Environmental Site Assessment
Superior Muffler/Switchyard Mobil Property
St. Albans, Vermont

Supplemental Report

#900605

Prepared For:
R.L. Vallee, Inc.
282 South Main Street
St. Albans, Vermont 05478

Prepared By:
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, Vermont 05403

Aquatec Project No. 90007

August 1990

Table of Contents

Figures

Appendices

1.0 Introduction

This report supplements Aquatec's January 23, 1990 site assessment of the Superior Muffler/Switchyard Mobil site in St. Albans, Vermont and subsequent soil boring investigation transmitted to R.L. Vallee, Inc. on February 27, 1990. These two documents are attached as Appendix A. Information in this report was obtained to address issues listed by the Vermont Agency of Natural Resources (ANR), in their letter to R.L. Vallee, Inc. dated April 3, 1990. The issues raised in the ANR letter included the investigation of:

- Source of contamination or potential contamination;
- Hydrologic contamination under the site;
- Degree and extent of soil and ground water contamination; and
- Sensitive receptor's which could potentially become impacted.

This report describes methodologies used and results obtained during this investigation.

2.0 Technical Approach

The investigation included the installation of four ground water monitoring wells and subsequent ground water sampling. The four monitoring wells were installed at locations determined to have soil contamination during our February 16, 1990 soil boring program. The monitoring wells were installed to determine ground water quality and ground water flow direction. The locations of the monitoring wells are illustrated on Figure 1.

Ground water samples were collected in all four monitoring well and analyzed in a manner to identify and quantify the type of petroleum contamination present in each. A brief review of possible receptors that may potentially become impacted by the petroleum contamination was also undertaken.

3.0 Monitoring Well Installation

Four ground water monitoring wells were installed on July 7, 1990. The monitoring wells were installed by Adams Engineering of Underhill, Vermont under the direction of Aquatec personnel.

Monitoring wells were installed using a hollow stem auger soil boring rig. During drilling, soils of the auger at each hole were screened with an HNu photoionization meter. The results of the HNu reading from each hole is listed in Table 1. Ground water monitoring wells were constructed of two inch diameter PVC with five to seven foot sections of machine slotted (0.20 slots) screens. The boring annulus around the screen was packed with sand and sealed with bentonite clay. Monitoring well construction diagrams are attached as Appendix B. Detailed boring logs at each location can be referenced in the February 27, 1990 soil boring report enclosed in Appendix A. Each monitoring well was developed with an air-lift pump immediately after installation. A flush mounted locking well cap and guard was installed on each of the monitoring wells.

The monitoring wells were surveyed for elevation and horizontal location with reference to a metal stake located in the southeast corner of the property as displayed in Figure 1. The metal stake was assumed at an elevation of 100 feet.

4.0 Ground Water Sampling

Ground water samples were collected from monitoring well MW-1, MW-2 and MW-3 in July 13, 1990. A ground water sample was collected from monitoring well MW-4 on July 20, 1990. The sample from monitoring well MW-4 was collected on a later date because a vehicle blocked access to the well on July 13, 1990.

Ground water samples were collected using a separate Teflon bailer for each well. Bailers were cleaned at Aquatec's laboratory according to laboratory protocol. Prior to purging and sampling, each well was checked for free product with a clear bailer. The monitoring wells

were purged three well volumes prior to sampling. The samples were collected in 40 milliliter (ml) vials preserved with hydrochloric acid. All samples were transported to Aquatec's laboratory in a cooler with ice under chain-of-custody procedures. A trip blank was collected for analysis.

Water samples were analyzed by gas chromatography using Method OR370. During the analysis the chromatograph of the sample was compared to chromatographs of gasoline and No. 2 Fuel Oil standards to identify the composition of petroleum in the sample.

5.0 Results

5.1 Ground Water Levels and Field Screening Results

Ground water elevation data collected on July 13, 1990 are displayed in Table 1. Ground water elevation data indicate that ground water is flowing north as illustrated in Figure 1.

Field screening of the spills indicated the presence of volatile compounds at each monitoring well location with the HNu photoionization meter. Results of the screening are listed in Table 1.

5.2 Analytical Water Quality Data

Results of the laboratory analysis are tabulated in Table 2. Analytical results indicated the presence of petroleum contamination in ground water samples from all four ground water monitoring wells. No free product was detected in the monitoring wells prior to sample collection.

Analysis indicated 1800 milligrams/liter (mg/l) of gasoline in monitoring well MW-1. Monitoring well MW-2 contained both gasoline and No. 2 Fuel Oil, at 120 mg/l and 660 mg/l respectively. The sample from monitoring well MW-3 contained 26,000 mg/l of No. 2 Fuel Oil. The sample from monitoring well MW-4 contained 29,000 of gasoline.

6.0 Possible Sensitive Receptors

Results indicate that the site is contaminated with both Fuel Oil No. 2 and gasoline. The results also indicate that ground water flow at the time of sampling appeared to be towards the north. This suggests that the area north of monitoring well MW-3 is or will be impacted by the presence of petroleum contamination detected during this investigation. The area just north of monitoring well MW-3 is presently used by Switchyard Mobil which has three underground storage tanks on the property as described in the January 23, 1990 enclosed site assessment report in Appendix A.

Residences are located on both the west and east lots adjacent to the property. Both residences are located along the south side of Lake Street. These residences have stone foundations and could be susceptible to petroleum vapors if petroleum contamination was present under or near the structures. The basements of these residences were not checked for vapors during this study.

Another potential receptor is the sewer and storm drains on the property that run along Lake Street. At the time of the monitoring well installation, no noticable sheen or HNu reading above background were observed in the manhole on the property near MW-2.

The area is also on public water supply and no drinking water wells appear to be present in this area as described in the January 23, 1990 site assessment report.

7.0 Conclusion

The site is contaminated with both Fuel Oil No. 2 and gasoline. The gasoline contamination appears it be predominant in the vicinity of monitoring wells MW-1 and MW-4, with some gasoline appearing in monitoring well MW-2. This distribution could be explained by a release from the underground storage tanks that were once located in the south eastern corner of the site. These tanks were removed under the supervision of ANR representatives in March 1989.

The No. 2 Fuel Oil contamination appears in the location of monitoring well MW-2 and MW-3. These wells are located in an area that may have been impacted by releases of No. 2 Fuel Oil associated with above ground storage tanks in the vicinity.

A more detailed history of the above ground No. 2 Fuel oil tanks and the underground storage tanks, located in the south east corner of the site is described in the original site assessment report attached as Appendix A.

The investigation identified possible receptors, but did not identify any that were impacted.

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Table 1. HNu photoionization meter readings (part per million).

Station	HNu Reading (ppm)
MW-1	52 ppm
MW-2	30 ppm
MW-3	190 ppm
MW-4	60 ppm

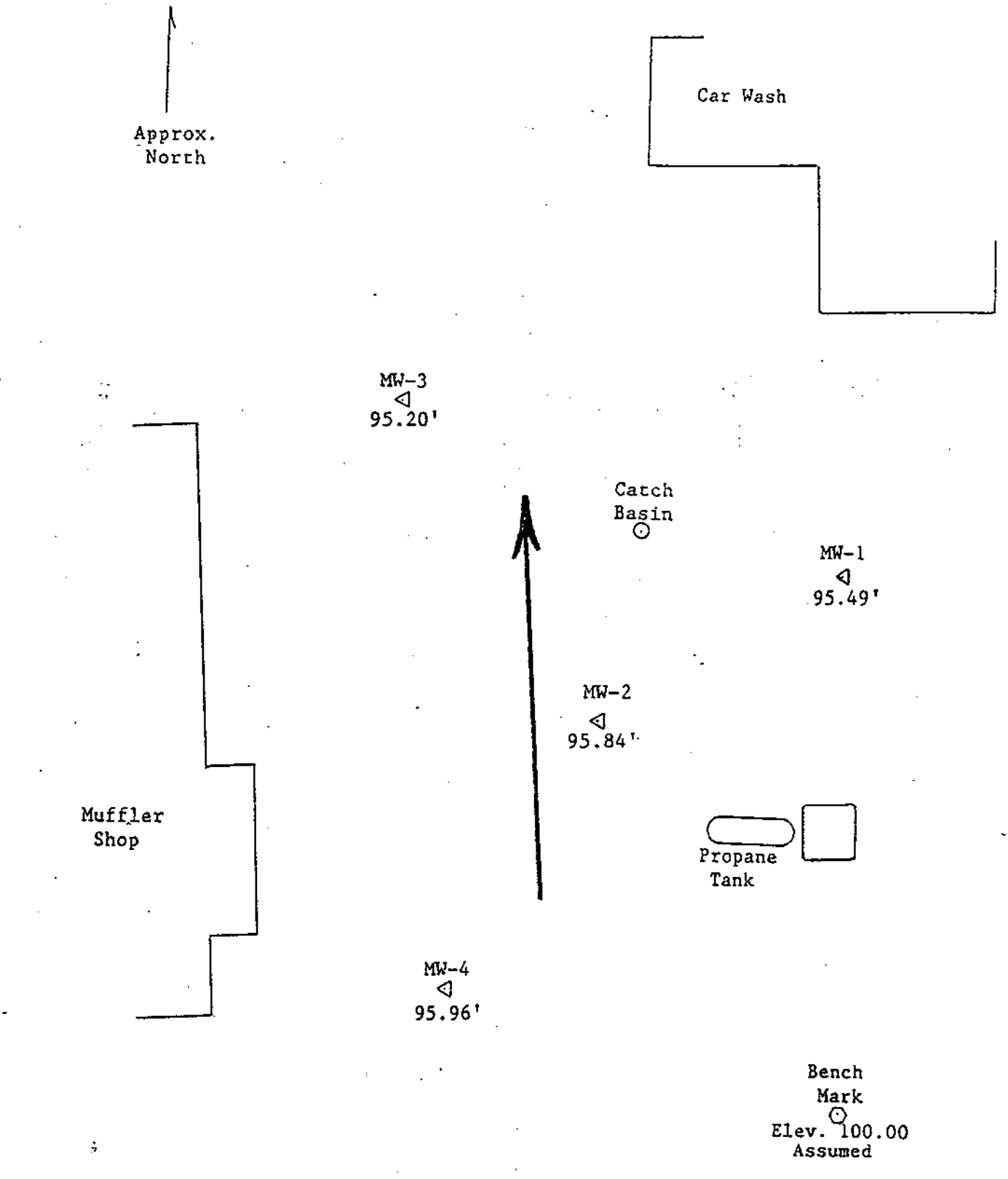
Table 2. Ground water elevations (feet)*

Monitoring Well I.D.	Monitoring Well Elev. (ft.)	Depth to Water (ft.)	Water Elevation
MW-1	98.85	3.36	95.49
MW-2	98.58	2.74	95.84
MW-3	98.23	3.03	95.20
MW-4	98.76	2.80	95.96

* To assumed bench mark of 100.00 feet.

Table 3. Summary of ground water analytical data analyzed by Method OR370.

Monitoring Well I.D.	Standard as Gasoline (mg/l)	as Fuel Oil No. 2 (mg/l)
MW-1	1800	----
MW-2	120	660
MW-3	----	26,000
MW-4	29,000	----



Scale
1" = 20'

Ground Water Elevations and Flow Direction
July 13, 1990
Superior Muffler/Switchyard Mobil
St. Albans, Vermont

Figure 1

Appendix A - Previous Site Reports

aquatec INC. ENVIRONMENTAL SERVICES

75 GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05403, TELEPHONE (802) 658-1074

January 23, 1990

Mr. Skip Vallee
R.L. Vallee, Inc.
282 South Main Street
St. Albans, VT 05478

Re: Aquatec Project No. 90007

Dear Mr. Vallee:

Enclosed is the report of the Phase I, environmental site assessment completed for the Superior Muffler/Switchyard Mobil property at 138 Lake Street in St. Albans, Vermont.

If you have any questions or concerns, please give me a call.

Sincerely,

Brett W. Cox
Hydrogeologist

BWC/lam

Enclosure

90007

Environmental Site Assessment
Superior Muffler/Switchyard Mobil Property
St. Albans, Vermont

Prepared For:
R.L. Vallee, Inc.
282 South Main Street
St. Albans, Vermont 05478

Prepared By:
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, Vermont 05403

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January 1990

Table of Contents

1.0 Objective

The objective of this site assessment was to provide information for the evaluation of property located at 138 Lake Street in St. Albans, Vermont. Information obtained during this assessment has been used to evaluate the property for the presence of hazardous materials and petroleum products. The opinions rendered in this report are based solely on a site visit, site history and information on file at the State of Vermont Agency of Natural Resources' (ANR) office in Waterbury, Vermont. No environmental sampling or associated field work was completed as part of this environmental assessment. The scope of work completed for this report was defined by the client. A list of references used for this environmental assessment is included in the Bibliography. This report is subject to the limitations outlined in Section 5.0.

2.0 Introduction

On behalf of Mr. Skip Vallee of R.L. Vallee, Inc., Aquatec, Inc. has conducted an environmental assessment of the Superior Muffler/ Switchyard Mobil property located at 138 Lake Street in St. Albans, Vermont. No site plan was readily available from the present owners of the site at the time of the site visit on January 8, 1990. The site was assumed to encompass the Superior Muffler and Mobil Service Station buildings and surrounding paved lot at 138 Lake Street (Gaboury, 1990). The property is located approximately 0.4 miles west of downtown St. Albans (Figure 1).

2.1 Present Site Description and Use

The Superior Muffler/Switchyard Mobil property occupies approximately one to two acres at 138 Lake Street, St. Albans. There are currently two buildings on the property. One building is situated on the north portion of the property along Lake Street. This building is occupied by the Switchyard Mobil Service Station. The service station serves as a gasoline and kerosene retail outlet and an automatic car wash. Wash water drains from the car wash drain into the city sewer (Gaboury, 1990).

The second building is located near the southwest corner of the site. This building is occupied by Superior Muffler, which provides exhaust, brake and suspension service. The building contains six garage bays and an office area. Floor drains are present in the bay areas which drain to the city sewer (Gaboury, 1990).

2.2 Site History

Information concerning site history was obtained from reviewing historic maps in the City of St. Albans municipal library, and the University of Vermont library located in Burlington, Vermont. An aerial photograph from 1978, available at the University of Vermont library, was also used to document site history.

Sanborn Fire Insurance Maps, available at the University of Vermont, from 1884, 1889, 1906 and 1912 showed the site vacant. The Sanborn Fire Insurance Map from 1920 and 1926 shows an electric powered wood sawing business operated on the site, along with coal and wood storage. The map indicates the name of the company as the D.E. Sullivan Company. Buildings that appear on the map during this period do not appear to be the same ones present today.

The next available Sanborn Insurance Maps dated 1956 and 1959, display a service station occupying the site in what appears to be the same building which is presently occupied by Switchyard Mobil. The 1959 map showed the presence of three large, approximately 20 foot long, above ground oil storage tanks occupying what is now the approximate center of the paved lot behind, south of the Mobil station and in front of, east of the Superior Muffler building. The capacities of the tanks are unknown.

An aerial photograph (1) taken in 1978 also shows the presence of the three above ground oil storage tanks present on the 1959 map. The aerial photographs also show the presence of the Superior Muffler building, not present on previous maps. The area around the above ground storage tanks appears to be unpaved with areas which may be oil-stained soils (Figure 2).

3.0 Physical Setting

The property is relatively flat with an average elevation of 400 feet above mean sea level (msl). The site appears to drain towards Stevens Brook which is located one-quarter mile west of the property (U.S.G.S. 1972), however much of the site runoff is controlled by three storm drains located on the site which drain to the city sewer (Gaboury, 1990). Review of available geologic publications of the area suggest the property is underlain primarily by glacial till (Doll, 1970 and Stewart, 1974).

During the inspection of the site on January 8, 1990, wood ash and metal debris were observed southwest of the Superior Muffler building. It appeared that these ashes were the product of a wood burning stove located in the Superior Muffler garage. Also observed was an area on the southeast corner of the property where pavement was removed for excavation of three underground storage tanks in April of 1989 (PSMS, 1989c). What appeared to be two monitoring wells were also located in this area.

3.1 Abutters

The Superior Muffler/Switchyard Mobil is currently abutted by vacant land, residences and commercial establishments. The property is abutted to the east and west by residential dwellings. A vacant lot abuts the south boundary of the property. Abutting the north side of the property is Lake Street and across the street is the China Palace Restaurant. In the general vicinity of the site, land is used for residential, commercial and industrial uses.

3.2 Hazardous and Petroleum Waste Sites

Following the identification of several service stations within a one-quarter mile radius, Aquatec personnel reviewed available records at the ANR office in Waterbury, Vermont. Information concerning service stations and petroleum releases are maintained by the Petroleum Sites Management Section (PSMS) of the ANR.

One petroleum release was reported to have occurred within a one-quarter mile radius. This release was associated with a leaking underground storage tank at the CVPS facility at the intersection of Houghton and Lower Welden Streets (PSMS Project No. 96). The release was discovered during the fall of 1986, at which time the UST was removed. A subsurface investigation was conducted following the removal of the UST. No gasoline was identified floating on the water table during the investigation. As a result of this finding, the PSMS classified the site priority as "low/closed."

Aquatec personnel also reviewed the U.S. EPA Comprehensive Environmental Response, Compensation and Liability Index System (CERCLIS) and Vermont Hazardous Sites List to evaluate the presence of potential hazardous waste sites within a one-quarter mile radius. Neither list included a potential site within one-quarter mile of the property (U.S. EPA, 1989 and HSMS, 1989).

3.3 Water, Sewage Disposal and Fuel Storage

The Superior Muffler/Switchyard Mobil is served by St. Albans City water and sewer. Surface runoff, car wash water and domestic sewage drains to the sewer. According to Mr. Cioffi, St. Albans' City Manager, St. Albans receives water from two surface water reservoirs located in Fairfax and from Lake Champlain from a location five to six miles northwest of St. Albans (Ross, 1989a).

The St. Albans wastewater treatment facility is located about one and on-half miles north (downstream) of the property along Stevens Brook. The treatment facility was upgraded to a tertiary system in 1986 and has a rated capacity of four million gallons per day (mgd). Mr. Moe Radman of the treatment facility estimated that the maximum volume of waste water currently being treated is around two mgd (Ross 1989b). Mr. Radman indicated that Lake Street was sewered in the early part of the century, likely before 1910 (Cox, 1989a). Therefore it is unlikely that an on site septic system was operated on site.

The Superior Muffler building was heated with fuel oil. The fuel oil storage tank is located in the garage area of the building. The Mobil building is heated with propane. The propane is stored in the above ground tank near the southeast corner of the property.

There is also an above ground kerosene storage tank located near the northeast corner of the property for retail sales.

3.4 Underground Storage Tanks

There are presently three (3) underground storage tanks (USTs) on the property. All three USTs are used for gasoline storage for retail. Two of the USTs are 4000 gallon capacity tanks and the third is a 3000 gallon capacity tank. According to tank registration forms on file at the ANR, all three tanks were installed in 1983 and are constructed of steel. There is no secondary containment or leakage detection except for daily inventory measurements. At this time, the tanks appear to meet State and Federal UST regulations. The permit for the USTs expires on September 29, 1992. The State records indicate that the tanks are not owned by the property owner, but are owned by R.L. Vallee, Inc. of St. Albans, Vermont.

In addition to the existing USTs, three USTs were removed from the site on March 27, 1989 under the observation of ANR representatives (PSMS, 1989c). The tanks were located in the southeast corner of the property. According to the ANR Tank Pull Report, all three USTs were 4000 gallon capacity tanks. During the tank pull, water and gasoline were recovered from the tanks. Free product was also noticed floating on water in the excavation where HNU photoionization meter readings of greater than 50 parts per million (ppm) were detected. According to the State report, two of the tanks were in fair condition and the third, nearest the southeast corner of the property, was leaking (PSMS, 1989c).

As a result of findings during the tank pull, two monitoring wells were installed in the tank excavation pit during backfilling. On

October 25, 1989, ANR collected ground water samples from the two monitoring wells for submittal to the ANR laboratory for U.S. EPA 8010 and 8020 analysis, plus total hydrocarbons. Analysis failed to detect compounds in ground water collected in the eastern-most well. Results of the western most well indicated the presence of Benzene at 4600 ppb, Toluene 4600 ppb, Ethylbenzene 700 ppb, Xylene 19500 and Total Volatile Hydrocarbon at 30000 ug/l. At the time of sampling, no free product was detected in either well, however a gasoline odor was detected in the western-most well where the gasoline related compounds were detected.

The State presently listed the site as inactive, since the presence of free product is typically the ANR's action level for site remediation.

4.0 Findings

Based on information made available to Aquatec and reported in this document, evidence was found to indicate that petroleum products and/or hazardous materials may be present on the site due to the past storage of large quantities of petroleum products on the site. Additional investigation including subsurface sampling and analysis would be required to further evaluate the site.

5.0 Limitations

This assessment and report were conducted and prepared for the use of R.L. Vallee, Inc. exclusively. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party, in whole or in part, without prior written consent of Aquatec, Inc. However, Aquatec acknowledges and agrees that this report may be conveyed to the buyer, seller or lender associated with the proximate purchase of the site by the client. The conclusions provided by Aquatec in this assessment are based solely upon information reported in this document. Should

additional information relative to the site become available in the future, this information should be reviewed by Aquatec, and the conclusions presented herein may be modified.

90007D16JAN90

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aquatec INC. ENVIRONMENTAL SERVICES

75 GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05403, TELEPHONE (802) 658-1074

SOURCE: USGS 1972. St. Albans Quadrangle Vermont. U.S. Geological Survey, 7.5 Min. Series (topographic) 1964, photo revised 1972.

FIGURE 1
SITE LOCUS PLAN
Switchyard Mobil/Superior Muffler
St. Albans, Vermont

F-0355

FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: B-5
Sheet 1 of 1
Dates: 2/16/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: - Boring Dia: 3 1/4"
Screen Inter: - Screen Matl: - Casing Matl: -
Packing Matl: - Seal Matl: - Backfill Matl: -
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: GA/BWC

Depth (Feet)	Sample Type and No.	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5	SS-1	3.7 5.7	NR	Taps		GRAVEL over silt (saturated) HNU=100 ppm
10	SS-2	8.3 10.3	NR	2-2 4-5		SILT over dark gray GRAVEL (saturated) HNU=10 ppm

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: _____ Bedrock Depth: _____ Total Depth: 10.3

ENVIRONMENTAL SERVICES

75 GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05403, TELEPHONE (802) 658-1074

February 27, 1990

Mr. Skip Vallee
R.L. Vallee, Inc.
282 South Main Street
St. Albans, VT 05476

Re: Aquatec Project No. 90007

Dear Mr. Vallee:

Aquatec directed the completion of six soil borings on the property located at 138 Lake Street in St. Albans, Vermont. The borings were located to the south of the Mobil Service Station building on the property. The approximate locations of the borings are illustrated on the attached sketch map. The borings are labeled B-1 through B-6.

The soil borings were completed by Adams Engineering of Underhill, Vermont. Each of the three borings was advanced to a depth of approximately ten feet below ground surface using a hollow-stem auger. During the completion of the borings, soil samples were retrieved at five foot depth intervals using a standard two inch diameter, two foot long split-spoon sampler. Each of the split-spoon samples was inspected to characterize soil type and identify possible indications of contamination.The samples were also screened for the presence of volatile organic compounds with an HNu photoionization detector (PID) Model P1101 equipped with a 10.2 eu lamp. Detailed boring logs indicating field observations are attached.

During the field screening, indications of contamination were observed at all six boring locations. All borings emitted petroleum product odor, and had elevated HNu readings. The following maximum HNu readings were observed at each boring location.

Boring	Maximum PID Reading (parts per million)
B-1	15
B-2	150
B-3	130
B-4	100
B-5	100
B-6	30

The odor of the soils appeared to be recognized predominately as fuel oil rather than gasoline. This coincides with information documented during the site history review that indicated the presence of three above ground fuel oil storage tanks on the site from the 1950's to at least 1978. Elevated PID readings could also be elevated due to the presence of gasoline in the subsurface, but as stated previously, field observations indicated that fuel oil is likely the dominant product in the subsurface.

The State of Vermont Agency of Natural Resources (ANR) has no standard policy regarding petroleum contaminated sites. Each site is typically evaluated on a case by case basis. It is Aquatec's understanding that the ANR would allow land farming of petroleum soils that produce PID readings between 10 - 400 ppm. It should be noted that approval must be obtained from the ANR prior to any remedial activities.

The distribution of elevated HNu readings near property lines indicates that off site contamination is probable.

If you have any questions or comments, please call me.

Sincerely,

Brett W. Cox
Hydrogeologist

BWC/lam

Enclosure

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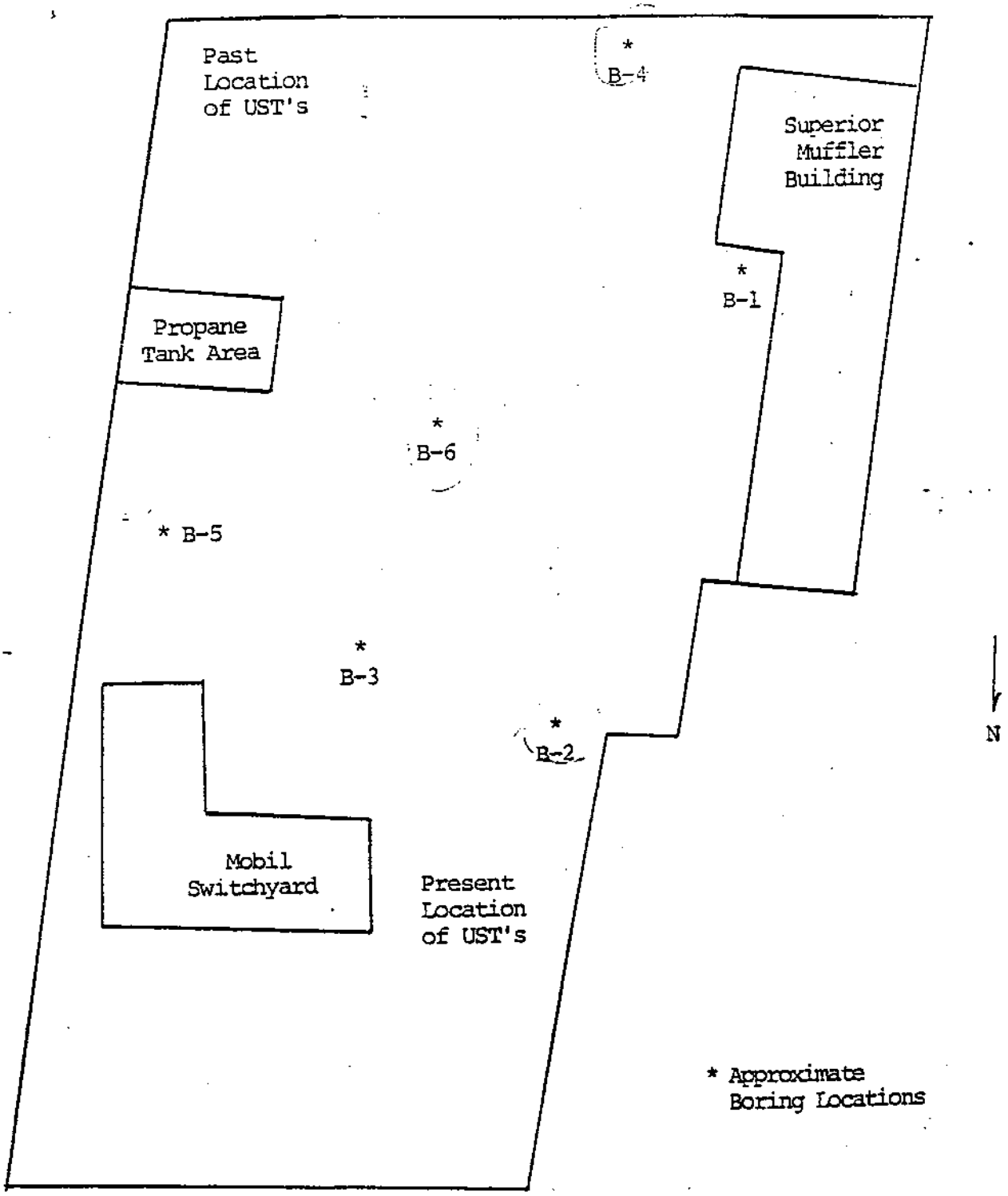


SITE SKETCH MAP
Switchyard Mobil/Superior Muffler
138 Lake Street, St. Albans, VT

No Scale

F-0355

FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: B-1
Sheet 1 of 1
Dates: 2/16/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: - Boring Dia: 3 1/4"
Screen Inter: - Screen Matl: - Casing Matl: -
Packing Matl: - Seal Matl: - Backfill Matl: -
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: BA/BWC

Depth (Feet)	Sample Type and No	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
	SS-1	3.3 5.3	NR	Taps		black fill over gray silty fine SAND (moist) HNU=15 ppm
5						
	SS-2	8.0 10.0	NR	Taps		dark gray fine sandy/silt/stones, till appearence (Dry) HNU=5 ppm
10						

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: _____ Bedrock Depth: _____ Total Depth: 10.0

F-0355

FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: B-2
Sheet 1 of 1
Dates: 2/16/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: - Boring Dia: 3 1/4"
Screen Inter: - Screen Matl: - Casing Matl: -
Packing Matl: - Seal Matl: - Backfill Matl: -
Contractor: Adams Enq. Driller: G. Adams Method: HSA Logged By: GA/BWC

Depth (Feet)	Sample Type and No.	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
	SS-1	3.5 5.5	NR	2-1 1-2		gray fine SAND (moist) HNU=150 ppm
5						
	SS-2	8.5 10.5	NR	2-4 6-16		gray SILT over (till) (saturated) HNU-120 ppm
10						

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: _____ Bedrock Depth: _____ Total Depth: 10.5

F-0355

FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: B-3
Sheet 1 of 1
Dates: 2/16/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: - Boring Dia: 3 1/4"
Screen Inter: - Screen Matl: - Casing Matl: -
Packing Matl: - Seal Matl: - Backfill Matl: -
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: GA/BWC

Depth (Feet)	Sample Type and No.	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5	SS-1	3.7 5.7	NR	Taps		PEAT over silty SAND (saturated) HNU=130 ppm
10	SS-2	8.6 10.6	NR	1-5 7-7		gray SILT over gravel (saturated) HNU-100 ppm

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: _____ Bedrock Depth: _____ Total Depth: 10.6

F-0355

FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: B-4
Sheet 1 of 1
Dates: 2/16/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: - Boring Dia: 3 1/4"
Screen Inter: - Screen Matl: - Casing Matl: -
Packing Matl: - Seal Matl: - Backfill Matl: -
Contractor: Adams Enq. Driller: G. Adams Method: HSA Logged By: GA/BWC

Depth (Feet)	Sample Type and No.	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5	SS-1	3.5 5.5	NR	.5-.5 .5-.5		black GRAVEL over silt (saturated) HNU=100 ppm
10	SS-2	8.5 10.5	NR	2-4 7-7		black GRAVEL over silt over (till) (saturated) HNU-30 ppm

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: _____ Bedrock Depth: _____ Total Depth: 10.5

F-0355

FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: B-5
Sheet 1 of 1
Dates: 2/16/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: - Boring Dia: 3 1/4"
Screen Inter: - Screen Matl: - Casing Matl: -
Packing Matl: - Seal Matl: - Backfill Matl: -
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: GA/BWC

Depth (Feet)	Sample Type and No.	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5	SS-1	3.7 5.7	NR	Taps		GRAVEL over silt (saturated) HNU=100 ppm
10	SS-2	8.3 10.3	NR	2-2 4-5		SILT over dark gray GRAVEL (saturated) HNU=10 ppm

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: _____ Bedrock Depth: _____ Total Depth: 10.3

F-0355

FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: B-6
Sheet 1 of 1
Dates: 2/16/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: - Boring Dia: 3 1/4"
Screen Inter: - Screen Matl: - Casing Matl: -
Packing Matl: - Seal Matl: - Backfill Matl: -
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: GA/BWC

Depth (Feet)	Sample Type and No	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5	SS-1	3.7 5.7	NR	2-3 3-3		dark gray GRAVEL over gray fine sandy SILT (moist) HNU=30 ppm
10	SS-2	8.6 10.6	NR	2-3 4-5		fine gray SAND over SILT (saturated) HNU=10 ppm

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: _____ Bedrock Depth: _____ Total Depth: 10.6

Appendix B - Well Construction Diagrams

F-0355

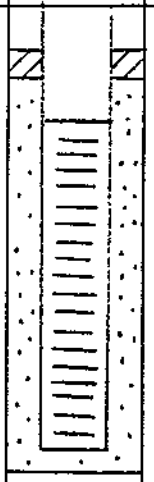
FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: MW-1*
Sheet 1 of 1
Dates: 6/7/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: 2" Boring Dia: 6 1/4"
Screen Inter: 2.5 - 9.5 Screen Matl: No. 20 slot Casing Matl: Sch 40 PVC
Packing Matl: Pool Sand Seal Matl: Bentonite Backfill Matl: Natural
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: GA/BC

Depth (Feet)	Sample Type and No	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5						Sand 1.5 - 9.7 Bentonite 1.0 - 1.5 * See Boring log B-5 2/16/90, for geologic description
10						

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: - Bedrock Depth: - Total Depth: 9.7

F-0355

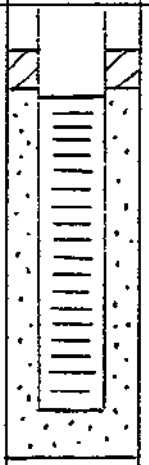
FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: MW-2*
Sheet 1 of 1
Dates: 6/7/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: 2" Boring Dia: 6 1/4"
Screen Inter: 2.0 - 8.5 Screen Matl: No. 20 slot Casing Matl: Sch 40 PVC
Packing Matl: Pool Sand Seal Matl: Bentonite Backfill Matl: Natural
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: GA/BC

Depth (Feet)	Sample Type and No	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5						Sand 1.9 - 9.5 Bentonite 1.0 - 1.9 * See Boring log B-6, 2/16/90 for geologic description
10						

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: - Bedrock Depth: - Total Depth: 9.5

F-0355

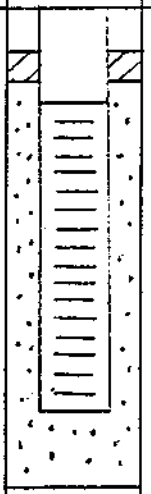
FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: VAllee SA
Project No: 90007
Location: St. Albans, VT

Boring No: MW-3*
Sheet 1 of 1
Dates: 6/7/90

Elev. T.O.W: - Elev. B.O.W: - Well Dia: 2" Boring Dia: 6 1/4"
Screen Inter: 2.0 - 8.5 Screen Matl: No. 20 slot Casing Matl: Sch 40 PVC
Packing Matl: Pool Sand Seal Matl: Bentonite Backfill Matl: Natural
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: GA/BC

Depth (Feet)	Sample Type and No	Sample Depth Range (Feet)	Sample Recovery or RQD	Sample Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5						Sand 1.5 - 10.0 Bentonite 1.0 - 1.5 * See Boring log B-2, 2/16/90, for geologic description
10						

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: - Bedrock Depth: - Total Depth: 10.0

F-0355

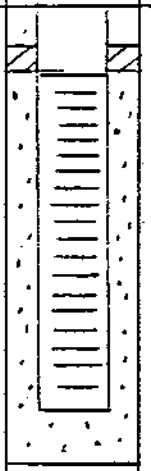
FIELD BORING LOG

Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT 05403

Project: Vallee SA
Project No: 90007
Location: St. Albans, VT

Boring No: MW-4*
Sheet 1 of 1
Dates: 6/7/90

Elev. T.O.W: - Elev. B.O.W: _____ Well Dia: 2" Boring Dia: 6 1/4"
Screen Inter: 1.5 - 8.5 Screen Matl: No. 20 slot Casing Matl: Sch 40 PVC
Packing Matl: Pool Sand Seal Matl: Bentonite Backfill Matl: Natural
Contractor: Adams Eng. Driller: G. Adams Method: HSA Logged By: GA/BC

Depth (Feet)	Sample: Type and No	Sample: Depth Range (Feet)	Sample: Recovery or RQD	Sample: Blows	Well Const.	Soil and Rock Descriptions/Comments (Unified soil class system, Rock description, Depth to water, Loss of drill water, discoloration, PID, etc.)
5						Sand 1.5 - 9.7 Bentonite 1.0 - 1.5 * See Boring log B-4, 2/16/90, for geologic description
10						

Sample Type: A-Auger SS-Split Spoon RC-Rock Core C-Chips

Summary: Overburden Depth: - Bedrock Depth: - Total Depth: 9.7

Appendix C - Analytical Reports

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

ANALYTICAL REPORT

RL Vallee, Inc.
282 South Main Street
St. Alban's, VT 05478

Date : 08/03/90
ETR Number : 22243
Project No.: 90007
No. Samples: 4
Arrived : 07/13/90
P.O. Number: *

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

Method No.	Parameter
OR370	Volatile Hydrocarbons

Lab No.	Sample Description	Result
117829	Trip Blank:07/13/90 @0920(Water)	<100 a
117830	MW-1:07/13/90 @1135(Water)	1800 a
117831	MW-2:07/13/90 @1140(Water)	660 a
117832	MW-3:07/13/90 @1145(Water)	26000 a

Comments/Notes

a = ug/l
117829 - The result is reported in ug/L as unleaded gasoline.
117830 - The result is reported in ug/L as unleaded gasoline.
117831 - The result is reported in ug/L as fuel oil #2. Gasoline was also detected and quantitated as 120 ug/L as unleaded gasoline.
117832 - The result is reported in ug/L as fuel oil #2.

< Last Page >

Submitted By : R. Mason McKeen
Aquatec Inc.

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

ANALYTICAL REPORT

RL Vallee, Inc.
282 South Main Street
St. Alban's, VT 05478

Date : 08/02/90
ETR Number : 22345
Project No.: 90007
No. Samples: 1
Arrived : 07/20/90
P.O. Number: *

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

Lab No.	Sample Description
118332	MW-4:07/20/90 @1400(Water)

Method No.	Parameter	Result
OR370	Volatile Hydrocarbons	29000 a

Comments/Notes

a = ug/l
The result is reported in ug/L as unleaded gasoline.

< Last Page >

Submitted By : R. Mason VanBeen
Aquatec Inc.