARIN's conclusions and recommendations. MARIN's conclusions are summarized as follows:

1. Gasoline has been released to soils in the vicinity of the former USTs and pump island.
2. Residual gasoline contamination appears to be limited to unsaturated soils in the area immediately beneath the former pump island. PID readings on soil samples collected from the initial boring near the former pump island location (SB-1) ranged from 0.0 ppm to 1,771 ppm. The highest PID readings were encountered at a depth of 5-7 feet bgs. PID readings decreased with depth and were 0.00 ppm at a depth of 30 feet bgs. PID readings from borings SB-2 (cross-gradient of the source area) and SB-3 (downgradient location) were 0.0 ppm at all sampled intervals.
3. The gasoline releases do not appear to have impacted ground water at the site. Although ground water was not encountered in any of the borings, no petroleum compounds were detected in soil samples collected from the bottoms of the borings at 30-35 feet below ground surface (bgs).
4. Surficial materials at the site generally consist of medium to fine sand from the surface downward to approximately 32 feet bgs.
5. The garage and nearby Royer residence (approximately 150 feet to the south) are served by on-site septic systems and a drilled bedrock well, which is located approximately 240 feet south of, and topographically upgradient from, the removed USTs.
6. The residual contamination in the on-site soils does not appear to pose a significant threat to the environment or human health.

Based on the findings of this investigation and the conclusions stated above, MARIN does not believe that further investigation is warranted at the site. The soil stockpile, located to the rear of the on-site garage, should be monitored semi-annually with a photoionization detector (PID), and the integrity of the stockpile cover maintained. When PID readings have decreased to below one part per million (ppm), permission should be sought from the VT DEC to thin-spread the soils in accordance with established guidelines.

1.0 INTRODUCTION

This report details the results of an initial site investigation conducted at Royer's Service Garage located on US Route 5 in Irasburg, Vermont (Figure 1). The report has been prepared by Marin Environmental Inc. for Mr. Larry Royer Sr., the current property owner. This site investigation was initiated under Vermont's Expressway notification process following the removal of three in-service, registered, single-walled-steel petroleum underground storage tanks (USTs) in December 1996. MARIN informed Ms. Susan Thayer of the Vermont Department of Environmental Conservation (VT DEC) in a closure report dated 4 December 1996 of the presence of soil contamination in the vicinity of the former tanks and pump island.

1.1 Site Location and Physical Setting

The site consists of an approximately 2± acre developed parcel located on the west side of US Route 5 in Irasburg, Vermont approximately 300 feet south of the junction of Route 5 and Vermont Route 14, near the Coventry/Irasburg town line. The site is occupied by a convenience store, attached three-bay vehicle maintenance garage and private residence located approximately 150 feet south of the garage. The single-story wood-framed and cinder block garage building is constructed with a slab-on-grade foundation. The ground surface has an average elevation of approximately 790 feet above mean sea level. The topographical relief of the site gradually slopes toward the north; however, approximately 80 feet west of the on-site garage, the ground surface drops sharply at a 40-50% grade along a steep embankment. The presumed direction of ground-water flow in the area is toward the north or northwest in the general direction of the Black River. A site location map is presented as Figure 1 in Appendix A and the site layout is shown in Figure 2 in Appendix A.

The Village of Coventry and the Black River are located approximately 1/2 mile north of the store. The garage and nearby Royer residence are served by individual on-site septic systems, but share and a drilled bedrock well (reportedly over 600 feet in depth), which is located approximately 240 feet south of the removed USTs in the presumed upgradient direction. A rental storage facility, immediately to the north of the site and topographically downgradient, has no water supply. A five-unit residential housing development to the northeast and across Route 5 utilizes Coventry municipal water service, and is topographically cross- and upgradient of the site.

Native surficial materials at the site are mapped as littoral sediments, which are predominantly well-sorted sands, with no pebbles or boulders (Stewart and MacClintock, 1970). Bedrock underlying the site is mapped as the Ayers Cliff Limestone member of the Waits River Formation (Doll, 1961), which consists of siliceous crystalline limestone containing thin beds of slate and phyllite.

1.2 Site History

The subject property is currently used for used car sales, automotive maintenance and repair services, fuel distribution and as a retail convenience store. The site has been utilized as an automotive repair and fuel distribution business for over twenty years. Associated parking and drive areas surrounding the complex are surfaced with bituminous asphalt.

The three registered petroleum storage tanks were located approximately 12 feet from the eastern edge of the main building, 75 feet from the edge of the roadway and oriented in a side-by-side fashion. The UST system consisted of one 2,000 gallon diesel and two 3,000 gallon in-service gasoline tanks and associated piping. The pump island and associated fuel dispensers for the tanks were located approximately 25 feet east of the building along the eastern end of the tank cluster. Vent lines for all three tanks were located near the northeast corner of the store.

The USTs were removed from the ground in the presence of MARIN personnel on 2 December 1996. All three USTs were found to be in fair condition upon removal, with extensive surface rust and some shallow pitting. No holes were observed in any of the tanks. Associated piping for all tanks was found to also be in fair condition with rust but no detectable holes. All piping unions appeared to be intact.

PID readings on soil samples collected from the UST #1 excavation ranged from 0.2 to 778 parts per million (ppm) and averaged 103 ppm. The highest PID concentration was detected at the eastern end of the tank excavation, adjacent to the pump island, at depths of 8 - 10 feet below ground surface (bgs). A PID reading of 111.5 ppm was obtained on a sample collected from the base of the suction line, at a depth of 2.5 feet bgs.

PID readings on soil samples collected from the UST #2 excavation ranged from 0.1 to 974 ppm and averaged 113 ppm. The highest PID concentration was again detected at the eastern end of the tank, adjacent to the pump island, at depths of 5 - 6 feet bgs. Elevated PID readings were also observed in samples collected from adjacent to the top of the fill pipe (89.1 ppm) and the base of the fill pipe (45.3 ppm).

PID readings on soil samples collected from the UST #3 excavation ranged from 0.1 to 116 ppm and averaged 18 ppm. The highest PID concentrations were detected near the top of the at-grade fill pipe (116 ppm) and at the base of the suction line (111.5 ppm). With the exception of a 50.3 ppm reading on a sample collected from 3-5 feet bgs on the east wall, adjacent to the pump island, no other PID reading from this excavation exceeded 6.1 ppm.

PID readings on soil samples collected from beneath the pump island ranged from 162 to over 2000 ppm (the upper limit of the PID) and averaged 759 ppm. The highest PID concentrations were detected in samples collected from depths of 5-6 feet; strong gasoline odors were noted in these samples.

During the UST closure, soils beneath the pump island area were excavated to a depth of 18 feet bgs, the maximum reach of the excavator, in an effort to determine the vertical extent of the contamination. A sample collected from 16-18 feet bgs had a weathered petroleum odor, and a PID reading of 313 ppm. Removal of all contaminated soils was thus not considered feasible, so all excavated soils from this area were backfilled.

To permit the installation of the replacement tanks, approximately 70 cubic yards of contaminated soil were removed from the vicinity of the former USTs and stockpiled on-site within polyethylene sheeting.

Ambient PID readings taken from the building store area on the day of UST removal registered 0.0 ppm.

Neither ground water nor bedrock was encountered in any of the excavations. No free-phase petroleum product was observed. Native soils consisted of fine-to-medium sands.

1.3 Purpose and Scope of Work

The purposes of this initial site investigation were to:

- Evaluate the vertical extent of soil contamination at the site;
- Evaluate whether ground water has been impacted;
- Qualitatively assess the risks to the environment and human health by identifying all relevant sensitive receptors and potential contaminant migration pathways;
- Identify potentially appropriate remedial actions based on the site conditions; and
- Provide preliminary recommendations for future action.

To accomplish these objectives, MARIN has:

- Reviewed existing historical site data;
- Supervised the installation of three soil borings;
- Collected and submitted for laboratory analysis soil samples from the borings;
- Identified sensitive receptors in the area;
- Assessed the risk posed by the contamination to these potential receptors;
- Evaluated the need for treatment and/or a long-term monitoring plan for the site; and
- Prepared this summary report, which details the work performed, qualitatively assesses risks, provides conclusions and offers recommendations for further action.

2.0 INVESTIGATIVE PROCEDURES AND RESULTS

2.1 Soil Boring Installation

On 11 September 1997, MARIN supervised the installation of three soil borings at the site — one near the former tank/pump island location and two in the presumed down or cross-gradient direction. The borings were completed to depths ranging from 32 feet to 37 feet below ground surface (bgs). Boring locations are shown in Figure 2 of Appendix A.

The unconsolidated overburden encountered in the borings generally consists of fine to coarse sands from the surface downward to approximately 30-foot depth. Strong to slight petroleum odors were noted only in boring SB-1 (near the pump island) in samples collected between 5 and 29 feet bgs. No ground water or bedrock was encountered in any of the borings. Soil samples were collected from each boring at two-foot or five-foot intervals using a standard split-spoon barrel. Soil recovery was generally fair, ranging between 33 and 85 percent. The split-spoon samples were screened for the possible presence of VOCs with a photo-ionization detector (PID) and logged for lithology by a Marin Environmental engineer. Following withdrawal, the annular space was filled with native material. All downhole drilling and sampling equipment was decontaminated during use as appropriate. Boring construction details are included on the log in Appendix B. The PID soil screening results are discussed in Section 2.2 below. The borings were installed by Tri-State Drilling and Boring, Inc. of West Burke, Vermont using hollow-stem auger (HAS) drilling techniques.

2.2 Subsurface Soil Screening Results

Soil samples collected from the borings were field-screened for the possible presence of volatile organic compounds (VOCs) with a Photovac PE 2020 portable photoionization detector (PID) calibrated with isobutylene gas to a benzene reference. PID readings on soil samples collected from the initial boring near the former pump island location (SB-1) ranged from 0.0 ppm to 1,771 ppm. The highest PID readings were encountered at a depth of 5-7 feet bgs. PID readings decreased with depth and were 0.00 ppm at a depth of 30 feet bgs. PID readings from borings SB-2 (cross-gradient of the source area) and SB-3 (downgradient location) were 0.0 ppm at all sampled intervals. PID screening results are included on the boring logs in Appendix B.

TABLE 1.
PID Screening Results for SB-1

Sample Depth (ft)	PID Reading (ppm)
5-7	1,771
7-9	1,361/505
9-11	1,095/208
11-13	32.2/25.1
13-15	103
15-17	82.7
17-19	80.3
19-21	50.4
21-23	33.6
23-25	32.5
25-27	21.1
27-29	5.9
29-31	0.0
31-33	0.7
33-35	0.0
35-37	0.0

2.3 Soil Sampling and Analysis

No petroleum compounds were detected in soil samples obtained from the bottom of the three borings (SB-1, SB-2 and SB-3). Laboratory report forms are included in Appendix C.

All field procedures were conducted in accordance with MARIN standard protocols. All samples were placed in an ice-filled cooler and transported under chain-of-custody to a Vermont certified analytical laboratory, where they were tested for the presence of purgable aromatics hydrocarbons by EPA Method 8020 and total petroleum hydrocarbons (TPH) by modified EPA Method 8100.

2.4 Soil Stockpile Inspection and PID Screening

On 11 September 1997, a MARIN Field Scientist screened thirteen soil samples collected from the on-site soil stockpile, located to the rear of the garage, using a Photovac PE 2020 photoionization detector (PID). The PID readings ranged from 0.0 to 356 ppm, which are above the one ppm VT DEC permissible level for thin spreading. The initial PID readings obtained on 2 December 1996 during the UST closure were between 862 and 1,957 ppm. A summary of the PID reading obtained from the soil stockpile is provided on Table 2. Sampling locations are noted on the site map (Figure 2).

TABLE 2.
Soil Pile PID Screening Results

Sample Location	PID Reading (ppm)
S-1	8.6
S-2	47.2
S-3	37.4
S-4	31.1
S-5	35.3
S-6	2.2
S-7	134
S-8	0.3
S-9	0.0
S-10	0.5
S-11	356
S-12	2.0
S-13	36.8

The soil stockpile consists of a single pile approximately 800 square feet in area. Soil samples were collected from the pile for PID screening by diagonally hand auguring approximately one to two feet beneath the surface. Each soil sample was placed in a ziplock-type bag, sealed, and then agitated. The probe of the PID was inserted into the headspace created at the top of the bag. All PID readings were recorded in a field logbook by the on-site Field Scientist. The PID was calibrated on the same day as the site visit with an isobutylene standard to a benzene reference. The stockpiled-soil cover was found with various degrees of deterioration which the property owner has agreed to rectify by re-encapsulation with reinforced, 6-mil polyethylene plastic. The polyethylene was secured with old tires and rocks.

3.0 SENSITIVE RECEPTOR SURVEY AND RISK ASSESSMENT

MARIN conducted a survey to identify potentially-impacted sensitive receptors which might be impacted by the residual soil contamination identified at the site. Given the localized area of contamination identified onsite, the risk of vapor entry to nearby buildings or off-site migration is considered low. At this time there is no evidence that the residual onsite soil contamination would adversely impact or pose a significant threat to any nearby sensitive receptors.

The drinking-water supply for the site is provided by a drilled bedrock well located to the rear of the Royer residence and approximately 240 feet south (and topographically upgradient of the former USTs). A municipal water supply services the 5-unit housing development (located approximately 500 feet east of Royer's Service Garage) which receives water from Coventry's drinking-water supply well which is located approximately 1.5 miles north and topographically downgradient of the subject property.

PID sampling of ambient air within the on-site minimart complex did not detect the presence of volatile organic compounds. The Photovac Model 2020 PID was calibrated on the same day as the site visit with an isobutylene standard to a benzene reference.

The absence of detectable levels of gasoline contamination in unsaturated soils directly beneath both possible source areas suggests that ground water has not been impacted. As a result, the likelihood of an impact to any water supplies or surface-water bodies is considered very low.

4.0 CONCLUSIONS

Based on the results of the site investigation described above, Marin Environmental Inc. concludes the following:

1. Gasoline has been released to soils in the vicinity of the former USTs and pump island.
2. Residual gasoline contamination appears to be limited to unsaturated soils in the area immediately beneath the former pump island. PID readings on soil samples collected from the initial boring near the former pump island location (SB-1) ranged from 0.0 ppm to 1,771 ppm. The highest PID readings were encountered at a depth of 5-7 feet bgs. PID readings decreased with depth and were 0.00 ppm at a depth of 30 feet bgs. PID readings from borings SB-2 (cross-gradient of the source area) and SB-3 (downgradient location) were 0.0 ppm at all sampled intervals.
3. The gasoline releases do not appear to have impacted ground water at the site. Although ground water was not encountered in any of the borings, no petroleum compounds were detected in soil samples collected from the bottoms of the borings at 30-35 feet below ground surface (bgs).
4. Surficial materials at the site generally consist of medium to fine sand from the surface downward to approximately 32 feet bgs.
5. The garage and nearby Royer residence (approximately 150 feet to the south) are served by on-site septic systems and a drilled bedrock well, which is located approximately 240 feet south of, and topographically upgradient from, the removed USTs.
6. The residual contamination in the on-site soils does not appear to pose a significant threat to the environment or human health.

5.0 RECOMMENDATIONS

Based on the findings of this investigation and the conclusions stated above, MARIN does not believe that further investigation is warranted at the site. The soil stockpile, located to the rear of the on-site garage, should be monitored semi-annually with a photoionization detector (PID), and the integrity of the stockpile cover maintained. When PID readings have decreased to below one part per million (ppm), permission should be sought from the VT DEC to thin-spread the soils in accordance with established guidelines.

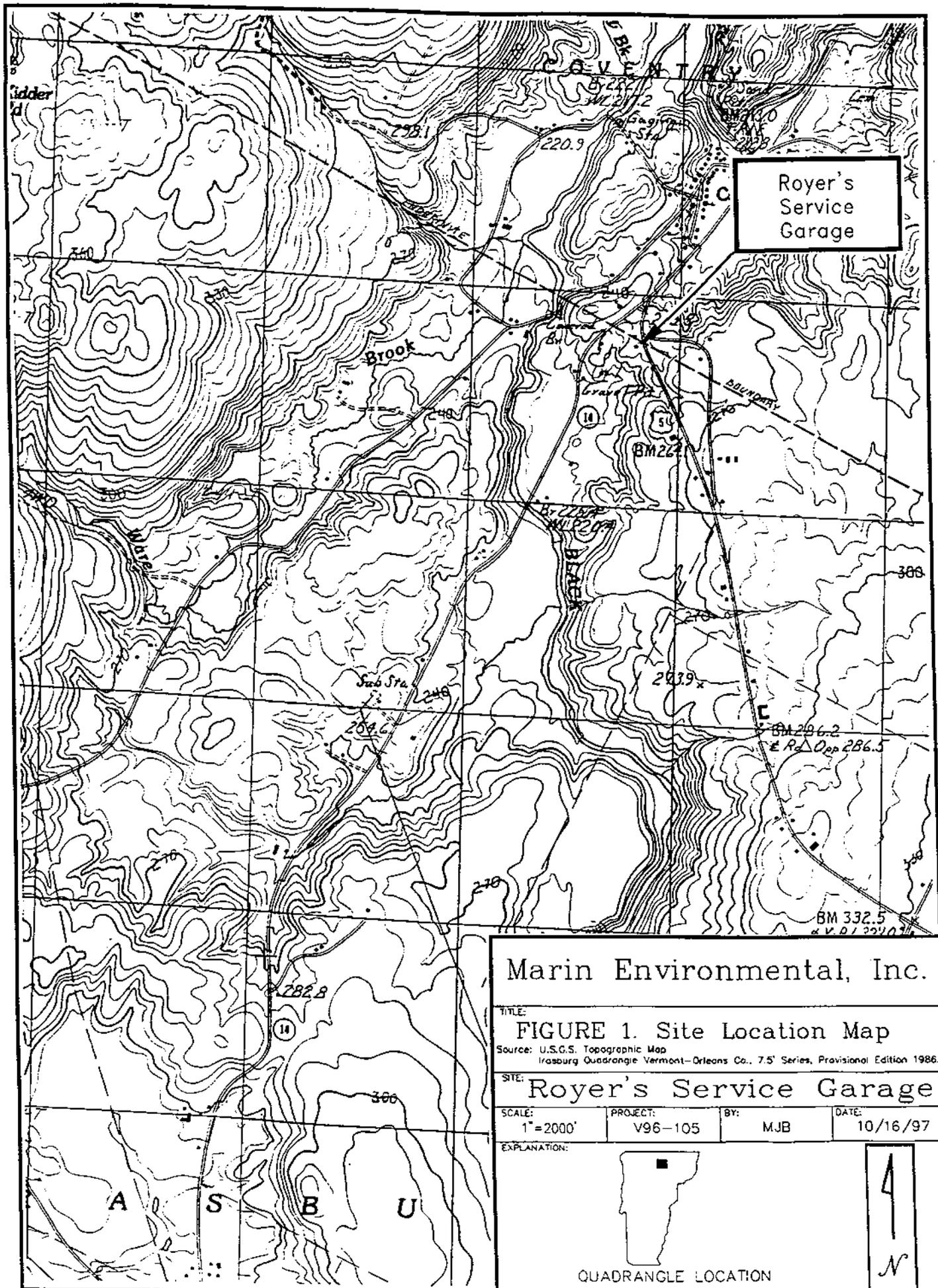
6.0 REFERENCES

Doll, C.G. and others, 1961. *Geologic Map of Vermont*, Office of the State Geologist.

Stewart, D.P. and P. MacClintock, 1970. *Surficial Geologic Map of Vermont*, Office of the State Geologist.

APPENDIX A

Figures and Tables



Marin Environmental, Inc.

TITLE:
FIGURE 1. Site Location Map
 Source: U.S.G.S. Topographic Map
 Irasburg Quadrangle Vermont—Orleans Co., 7.5' Series, Provisional Edition 1986.

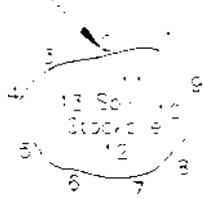
SITE:
Royer's Service Garage

SCALE: 1" = 2000'	PROJECT: V96-105	BY: MJB	DATE: 10/16/97
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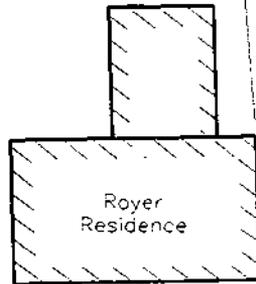
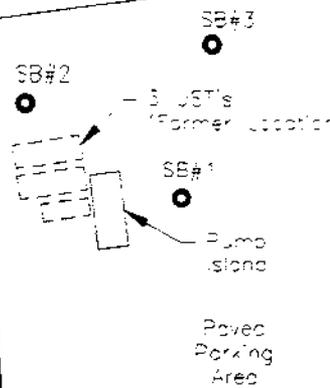
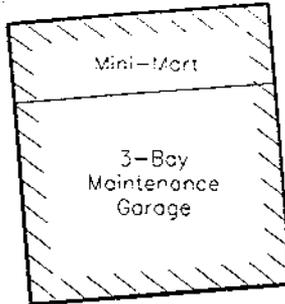
EXPLANATION:

QUADRANGLE LOCATION

PID SAMPLING LOCATION
(see Table 2)

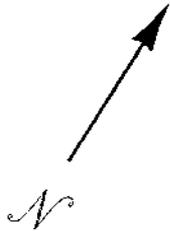


SELF-STORAGE COMPLEX



Bedrock
Supply Well
⊕

T.O.B.



TO COVINGTON

US RTE 5

TO ORLANS

500 FT. TO
6-UNIT
RESIDENTIAL
DEVELOPMENT



Marin Environmental, Inc.

1 Mill St., Box C-5
Burlington, VT 05401
(802) 860-6065

ROYER'S SERVICE GARAGE
IRASBURG, VT

FIGURE 2.
SITE MAP

LEGEND:

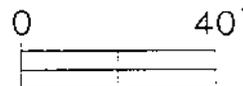
● Soil Boring

DRAWN BY: MUB

DATE: OCT 97

APPROVED BY: [Signature]

FILE NO: 96105sc



SCALE

ALL LOCATIONS ARE APPROXIMATE

APPENDIX B

Boring Logs

DRILLING METHOD HSA
RING DIAMETER 6"

AND 40 - 50%
SOME 10 - 40%
TRACE 0 - 10%

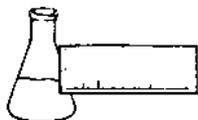
BORING LOCATION BORING #
sketch on back or on-site plan SB-3
with measurements TOTAL DEPTH
30'

DEPTH	SAMPLES SAMPLE NUMBER	BLOWS PER 6"				REC.	SAMPLE DESCRIPTION	STRAT CHG	GENERAL DESCRIPTION	WELL DETAIL	DEPTH
		0	6	12	18						
10'											
5'											
20'											
25'											
30'											
35'											
40'											

MATERIALS USED	SIZE/TYPE	QUANTITY	MATERIALS USED	SIZE/TYPE	QUANTITY
WELL SCREEN			GROUT		
SLOT SIZE			BACKFILL		
RISER PIPE			WATER USED		
GRADED SAND			STEAM CLEANER		
PELLET BENTONITE					
GRANULAR BENTONITE					

APPENDIX C

Laboratory Report Forms



LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8260

CLIENT: Marin Environmental
PROJECT NAME: Royers Service/V96105
REPORT DATE: September 29, 1997
SAMPLER: J. Gonyaw
DATE SAMPLED: September 11, 1997
DATE RECEIVED: September 15, 1997

PROJECT CODE: GWVT1358
ANALYSIS DATE: September 24, 1997
STATION: Boring #1
REF.#: 109,795
TIME SAMPLED: 1245

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	10	ND ¹
Chlorobenzene	10	ND
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
Ethylbenzene	10	ND
Toluene	10	ND
Xylene	20	ND
MTBE	20	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

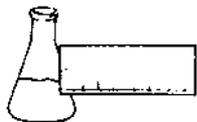
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 84.%
Toluene-d8: 105.%
4-Bromofluorobenzene: 100.%

PERCENT SOLIDS: 88.%

NOTES:

1 None detected



LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8260

CLIENT: Marin Environmental
PROJECT NAME: Royers Service/V96105
REPORT DATE: September 29, 1997
SAMPLER: J. Gonyaw
DATE SAMPLED: September 11, 1997
DATE RECEIVED: September 15, 1997

PROJECT CODE: GWVT1358
ANALYSIS DATE: September 24, 1997
STATION: Boring #2
REF.#: 109,796
TIME SAMPLED: 1530

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	10	ND ¹
Chlorobenzene	10	ND
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
Ethylbenzene	10	ND
Toluene	10	ND
Xylene	20	ND
MTBE	20	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

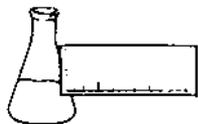
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 83.%
Toluene-d8: 106.%
4-Bromofluorobenzene: 98.%

PERCENT SOLIDS: 84.%

NOTES:

1 None detected



LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8260

CLIENT: Marin Environmental
PROJECT NAME: Royers Service/V96105
REPORT DATE: September 29, 1997
SAMPLER: J. Gonyaw
DATE SAMPLED: September 11, 1997
DATE RECEIVED: September 15, 1997

PROJECT CODE: GWVT1358
ANALYSIS DATE: September 24, 1997
STATION: Boring #3
REF.#: 109,797
TIME SAMPLED: 1650

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	10	ND ¹
Chlorobenzene	10	ND
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
Ethylbenzene	10	ND
Toluene	10	ND
Xylene	20	ND
MTBE	20	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

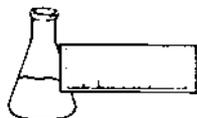
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 108.%
Toluene-d8: 97.%
4-Bromofluorobenzene: 104.%

PERCENT SOLIDS: 85.%

NOTES:

1 None detected



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
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(802) 879-4333
FAX 879-7103

LABORATORY REPORT

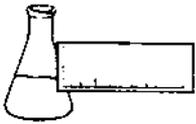
TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8100

DATE: September 29, 1997
CLIENT: Marin Environmental
PROJECT: Royers Service/V96105
PROJECT CODE: gWVT1357
COLLECTED BY: J. Gonyaw
DATE SAMPLED: September 11, 1997
DATE RECEIVED: September 15, 1997

Reference #	Sample ID	Concentration (mg/kg) ¹
109,792	Boring #1; 12:45	ND ²
109,793	Boring #2; 15:30	ND
109,794	Boring #3; 16:50	ND

Notes:

- 1 Method detection limit is 5.0 mg/kg.
- 2 None detected



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REPORT OF LABORATORY ANALYSIS

CLIENT: Marin Environmental
PROJECT NAME: Royers Service/V96105
DATE REPORTED: September 29, 1997
DATE SAMPLED: September 11, 1997

PROJECT CODE: GWVT1357
REF. #: 109,792 - 109,794

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

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.

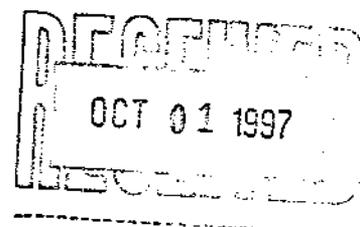
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were 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.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures





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G.W.V. 1357

CHAIN-OF-CUSTODY RECORD

22788

V 96105

109,792 — 109,797

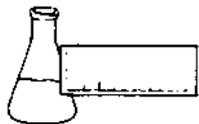
Project Name: Royers Service Station	Reporting Address: 1700 Hegeman Ave Colchester, VT	Billing Address:
Endyne Project Number: GWVT1357	Company: Marin Env. Contact Name/Phone #: B. Hamilton 655-0011	Sampler Name: J. Gonyea Phone #: 655-0011

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
109,792	Boring # 1	Soil	X		9/14/97 1245	2	40cc gls		30		
	Boring # 1				1245	1	250ml Amber		19		
109,793	Boring # 2				1530	2	40cc gls		30		
	Boring # 2				1530	1	250ml Amber		19		
109,794	Boring # 3				1650	2	40cc gls		30		
	Boring # 3				1650	1	250ml Amber		19		

Relinquished by: Signature	Received by: Signature Tonia M. Chamberlain	Date/Time 9-15-97	11:40
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
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 + MTBE	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): TPH by modified 8100										



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REPORT OF LABORATORY ANALYSIS

CLIENT: Marin Environmental
PROJECT NAME: Royers Service/V96105
DATE REPORTED: September 29, 1997
DATE SAMPLED: September 11, 1997

PROJECT CODE: GWVT1358
REF. #: 109,795 - 109,797

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

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.

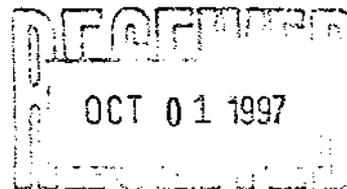
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were 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.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director



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CHAIN-OF-CUSTODY RECORD

22788

Project Name: Royers Service Station
Site Location: Colchester, VT
Endyne Project Number: GWVT 1358

Reporting Address: 1700 Hegeleman Ave Colchester, VT
Company: Marin Env.
Contact Name/Phone #: B. Hamilton 655-0011

Billing Address:
Sampler Name: J. Gonyea
Phone #: 655-0011

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
109,795	Boring #1	Soil	X		9/11/97	2	40cc 9/5		30		
109,796	Boring #1				1245	1	250mc Amber		19		
109,796	Boring #2				1530	2	40cc 9/5		30		
109,797	Boring #2				1530	1	150mc Amber		19		
	Boring #3				1650	2	40cc 9/5		30		
	Boring #3				1650	1	250mc Amber		19		

Relinquished by: Signature [Signature] Date/Time 9-15-97 11:40

Received by: Signature [Signature] Date/Time

New York State Project: Yes <u>NOX</u>		Requested Analyses							
1	pH	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pests/PCB
4	Nitrite N	14	Turbidity	19	<u>BTEX & PAHs</u>	24	EPA 608 Pests/PCB		
5	Nitrate N	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)								
30	Other (Specify): <u>TPH by modified 8100</u>								