

2428

MARIN

ENVIRONMENTAL

31 October 2000

Chuck Schwer
VT DEC
Waste Management Division
103 S. Main Street, West Building
Waterbury, VT 05671-0404

RE: *Initial Site Investigation*
Jon's Automotive, Lyndonville, Vermont (VT DEC Site #98-2428)

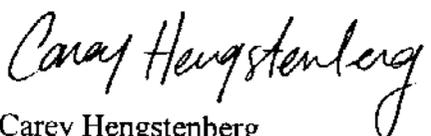
Dear Mr. Schwer,

Enclosed is the client approved Initial Site Investigation Report for Jon's Automotive in Lyndonville, Vermont.

Please call me if you have any question or comments regarding this report.

Sincerely,

Marin Environmental, Inc.



Carey Hengstenberg
Environmental Scientist

ch/A00060103

Attachment

cc: Gene Pushee (cover letter only)

SCIENTISTS
ENGINEERS
GIS SPECIALISTS

VERMONT

73 MILLE STREET
RICHMOND VT 05477
PHONE 802.434.4500
FAX 802.434.6076
TOLL FREE 1.800.520.6065

NEW YORK

116 CONSUMER SQ, SUITE 174
PLATTSBURGH NY 12901
PHONE 518.566.8297
TOLL FREE 1.800.520.6065

NEW HAMPSHIRE

114 SOUTH STATE STREET
PO BOX 1414
CONCORD NH 03302
PHONE 603.224.8871
FAX 603.224.8688
TOLL FREE 1.800.636.6030

MASSACHUSETTS

600 CHARLTON STREET
SOUTH BRIDGE MA 01550
PHONE 508.764.8755
FAX 508.764.1054
TOLL FREE 1.800.676.3707

LAKESIDE OFFICE PARK
599 NORTH AVENUE SUITE 604
WAKEFIELD MA 01880
PHONE 781.246.9897
FAX 781.246.0950
TOLL FREE 1.800.344.1958

CONNECTICUT

7 ISLAND DOCK ROAD
HADDAM CT 06438
PHONE 860.345.4578
FAX 860.345.3854
TOLL FREE 1.800.524.9256

INTERNET
WWW.MARINENV.COM

**INITIAL SITE
INVESTIGATION**

**JON'S AUTOMOTIVE
ROUTE 5
LYNDONVILLE, VERMONT**

30 OCTOBER 2000

Prepared for:

**BRADFORD OIL
BRADFORD, VERMONT**

Prepared by:

**MARIN
ENVIRONMENTAL, INC.
RICHMOND, VERMONT**

Reference No. A0-0060

SCIENTISTS

ENGINEERS

GIS SPECIALISTS

VERMONT

73 MILL STREET
RICHMOND VT 05477
PHONE 802.434.4500
FAX 802.434.6076
TOLL FREE 1.800.520.6065

NEW YORK

116 CONSUMER SQ., SUITE 174
PLATTSBURGH NY 12901
PHONE 518.566.8297
TOLL FREE 1.800.520.6065

NEW HAMPSHIRE

114 SOUTH STATE STREET
PO BOX 1414
CONCORD NH 03302
PHONE 603.224.8671
FAX 603.224.8688
TOLL FREE 1.800.636.6030

MASSACHUSETTS

600 CHARLTON STREET
SOUTHBRIDGE MA 01550
PHONE 508.764.8755
FAX 508.764.4054
TOLL FREE 1.800.676.3707

LAKESIDE OFFICE PARK
599 NORTH AVENUE SUITE G-4
WAKEFIELD MA 01880
PHONE 781.246.8897
FAX 781.246.8950
TOLL FREE 1.800.344.1958

CONNECTICUT

7 ISLAND ROCK ROAD
HADDAM CT 06438
PHONE 860.345.4578
FAX 860.345.3854
TOLL FREE 1.800.524.9256

INTERNET
WWW.MARINENV.COM

031 10 00 11 2 001

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY	
1.0 INTRODUCTION	1
1.1 Site Description and Physical Setting	
1.2 Site History	
1.3 Objectives and Scope of Work	
2.0 INVESTIGATIVE PROCEDURES AND RESULTS	4
2.1 Ground Water Elevation and Flow Direction	
2.2 Sampling and Analysis	
3.0 SENSITIVE RECEPTOR SURVEY AND RISK ASSESSMENT	6
3.1 Sensitive Receptor Survey	
3.2 Risk Assessment	
4.0 CONCLUSIONS	8
5.0 RECOMMENDATIONS	9

FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Contaminant Distribution Map
Figure 4	Proposed Monitoring Well Locations

TABLES

Table 1	Laboratory Analytical Results
---------	-------------------------------

APPENDICES

Appendix A	Laboratory Report Forms
------------	-------------------------

EXECUTIVE SUMMARY

Marin Environmental, Inc. (Marin) has conducted an initial site investigation (ISI) at the former location of Jon's Automotive on US Route 5 in Lyndonville, Vermont. This ISI is being conducted because Subsurface petroleum contamination was discovered at Jon's Automotive on 4 June 1998 during the removal of five gasoline underground storage tanks (USTs), and one diesel UST. The ISI included sampling two existing monitoring wells and evaluating potential threats to nearby receptors. Marin's findings related to this work are summarized as follows:

- Analytical results from sampling performed on 30 August 2000 indicate that the shallow aquifer beneath the site is contaminated with dissolved-phase, petroleum-related volatile organic compounds (VOCs). The lateral and vertical extent of dissolved-phase VOCs has not been adequately defined. Monitoring well MW-3, which was installed following UST removals in 1998, was found destroyed on 30 August 2000, therefore it was not sampled as part of the ISI.
- Total benzene, toluene, ethylbenzene and xylenes (BTEX) concentrations ranged from 2.3 µg/L in the ground-water sample collected from monitoring well MW-1, to 30,810 µg/L in MW-2. VGESs were exceeded for more than one petroleum-related VOC in MW-2. The gasoline additive MTBE was detected in monitoring well MW-2 at 62,200 µg/L exceeding the VGES for MTBE of 40 µg/L.
- Concentrations of total petroleum hydrocarbons (TPH) for diesel range organics (DROs) ranged from 1.28 mg/L in the ground-water sample collected from monitoring well MW-1, to 26.1 mg/L in MW-2.
- Given the available data, several sensitive receptors may be at risk for petroleum-contaminant impact including a storm drain and underground utilities located along Route 5 adjacent to the site and the Passumpsic River located 600 feet west of the site.
- Based on local topography, ground water in the unconfined surficial aquifer at the site appears to be flowing west towards the Passumpsic River. Depth to ground water measured

EXECUTIVE SUMMARY

from MW-1 and MW-2 at approximately six to seven feet below ground surfaces (bgs). Additional data are necessary to adequately characterize hydrogeologic conditions and extent of soil and groundwater VOC contamination.

Based on all the data collected at the site to date, Marin recommends the following:

1. Up to six monitoring wells should be installed to determine the nature and extent of ground water contamination at the site. The proposed locations, including well-placement rationale, are included on Figure 4.
2. The newly installed monitoring wells and the two existing monitoring wells should be sampled and analyzed for the possible presence of volatile petroleum compounds by EPA Method 8021B and TPH by Method 8015 DRO.
3. The risk to sensitive receptor impact should be further investigated by identifying the location of underground utilities to evaluate if the petroleum hydrocarbon vapors have migrated into the utility lines. Ambient air in building basements downgradient of the site should continued to be screened for VOCs.
4. Upon completion of the supplemental work, a report should be prepared which includes a boring logs, ground water elevation map, contaminant distribution map and identifies an appropriate course of action for the site.

1.0 INTRODUCTION

This report details the results of an Initial Site Investigation (ISI) performed by Marin Environmental, Inc. (Marin) at the former location of Jon's Automotive on US Route 5 in Lyndonville, Vermont (Figure 1 and Figure 2). This work was approved in a letter from Chuck Schwer of the Vermont Department of Environmental Conservation dated 21 August 2000.

1.1 *Site Description and Physical Setting*

The site is located on Vermont Route 5 in Lyndonville, Vermont (Figure 1). No structures are currently located on the site. A garage was located on the property during the UST closure activities in 1998. This structure was reported to have been removed in 1998 and currently no buildings are present on the site. Trucks and trailers from local businesses park on the property.

The site is bounded by US Route 5 to the west and south, Miss Lyndonville Diner to the north, and a steep, wooded embankment to the east. In general, the ground surface at the site slopes gently to the southwest, toward the Passumpsic River, which is, located approximately 600 feet west of the site. The surficial geology in the area is composed of well sorted sand and Quaternary alluvium consisting of fluvial sands and gravel (McClintock, 1974). The bedrock underlying the site is mapped as the Silurian Waits River Formation composed of quartz muscovite schist interbedded with crystalline limestone (Doll et al., 1961).

1.2 *Site History*

Subsurface petroleum contamination was discovered at Jon's Auto on 4 June 1998 during the removal of five out-of-service gasoline USTs and one out-of-service diesel UST. The environmental site assessment for the UST closure was conducted by Marin and summarized in a report dated 11 June 1998. There were three areas of excavation: (1) one 6,700-gallon gasoline UST, one 2,800 gallon gasoline UST and one 4,000 gallon

diesel UST located south of the former building, (2) two 1,500 gallon gasoline USTs located directly west of the former building and beneath the former pump island (3) a 10,000 gallon gasoline UST located north of the former Jon's Auto building (Figure 2). One monitoring well was installed in each excavation following UST removals. The average PID readings during UST removal activities were 1,036 parts per million (ppm) in excavation area one, 804 ppm in excavation area two and 556 ppm in excavation area three. All USTs in excavation areas one and two were found to be in poor condition with severe pitting and holes. The gasoline UST in excavation area three was found to be in good condition.

Ground water was encountered in each excavation approximately 8 feet below ground surface (bgs). All excavated soils were backfilled. Three monitoring wells were installed during backfilling, one in each excavation area.

1.3 *Objectives and Scope of Work*

The objectives of this initial site investigation were to:

- evaluate the degree and extent of subsurface petroleum contamination at the site;
- qualitatively assess the risks to environmental and public health via relevant sensitive receptors and potential contaminant migration pathways; and
- identify potentially appropriate monitoring and/or remedial actions based on the site conditions.

To accomplish these objectives, Marin has:

- collected and submitted ground-water samples from two monitoring wells, for laboratory analysis of volatile petroleum compounds by EPA Method 8021B, and

total petroleum hydrocarbons (TPH) by EPA Method 8015 diesel-range organics (DRO);

- identified sensitive receptors in the area, and assessed the risk posed by the contamination to these potential receptors;
- 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 *Ground Water Flow*

Ground water flow direction could not be determined from this investigation because only two wells exist and a third is necessary to triangulate ground water flow. Depth to ground water in the two existing wells was 6.52 in MW-1 and 6.82 in MW-2.

2.2 *Sampling and Analysis*

Two of the three monitoring wells installed during UST removal activities were sampled on 30 August 2000. Monitoring well MW-3, located in excavation area three was not sampled because it has been destroyed since installation in 1998. Monitoring well MW-1 was found to be cracked and in poor condition.

Results received from Endyne, Inc. indicate that US EPA Method 8021B target compounds are present in ground water samples collected from MW-1 and MW-2. Groundwater Enforcement Standards¹ (VGESs) were exceeded for BTEX compounds, MTBE, 1,3,5 Trimethyl Benzene (TMB) and 1,2,4 - TMB in MW-2.

Dissolved-phase petroleum-related constituents were detected in ground-water samples collected at the site on 31 August 2000. Total dissolved-phase BTEX (benzene, toluene, ethylbenzene, and total xylenes) concentrations in groundwater ranged from 2.3 micrograms per liter ($\mu\text{g/L}$) in monitoring well MW-1, to 30,810 $\mu\text{g/L}$ in MW-2. The gasoline additive methyl tert-butyl ether (MTBE) was detected in MW-2 at 62,200 $\mu\text{g/L}$. Groundwater Enforcement Standards² (VGESs) were exceeded for BTEX compounds, MTBE, 1,3,5 Trimethyl Benzene (TMB) and 1,2,4 - TMB.

¹ The Vermont DEC has established Groundwater Enforcement Standards (VGESs) for eight petroleum related VOCs, as follows: benzene - 5 $\mu\text{g/L}$; toluene - 1,000 $\mu\text{g/L}$; ethylbenzene - 700 $\mu\text{g/L}$; xylenes - 10,000 $\mu\text{g/L}$; MTBE, a gasoline additive, - 40 $\mu\text{g/L}$; naphthalene - 20 $\mu\text{g/L}$; 1,2,4 trimethyl benzene - 5 $\mu\text{g/L}$; and 1,3,5 trimethyl benzene - 4 $\mu\text{g/L}$.

Concentrations of TPH for DROs ranged from 1.28 milligrams per liter (mg/L) in the ground-water sample collected from monitoring well MW-1, to 26.1 mg/L in MW-2. Analytical results are included in Table 1, and on the Contaminant-Distribution Map (Appendix A, Figure 3). Laboratory report forms are included in Appendix A.

The two on-site monitoring wells were purged and then sampled using dedicated bailers and droplinc. Purge water was discharged directly to the ground in the vicinity of each well. Trip blank and duplicate samples were collected to ensure that adequate quality assurance/quality control (QA/QC) standards were maintained. All field procedures were conducted in accordance with Marin standard protocols.

All samples were transported under chain-of-custody in an ice-filled cooler to Endyne, Inc. of Williston, Vermont. All samples were analyzed for the possible presence of volatile petroleum compounds by EPA Method 8021B and TPH by EPA Method 8015 DRO. Analytical results from the QA/QC samples indicate that adequate QA/QC was maintained during sample collection and analysis. No petroleum compounds were detected in the trip blank. Analytical results for the blind field duplicate sample collected from MW-1 were within an average of 24 percent of the original sample results. A summary of QA/QC results is included in Table 1.

3.0 SENSITIVE RECEPTOR SURVEY AND RISK ASSESSMENT

3.1 *Sensitive Receptor Survey*

Marin conducted a survey to identify sensitive receptors in the vicinity of the former Jon's Auto Property that could potentially be impacted by contamination associated with the site. The following sensitive receptors were identified in the vicinity of the property.

- Three off-site buildings on the west side of Route 5 are potentially downgradient of the site and have basements through which vapors could enter.
- The Passumpsic River, located approximately 600 feet west of the site. The Passumpsic River appears to be the surface discharge point for ground water flowing beneath the site.
- A storm drain and subsurface utilities along Route 5 are located within ten feet of monitoring well MW-2.

3.2 *Risk Assessment*

On the basis of the information obtained during this investigation, Marin has qualitatively assessed the risks that the subsurface contamination poses to human health and the environment. Our findings are as follows:

- Marin screened ambient air in basements at the Trout River Brewery and the Aubuchon Hardware store for the possible presence of volatile organic compounds (VOCs) using a photoionization detector (PID). Reading from both buildings were at background levels.

- The risks posed to the Passumpsic River cannot be adequately evaluated at this time, because the downgradient extent of subsurface contamination has not been determined.
- The risk of human exposure through direct contact with residual petroleum-contaminated soils is considered to be low, considering that all known petroleum contaminated soils are located beneath paved parking lots and roadways. However, direct contact with contaminated soil is possible, if any subsurface exploratory or construction work is performed.
- The risk of ingestion of contaminated ground water appears to be very low. The ground water table is greater than five feet bgs and all drinking water used in the surrounding area is provided by the municipal system. No private or public drinking-water supply wells were identified in the immediate vicinity of the site.
- The risk of vapor entry into subsurface utilities and storm drains has not been adequately evaluated.
- Utility lines and storm drains could serve as conduits for contaminant migration off-site

4.0 CONCLUSIONS

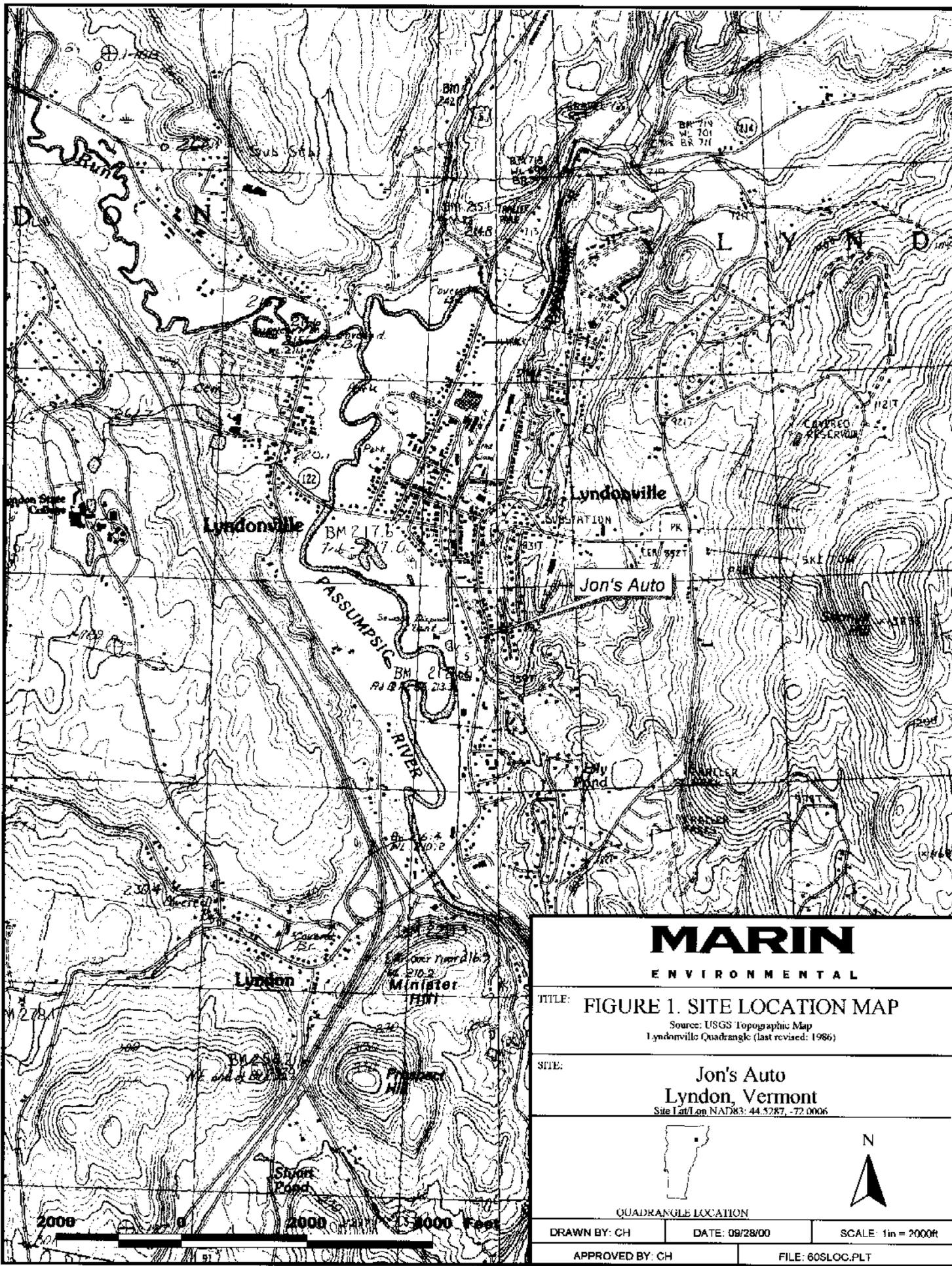
Based on the results of the ISI described above, Marin concludes the following:

- Analytical results from sampling performed on 30 August 2000 indicate that the shallow aquifer beneath the site is contaminated with dissolved-phase, petroleum-related VOCs. The lateral and vertical extent of dissolved-phase VOCs has not been adequately defined. Monitoring well MW-3, which was installed following UST removals in 1998, was found destroyed on 30 August 2000, therefore it was not sampled as part of the ISI.
- Total BTEX concentrations ranged from 2.3 µg/L in the ground-water sample collected from monitoring well MW-1, to 30,810 µg/L in MW-2. VGESs were exceeded for more than one petroleum-related VOC in MW-2. The gasoline additive MTBE was detected in monitoring well MW-2 at 62,200 µg/L exceeding the VGES for MTBE of 40 µg/L.
- Concentrations of TPH for DROs ranged from 1.28 mg/L in the ground-water sample collected from monitoring well MW-1, to 26.1 mg/L in MW-2.
- Given the available data, several sensitive receptors may be at risk for petroleum-contaminant impact including a storm drain and underground utilities located along Route 5 adjacent to the site and the Passumpsic River located 600 feet west of the site.
- Based on local topography, ground water in the unconfined surficial aquifer at the site appears to be flowing west towards the Passumpsic River. Depth to ground water measured from MW-1 and MW-2 at approximately six to seven feet below ground surfaces (bgs). Additional data are necessary to adequately characterize hydrogeologic conditions and extent of soil and groundwater VOC contamination.

5.0 RECOMMENDATIONS

On the basis of the results of this investigation and the conclusions stated above, Marin recommends the following:

1. Up to six monitoring wells should be installed to determine the nature and extent of ground water contamination. The proposed locations, including well-placement rationale, are included on Figure 4.
2. The newly installed monitoring wells and the two existing monitoring wells should be sampled and analyzed for the possible presence of volatile petroleum compounds by EPA Method 8021B and TPH by Method 8015 DRO.
3. The risk to sensitive receptor impact should be further investigated by identifying the location of underground utilities to evaluate if the petroleum hydrocarbon vapors have migrated into the utility lines. Ambient air in building basements downgradient of the site should continued to be screened for VOCs.
4. Upon completion of the supplemental work, a report should be prepared which includes a boring logs, ground water elevation map, contaminant distribution map and identifies an appropriate course of action for the site.



MARIN
ENVIRONMENTAL

TITLE: **FIGURE 1. SITE LOCATION MAP**

Source: USGS Topographic Map
Lyndonville Quadrangle (last revised: 1986)

SITE: **Jon's Auto**
Lyndon, Vermont
Site Lat/lon NAD83: 44.5287, -72.0006



QUADRANGLE LOCATION

DRAWN BY: CH	DATE: 08/28/00	SCALE: 1in = 2000ft
APPROVED BY: CH	FILE: 60SLOC.PLT	

LYNDONVILLE
HARDWARE

TROUT RIVER
BREWERY

PASSUMPSIC RIVER APPROX. 600 FT.

TP-2

ROUTE 5

FORMER
GASOLINE UST'S
& PUMP ISLAND

MW-2

DRAIN #1

DRAIN #2

FORMER
DIESEL UST

MW-1

FORMER
GASOLINE UST'S

FORMER SITE
OF BLDG.

FORMER
GASOLINE UST

MISS
LYNDONVILLE
DINER

EXCAVATION
AREA #1

EXCAVATION
AREA #2

EXCAVATION
AREA #3

GRASSY AREA

BASE OF STEEP EMBANKMENT

ALL LOCATIONS ARE APPROXIMATE

SIDE ROAD

MARIN
ENVIRONMENTAL

FIGURE 2.
SITE PLAN

WITH MONITORING WELL LOCATIONS

Jon's Auto
Lyndonville, VT

LEGEND

MW-2  MONITORING WELL

TP-2  TELEPHONE POLE

 WOOD POST FENCE



DRAWN BY: MHF DATE: 10/11/00 SCALE: 1" = 40'

APPROVED BY: CH FILE No.: A00060sp

LYNDONVILLE
HARDWARE

TROUT RIVER
BREWERY

PASSUMPSIC RIVER APPROX. 600 FT.

TP-2

ROUTE 5

FORMER
GASOLINE UST'S
& PUMP ISLAND

MW-2
BTEX= 30,810
MTBE= 62,200
TPH= 26.1

DRAIN #1

DRAIN #2

FORMER
DIESEL UST

MW-1
BTEX= 2.3
MTBE= ND<1
TPH= 1.28

FORMER
GASOLINE UST'S

FORMER SITE
OF BLDG.

FORMER
GASOLINE UST

MISS
LYNDONVILLE
DINER

EXCAVATION
AREA #1

EXCAVATION
AREA #2

EXCAVATION
AREA #3

GRASSY AREA

BASE OF STEEP EMBANKMENT

ALL LOCATIONS ARE APPROXIMATE

SIDE ROAD

LEGEND

- MW-2  MONITORING WELL
- TP-2  TELEPHONE POLE
-  WOOD POST FENCE
- MTBE= ND<1 METHYL TERT-BUTYL ETHER IN µg/l
- BTEX= 2.3 TOTAL BENZENE, TOLUENE, ETHYLBENZENE, XYLENES IN µg/l (METHOD 8021B)
- TPH= 1.28 TOTAL PETROLEUM HYDROCARBONS IN mg/l (METHOD 8015 DRO)
- ND NONE DETECTED

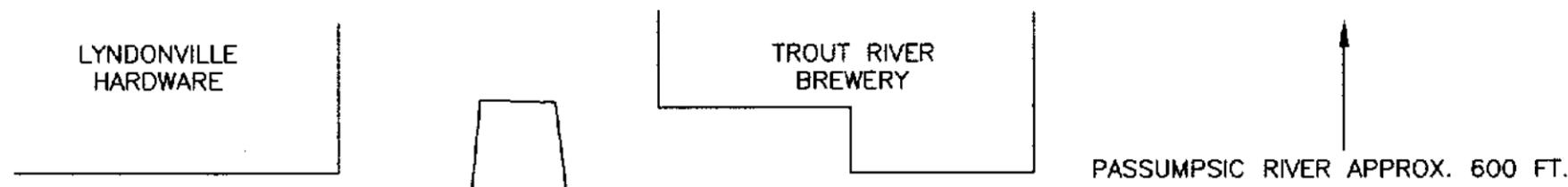
0 40

MARIN
ENVIRONMENTAL

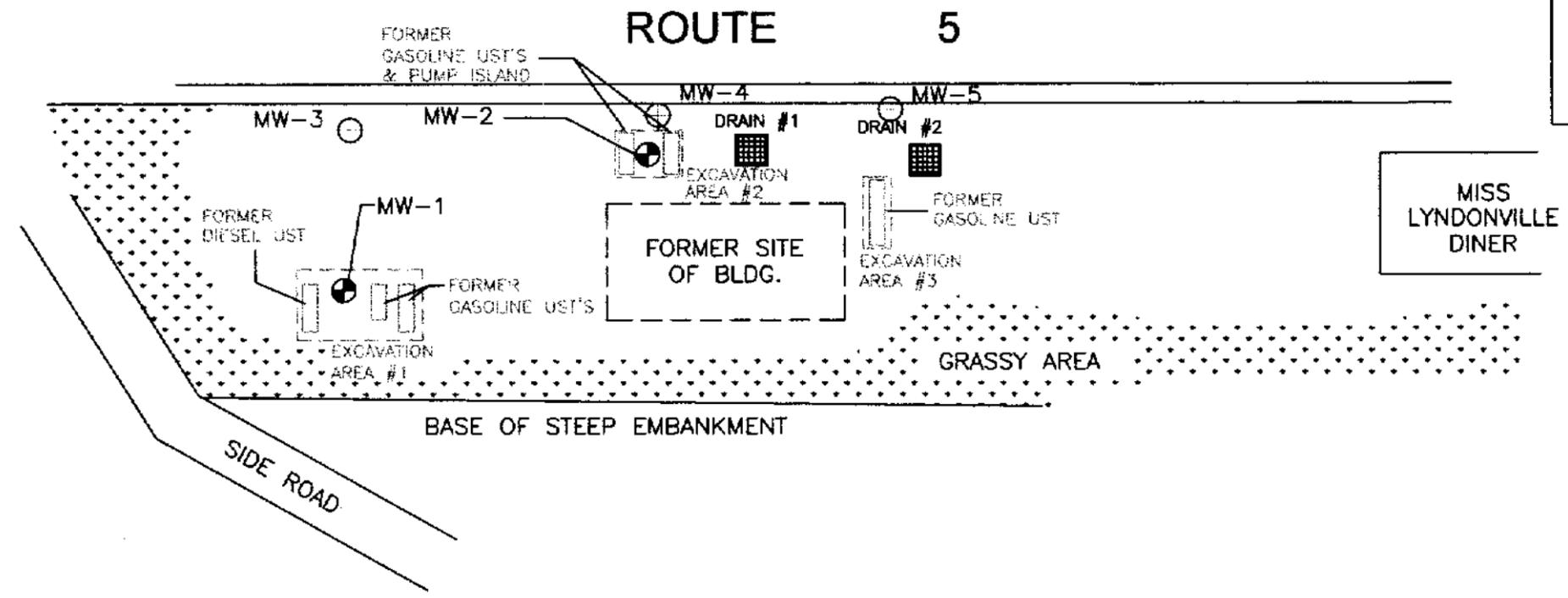
FIGURE 3.
CONTAMINANT DISTRIBUTION MAP
MONITORING DATE: 30 August 2000

Jon's Auto
Lyndonville, VT

DRAWN BY: MHF	DATE: 10/11/00	SCALE: 1"= 40'
APPROVED BY: CH	FILE No.: A00060sp	



PROPOSED WELL	PLACEMENT RATIONALE
MW-3	SUSPECTED DOWN GRADIENT TO DEFINE LATERAL EXTENT OF PLUME
MW-4	SUSPECTED DOWN GRADIENT TO DEFINE LATERAL EXTENT OF PLUME
MW-5	TO DEFINE LATERAL EXTENT OF PLUME
MW-6	TO DETERMINE IF CONTAMINATION HAS MIGRATED OFF-SITE
MW-7(?)	WILL BE INSTALLED TO DETERMINE LATERAL EXTENT OF CONTAMINATION IF PETROLEUM RELATED CONTAMINATION IS DETECTED IN MW-6
MW-8(?)	WILL BE INSTALLED TO DETERMINE LATERAL EXTENT OF CONTAMINATION IF PETROLEUM RELATED CONTAMINATION IS DETECTED IN MW-6



LEGEND

- MW-3 ○ PROPOSED MONITORING WELLS
- MW-2 ⊕ MONITORING WELL
- TP-2 ● TELEPHONE POLE
- |— WOOD POST FENCE



ALL LOCATIONS ARE APPROXIMATE

MARIN
ENVIRONMENTAL

FIGURE 4.
SITE MAP
With Proposed Monitoring Well Locations

Jon's Auto
Lyndonville, VT

DRAWN BY: MHF	DATE: 10/11/00	SCALE: 1" = 40'
APPROVED BY: CH	FILE No.:	A00060sp

TABLE 1. LABORATORY ANALYTICAL RESULTS

**Jon's Auto
Lyndonville, VT**

30 August 2000

	MTBE µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	1,3,5 TMB µg/L	1,2,4 TMB µg/L	NAPHTHALENE µg/L	TPH mg/L
VGES	40	5	1,000	700	10,000	4	5	20	--
MW-1	ND<1	ND<1	ND<1	2.3	ND<1	ND<1	1.2	4.3	1.28
MW-2	62,200	13,400	10,500	1,100	5,810	ND<1,000	1,140	ND<1,000	26.1
Duplicate (MW-2R)	66,400	16,000	13,200	1,450	7,750	ND<1,000	1,470	ND<1,000	--
% Difference	7	19	26	32	33	--	29	--	--
Trip Blank	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	

Notes:

ND - non detect

µg/L - micrograms per liter

mg/L - milligrams per liter

TMB - Trimethyl benzene

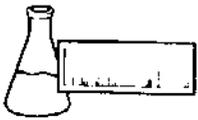
MTBE - methyl tertiary butyl ether

TPH - total petroleum hydrocarbons (Method 8015 DRO)

Shading indicates Vermont Groundwater Enforcement Standard Exceedance

APPENDIX A

LABORATORY ANALYTICAL RESULTS



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

Marin Environmental
73 Millet Street
Richmond, VT 05477
Attn: Carey H.

PROJECT: Jon's Automotive
ORDER ID: 9141
RECEIVE DATE: September 1, 2000
REPORT DATE: September 12, 2000

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

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

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

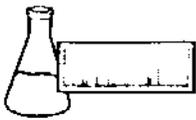
Blank contamination was not observed at levels affecting the analytical results.

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

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

CLIENT: Marin Environmental

ORDER ID: 9141

PROJECT: Jon's Automotive

DATE RECEIVED: September 1, 2000

REPORT DATE: September 12, 2000

SAMPLER: HL/CH

Site: Trip Blank Ref. Number: 161377 Date Sampled: 8/31/00 Anal. Method: SW 8021B Time Sampled: 8:00 AM Analyst: 555 Analysis Date: 9/7/00	Site: MW 2 Ref. Number: 161379 Date Sampled: 8/31/00 Anal. Method: SW 8021B Time Sampled: 1:00 PM Analyst: 555 Analysis Date: 9/8/00																																												
<table border="1"> <thead> <tr> <th><u>Parameter</u></th> <th><u>Results ug/L</u></th> </tr> </thead> <tbody> <tr><td>MTBE</td><td>< 1.0</td></tr> <tr><td>Benzene</td><td>< 1.0</td></tr> <tr><td>Toluene</td><td>< 1.0</td></tr> <tr><td>Ethylbenzene</td><td>< 1.0</td></tr> <tr><td>Xylenes, Total</td><td>< 1.0</td></tr> <tr><td>1,3,5 Trimethyl Benzene</td><td>< 1.0</td></tr> <tr><td>1,2,4 Trimethyl Benzene</td><td>< 1.0</td></tr> <tr><td>Naphthalene</td><td>< 1.0</td></tr> <tr><td>UIP's</td><td>0.</td></tr> <tr><td>Surrogate 1</td><td>101.0%</td></tr> </tbody> </table>	<u>Parameter</u>	<u>Results ug/L</u>	MTBE	< 1.0	Benzene	< 1.0	Toluene	< 1.0	Ethylbenzene	< 1.0	Xylenes, Total	< 1.0	1,3,5 Trimethyl Benzene	< 1.0	1,2,4 Trimethyl Benzene	< 1.0	Naphthalene	< 1.0	UIP's	0.	Surrogate 1	101.0%	<table border="1"> <thead> <tr> <th><u>Parameter</u></th> <th><u>Results ug/L</u></th> </tr> </thead> <tbody> <tr><td>MTBE</td><td>62,200.</td></tr> <tr><td>Benzene</td><td>13,400.</td></tr> <tr><td>Toluene</td><td>10,500.</td></tr> <tr><td>Ethylbenzene</td><td>1,100.</td></tr> <tr><td>Xylenes, Total</td><td>5,810.</td></tr> <tr><td>1,3,5 Trimethyl Benzene</td><td>< 1,000.</td></tr> <tr><td>1,2,4 Trimethyl Benzene</td><td>1,140.</td></tr> <tr><td>Naphthalene</td><td>< 1,000.</td></tr> <tr><td>UIP's</td><td>3.</td></tr> <tr><td>Surrogate 1</td><td>102.0%</td></tr> </tbody> </table>	<u>Parameter</u>	<u>Results ug/L</u>	MTBE	62,200.	Benzene	13,400.	Toluene	10,500.	Ethylbenzene	1,100.	Xylenes, Total	5,810.	1,3,5 Trimethyl Benzene	< 1,000.	1,2,4 Trimethyl Benzene	1,140.	Naphthalene	< 1,000.	UIP's	3.	Surrogate 1	102.0%
<u>Parameter</u>	<u>Results ug/L</u>																																												
MTBE	< 1.0																																												
Benzene	< 1.0																																												
Toluene	< 1.0																																												
Ethylbenzene	< 1.0																																												
Xylenes, Total	< 1.0																																												
1,3,5 Trimethyl Benzene	< 1.0																																												
1,2,4 Trimethyl Benzene	< 1.0																																												
Naphthalene	< 1.0																																												
UIP's	0.																																												
Surrogate 1	101.0%																																												
<u>Parameter</u>	<u>Results ug/L</u>																																												
MTBE	62,200.																																												
Benzene	13,400.																																												
Toluene	10,500.																																												
Ethylbenzene	1,100.																																												
Xylenes, Total	5,810.																																												
1,3,5 Trimethyl Benzene	< 1,000.																																												
1,2,4 Trimethyl Benzene	1,140.																																												
Naphthalene	< 1,000.																																												
UIP's	3.																																												
Surrogate 1	102.0%																																												
Site: MW 1 Ref. Number: 161378 Date Sampled: 8/31/00 Anal. Method: SW 8021B Time Sampled: 12:45 PM Analyst: 555 Analysis Date: 9/8/00	Site: MW 2R Ref. Number: 161380 Date Sampled: 8/31/00 Anal. Method: SW 8021B Time Sampled: NI Analyst: 555 Analysis Date: 9/8/00																																												
<table border="1"> <thead> <tr> <th><u>Parameter</u></th> <th><u>Results ug/L</u></th> </tr> </thead> <tbody> <tr><td>MTBE</td><td>< 1.0</td></tr> <tr><td>Benzene</td><td>< 1.0</td></tr> <tr><td>Toluene</td><td>< 1.0</td></tr> <tr><td>Ethylbenzene</td><td>2.3</td></tr> <tr><td>Xylenes, Total</td><td>< 1.0</td></tr> <tr><td>1,3,5 Trimethyl Benzene</td><td>< 1.0</td></tr> <tr><td>1,2,4 Trimethyl Benzene</td><td>1.2</td></tr> <tr><td>Naphthalene</td><td>4.3</td></tr> <tr><td>UIP's</td><td>>10.</td></tr> <tr><td>Surrogate 1</td><td>98.0%</td></tr> </tbody> </table>	<u>Parameter</u>	<u>Results ug/L</u>	MTBE	< 1.0	Benzene	< 1.0	Toluene	< 1.0	Ethylbenzene	2.3	Xylenes, Total	< 1.0	1,3,5 Trimethyl Benzene	< 1.0	1,2,4 Trimethyl Benzene	1.2	Naphthalene	4.3	UIP's	>10.	Surrogate 1	98.0%	<table border="1"> <thead> <tr> <th><u>Parameter</u></th> <th><u>Results ug/L</u></th> </tr> </thead> <tbody> <tr><td>MTBE</td><td>66,400.</td></tr> <tr><td>Benzene</td><td>16,000.</td></tr> <tr><td>Toluene</td><td>13,200.</td></tr> <tr><td>Ethylbenzene</td><td>1,450.</td></tr> <tr><td>Xylenes, Total</td><td>7,750.</td></tr> <tr><td>1,3,5 Trimethyl Benzene</td><td>< 1,000.</td></tr> <tr><td>1,2,4 Trimethyl Benzene</td><td>1,470.</td></tr> <tr><td>Naphthalene</td><td>< 1,000.</td></tr> <tr><td>UIP's</td><td>3.</td></tr> <tr><td>Surrogate 1</td><td>101.0%</td></tr> </tbody> </table>	<u>Parameter</u>	<u>Results ug/L</u>	MTBE	66,400.	Benzene	16,000.	Toluene	13,200.	Ethylbenzene	1,450.	Xylenes, Total	7,750.	1,3,5 Trimethyl Benzene	< 1,000.	1,2,4 Trimethyl Benzene	1,470.	Naphthalene	< 1,000.	UIP's	3.	Surrogate 1	101.0%
<u>Parameter</u>	<u>Results ug/L</u>																																												
MTBE	< 1.0																																												
Benzene	< 1.0																																												
Toluene	< 1.0																																												
Ethylbenzene	2.3																																												
Xylenes, Total	< 1.0																																												
1,3,5 Trimethyl Benzene	< 1.0																																												
1,2,4 Trimethyl Benzene	1.2																																												
Naphthalene	4.3																																												
UIP's	>10.																																												
Surrogate 1	98.0%																																												
<u>Parameter</u>	<u>Results ug/L</u>																																												
MTBE	66,400.																																												
Benzene	16,000.																																												
Toluene	13,200.																																												
Ethylbenzene	1,450.																																												
Xylenes, Total	7,750.																																												
1,3,5 Trimethyl Benzene	< 1,000.																																												
1,2,4 Trimethyl Benzene	1,470.																																												
Naphthalene	< 1,000.																																												
UIP's	3.																																												
Surrogate 1	101.0%																																												



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

CHAIN-OF-CUSTODY-RECORD

38790

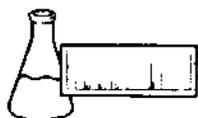
Project Name: JON'S AUTOMOTIVE		Reporting Address: 73 Miller St. RICHMOND, VT		Billing Address: MARIN	
Endyne Order ID: 9141		Company: MARIN		Sampler Name: H. LADUKE / C. HENGSTEN BERG	
(Lab Use Only)		Contact Name/Phone #: CAREN H. 802 434-4600		Phone #:	
	2-0				
	-1				
	-S				

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
161377	TRIP BLANK	QW	X		8:31:00 0800	2	40ml VDA		8021b	HCl	
161378	MW1	GW			1245				8021b		
	MW1				↓				8015 DRO		
161379	MWZ				1300				8021b		
	MWZ				↓				8015 DRO		
161380	MW2R				—				8021b		

Relinquished by: Heather LaDuke	Date/Time: 9/1/00/1000	Received by: [Signature]	Date/Time: 9/1/00 10:00	Received by: [Signature]	Date/Time:
--	-------------------------------	---------------------------------	------------------------------------	---------------------------------	------------

New York State Project: Yes No Requested Analyses

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



— **ENDYNE, INC.**

Laboratory Services

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

LABORATORY REPORT

Marin Environmental
73 Millet Street
Richmond, VT 05477
Attn: Carey H.

PROJECT: Jon's Automotive
ORDER ID: 9141
RECEIVE DATE: September 1, 2000
REPORT DATE: September 19, 2000

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

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

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

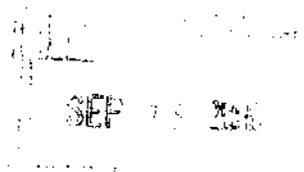
Blank contamination was not observed at levels affecting the analytical results.

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

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures





ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

CLIENT: Marin Environmental
PROJECT: Jon's Automotive
REPORT DATE: September 19, 2000

ORDER ID: 9141
DATE RECEIVED: September 1, 2000
SAMPLER: HL/CH
ANALYST: 128

Ref. Number: 161378 Site: MW 1 Date Sampled: August 31, 2000 Time: 12:45 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	1.28	mg/L	SW 8015B	9/15/00

Ref. Number: 161379 Site: MW 2 Date Sampled: August 31, 2000 Time: 1:00 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	26.1	mg/L	SW 8015B	9/15/00

CHAIN-OF-CUSTODY-RECORD

38790

Project Name: Jon's Automotive		Reporting Address: 73 Miller St. Richmond, VT		Billing Address: MARIN	
Endyne Order ID: (Lab Use Only) 9141	2-0	Company: MARIN Contact Name/Phone #: CAREY H. 802 434-4600		Sampler Name: H. LADUKE / C. HENGSTEN BERG Phone #:	
	-I				
	-S				

Ref # (Lab Use Only)	Sample Identification	Matrix	GRA	CMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
161377	TRIP BLANK	GW	X		8-31-00 0800	2	40ml vba		8021b	HCl	
161378	MW1	GW			1245				8021b		
—	MW1				↓				8015 DRO		
161379	MW2				1300				8021b		
—	MW2				↓				8015 DRO		
161380	MW2R				—				8021b		

Relinquished by: <i>Heather LaDuke</i>	Date/Time: <i>9/1/00/1000</i>	Received by: <i>M. J. Farnell</i>	Date/Time: <i>9/1/00 10:00</i>	Received by:	Date/Time:
---	----------------------------------	--------------------------------------	---------------------------------------	--------------	------------

New York State Project: Yes No Requested Analyses

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