

August 24, 2000

AUG 25 2000
2019
AUG 25 2000

Richard Spiese
 Sites Management Section
 Waste Management Section
 103 South Main Street, West Office Building
 Waterbury, VT 05671-0404



STONE ENVIRONMENTAL INC

Main Office:

58 East State Street
 Montpelier, Vermont
 05602 USA

Phone / 802. 229.4541

Fax / 802. 229.5417

E-Mail / sei@stone-env.com

Web Site / www.stone-env.com

SEI No. 00-1154

RE: Report of a Limited Site Investigation
 at the Carriveau Service Station in Montpelier, VT.

Dear Richard:

In response to your request to Mike Carriveau of the Carriveau Service Station in a letter dated June 8, 2000, Stone Environmental Inc. (SEI) has performed a limited site investigation at the Carriveau Service Station in Montpelier, Vermont. All work was performed on July 24th 2000 in accordance to the July 12, 2000 "Work Plan to Investigate Potential Contamination at the Carriveau Service Station in Montpelier, VT."

Introduction

A single monitoring well (MW-6) was installed on July 24, 2000 and sampled as part of a limited site investigation to determine whether contamination was present in the northern-most portion of the Carriveau Service Station property. Analysis of this sample indicates that subsurface contamination, consisting of gasoline related compounds, does exist and concentrations of several of the compounds were found to be in excess of the State of Vermont's Groundwater Enforcement Standards (see Table 1 for laboratory results). The origin of this contamination is not clear at this time. However, considering the past use of this site and the findings at the time of the tank excavations, it is possible that a residual amount of fuel contamination still exists within the area of the former USTs. A receptor analysis performed by Griffin International on the adjacent Taylor Appliances property revealed no drinking water supply wells within the area. Also, due to the low concentrations in the groundwater traveling off-site from the Carriveau property, it is unlikely that there exists any adverse impact to the Winooski River which is approximately 150 feet to the north.

Site History

Five underground storage tanks (UST), consisting of one 4,000 gallon diesel and four 4,000 gallon gasoline tanks were removed from the northern-most portion of the Carriveau Service Station property in September of 1999. At the time of this removal operation, conflicting reports were issued by a State of Vermont DEC representative, who reported the presence of free phase liquids within the excavation, and Karin Kerin, P.E. (Mr. Carriveau's engineer who was overseeing the excavation) who reports that no visible contamination was present. Laboratory results from samples collected by each party indicated that there was contamination

Southeast Regional Office:

206 Langston Mill Court
 Raleigh, North Carolina
 27606 USA

Phone / 919.387.4704

Fax / 919.387.5703

E-Mail / ahiscock@stone-env.com

Pacific Office:

529 Portobello Road
 Macandrew Bay
 Dunedin, New Zealand

Phone / 64.3.476.1305

Fax / 64.3.476.1985

E-Mail / chanson@stone-env.com

present beneath the excavated tanks at varying levels (between 2,000 and 16,700 mg/Kg, reported as TPH), depending on where the sample was taken. Also, over the past five years, several other activities in the area around the Carriveau Service station have uncovered fuel related contamination, however the origin of these contaminants and how they relate to the contamination found on the Carriveau property have not been fully explored. In response to your letter to Mike Carriveau, dated June 8, 2000, Mr. Carriveau contracted with SEI to perform this limited site investigation.

TABLE 1
EPA Method 8260 Laboratory Results

*Target Compound	VT DEC GW Standard ug/L	MW-6 ug/L	Equipment Blank ug/L
Benzene	5.0	49.3	<1.0
n-Butylbenzene	NA	6.1	<1.0
sec-Butylbenzene	NA	9.7	<1.0
Ethylbenzene	700	10.8	<1.0
Isopropylbenzene	NA	8.5	<1.0
p-Isopropyltoluene	NA	10.6	<1.0
MTBE	40	4.6	<2.0
Naphthalene	20	195	<1.0
n-Propylbenzene	NA	17.8	<1.0
Toluene	1000	3.4	2.0
1,2,4-Trimethylbenzene	5	187	<1.0
1,3,5-Trimethylbenzene	4	15.7	<1.0
Xylenes, Total	10000	24.9	<1.0

*Only those compounds detected as part of the EPA 8260 analyte list are included.
NA= Not Available

Methods and Materials

A 0.75 inch (internal diameter) pre-sandpacked (outer diameter equal to approximately 1.75 inches) monitoring well was installed on July 24, 2000 in the area shown on Figure 1. The well is screened over a ten foot interval between 3.5 and 13.5 feet below ground surface (BGS). The bottom of the screen was placed at the bedrock surface (approximately 13.5 feet BGS); as determined by the drill rig's refusal at this point. The well was sampled approximately three hours after installation using an EPA Slow Purge methodology. To minimize exposure to both the atmosphere and the pump head tubing, a zero headspace sampling device was deployed on the suction side of a peristaltic pump to collect the samples. The samples (equipment blank and MW-6) were analyzed by Endyne Laboratory using the EPA Method 8260 (GC/MS).

Conclusions and Recommendations

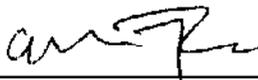
Subsurface contamination of soil and groundwater in the northern vicinity of the Carriveau property is known to exist at levels which currently exceed the State of Vermont Groundwater Enforcement Standards. The compounds which exceed the standards are benzene, naphthalene, and the 1,2,4 and 1,3,5- trimethylbenzene isomers. It is worth noting that toluene was found in the equipment blank sample at 2.0 ug/L, making the 3.4 ug/L result of the MW-6 sample suspect. The degree of groundwater contamination observed at this site does not warrant further investigative efforts or corrective action, based on the absence of sensitive receptors in the area down gradient to this contamination and the relatively low concentrations of the contaminants. The small amount of contaminant mass in comparison to the large volumetric flow rate of the Winooski River makes it unlikely that this contamination poses any substantial threat to the Winooski River.

SEI recommends a semi-annual groundwater sampling program for the next year with the next round of sampling to be performed in late January of 2001. The same suite of chemicals should be monitored to evaluate any trends in the contaminant concentrations over time. If after a year of sampling the contaminant levels do not increase dramatically, a request for this site to achieve a Site Management Activities Completed (SMAC) designation, with or without notice to land records will be made.

I am enclosing the Endyne Laboratory results for your review. I look forward to hearing from you and if you have any questions regarding this information, please call me.

Sincerely yours,

STONE ENVIRONMENTAL, INC.



Michael Rossi, Project Scientist

Direct Phone / 802-229-2194, Direct E-Mail / mrossi@stone-env.com

c.c. Mike Carriveau

Carriveau Service Station

57-59 Berlin Street

Montpelier, VT 05602

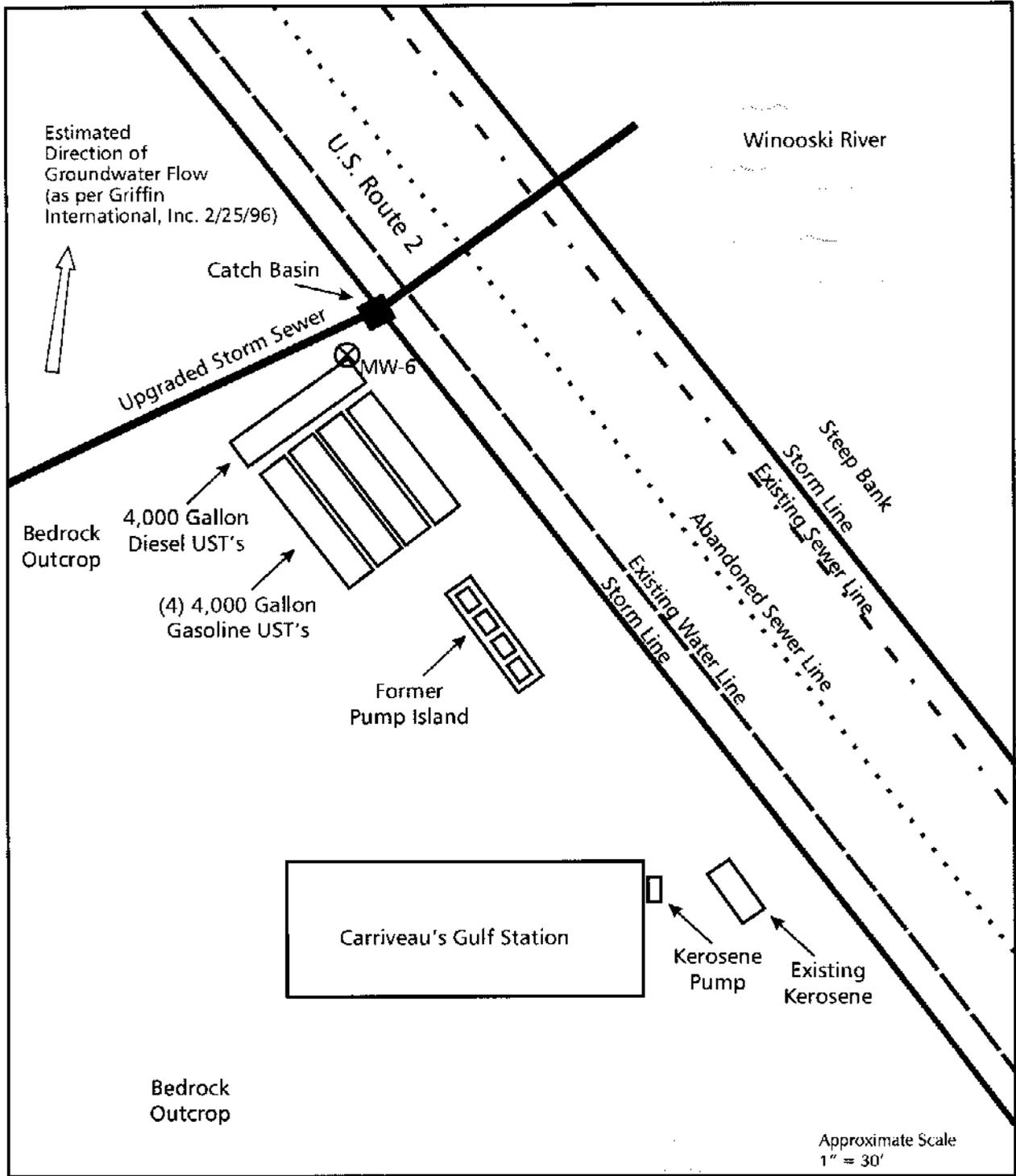
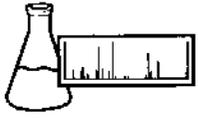


FIGURE 1: LIMITED SITE INVESTIGATION - JULY 24, 2000
Carriveau's Service Station
Montpelier, Vermont



Source: Based on Griffin International, Inc. Site Map Job # 7964873, 7/25/96;
 SEI Field Investigations, 2000
 o:\proj00\1154-1\site map.cdr
 int: 8-24-00 jms



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

Stone Environmental, Inc.
58 East State St.
Montpelier, VT 05602
Attn: Dave Crozier

PROJECT: SEI# 1154
ORDER ID: 8598
RECEIVE DATE: July 25, 2000
REPORT DATE: August 2, 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 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

enclosures



LABORATORY REPORT

SW 8260

CLIENT: Stone Environmental, Inc.
PROJECT: SEI# 1154
SITE: MW 6
DATE RECEIVED: July 25, 2000
REPORT DATE: August 2, 2000
ANALYSIS DATE: July 31, 2000

ORDER ID: 8598
REFERENCE NUMBER: 159405
DATE SAMPLED: July 24, 2000
TIME SAMPLED: 5:32 PM
SAMPLER: DC
ANALYST: 725

Parameter	Result ug/L	Parameter	Result ug/L
Benzene	49.3	1,1-Dichloropropene	< 2.0
Bromobenzene	< 2.0	cis-1,3-Dichloropropene	< 2.0
Bromochloromethane	< 4.0	trans-1,3-Dichloropropene	< 2.0
Bromodichloromethane	< 2.0	Ethylbenzene	10.8
Bromoform	< 2.0	Hexachlorobutadiene	< 10.0
Bromomethane	< 10.0	Isopropylbenzene	8.5
n-Butylbenzene	6.1	p-Isopropyltoluene	10.6
sec-Butylbenzene	9.7	Methylene Chloride	< 10.0
tert-Butylbenzene	< 2.0	MTBE	4.6
Carbon Tetrachloride	< 2.0	Naphthalene	195.
Chlorobenzene	< 2.0	n-Propylbenzene	17.8
Chloroethane	< 10.0	Styrene	< 2.0
Chloroform	< 2.0	1,1,1,2-Tetrachloroethane	< 4.0
Chloromethane	< 20.0	1,1,2,2-Tetrachloroethane	< 4.0
4-Chlorotoluene	< 2.0	Tetrachloroethene	< 2.0
2-Chlorotoluene	< 2.0	Toluene	3.4
Dibromochloromethane	< 2.0	1,2,3-Trichlorobenzene	< 4.0
1,2-Dibromo-3-Chloropropane	< 4.0	1,2,4-Trichlorobenzene	< 4.0
1,2-Dibromoethane	< 4.0	1,1,1-Trichloroethane	< 2.0
Dibromomethane	< 4.0	1,1,2-Trichloroethane	< 2.0
1,2-Dichlorobenzene	< 2.0	Trichloroethene	< 2.0
1,3-Dichlorobenzene	< 2.0	Trichlorofluoromethane	< 4.0
1,4-Dichlorobenzene	< 2.0	1,2,3-Trichloropropane	< 4.0
Dichlorodifluoromethane	< 20.0	1,2,4-Trimethylbenzene	187.
1,1-Dichloroethane	< 2.0	1,3,5-Trimethylbenzene	15.7
1,2-Dichloroethane	< 2.0	Vinyl Chloride	< 4.0
1,1-Dichloroethene	< 2.0	Xylenes, Total	24.9
cis-1,2-Dichloroethene	< 2.0	Surrogate 1	87.0%
trans-1,2-Dichloroethene	< 2.0	Surrogate 2	99.0%
1,2-Dichloropropane	< 2.0	Surrogate 3	103.0%
1,3-Dichloropropane	< 2.0	UIP's	> 10.
2,2-Dichloropropane	< 2.0		



LABORATORY REPORT

SW 8260

CLIENT: Stone Environmental, Inc.
PROJECT: SEI# 1154
SITE: Equip Blank 1
DATE RECEIVED: July 25, 2000
REPORT DATE: August 2, 2000
ANALYSIS DATE: July 31, 2000

ORDER ID: 8598
REFERENCE NUMBER: 159404
DATE SAMPLED: July 24, 2000
TIME SAMPLED: 4:50 AM
SAMPLER: DC
ANALYST: 725

<u>Parameter</u>	<u>Result</u> <u>ug/L</u>	<u>Parameter</u>	<u>Result</u> <u>ug/L</u>
Benzene	< 1.0	1,1-Dichloropropene	< 1.0
Bromobenzene	< 1.0	cis-1,3-Dichloropropene	< 1.0
Bromochloromethane	< 2.0	trans-1,3-Dichloropropene	< 1.0
Bromodichloromethane	< 1.0	Ethylbenzene	< 1.0
Bromoform	< 1.0	Hexachlorobutadiene	< 5.0
Bromomethane	< 5.0	Isopropylbenzene	< 1.0
n-Butylbenzene	< 1.0	p-Isopropyltoluene	< 1.0
sec-Butylbenzene	< 1.0	Methylene Chloride	< 5.0
tert-Butylbenzene	< 1.0	MTBE	< 2.0
Carbon Tetrachloride	< 1.0	Naphthalene	< 5.0
Chlorobenzene	< 1.0	n-Propylbenzene	< 1.0
Chloroethane	< 5.0	Styrene	< 1.0
Chloroform	< 1.0	1,1,1,2-Tetrachloroethane	< 2.0
Chloromethane	< 10.0	1,1,2,2-Tetrachloroethane	< 2.0
4-Chlorotoluene	< 1.0	Tetrachloroethene	< 1.0
2-Chlorotoluene	< 1.0	Toluene	2.0
Dibromochloromethane	< 1.0	1,2,3-Trichlorobenzene	< 2.0
1,2-Dibromo-3-Chloropropane	< 2.0	1,2,4-Trichlorobenzene	< 2.0
1,2-Dibromoethane	< 2.0	1,1,1-Trichloroethane	< 1.0
Dibromomethane	< 2.0	1,1,2-Trichloroethane	< 1.0
1,2-Dichlorobenzene	< 1.0	Trichloroethene	< 1.0
1,3-Dichlorobenzene	< 1.0	Trichlorofluoromethane	< 2.0
1,4-Dichlorobenzene	< 1.0	1,2,3-Trichloropropane	< 2.0
Dichlorodifluoromethane	< 10.0	1,2,4-Trimethylbenzene	< 1.0
1,1-Dichloroethane	< 1.0	1,3,5-Trimethylbenzene	< 1.0
1,2-Dichloroethane	< 1.0	Vinyl Chloride	< 2.0
1,1-Dichloroethene	< 1.0	Xylenes, Total	< 2.0
cis-1,2-Dichloroethene	< 1.0	Surrogate 1	87.0%
trans-1,2-Dichloroethene	< 1.0	Surrogate 2	100.0%
1,2-Dichloropropane	< 1.0	Surrogate 3	100.0%
1,3-Dichloropropane	< 1.0	LIP's	0.
2,2-Dichloropropane	< 1.0		