

JAN 13 1993



January 12, 1993

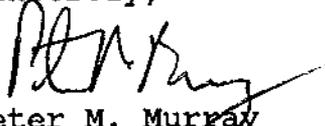
Mr. Charles Schwer
State of Vermont
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main St.
Waterbury, VT 05671-0404

RE: Former Vinton Motors property, St. Johnsbury, VT
VTDEC Site #92-1292

Dear Chuck,

Enclosed is the report on the investigation of subsurface
petroleum contamination at the above referenced site.
Please call me with any questions that you may have
regarding this investigation.

Sincerely,


Peter M. Murray
Project Hydrogeologist

cc: Roger Lussier, Lyndonville Savings Bank
Bernard Murphy, Murphy Real Estate
Peter Van Oot, Downs Rachlin & Martin

JAN 13 1993

REPORT ON THE INVESTIGATION
OF SUBSURFACE PETROLEUM CONTAMINATION
FORMER VINTON MOTORS
ST. JOHNSBURY, VERMONT
VTDEC SITE # 92-1292

January, 1993

Prepared for:

Lyndonville Savings Bank & Trust Co.
Lyndonville, Vermont

Prepared by:

Griffin International, Inc.
2B Dorset Lane
Williston, Vermont
(802) 879-7708

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I. INTRODUCTION

This report details the investigation of subsurface petroleum contamination at the former Vinton Motors, in St. Johnsbury, Vermont. The investigation has been conducted by Griffin International, Inc. (Griffin) for the Lyndonville Savings Bank and Trust Co., current owner of the subject property.

The investigation has been conducted to determine the degree and extent of subsurface petroleum contamination at this site and to assess the risk that the contamination poses to nearby sensitive receptors. Subsurface petroleum contamination was detected at this site during removal of four underground storage tanks (USTs) on August 13, 1992. Specifically, volatile organic compounds (VOCs) were detected in soils in the vicinity of two of the USTs which were used to store gasoline. No VOC's were detected in the vicinity of the remaining two USTs.

A total of approximately 140 cubic yards of contaminated soil were removed from the tank pit area on August 14, 1992. These soils are currently stockpiled on the eastern edge of the subject property. The soils are encapsulated with plastic sheeting to prevent the leaching of contaminants into the native soils.

A report on the inspection of the removal of the four USTs was prepared by Griffin in August, 1992, and has been submitted to the State of Vermont Department of Environmental Conservation (VTDEC) for review. The report indicates that residual soil contamination was still present after removal of the 140 yards of soil.

The VTDEC requested that the investigation be conducted after a review of the tank removal report. The request was contained in a letter from Mr. Charles Schwer, of the VTDEC, to the Lyndonville Savings Bank and Trust Company dated September 17, 1992.

This investigation has consisted of the installation of four groundwater monitoring wells, the collection and analysis of groundwater samples and the determination of the direction and gradient of groundwater flow across the site. Data obtained during the investigation indicates that residual subsurface gasoline contamination at this site does not pose a significant risk to the environment or to the health and safety of occupants of the property.

II. SITE BACKGROUND

A. Site History

In December, 1991, the Lyndonville Savings Bank and Trust acquired the former Vinton Motors property through foreclosure. The property had been in use as an automobile dealership until that time. According to a former employee of the dealerships which occupied the property, the two gasoline tanks were installed in the early 1960s. In the late 1970s, a sudden loss of inventory was detected from one of the USTs. Use of both tanks was discontinued at that time.

In addition to gasoline, heating oil and waste oil were stored on site in USTs. The heating oil was stored in a 10,000 gallon UST at the southeast corner of the property. Heating oil was transferred to a furnace in the building via underground piping. The waste oil was stored in a 1,000 gallon UST on the east side of the building. Waste oil was poured into the tank through a fill pipe, located inside the building. In addition, waste solvents were disposed of in this tank. At some point, Safety Clean was contracted to dispose of used solvents at this site.

Contents of the two oil/water separators were reportedly cleaned out on a regular basis by a waste oil hauler. The waste oil hauler also regularly hauled the contents of the waste oil tank.

In August, 1992, the four on-site USTs were removed by Calkins Excavating, under contract to the Lyndonville Savings Bank and Trust. In addition to removing the tanks, two groundwater monitoring wells were installed in the backfill for the two gasoline USTs.

The tank closure was inspected by Griffin International. A report on the inspection has been prepared and submitted to the VTDEC.

Griffin collected a sample of water from the on-site supply well on August 18, 1992. The sample was analyzed for VOCs using EPA Method 602. The analysis indicated that the well has not been impacted by the gasoline contamination.

Also in August, 1992, New England Telephone (NET) contracted Wehran Envirotech (Wehran) to conduct a site assessment at the former Vinton Motors. NET is a prospective lessee of the property and is concerned with potential environmental liabilities at the site. The assessment included the installation of one groundwater monitoring well at the southeast corner of the property, near the location of the former heating oil UST. Wehran's assessment report indicated that low concentrations of organic solvents are present in groundwater at the site.

In response to petroleum contaminated soils detected during the UST removal, the VTDEC requested that a subsurface investigation be conducted. The Lyndonville Savings Bank and Trust contracted Griffin to conduct the investigation in September, 1992.

On October 2, 1992, Griffin installed four groundwater monitoring wells downgradient of the location of the two former gasoline USTs. Initial data obtained during installation of the monitoring wells indicated that residual petroleum contamination remained in the vicinity of the gasoline tank pit but had not apparently migrated a significant distance in the downgradient direction.

Laboratory analysis of groundwater samples collected from on-site wells on October 6, 1992 indicated that VOCs were present in groundwater in the immediate vicinity of the former gasoline USTs. The analyses also indicated that VOCs had not migrated a significant distance from the former USTs.

In response to this initial data, the VTDEC sent a letter to the Lyndonville Savings Bank and Trust indicating that it does not consider the contamination to be a significant threat to human health or the environment. The letter was dated October 15, 1992.

B. Site Description

The former Vinton Motors property is located in the flood plain of the Passumpsic River, along Route 5, approximately one mile north of downtown St. Johnsbury (see Site Location Map, in Appendix A). The elevation of the site is approximately 600 feet above sea level. The underlying geology at the site consists of littoral deposits overlying schistose bedrock. Depth to bedrock at this site likely ranges from 15' to 25'.

A large esker runs north-south along the east side of the property. The slope of this esker rises steeply from the site to an elevation of approximately 735 feet above sea level. The slope of this esker used to extend to within several feet of the east side of the Vinton Motors building. The slope was cut back to its present location during construction of nearby Interstate 91. The esker consists of stratified sand and gravel deposits with some silty/clayey lenses. Groundwater in this esker likely flows beneath the site on its way to the river.

The former Vinton Motors building is constructed on a concrete slab. Two floor drain systems currently drain water from the service bays. These drains flow into two oil/water separators located on the north and east sides of the building. In addition, two septic systems are used to treat sewerage generated in the building. One of the systems is located beneath the parking lot, southeast of the building. The other system is located beneath the parking lot to the east of the building.

The building is supplied water from an on-site drilled well. The well is drilled into bedrock and is approximately 200 feet deep. The well is cased through the overburden and approximately twenty feet of bedrock. This prevents groundwater contained in the overburden from flowing directly into the well.

In addition to the former Vinton Motors, the only other buildings in this section of the valley are the Go Go Gas Station and The Farm Boy Restaurant. The Go Go Gas Station, located approximately 1,000 feet south of the site, was unoccupied as of December, 1992. The USTs at this site are scheduled to be removed in Spring, 1993. The restaurant is located approximately 1,100 feet south of the site. Both buildings are constructed on concrete slabs. Both buildings obtain water from on-site, drilled wells.

III. INVESTIGATIVE PROCEDURES

A. Monitoring Well Installation

A total of seven groundwater monitoring wells currently exist on-site (see MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 on Site Map, in Appendix A). MW-1 and MW-2 were installed by Griffin and Calkins during backfilling of the contaminated soils excavation. The remaining wells were installed using a hollow stem auger drill rig. MW-3 was installed by Wehran on September 9, during its site assessment. MW-4, MW-5, MW-6 and MW-7 were installed by Griffin on October 2. All seven wells are constructed of ten feet of two inch diameter, PVC well screen with riser pipe extending to grade. All wells are completed with flush mounted road boxes.

MW-1 is located at the downgradient edge of the contaminated soils excavation. It is approximately 17 feet deep. MW-2 is located in the former location of the two gasoline USTs. It is approximately 16 feet deep.

MW-3 is located between the location of the former heating oil UST and the building, along the underground piping between the UST and the furnace. The well is twenty feet deep. Soils encountered during installation of this well consisted of mostly sand and gravel. The supervising Wehran geologist detected low concentrations of VOCs in soils retrieved from the borehole for this well. The soils were screened for VOCs in the field using a portable photo-ionization device (PID).

MW-4, MW-5, MW-6 and MW-7 were all installed under the supervision of a Griffin hydrogeologist. Soil samples were collected at five foot intervals from each borehole using a split spoon sampler. Soil samples were logged by the hydrogeologist and screened for VOCs using a portable photo-ionization device (PID). Detailed well logs for these four wells are contained in

Appendix B. The well logs list soil characteristics, VOC concentrations and well construction details.

MW-4 is located downgradient of the former gasoline USTs. This well was installed to determine the northwestern extent of the contamination. Soils retrieved from this borehole consisted of sand with a little silt. No VOCs were detected in these soils by PID indicating that this well is likely located downgradient of the leading edge of the contamination plume.

MW-5 is also located downgradient of the former gasoline USTs. This well was installed to determine the southwestern extent of the contamination. Soils retrieved from this borehole consisted of sand and silt. No VOCs were detected in these soils by PID indicating that this is likely near the leading edge of the detectable contamination plume.

MW-6 is located on the east bank of the Passumpsic River, between the former gasoline USTs and the river. This well was installed to determine if gasoline contamination has migrated to the river. Soils retrieved from this borehole consisted of sand and silt. No VOCs were detected in these soils indicating that petroleum contamination has not impacted the river.

MW-7 is located immediately downgradient of the soils excavation. This well was installed to determine contamination concentrations at the downgradient edge of the source area. Soils retrieved from this borehole consisted of sand and some silt. A VOC concentration of 3 parts per million (ppm) was detected in the soil sample retrieved from the water table, at a depth of 14 to 16 feet. This indicates that subsurface petroleum contamination has migrated beyond the downgradient edge of the soils excavation.

B. Groundwater Flow Direction, Gradient Determination

On October 6, 1992, Griffin measured water table elevations in each on-site well in the vicinity of the former gasoline USTs for preparation of the Groundwater Contour Map in Appendix A. Water table elevations were measured relative to a benchmark (TOC MW-2) which was assigned an arbitrary elevation of 100 feet. In addition, the measured river elevation on October 2 was used in preparation of the map. The map indicates that groundwater beneath the site is flowing in a southwest direction, toward the river, at a hydraulic gradient of 0.16%.

Although the hydraulic gradient between the location of the former gasoline USTs and the river is relatively low, the rate of groundwater flow beneath the site is likely rapid, due to the sandy nature of the soils and the total head provided by groundwater in the esker east of the site. This high rate of groundwater flow beneath the site likely results in a high rate of contaminant dilution and dispersal.

C. Groundwater Sampling and Analysis

Griffin International has collected groundwater samples from this site for chemical analysis on three separate dates; August 18, October 6 and December 8, 1992. In addition, Wehran collected a sample of groundwater for chemical analysis in September. Results of analyses of samples collected by Griffin are contained in Appendix D. Figure 1 contains a summary of the analytical results.

The sample collected on August 18 was collected from the supply well for the former Vinton Motors building. The sample was collected from a spigot in the service bay after running it for approximately two hours. The sample was analyzed for BTEX and MTBE by EPA Method 602. The results indicate that the supply well has not been impacted by gasoline contamination.

In September, Wehran collected a sample of groundwater from MW-3 for laboratory analysis by EPA Method 8240. The analysis indicated that the well contained 7.9 parts per billion (ppb) tetrachloroethene (TCE). No other VOCs were detected in this sample. TCE is commonly used as a parts degreaser. Its presence in MW-3 may indicate a release of the solvent to the subsurface, either through the floor drains or the septic systems.

All of the groundwater samples collected on October 6 (MW-1, MW-2, MW-3, MW-4, MW-5, MW-6 and MW-7) were analyzed by EPA Method 602. In addition, the sample collected from MW-5 was analyzed for VOCs by EPA Method 8240. A sample of the supply well was not collected on this date.

Analyses of the October 6 samples indicate that groundwater in both MW-1 and MW-2 contained varying concentrations of BTEX. No MTBE was detected in these two samples. BTEX concentrations in these two wells are typical of concentrations found in groundwater beneath a leaking gasoline UST. Analytical results indicate that both MW-4 and MW-3 contained no detectable VOCs on that date. MW-5 contained 48 parts per billion (ppb) on that date, indicating that it is close to the leading edge of the dissolved contamination plume. MW-6 contained no detectable VOCs on that date, indicating that the well is beyond the leading edge of the dissolved contamination plume and that the river is not being impacted. MW-7 contained BTEX but in concentrations significantly lower than those detected in the tank pit area. This indicates that, while there is contamination beyond the limit of the soils excavation, significant concentrations of dissolved contamination have not migrated far the tank pit area.

On December 8, 1992, Griffin collected water samples from MW-1, MW-2, MW-3, MW-5, MW-7 and from the supply well. Water samples collected from MW-1, MW-5 and MW-7 were analyzed for BTEX and MTBE by EPA Method 602. Samples from the remaining monitoring wells and supply well were analyzed for VOCs by EPA Method 8240.

The December 8 analytical results indicate that BTEX concentrations in the vicinity of the former gasoline USTs increased from October 6. This increase is likely due to the removal of the asphalt cap above the former gasoline USTs. This allows surface runoff to percolate through the contaminated soils, liberating adsorbed soil contamination into the dissolved phase. It is likely that, during the winter months, frozen soils at the surface will prevent runoff from entering the subsurface. This will temporarily prevent continued flushing of the soils which will result in decreased dissolved VOC concentrations in the groundwater. When the ground thaws in the Spring, runoff will again flow down through the soils, increasing dissolved contamination concentrations. It is expected, however, that the overall trend in this area will be toward lower dissolved VOC concentrations as the adsorbed contamination is gradually flushed from the vadose zone and diluted and dispersed in the saturated zone.

The December 8 results also indicate a slight increase in downgradient contamination concentrations. This increase is also likely due to increased flushing of contaminated soils above the water table.

The EPA Method 8240 results for this date indicate that the supply well remains unimpacted by dissolved BTEX, MTBE and TCE contamination. In addition, the results indicate that TCE concentrations in MW-3 have decreased to 3.8 ppb, from 7.9 ppb in October.

Figure 1.

RESULTS OF GROUNDWATER QUALITY ANALYSES
FORMER VINTON MOTORS
ST. JOHNSBURY, VERMONT

AUGUST 18, 1992

<u>PARAMETER</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>MW-4</u>	<u>MW-5</u>	<u>MW-6</u>	<u>MW-7</u>	<u>SUPPLY WELL</u>
Benzene	NS*	NS	NS	NS	NS	NS	NS	ND**
Toluene	NS	ND						
E. Benzene	NS	ND						
Xylenes	NS	ND						
MTBE	NS	ND						

October 6, 1992

Benzene	686	2090	ND	ND	48.2	ND	461	NS
Toluene	1740	21600	ND	ND	ND	ND	237	NS
E. Benzene	240	1490	ND	ND	ND	ND	87.8	NS
Xylenes	1110	12800	ND	ND	ND	ND	55	NS
MTBE	ND	ND	ND	ND	ND	ND	ND	NS

December 9, 1992

Benzene	2780	1260	ND	NS	101	NS	1240	ND
Toluene	5190	25100	TBQ***NS	TBQ	NS	NS	563	ND
E. Benzene	286	2360	ND	NS	TBQ	NS	243	ND
Xylenes	2390	16800	ND	NS	ND	NS	184	ND
MTBE	901	ND	ND	NS	14.6	NS	234	ND

Note:

All results reported in parts per billion (ppb)

* NS - Not Sampled

** ND - None Detected

*** TBQ - Trace Detected Below Quantifiable Limits

IV. RISK ASSESSMENT

Prior to conducting an assessment of the risk that subsurface petroleum contamination at the former Vinton Motors poses to potential receptors, Griffin International conducted a search of the area to identify potential receptors. The survey included a visual inspection of the area and interviews with officials in the Town of St. Johnsbury Water Department. All data obtained in the course of this investigation has been used to assess the risk that the contamination poses to potential receptors.

The following is a list of potential receptors identified during this investigation:

- Passumpsic River
- Vinton Motors supply well
- Vinton Motors Building

As indicated by chemical analysis of groundwater near the river bank and by lack of visual indication of surface petroleum contamination, it appears that the risk to the Passumpsic River is not significant. Apparently, contaminated groundwater in the vicinity of the former gasoline USTs is becoming dispersed and diluted as it flows toward the river. This is resulting in a reduction of dissolved VOC concentrations to below detectable limits prior to its discharge into the river. It is possible that the process of bio-degradation is totally eliminating VOC contamination in the groundwater prior to its discharge into the river. Groundwater quality data obtained during this investigation supports this assumption.

Analysis of water samples collected from the Vinton Motors supply well in August and December, 1992 indicate that the well has not been impacted by dissolved VOC contamination. Due to the location and construction of this well, it is not likely that the well will be impacted in the future. This well is likely located beyond the limits of VOC contamination in the overburden deposits. In addition, if groundwater in the overburden is contaminated in the vicinity of the supply well, it will not likely flow directly into the borehole since it is cased through the overburden. Typically, the well casing will have a drive shoe on the end, which is driven into the bedrock to form a tight seal between the overburden groundwater and groundwater in the bedrock.

Since this investigation was initiated, no VOC vapors have been detected inside the Vinton Motors building. Ambient air in the building has been screened with a PID on two occasions, August 14 and October 2, 1992 with no vapors detected. In addition, no petroleum odors have been detected by Griffin personnel during subsequent visits to the building.

There are approximately 5 to 6 feet of clean soils beneath the building's concrete slab. These clean soils provide a buffer for VOC vapors. In addition, it is unusual for vapors originating from petroleum contaminated soil to enter a building built on a slab. Buildings with basements are more likely to become impacted by vapors under the same conditions.

V. CONCLUSIONS

Based on data obtained during the course of this investigation, Griffin has arrived at the following conclusions regarding subsurface petroleum contamination at the former Vinton Motors property:

1. There was a release of gasoline from a 1,000 gallon gasoline UST formerly located northwest of the Vinton Motors building. The amount and duration of the release are unknown. The release has resulted in contamination of the soils in the vadose zone and groundwater in the vicinity of the tank. The contamination exists in both the dissolved and adsorbed phases. To date, no free phase contamination has been detected at this site.
2. The source of the contamination, the leaking UST, has been removed from the site. The removal of approximately 140 cubic yards of contaminated soil from the vicinity of the leaking tank has resulted in removal of a significant portion of the source of continued dissolved contamination.
3. In addition to petroleum contamination, there appear to be low concentrations of TCE in the groundwater in the vicinity of MW-3. This solvent may have entered the subsurface via floor drains and septic systems associated with the on-site building.
4. Groundwater beneath the site flows toward the southwest at a 0.16% gradient. Groundwater at this site discharges into the nearby Passumpsic River, which flows to within 180 feet of the location of the leaking gasoline UST.
5. Removal of the asphalt above the contaminated soils has allowed surface runoff to percolate through the soils to the water table. As this water flows through the adsorbed contamination, the contamination is flushed to the water table resulting in increased dissolved contamination concentrations. Frozen ground during the winter months prevents this process from occurring.
6. Dissolved contamination originating from the source area continues to migrate downgradient, where it becomes diluted and dispersed to non-detectable concentrations. It is

likely that this process will continue for several years, until all contamination at this site is degraded.

7. The detectable dissolved contamination plume in this area likely does not extend more than 100 feet downgradient of the source. This will likely be the maximum extent of the dissolved plume.
8. Residual subsurface petroleum contamination at this site does not appear to pose significant threats to potential receptors in the area. In addition, low concentrations of TCE detected in MW-3 do not appear to pose a significant threat to the environment.
9. Over time, VOC concentrations in the stockpiled soils will be reduced due to the processes of bio-degradation and volatilization.

VI. RECOMMENDATIONS

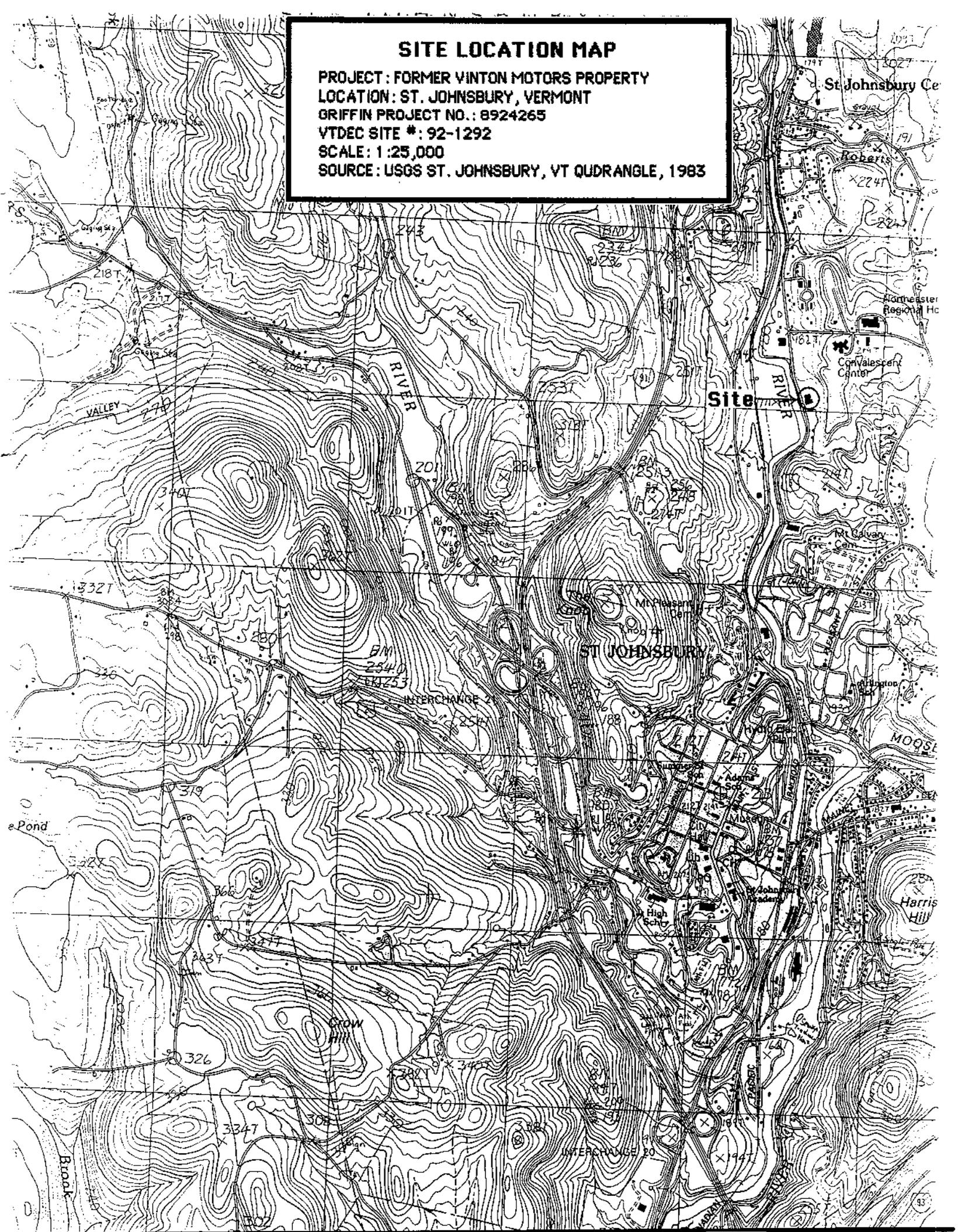
Based on the above conclusions, Griffin presents the following recommendations:

1. To adequately document the continued degradation of subsurface petroleum contamination at this site, we recommend annual sampling and analysis of groundwater from all on-site monitoring wells. Samples collected from MW-1, MW-2, MW-4, MW-5, MW-6 and MW-7 should be analyzed by EPA Method 602. Samples collected from MW-3 should be analyzed by EPA Method 8240.
2. During each sampling event, a sample of water from the on-site supply well should also be analyzed by EPA Method 8240 to assure that the well has not been impacted by VOCs.
3. In addition to water sample collection, ambient air inside the building should be screened for VOCs by PID.
4. To monitor the continued degradation of VOCs in the stockpiled soils, we recommend annual screening of the soils by PID. Any damage to the plastic should be repaired during the sampling event. The soils are also suitable for asphalt batching. This process effectively destroys VOC contamination in the soils, eliminating future liabilities.

APPENDIX A
Site Maps

SITE LOCATION MAP

PROJECT : FORMER VINTON MOTORS PROPERTY
LOCATION : ST. JOHNSBURY, VERMONT
GRIFFIN PROJECT NO. : 8924265
VTDEC SITE # : 92-1292
SCALE : 1 : 25,000
SOURCE : USGS ST. JOHNSBURY, VT QUADRANGLE, 1983



SITE MAP

PROJECT : LYNDONVILLE SAVINGS BANK
LOCATION : FORMER VINTON MOTORS
ST. JOHNSBURY, VT
GRIFFIN PROJECT NO. : 8924265
VTDEC SITE #92-1292

LEGEND

⊕ MONITORING WELL



FASSUNPSIC RIVER

⊕ MW-6

ROUTE
5

⊕ MW-4

⊕ MW-7

⊕ MW-1

⊕ MW-5

MW-2 ⊕

LOCATION
FORMER
GASOLINE
USTs

BUILDING

FORMER 1,000
GALLON WASTE
OIL UST

SUPPLY
WELL ⊕

UNDERGROUND
PIPING

MW-3 ⊕

FORMER 10,000
GALLON
HEATING OIL UST

Griffin International, Inc.

GROUNDWATER CONTOUR MAP

PROJECT : LYNDONVILLE SAVINGS BANK
LOCATION : FORMER VINTON MOTORS
ST. JOHNSBURY, VT
GRIFFIN PROJECT NO. : 8924265
VTDEC SITE #92-1292

LEGEND

⊕ MONITORING WELL

WELL IDENTIFICATION:

MW-1 - WELL I.D.

86.52 - WATER TABLE ELEVATION IN FEET



RIVER ELEVATION 10/2/92
85.71

FASSUNPSIC RIVER

86.30'

⊕ MW-6
86.29

86.40'

ROUTE 5

⊕ MW-4
86.43

⊕ MW-5
86.41

86.50'

⊕ MW-7
86.46

⊕ MW-1
86.52

⊕ MW-2
86.52

LOCATION
FORMER
GASOLINE
USTs

BUILDING

FORMER 1,000
GALLON WASTE
OIL UST

GROUNDWATER
FLOW DIRECTION

86.30'

86.40'

SUPPLY
WELL ⊕

86.50'

UNDERGROUND
PIPING

⊕ MW-3

FORMER 10,000
GALLON
HEATING OIL UST

APPENDIX B

Well Logs

PROJECT VINTON MOTORS

LOCATION ST. JOHNSBURY, VT

DATE DRILLED 10/2/92 TOTAL DEPTH OF HOLE 21.5'

DIAMETER 6"

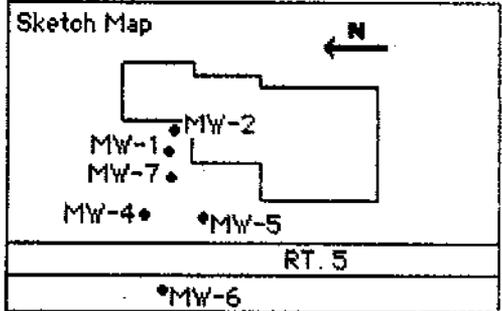
SCREEN DIA. 2" LENGTH 10' SLOT SIZE .010"

CASING DIA. 2" LENGTH 11' TYPE PVC

DRILLING CO. TRI STATE DRILLING METHOD HSA

DRILLER RAY GILFILLAN LOG BY P. MURRAY

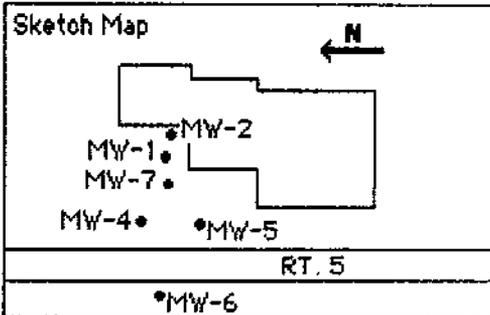
WELL NUMBER MW-4



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		
1		WELL CAP		
2		CONCRETE		
3		BENTONITE		Dry, fine SAND, little silt NO PETROLEUM ODOR, 0 PPM
4		WELL RISER		
5			2,3,2,4	Moist, very fine SAND and SILT NO PETROLEUM ODOR, 0 PPM
6		NATIVE BACKFILL		
7				
8				
9				
10			3,4,6,5	Moist to wet, very fine SAND, little silt NO PETROLEUM ODOR, 0 PPM
11				
12				
13				
14		GRAVEL PACK		
15		WELL SCREEN	2,3,3,2	Wet, very fine SAND, little silt NO PETROLEUM ODOR, 0 PPM
16				
17				
18				
19				
20				
21		BOTTOM CAP		
22				
23				
24				
25				
26				

PROJECT VINTON MOTORS
 LOCATION ST. JOHNSBURY, VT
 DATE DRILLED 10/2/92 TOTAL DEPTH OF HOLE 17.5'
 DIAMETER 6"
 SCREEN DIA. 2" LENGTH 10' SLOT SIZE .010"
 CASING DIA. 2" LENGTH 7' TYPE PVC
 DRILLING CO. TRI STATE DRILLING METHOD HSA
 DRILLER RAY GILFILLAN LOG BY P. MURRAY

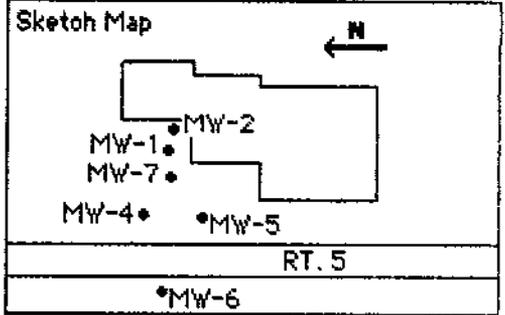
WELL NUMBER MW-5



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 5" OF SPOON	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		
1		WELL CAP		
2		CONCRETE		
3		BENTONITE		Dry, fine SAND, trace silt NO PETROLEUM ODOR, 0 PPM
4		WELL RISER		
5		NATIVE BACKFILL	4,3,3,5	Dark brown, very fine SAND and SILT NO PETROLEUM ODOR, 0 PPM
6				
7				
8				
9				
10			1,2,2,2	WATER TABLE APPROXIMATE Wet SILT, little very fine SAND NO PETROLEUM ODOR, 0 PPM
11		GRAVEL PACK		
12		WELL SCREEN		
13				
14			1,1,1,2	Wet, gray, fine SAND, some silt NO PETROLEUM ODOR, 0 PPM
15				
16				
17		BOTTOM CAP		BASE OF EXPLORATION AT 17.5'
18				
19				
20				
21				
22				
23				
24				
25				
26				

PROJECT VINTON MOTORS
 LOCATION ST. JOHNSBURY, VT
 DATE DRILLED 10/2/92 TOTAL DEPTH OF HOLE 17.5'
 DIAMETER 6"
 SCREEN DIA. 2" LENGTH 10' SLOT SIZE .010"
 CASING DIA. 2" LENGTH 7' TYPE PVC
 DRILLING CO. TRI STATE DRILLING METHOD HSA
 DRILLER RAY GILFILLAN LOG BY P. MURRAY

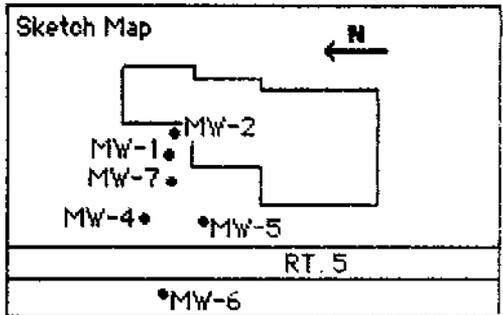
WELL NUMBER MW-6



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		
1		WELL CAP		
2		CONCRETE		Dark brown, fine SAND, some silt NO PETROLEUM ODOR, 0 PPM
3		BENTONITE		
4		WELL RISER		
5		NATIVE BACKFILL	3,2,2,3	Dry, light brown, fine SAND NO PETROLEUM ODOR, 0 PPM
6				
7				
8				
9				
10				
11		GRAVEL PACK	1,1,1,1	Wet, gray/brown SILT and very fine SAND NO PETROLEUM ODOR, 0 PPM
12		WELL SCREEN		
13				
14			3,9,-	Wet, dark brown SILT, some very fine SAND NO PETROLEUM ODOR, 0 PPM
15				
16				
17		BOTTOM CAP		
18				BASE OF EXPLORATION AT 17.5'
19				
20				
21				
22				
23				
24				
25				
26				

PROJECT VINTON MOTORS
 LOCATION ST. JOHNSBURY, VT
 DATE DRILLED 10/2/92 TOTAL DEPTH OF HOLE 21.5'
 DIAMETER 6"
 SCREEN DIA. 2" LENGTH 10' SLOT SIZE .010"
 CASING DIA. 2" LENGTH 11' TYPE PVC
 DRILLING CO. TRI STATE DRILLING METHOD HSA
 DRILLER RAY GILFILLAN LOG BY P. MURRAY

WELL NUMBER MW-7

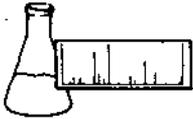


DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		
1		WELL CAP		
2		CONCRETE		Fine, light brown SAND, little silt NO PETROLEUM ODOR, 0 PPM
3		BENTONITE		
4		WELL RISER		
5			3,4,4,5	Dry, fine to medium SAND NO PETROLEUM ODOR, 0 PPM
6		NATIVE BACKFILL		
7				
8				
9				
10			2,2,3,2	Moist SILT, some very fine SAND NO PETROLEUM ODOR, 0 PPM
11				
12				
13				
14		GRAVEL PACK		
15		WELL SCREEN	2,2,1,2	WATER TABLE APPROXIMATE Wet, very fine SAND, little silt SLIGHT GASOLINE ODOR, UP TO 3 PPM
16				
17				
18				
19				
20				
21		BOTTOM CAP		BASE OF EXPLORATION AT 21.5'
22				
23				
24				
25				
26				

APPENDIX C

Liquid Level Data

APPENDIX D
Laboratory Results



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: August 19, 1992
SAMPLER: Becca Schuyler
DATE SAMPLED: August 18, 1992
DATE RECEIVED: August 18, 1992

PROJECT CODE: GIVM1965
ANALYSIS DATE: August 18, 1992
STATION: Supply Well
REF.#: 34,492
TIME SAMPLED: 10:05

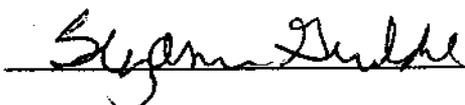
<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	1.	ND ¹
Chlorobenzene	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	1.	ND
MTBE	1.	ND

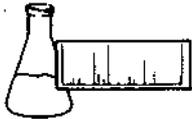
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by





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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 21, 1992
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992
ANALYSIS DATE: October 21, 1992

PROJECT CODE: GIVM1369
REF.#: 36,577
STATION: MW 1
TIME SAMPLED: 17:00
SAMPLER: Don Tourangeau

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	50	686.
Chlorobenzene	100	ND ²
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	50	240.
Toluene	50	1,740.
Xylenes	50	1,110.
MTBE	250	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 3

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 2% dilution.
- 2 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 21, 1992
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992
ANALYSIS DATE: October 20, 1992

PROJECT CODE: GIVM1369
REF.#: 36,576
STATION: MW 2
TIME SAMPLED: 16:25
SAMPLER: Don Tourangeau

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	100	2,090.
Chlorobenzene	200	ND ²
1,2-Dichlorobenzene	200	ND
1,3-Dichlorobenzene	200	ND
1,4-Dichlorobenzene	200	ND
Ethylbenzene	100	1,490.
Toluene	100	21,600.
Xylenes	100	12,800.
MTBE	500	ND

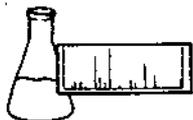
NUMBER OF UNIDENTIFIED PEAKS FOUND: 8

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.
- 2 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 21, 1992
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992
ANALYSIS DATE: October 20, 1992

PROJECT CODE: GIVM1369
REF.#: 36,575
STATION: MW 3
TIME SAMPLED: 15:20
SAMPLER: Don Tourangeau

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

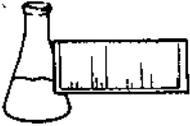
NUMBER OF UNIDENTIFIED PEAKS FOUND: 1

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 9, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992

PROJECT CODE: GIVM1368
ANALYSIS DATE: October 9, 1992
STATION: MW 4
REF.#: 36,570
TIME SAMPLED: 16:30

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	1.	ND ¹
Chlorobenzene	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	1.	ND
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 9, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992

PROJECT CODE: GIVM1368
ANALYSIS DATE: October 9, 1992
STATION: MW 5
REF.#: 36,573
TIME SAMPLED: 17:40

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	1.	48.2
Chlorobenzene	2.	ND ¹
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	1.	ND
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 8240

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 12, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992

PROJECT CODE: GIVM1369
ANALYSIS DATE: October 9, 1992
STATION: MW #5
REF.#: 36,573
TIME SAMPLED: 17:40

<u>Parameter</u>	<u>Quantitation Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Acetone	50	ND ¹
Benzene	2	41.3
Bromodichloromethane	4	ND
Bromoform	1	ND
Bromomethane	2	ND
2-Butanone	50	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	2	ND
Chlorobenzene	1	ND
Chloroethane	1	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	2	ND
Chloromethane	6	ND
Dibromochloromethane	2	ND
1,1-Dichloroethane	1	ND
1,2-Dichloroethane	1	ND
1,1-Dichloroethene	2	ND
trans-1,2-Dichloroethene	2	ND
1,2-Dichloropropane	1	ND
cis-1,3-Dichloropropene	2	ND
trans-1,3-Dichloropropene	3	ND
1,3 Dichlorobenzenes	2	ND
1,2 Dichlorobenzenes	2	ND
1,4 Dichlorobenzenes	2	ND



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EPA METHOD 8240 (continued)

Ref.#: 36,573

<u>Parameter</u>	<u>Quantitation Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Ethyl Benzene	3	TBQ ²
2-Hexanone	25	ND
4-Methyl-2-Pentanone	25	ND
Methylene Chloride	1	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	3	ND
Tetrachloroethene	2	ND
Toluene	2	TBQ
1,1,1-Trichloroethane	2	ND
1,1,2-Trichloroethane	2	ND
Trichloroethene	2	ND
Vinyl Acetate	50	ND
Vinyl Chloride	3	ND
Total Xylenes	5	TBQ
MTBE	5	ND
Trichlorofluoromethane	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 1

NOTES:

- 1 None detected
- 2 Trace below quantitation limits

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 9, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992

PROJECT CODE: GIVM1368
ANALYSIS DATE: October 9, 1992
STATION: MW 6
REF.#: 36,572
TIME SAMPLED: 17:25

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	1.	ND ¹
Chlorobenzene	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	1.	ND
MTBE	1.	ND

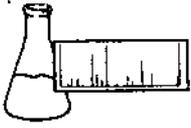
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 9, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992

PROJECT CODE: GIVM1368
ANALYSIS DATE: October 9, 1992
STATION: MW 7
REF.#: 36,571
TIME SAMPLED: 16:50

<u>Parameter</u>	<u>Minimum Detection Limit²</u>	<u>Concentration (ug/L)</u>
Benzene	20.	461.
Chlorobenzene	40.	ND ¹
1,2-Dichlorobenzene	40.	ND
1,3-Dichlorobenzene	40.	ND
1,4-Dichlorobenzene	40.	ND
Ethylbenzene	20.	87.8
Toluene	20.	237.
Xylenes	20.	55.0
MTBE	100.	ND

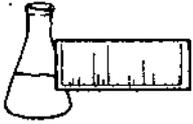
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

- 1 None detected
- 2 Detection limit raised due to high levels of contaminants. Sample run at 5% dilution.

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 21, 1992
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992
ANALYSIS DATE: October 20, 1992

PROJECT CODE: GIVM1369
REF.#: 36,574
STATION: Trip Blank
TIME SAMPLED: 8:05
SAMPLER: Don Tourangeau

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 21, 1992
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992
ANALYSIS DATE: October 21, 1992

PROJECT CODE: GIVM1369
REF.#: 36,578
STATION: Duplicate
TIME SAMPLED: 17:00
SAMPLER: Don Tourangeau

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	50	732.
Chlorobenzene	100	ND ²
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	50	311.
Toluene	50	2,030.
Xylenes	50	1,430.
MTBE	250	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 3

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 2% dilution.
- 2 None detected

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LABORATORY REPORTEPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: October 21, 1992
DATE SAMPLED: October 6, 1992
DATE RECEIVED: October 7, 1992
ANALYSIS DATE: October 20, 1992

PROJECT CODE: GIVM1369
REF.#: 36,579
STATION: Equipment
TIME SAMPLED: 17:45
SAMPLER: Don Tourangeau

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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CHAIN-OF-CUSTODY RECORD

005518

Project Name: <i>Union Metals # 8924265</i> Site Location:	Reporting Address: <i>GRIFIN</i>	Billing Address: <i>GRIFIN</i>
Endyne Project Number:	Contact Name: <i>CHRIS HILL</i> Company/Phone #: <i>879-778</i>	Sampler Name: <i>Don Touchette</i> Company/Phone #: <i>879-778</i>

Lab #	Sample Description	Matrix	Date/Time	Container		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
				No.	Type/Size				
	TRIP BLANK	W	08:05	2	40m L		20	McC	
	MW #3		15:20						
	MW #2		16:25						
	MW #4		16:30						10/12
	MW #7		16:50						10/12
	MW #1		17:00						
	MW #6		17:25						10/12
	MW #5		17:40						10/12
	DUPLICATE		17:00						
	EQUIPMENT BLANK		17:45						

Relinquished by: Signature <i>Joe T...</i>	Received by: Signature <i>Wendy Gamlin</i>	Date/Time <i>10-7-92 8:52</i>
Relinquished by: Signature	Received by: Signature	Date/Time

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals ICP/AA	21	EPA 624	26	EPA 8270
2	Chloride	7	Total P	12	TSS	17	Fecal and/or Tot.	22	EPA 625 B/N or A	27	EPA 8010
3	Ammonia N	8	Total Dist. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8020
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 606 Pest/PCB	29	EPA 8060
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601.602	25	EPA 8240	30	EPTOX
31	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
32	Other (Specify):										

LABORATORY: WHITE

PROJECT MANAGER: YELLOW

SAMPLER: PINK



ENDYNE, INC.

Laboratory Services

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REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 22, 1992
DATE SAMPLED: December 8, 1992

PROJECT CODE: GIVM1621
REF.#: 39,551 - 39,556

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

Chain of custody indicated samples were preserved with HCl.

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

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

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

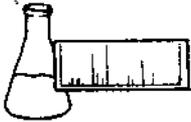
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry Locker, Ph.D.
Laboratory Director

enclosures

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 22, 1992
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992
ANALYSIS DATE: December 19, 1992

PROJECT CODE: GIVM1621
REF.#: 39,554
STATION: MW 1
TIME SAMPLED: 10:00
SAMPLER: P. Murray

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	50	2,780.
Chlorobenzene	50	ND ²
1,2-Dichlorobenzene	50	ND
1,3-Dichlorobenzene	50	ND
1,4-Dichlorobenzene	50	ND
Ethylbenzene	50	286.
Toluene	50	5,190.
Xylenes	50	2,390.
MTBE	250	901.

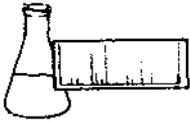
Bromobenzene Surrogate Recovery: 109%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 10

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 2% dilution.
- 2 None detected

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Laboratory Services

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 22, 1992
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992
ANALYSIS DATE: December 20, 1992

PROJECT CODE: GIVM1621
REF.#: 39,555
STATION: MW 1 Duplicate
TIME SAMPLED: 10:00
SAMPLER: P. Murray

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	50	2,970.
Chlorobenzene	50	ND ²
1,2-Dichlorobenzene	50	ND
1,3-Dichlorobenzene	50	ND
1,4-Dichlorobenzene	50	ND
Ethylbenzene	50	315.
Toluene	50	5,380.
Xylenes	50	2,770.
MTBE	250	617.

Bromobenzene Surrogate Recovery: 110%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 10

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 2% dilution.
- 2 None detected

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Laboratory Services

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FAX 879-7103

LABORATORY REPORT

EPA METHOD 624 -- GC/MS PURGEABLES

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 21, 1992
SAMPLER: Peter Murray
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992

PROJECT CODE: GIVM1622
ANALYSIS DATE: December 12, 1992
STATION: MW 2
REF.#: 39,557
TIME SAMPLED: 10:30

<u>Parameter</u>	<u>Minimum Detection Limit²</u>	<u>Concentration (ug/L)</u>
Benzene	400.	1,260.
Bromodichloromethane	800.	ND ¹
Bromoform	200.	ND
Bromomethane	400.	ND
Carbon tetrachloride	400.	ND
Chlorobenzene	200.	ND
Chloroethane	200.	ND
Chloroform	400.	ND
Chloromethane	1200.	ND
Dibromochloromethane	400.	ND
1,2-Dichlorobenzene	400.	ND
1,3-Dichlorobenzene	400.	ND
1,4-Dichlorobenzene	200.	ND
1,1-Dichloroethane	200.	ND
1,2-Dichloroethane	200.	ND
1,1-Dichloroethene	400.	ND
trans-1,2-Dichloroethene	400.	ND
1,2-Dichloropropane	200.	ND
cis-1,3-Dichloropropene	400.	ND
trans-1,3-Dichloropropene	600.	ND
Ethylbenzene	600.	2,360.
Methylene Chloride	200.	ND
1,1,2,2-Tetrachloroethane	600.	ND
Tetrachloroethene	400.	ND
Toluene	400.	25,100.
1,1,1-Trichloroethane	400.	ND
1,1,2-Trichloroethane	400.	ND
Trichloroethene	400.	ND
Trichlorofluoromethane	400.	ND
Vinyl Chloride	600.	ND
Xylenes	1000.	16,800.
MTBE	400.	ND

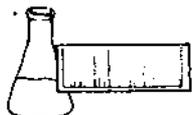
NUMBER OF UNIDENTIFIED PEAKS FOUND: 5

NOTES:

- 1 None detected
- 2 Detection limit raised due to high levels of contaminants. Sample run at 0.5% dilution.

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LABORATORY REPORT

EPA METHOD 624 -- GC/MS PURGEABLES

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 21, 1992
SAMPLER: Peter Murray
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992

PROJECT CODE: GIVM1622
ANALYSIS DATE: December 12, 1992
STATION: MW 3
REF.#: 39,558
TIME SAMPLED: 14:05

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Bromodichloromethane	4.	ND
Bromoform	1.	ND
Bromomethane	2.	ND
Carbon tetrachloride	2.	ND
Chlorobenzene	1.	ND
Chloroethane	1.	ND
Chloroform	2.	ND
Chloromethane	6.	ND
Dibromochloromethane	2.	ND
1,2-Dichlorobenzene	2.	TBQ ²
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	1.	ND
1,1-Dichloroethane	1.	ND
1,2-Dichloroethane	1.	ND
1,1-Dichloroethene	2.	ND
trans-1,2-Dichloroethene	2.	ND
1,2-Dichloropropane	1.	ND
cis-1,3-Dichloropropene	2.	ND
trans-1,3-Dichloropropene	3.	ND
Ethylbenzene	3.	ND
Methylene Chloride	1.	ND
1,1,2,2-Tetrachloroethane	3.	ND
Tetrachloroethene	2.	3.8
Toluene	2.	TBQ
1,1,1-Trichloroethane	2.	ND
1,1,2-Trichloroethane	2.	ND
Trichloroethene	2.	ND
Trichlorofluoromethane	2.	ND
Vinyl Chloride	3.	ND
Xylenes	5.	ND
MTBE	2.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

- 1 None detected
- 2 Trace below quantitation limit

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 22, 1992
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992
ANALYSIS DATE: December 19, 1992

PROJECT CODE: GIVM1621
REF.#: 39,552
STATION: MW 5
TIME SAMPLED: 9:05
SAMPLER: P. Murray

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	101.
Chlorobenzene	1	ND ¹
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	TBQ ²
Toluene	1	TBQ
Xylenes	1	ND
MTBE	5	14.6

Bromobenzene Surrogate Recovery: 75%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 5

NOTES:

- 1 None detected
- 2 Trace below quantitation limit

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 22, 1992
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992
ANALYSIS DATE: December 19, 1992

PROJECT CODE: GIVM1621
REF.#: 39,553
STATION: MW 7
TIME SAMPLED: 9:30
SAMPLER: P. Murray

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	20	1,240.
Chlorobenzene	20	ND ²
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	20	243.
Toluene	20	563.
Xylenes	20	184.
MTBE	100	234.

Bromobenzene Surrogate Recovery: 80%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 12

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 5% dilution.
- 2 None detected

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LABORATORY REPORT

EPA METHOD 624 -- GC/MS PURGEABLES

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 21, 1992
SAMPLER: Peter Murray
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992

PROJECT CODE: GIVM1622
ANALYSIS DATE: December 12, 1992
STATION: Supply Well
REF.#: 39,559
TIME SAMPLED: 14:30

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Bromodichloromethane	4.	ND
Bromoform	1.	ND
Bromomethane	2.	ND
Carbon tetrachloride	2.	ND
Chlorobenzene	1.	ND
Chloroethane	1.	ND
Chloroform	2.	ND
Chloromethane	6.	ND
Dibromochloromethane	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	1.	ND
1,1-Dichloroethane	1.	ND
1,2-Dichloroethane	1.	ND
1,1-Dichloroethene	2.	ND
trans-1,2-Dichloroethene	2.	ND
1,2-Dichloropropane	1.	ND
cis-1,3-Dichloropropene	2.	ND
trans-1,3-Dichloropropene	3.	ND
Ethylbenzene	3.	ND
Methylene Chloride	1.	ND
1,1,2,2-Tetrachloroethane	3.	ND
Tetrachloroethene	2.	ND
Toluene	2.	ND
1,1,1-Trichloroethane	2.	ND
1,1,2-Trichloroethane	2.	ND
Trichloroethene	2.	ND
Trichlorofluoromethane	2.	ND
Vinyl Chloride	3.	ND
Xylenes	5.	ND
MTBE	2.	ND

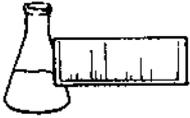
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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EPA METHOD 624 LABORATORY REPORT

MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 21, 1992
SAMPLER: Peter Murray
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992

PROJECT CODE: GIVM1622
ANALYSIS DATE: December 19, 1992
STATION: Supply Well
REF.#: 39,559
TIME SAMPLED: 14:30

<u>Parameter</u>	<u>Sample(ug/L)</u>	<u>Spike(ug/L)</u>	<u>Dup 1(ug/L)</u>	<u>Dup 2(ug/L)</u>	<u>Average %Recovery</u>
1,1 Dichloroethene	0	50	53.	55.3	108.%
Benzene	0	50	50.7	50.7	101.%
Trichloroethene	0	50	44.6	43.1	87.7%
Toluene	0	50	51.3	51.1	102.%
Chlorobenzene	0	50	48.4	49.4	97.8%

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 22, 1992
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992
ANALYSIS DATE: December 20, 1992

PROJECT CODE: GIVM1621
REF.#: 39,556
STATION: Equipment Blank
TIME SAMPLED: 10:35
SAMPLER: P. Murray

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

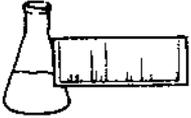
Bromobenzene Surrogate Recovery: 104%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Vinton Motors
REPORT DATE: December 22, 1992
DATE SAMPLED: December 8, 1992
DATE RECEIVED: December 9, 1992
ANALYSIS DATE: December 19, 1992

PROJECT CODE: GIVM1621
REF.#: 39,551
STATION: Trip Blank
TIME SAMPLED: 6:15
SAMPLER: P. Murray

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

Bromobenzene Surrogate Recovery: 79%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

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32 James Brown Drive
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CHAIN-OF-CUSTODY RECORD

8924265

005750

Project Name: VINTON MOTORS Site Location: ST. JOHNSBURY, VT	Reporting Address: GRIFFIN INTERNATIONAL 28 DORSET LN. WILLISTON, VT 05495	Billing Address: SAME
Endyne Project Number:	Contact Name: Peter Murray Company/Phone #: (802) 879-7768	Sampler Name: SAME Company/Phone #:

Lab #	Sample Description	Matrix	Date/Time 12/8/92	Container		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
				No.	Type/Size				
	TRIP BLANK	H ₂ O	6:15	2	40ML		602	HCL	
	MW5	H ₂ O	9:05	2	40ML		602	HCL	
	MW7	H ₂ O	9:30	2	40ML		602	HCL	
	MW1	H ₂ O	10:00	2	40ML		602	HCL	
	MW1 Duplicate	H ₂ O	10:00	2	40ML		602	HCL	
	MW2	H ₂ O	10:30	2	40ML	EPA METHOD 624	624	HCL	
	Equipment Blank	H ₂ O	10:35	2	40ML		602	HCL	
	MW3	H ₂ O	14:05	2	40ML	EPA METHOD 624	624	HCL	
	Supply Well	H ₂ O	14:30	2	40ML	EPA METHOD 624	624	HCL	

Relinquished by: Signature	Received by: Signature	Date/Time 12/9/92
Relinquished by: Signature	Received by: Signature	Date/Time

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals ICP/AA	21	EPA 624	26	EPA 870
2	Chloride	7	Total P	12	TSS	17	Fecal and/or Tot.	22	EPA 625 B/N or A	27	EPA 8010
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8020
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB	29	EPA 8060
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240	30	EPTOX
31	TCPLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
32	Other (Specify):										

LABORATORY: WHITE

PROJECT MANAGER: YELLOW

SAMPLER: PINK