



DEC 3 10 43 AM '96

MAILED 11/29/96  
3000

December 2, 1996

Mr. Matthew Moran  
VT Department of Environmental Conservation  
Waste Management Division  
103 South Main St./ West Bldg.  
Waterbury, VT 05671-0404

RE: Initial Site Investigation, Mayo Health Care, Northfield, VT

Dear Mr. Moran:

Enclosed please find the October 1996 *Initial Site Investigation Report* for the Mayo Health Care facility in Northfield, Vermont. Mr. Dave Reynolds requested that a copy be forwarded to you for review. Please do not hesitate to call, if you have any questions or comments.

Sincerely,

Kristen Underwood  
Senior Hydrogeologist

Enc.

c: Mr. Dave Reynolds, Mayo Health Care (w/o enclosure)  
GI#4964819

**INITIAL  
SITE INVESTIGATION REPORT**

**MAYO HEALTH CARE  
1 Richardson Street  
Northfield, VT**

October 1996

*Prepared for*

Mayo Health Care  
1 Richardson Street  
Northfield, Vermont 05663  
(802) 985-8428

*Prepared by*



P.O. Box 943/ 19 Commerce St.  
Williston, Vermont 05495  
(802) 865-4288

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## I. INTRODUCTION

This report summarizes the Site Investigation completed at the Mayo Health Care facility located at 1 Richardson Street in Northfield, Vermont, (see Site Location Map in Appendix A). Site investigation activities were undertaken in response to the detection of subsurface contamination during the closure of a 1000-gallon diesel underground storage tank (UST) on April 29, 1996. Results of the following investigative tasks performed by Griffin International, Inc. (Griffin), are presented:

- ◇ test pit excavations;
- ◇ soil sampling and analyses;
- ◇ sensitive receptor survey.

This work was performed for Mayo Health Care, generally in accordance with the June 17, 1996 *Work Plan and Cost Estimate for Subsurface Investigation of Petroleum Contamination at Mayo Health Care, 1 Richardson Avenue, Northfield, Vermont* prepared by Griffin. Mr. Matthew Moran of the Vermont Department of Environmental Conservation (VTDEC), Waste Management Division (WMD) verbally approved the work plan on June 25, 1996. Modifications to the Work Plan as the project progressed were also verbally approved by Mr. Moran.

## II. SITE BACKGROUND

### A. Site Setting

The Mayo Health Care facility is located at 1 Richardson Street in Northfield, Vermont. The property is bordered to the north by Richardson Street, and to the east and southeast by Water Street. The Dog River is located east of Water Street, approximately 500 feet from the location of the former UST on the Mayo Health Care property. Private residences are located on the north side of Richardson Street. South and southeast of the Mayo Health Care property are the Norwich Rugby Club building and athletic field. West of the Mayo Health Care property is a wooded hill. Outcrops of bedrock are evident along the base of the hill. The exposed bedrock is a pale greenish-gray phyllite, and is classified as the Cram Hill member of the Missisquoi formation (Ref. 1). In the immediate area of the site, the topographic gradient is relatively level and directed generally to the east and southeast toward the Dog River. The surficial geology of the site is described as glaciolacustrine pebbly sand (Ref. 2).

The Mayo Health Care facility is concrete slab on grade construction, with no basement. The surrounding grounds are grass covered. A paved parking lot is located on the west side of the building. In June 1996, construction began on an addition to the south side of the existing building.

No supply well exists on the Mayo Health Care property. There are no reported public or private water supply wells within a half mile radius. The area is serviced by municipal water and sanitary sewer systems.

## **B. Site History**

A 1000-gallon diesel UST, of single-walled steel construction, was removed from the property on April 29, 1996. A UST Closure report, dated April 29, 1996, was forwarded to the VTDEC UST Program (Appendix B). Concentrations of volatile organic compounds (VOCs) ranging from 0 to 72 parts per million (ppm) were detected with an HNu™ portable photoionization detector (PID) in soils collected near the water table in the tank pit. Groundwater was encountered at 5.5 feet. The tank and related piping were in fair condition. There was minor rust and pitting of the tank, however no holes were apparent. The tank was 21 years old, and had been in use up to the time of its removal.

As groundwater had been impacted by petroleum contamination, all excavated soil, in addition to approximately 4 cubic yards of clean fill material, were backfilled into the excavation. No replacement tank was installed.

Subsequent to the UST removal, an addition to the Mayo Health Care facility was constructed over the site of the former UST (see Site Sketch in Appendix A). The configuration and placement of the building addition precluded use of a traditional or truck mounted drill rig, or traditionally-sized backhoe in an area up to approximately 200 feet southeast of the former UST location. As part of the construction, an upgradient interceptor trench was installed west of the new addition to divert the flow of groundwater and infiltration stormwater away from the building.

## **III. INVESTIGATIVE PROCEDURES**

To further define the extent of subsurface petroleum contamination in the area of the former diesel UST, the following investigative tasks were undertaken: test pit excavations and soil sample collection; sample analyses for petroleum-related constituents; and, an evaluation of potentially sensitive receptors.

The original Work Plan specified the installation of hand augured monitoring wells. The hand auger met refusal going through the compacted fill material surrounding the building, so it was decided to excavate test pits with a small Bobcat backhoe and install backfilled monitoring wells in the test pits. As described in subsequent sections of this report, however, no groundwater was encountered in the test pits due to the recent installation of the interceptor trench.

## **A. Test Pit Excavations**

Four test pits were excavated with a backhoe on July 30, 1996 by Tomco, under the direct supervision of a Griffin hydrogeologist. Test pit locations were selected to best characterize the site hydrogeology, given the site accessibility constraints. TP1 was excavated on the east side of the new addition, southeast and in a direction presumed to be partially downgradient from the former UST pit. TP2 and TP3 were excavated on the west side of the new addition. TP2 was directly west and presumed to be upgradient of the former UST pit. TP3 was southwest and assumed cross-gradient from the former UST pit. TP4 was excavated north and assumed cross-gradient from the former UST pit, on the opposite side of the existing facility. Test pit locations are indicated on the Site Sketch in Appendix A.

Soils were logged by the supervising hydrogeologist, and screened for VOCs using an HNu<sup>TM</sup> systems Model PI-101 PID. Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Test pit logs are included in Appendix C.

Sand and gravel fill material was encountered in TP1 to a depth of 8 feet, in TP2 to a depth of 3.5 feet, and in TP3 to a depth of 4 feet. Native sediment, consisting of well sorted, silty sand, was encountered under the fill material. TP1 was excavated to a depth of 12 feet, TP2 to 10 feet, and TP3 to 11 feet. TP4 consisted of fill material to a depth of 6 feet, underlain by native sands and gravels. TP4 was excavated to a depth of 9 feet. Each of the test pits was extended to the full extent of the small backhoe, under physical site constraints. Bedrock was not encountered in any of the test pits.

No volatile organic readings were detected with the PID during the test pit excavations.

No groundwater was encountered in the test pit excavations. As a consequence, the decision was made to collect soil samples for laboratory analysis from the bottom of the test pits and not install monitoring wells as proposed in the June 17 Work Plan. This decision was verbally approved by Mr. Matthew Moran of VTDEC on July 30, 1996. The lack of groundwater was attributed to the recently installed interceptor trench.

## **B. Soil Sampling and Analyses**

Soil samples collected from the bottom of the four test pits were submitted to Endyne, Inc. for analysis by EPA method 8020. No purgeable aromatic compounds were detected in the soil samples. Appendix D contains the analytical laboratory report.

#### **IV. EVALUATION OF POTENTIALLY SENSITIVE RECEPTORS**

The Mayo Health Care property and immediately surrounding properties were inspected on July 30, 1996, and during the UST closure proceedings on April 29, 1996, to identify potentially sensitive receptors to subsurface contamination. Identified potentially sensitive receptors include the Dog River, located approximately 500 feet to the east of the site, the Mayo Health Care facility, and area residences.

Risks of vapor impact to the Mayo Health Care facility and area residences were determined to be negligible, given the apparent minimal source area strength, and the generally low volatility of diesel constituents. There have been no reported vapor impacts to the Mayo Health Care facility caused by the subsurface petroleum contamination in the former UST pit. The Mayo Health Care facility is concrete slab on grade, with no basement; thus it is unlikely that vapors will be trapped in a confined space. The Mayo Health Care facility and immediately surrounding properties are serviced by municipal water supply and not on-site groundwater supply wells.

Results of the initial site investigation reported herein indicate that the extent of adsorbed petroleum contamination in soils is limited to the immediate vicinity of the former UST location. The June 1996 installation of the interceptor trench upgradient of the former UST pit has likely served to mitigate the flow of groundwater through soils impacted by petroleum contamination in the vicinity of the former UST pit. Additionally soils in the former UST location were apparently reworked during construction of the building addition. For these reasons, the extent of dissolved petroleum contamination in the vicinity of the former UST is likely minimal. There is no apparent risk to the Dog River posed by subsurface contamination at the Mayo Health Care facility.

#### **V. CONCLUSIONS**

Based upon the results of the above investigative tasks, Griffin presents the following conclusions:

1. There has been an apparent release of diesel to the subsurface from a 1000-gallon single-walled steel UST, formerly located at the Mayo Health Care facility in Northfield, Vermont. No holes were visible on the surface of the tank during the UST closure proceedings on April 29, 1996. The source of this apparent contamination is most likely the result of spillage around the fill pipe during fuel drops.
2. Elevated VOCs were detected with a PID in soils at and near the water table surrounding the UST during tank closure inspections. Petroleum sheens were observed on groundwater which collected in the UST pit, following tank removal. Groundwater was encountered at an approximate depth of 5.5 feet below grade.
3. Four test pits were excavated with a small backhoe in the vicinity of the former UST on July 30, 1996. No VOCs were detected with a PID in soils collected from the test pits.

4. No groundwater was encountered in the test pits on July 30, 1996 at depths of up to 12 feet. This change in water table elevation from April 29, 1996 is attributed to a recently installed upgradient interceptor trench system.
5. With the source UST removed, it is expected that adsorbed petroleum compound concentrations will decrease over time with the progressive action of natural mitigative processes, including biodegradation, volatilization, and diffusion.
6. As the interceptor trench prevents groundwater from flowing through the residual, adsorbed contamination of the former UST pit, the degree and extent of dissolved contamination in groundwater at the site is expected to be minimal.
7. Risks posed to potentially sensitive receptors in the vicinity of the former UST pit on the Mayo Health Care property appear minimal, based on currently available data.

## **VI. RECOMMENDATIONS**

Based upon the above conclusions, Griffin recommends that the Mayo Health Care site be considered for closure and be removed from the VTDEC Active Hazardous Waste Sites List. This recommendation is offered based upon achievement of the following closure criteria, as per the VTDEC Site Management Activity Completed (SMAC) Checklist:

- 1) The source(s), nature, and extent of the petroleum contamination at the site has been adequately defined.

The source of petroleum contamination detected in soils and groundwater at the Mayo Health Care site was from apparent release(s) of diesel from an on-site UST. Soils collected from four test pits excavated around the former UST site show no indication of petroleum contamination.

- 2) Source(s) has been removed, remediated, or adequately contained.

The 1000-gallon diesel UST has been removed from the site and permanently closed in accordance with VTDEC regulations.

- 3) Levels of contaminants in soil and groundwater shall be stable, falling, or non-detectable.

Results of the initial investigation of petroleum contamination at the site, indicate that low concentrations of dissolved petroleum contamination are limited to the immediate vicinity of the former UST pit. No soil contamination was observed in the test pits closely surrounding the former UST pit.

- 4) Groundwater enforcement standards are met on entire property.

Given significant physical site constraints, groundwater beneath the site could not be characterized through traditional means. Installation of an interceptor trench upgradient of the former UST pit has likely served to mitigate the flow of groundwater through soils impacted by petroleum contamination in the vicinity of the former UST pit. No groundwater was encountered in test pits at depths of up to 12 feet.

- 5) Soil guideline levels are met. If not, engineering or institutional controls are in place.

No petroleum contaminated soils were removed from the subject property. In-situ soils were 72 ppm or less as detected with a PID in the former UST pit. No VOCs were detected in soils from the four test pits closely surrounding the former UST pit. The July 30, 1996 test pit soil analytical results indicate that petroleum contaminant concentrations are nondetectable. Over time, adsorbed contaminant concentrations in the UST pit will likely decrease due to the natural processes of biodegradation, volatilization, and diffusion.

- 6) No unacceptable threat to human health or the environment exists on site.

Residual subsurface petroleum contamination in groundwater and soils at the Mayo Health Care site does not pose an unreasonable risk to human health and safety or the environment for the following reasons:

- ◆ concentrations of petroleum constituents in the soils closely surrounding the former UST location are nondetectable.
- ◆ the interceptor trench, upgradient of the former UST pit, has likely served to mitigate the flow of groundwater through soils impacted by petroleum contamination in the vicinity of the former UST pit, thus eliminating the transport of dissolved contaminants.
- ◆ the subject property and properties immediately surrounding the site are serviced by municipal water supply and not on-site groundwater sources.
- ◆ the Mayo Health Care facility has no confined spaces, such as a basement, to trap gases from the volatilization of adsorbed petroleum contaminants.

- 7) Site meets RCRA requirements.

Available records indicate that the Mayo Health Care site is not in violation of the Resource Conservation and Recovery Act (RCRA) as defined in 40 CFR 264.

- 8) Site meets CERCLA requirements.

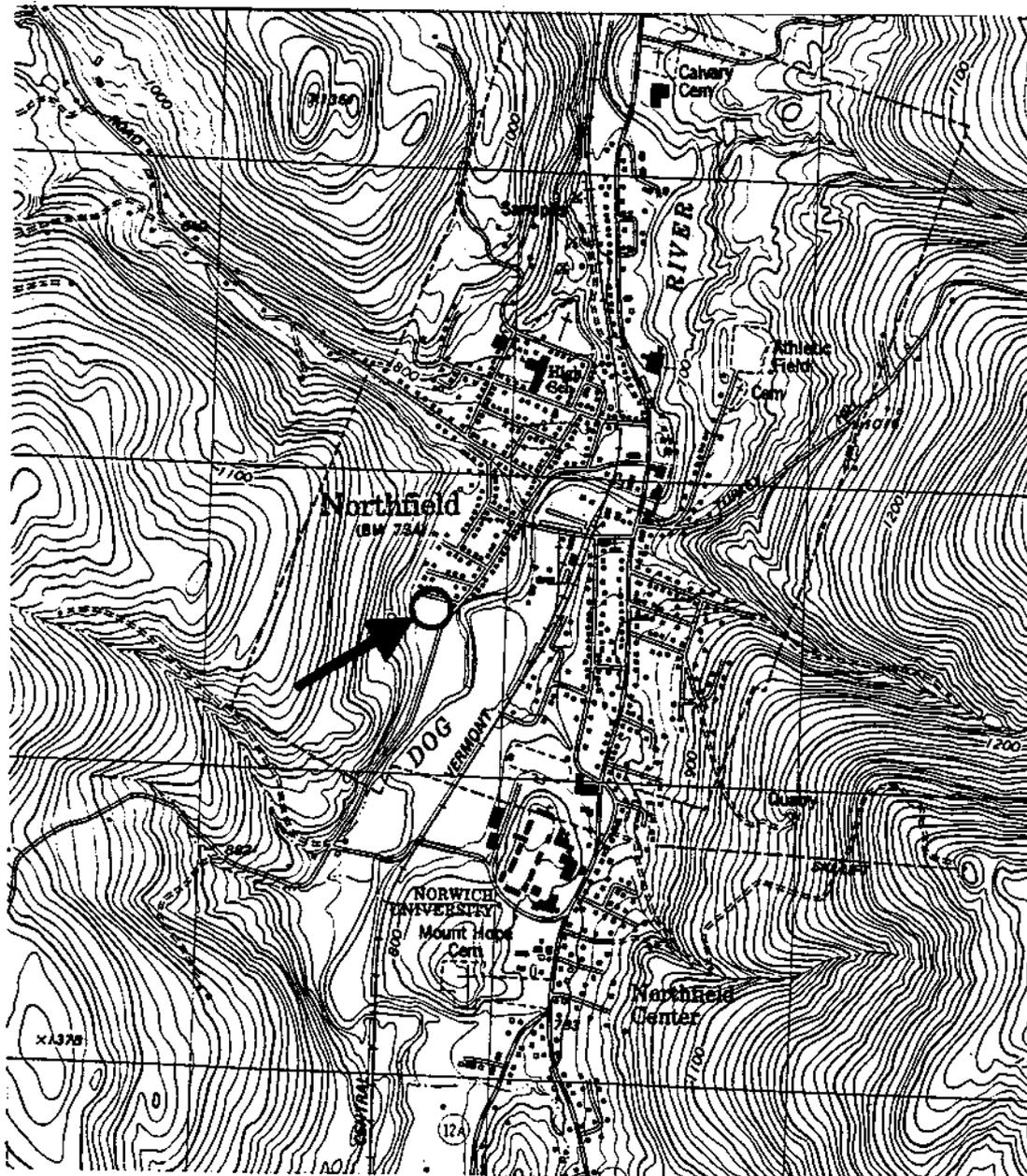
Available records indicate that the Mayo Health Care site is not in violation of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as defined in 40 CFR 300.

## REFERENCES

1. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont
2. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.

**APPENDIX A**

**Site Maps**



JOB #: 4964819  
 SOURCE: USGS- NORTHFIELD, VERMONT QUADRANGLE

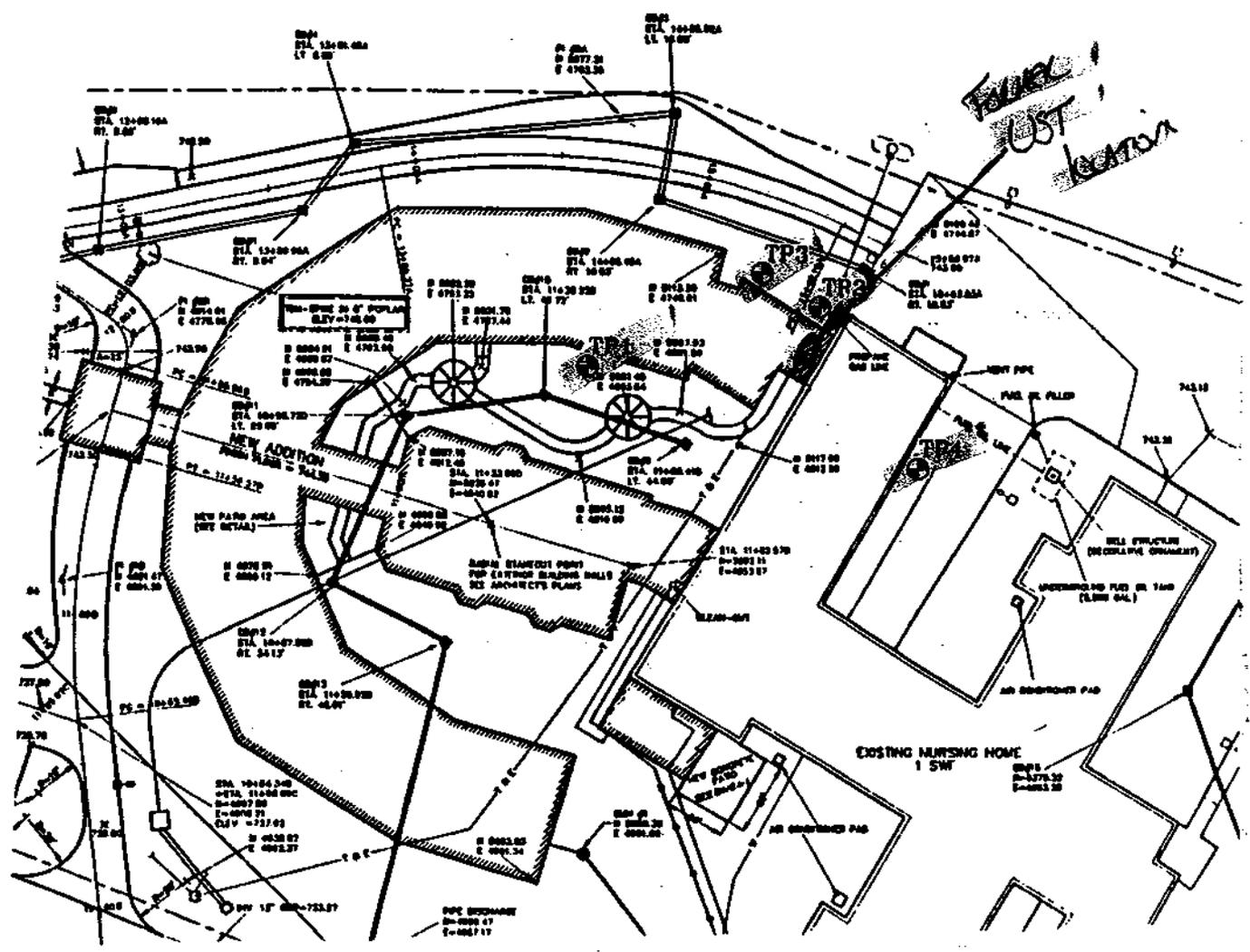


**MAYO HEALTH CARE FACILITY**

**NORTHFIELD, VERMONT**

**SITE LOCATION MAP**

DATE: 9/13/96	DWG.#:1	SCALE: 1:24000	DRN.:SB	APP.:KU
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**LEGEND**

- TP1 TEST PIT LOCATION
- PROPERTY LINE

JOB #: 4964819

SITE SKETCH CREATED FROM PHOTO COPY OF SITE SURVEY PROVIDED BY OWNER AND GRIFFIN FIELD DATA.



**MAYO HEALTH CARE FACILITY**  
**NORTHFIELD, VERMONT**  
**SITE SKETCH**

DATE: 9/13/96	DWG.#: 2	SCALE: NONE	DRN.:SB	APP.:KU
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**APPENDIX B**

**UST Closure Report  
April 29, 1996**



April 29, 1996

Sue Thayer  
Vermont ANR/DEC  
Waste Management Division  
103 South Main Street / West Bldg.  
Waterbury, VT 05671-0404

RE: Mayo Health Care UST Closure

Dear Ms. Thayer,

On April 29, 1996, I inspected the permanent closure of an underground storage tank (UST) at the Mayo Health Care facility, on 1 Richardson Ave. in Northfield. Enclosed are the UST permanent closure forms, a site location map, a completed Site Investigation Notification Form, and photographs of the site and UST.

The tank was owned by Mayo Health Care Incorporated. The tank was excavated by Tomco Excavating of Northfield, and was closed by Martin's Pump and Tank of Worcester, VT. Approximately 25 gallons of fuel oil and tank bottom waste were generated during the tank closure. This waste is scheduled to be transported by Lee's Oil Service of Bath, NH.

The former UST had a capacity of 1000 gallons, and was used to store Diesel fuel. The tank had been in place for approximately 31 years. It has been out of use for some time and is being abandoned due to new construction.

Upon my arrival to the site on April 29, the excavator began to remove the soil surrounding the tank. I screened these soils for volatile organic compounds (VOCs) by an HNU - HW 101 Photoionization device (PID). This was accomplished at depths from 1 to 4 feet below grade. VOC concentrations in soils in these locations ranged from 0.2 parts per million (ppm) to 7.4 ppm, with the higher concentration being near the piping. Upon excavation of the UST, I observed the condition of the tank. The tank appeared to be in fair condition with no holes. There was however minor rust and pitting of the tank. All associated piping observed during this inspection also appeared to be in fair condition.

After the tank was removed, I collected several samples from the bottom of the tank pit at an approximate depth of 5 feet. VOC concentrations in these samples ranged from 0 ppm around the outer edges of the pit, to 72 ppm closer to the center. Most of the contamination appeared to be contained in the center of the tank pit.

The following table lists the eleven soil samples collected during this inspection, the depths of collection, and the VOC concentrations detected in each. The locations of each soil sample are shown on the site sketch, on page two of the UST closure form.

<u>Soil Sample</u>	<u>Depth (ft)</u>	<u>Concentration (ppm)</u>
1	1	1.2
2	2	7.4
3	4	0.2
4	5	2.2
5	5	0.0
6	5	72
7	5	2.5
8	5	32
9	5	22
10	5	60
11	5	3.8

Soils at this site include medium grain sand and fine gravel with little silt from grade to 2 feet, and coarse to fine gravel with little coarse sand and trace silt from 2 feet to the maximum depth of excavation which was approximately 6 feet. Groundwater was encountered at 5.5 feet. As groundwater has already been impacted by subsurface contamination, excavated soils were backfilled.

As the on-site building has no basement the most likely potential receptors of subsurface contamination in this area include surrounding residences. There are no public or known private water supply wells within a half mile radius of the former UST.

In summary, based on information and data obtained during this UST closure inspection, it appears that there has been a release of petroleum product to the subsurface at this site. As the tank and piping appears to be of good integrity, the source of this apparent contamination is most likely a result of spillage around the fill pipe during fuel drops. The resulting contamination has impacted soils and groundwater at this site. The risks to potential receptors of the contamination would appear to be minimal. There have been no reports of impact to potential receptors. As the area is served by the municipal water and sewer system, there is no apparent risk of impact to local drinking water.

Ms. Sue Thayer  
April 29, 1996  
Page 3

Please call me with any questions that you may have regarding this closure inspection or the site in general.

Sincerely,



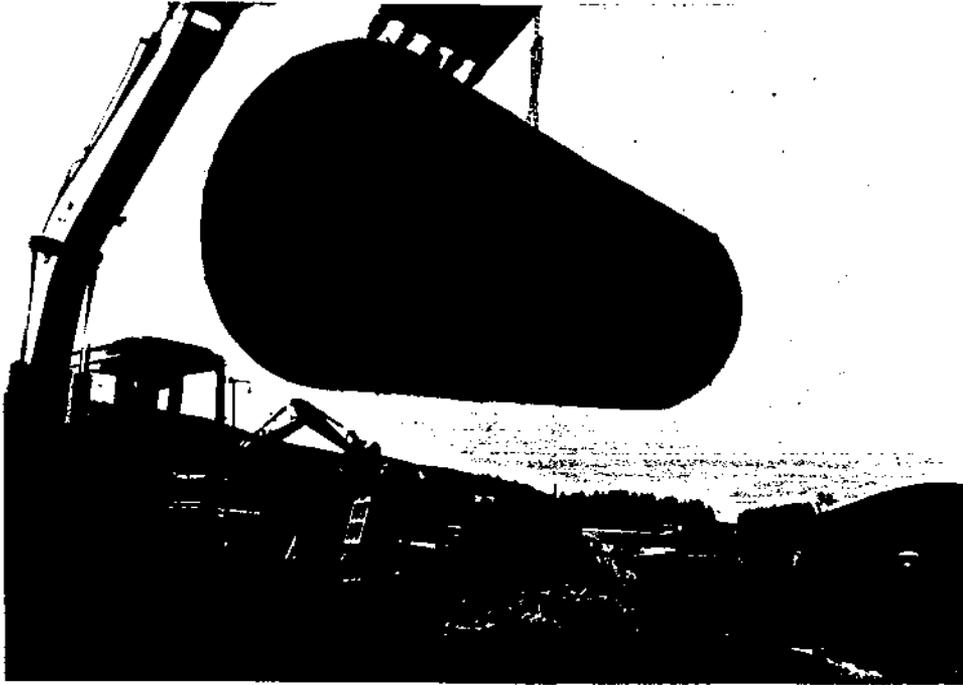
Robert Higgins  
Environmental Technician

Att

cc: 4964819

Ms. Heather Tucker, Tomco Excavating  
Mr. Larry Martin, Martin's Pump and Tank  
Mr. David Reynolds, Mayo Health Care Inc.

Mayo Health Care UST Closure  
1 Richardson Avenue  
Northfield, Vermont  
April 29, 1996



1000 gallon Diesel Fuel UST bottom view



1000 gallon Diesel Fuel UST tank pit

## UNDERGROUND STORAGE TANK PERMANENT CLOSURE FORM

**AGENCY USE ONLY**  
 Sched. closure date: 4/29/96  
 Facility Town: NORFOLK  
 Facility ID#: 2332  
 DEC Official: ST  
 Evaluated by: \_\_\_\_\_

VERMONT AGENCY OF NATURAL RESOURCES  
 DEPT. OF ENVIRONMENTAL CONSERVATION  
 HAZARDOUS MATERIALS MANAGEMENT DIV.  
 103 SOUTH MAIN STREET, WEST BUILDING  
 WATERBURY, VERMONT 05671-0404  
 TELEPHONE: (802) 241-3888

Company conducting site assessment: GRIFFIN  
 Person conducting site assessment: Robert Thomas  
 Telephone number of company (or person): (802) 865-4233  
 Date of UST closure: 4/29/96  
 Date of site assessment: 4/24/96

This Closure Form may only be used for the facility and date indicated in the upper left hand corner. Changes in the scheduled closure date should be phoned in at least 48 hours in advance. Both the yellow and white copies must be returned to the above address; the pink copy should be retained by the UST owner. A written report from an environmental consultant covering all aspects of closure and site assessment, complete with photographs and any other relevant data, must accompany this form. All procedures must be conducted by qualified personnel - including training required by 29 CFR 1910.120. Documentation of all methods and materials used must be adequate. All work must be performed in compliance with DEC policy "UST Closure and Site Assessment Requirements" as well as all applicable statutes, regulations, and additional policies. The DEC may reject inadequate closure forms and reports.

**Section A. Facility Information:**

Name of Facility: Mayo Health Care Number of Employees: 100  
 Street address of facility: 1 Richardson Ave.  
 Owner of UST(s) to be closed: Mayo Health Care Inc.  
 Name of Contact and telephone number if different from owner: David Reynolds  
 Mailing address of owner: Same Address  
 Telephone number of owner: 802 485 3161

**Section B. UST Closure Information:** (please check one)

Reason for initiating UST Closure:  Suspected Leak  Liability  Replacement  Abandoned  
 Which portion of UST is being closed:  Tanks  Piping  Tanks & Piping

USTs undergoing permanent closure. Include condition and if leaks were found:

UST#	Product	Size (gallons)	Tank age	Tank condition	Piping age	Piping condition
1	DIESEL	1000	21 1/2	FAIR	21	FAIR

Which tanks, if any, will be closed in-place (must have approval from DEC) NONE  
 Disposal/destruction of removed UST(s): \_\_\_\_\_  
 Location: CONDUITS SAVINGS Date: 4/29/96 Method: SCAP Date: 4/29/96  
 Amount (gal.) and type of waste generated from USTs: 55 gal Diesel Fuel Tank Bottom Waste  
 Tank cleaning company (must be trained in confined space entry): Thomas Pump and Tank  
 Certified hazardous waste hauler (tank contents are hazardous waste unless recovered and usable product): LESS OIL SERVICE  
 Hazardous waste generator ID number: NHD 986471597

USTs not closed. This portion must be filled in to include all USTs, regardless of size, and status, \*whether "abandoned", "in use", "to be installed", or "not aware of any other tanks on-site". Remember: most new installations require permits and advance notice to this office.

UST#	Product	Size (gallons)	Tank age	*Tank Status	Piping Age	*Piping Status
2	Fuel/Oil	5000	10 yrs	In Use	10 yrs	In Use
3	PROPANE	1000	~8-10 yrs	In Use	8-15 yrs	In Use

**Section C. Initial site characterization:**

Work in this section must be completed by a professional environmental consultant or hydrogeologist with experience in environmental sampling for the presence of hazardous materials. A full report from the consultant must accompany this form.

Excavation size (ft<sup>2</sup>): 100 Excavation depth (ft): 6 Soil type: SAND & GRAVEL Bedrock depth (ft): UNK  
 PID Information: Make: HNU Model: HNU 101

PID Calibration information: Date 4/29/96 Time 8:41 Type of Gas ISO  
 Contamination detected with PID (ppm): Peak 72 Depth of peak (ft) 5 Avg 15.4  
 Soil samples collected for laboratory analysis? Yes      # of samples      No X

(show locations and depth of all readings and samples on diagram)

Have soils been polyencapsulated on site? Yes      list amount (cu. yds.):      No X  
 Have any soils been transported off site? Yes      list amount (cu. yds.):      No X

Location transported to: N/A  
 Name of DEC official granting approval to transport soils: N/A Date:   /  /  

Amount of soils backfilled. (cu. yds.): 15 Avg. PID 18.4

Have limits of contamination been defined? Yes      No X  
 Are you aware of any other contaminants which may be present? Yes      No X  
 Comments:     

Free phase product encountered? Yes      thickness      No X  
 Groundwater encountered? Yes X depth(ft) 5-5.5 No     

Were there existing monitoring wells on site? Yes      (# samples taken)      No X  
 Have new monitoring wells been installed? Yes      (# samples taken)      No X  
 Samples collected from monitoring wells for lab analysis? Yes      No X

(include well location, developer readings, and laboratory results if applicable in a separate report and on the site diagram)  
 Is there a water supply well or spring on site? Yes      (check type: shallow      rock      spring     ) No X  
 How many public water supply wells are located within a 0.5 mile radius? 0 min. distance (ft): N/A  
 How many private water supply wells are located within a 0.5 mile radius? 0 min. distance (ft): Unknown  
 What receptors have been impacted? X soil      indoor air X groundwater      surface water      water supply

**Section D. Statements of UST closure compliance:** (must have both signatures or site document not complete)

As the party responsible for compliance with the Vermont UST Regulations and related statutes at this facility, I hereby certify that all of the information provided on this form is true and correct to the best of my knowledge.

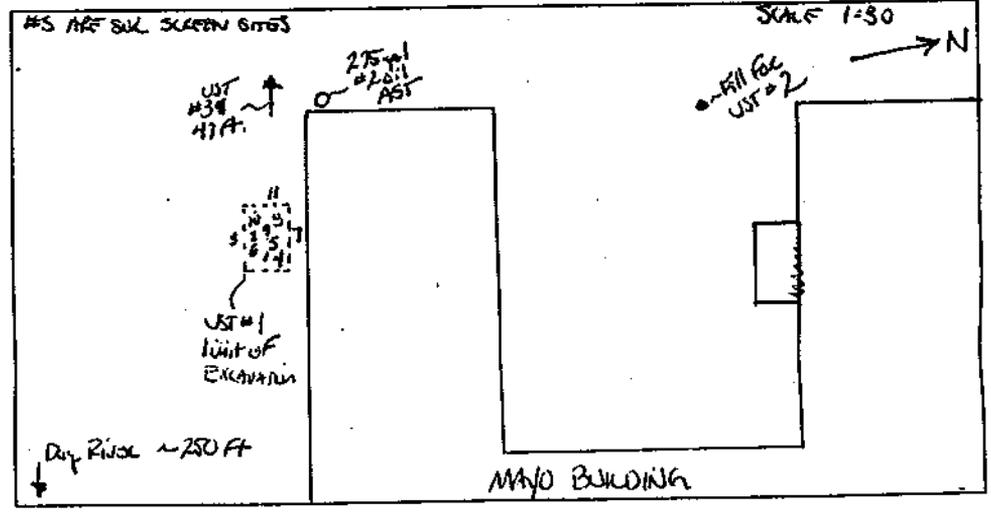
[Signature] Date: 4/29/96  
 Signature of UST owner or owner's authorized representative

As the environmental consultant on site, I hereby certify that the site assessment requirements were performed in accordance with DEC policy and regulations, and that information which I have provided on this form is true and correct to the best of my knowledge.

[Signature] Date: 4/29/96  
 Signature of Environmental Consultant

**SITE DIAGRAM**

Show location of all tanks and distance to permanent structures, sample points, areas of contamination, potential receptors and any pertinent site information. Indicate North arrow and major street names or route number.



Return form along with complete narrative report and photographs to the Department of Environmental Conservation Underground Storage Tank Program within 72 hours of closure.

**APPENDIX C**

**Test Pit Logs**

PROJECT MAYO HEALTH CARE FACILITY

LOCATION NORTHFIELD, VERMONT

DATE DRILLED 7/30/96 TOTAL DEPTH OF HOLE 12.0'

DIAMETER NA

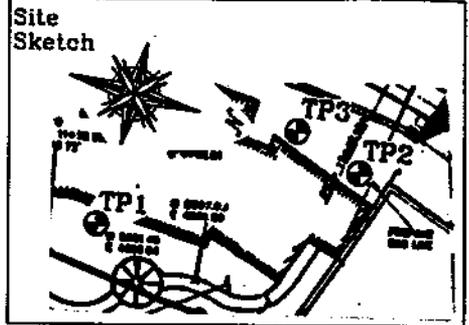
SCREEN DIA. NA LENGTH NA SLOT SIZE NA

CASING DIA. NA LENGTH NA TYPE NA

DRILLING CO. TOMCO DRILLING METHOD BACK HOE

DRILLER \_\_\_\_\_ LOG BY E. HODGES

WELL NUMBER TP1



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	DEPTH INTERVAL & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET													
0	[Hatched area representing backfill]	NATIVE BACKFILL	1'-2' ND	Brown SAND and GRAVEL with cobbles. Slightly moist.	0													
1					2'-4' ND	Same as above.	1											
2							4'-6' ND	Same as above.	2									
3									6'-8' ND	Same as above.	3							
4											8'-9' ND	Fine grayish/yellow SAND, slightly moist, well sorted, high silt content.	4					
5													9'-12' ND	Same as above.	5			
6															END OF EXPLORATION AT 12'	6		
7																UNDISTURBED NATIVE SOIL	7	
8																		8
9																		
10		10																
11			11															
12				12														
13					13													
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23											23							
24											24							
25											25							

PROJECT MAYO HEALTH CARE FACILITY

LOCATION NORTHFIELD, VERMONT

DATE DRILLED 7/30/96 TOTAL DEPTH OF HOLE 10.0'

DIAMETER NA

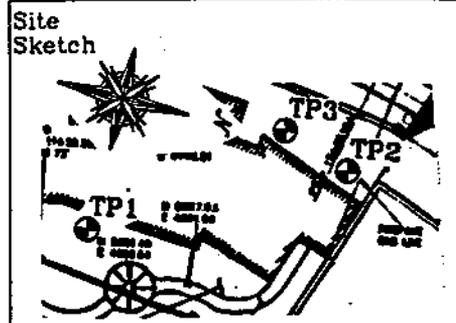
SCREEN DIA. NA LENGTH NA SLOT SIZE NA

CASING DIA. NA LENGTH NA TYPE NA

DRILLING CO. TOMCO DRILLING METHOD BACK HOE

DRILLER \_\_\_\_\_ LOG BY E. HODGES

WELL NUMBER TP2



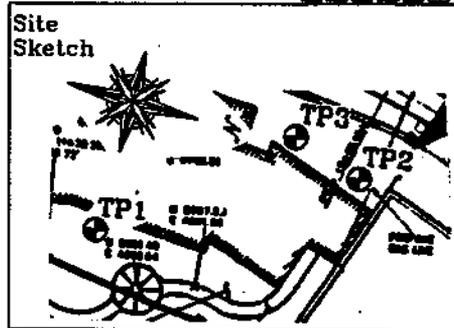
GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	DEPTH INTERVAL & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET	
0					0	
1	[Hatched area representing backfill]		1'-2' ND	Brown SAND and cobble fill, slightly moist, highly compacted.	1	
2					2	
3				2'-3.5' ND	Same as above.	3
4		NATIVE BACKFILL			4	
5					5	
6				3.5'-9' ND	Gray, moist to damp, silty SAND, well sorted, native unconsolidated materials.	6
7					7	
8					8	
9					9	
10			9'-10' ND	Gray, very moist, silty SAND, well sorted, native unconsolidated materials.	10	
11	[Screened area representing casing]	UNDISTURBED NATIVE SOIL		END OF EXPLORATION AT 10'	11	
12					12	
13					13	
14					14	
15					15	
16					16	
17					17	
18					18	
19					19	
20					20	
21					21	
22					22	
23					23	
24					24	
25					25	

PROJECT MAYO HEALTH CARE FACILITY

WELL NUMBER TP3

LOCATION NORTHFIELD, VERMONT



DATE DRILLED 7/30/96 TOTAL DEPTH OF HOLE 11.0'

DIAMETER NA

SCREEN DIA. NA LENGTH NA SLOT SIZE NA

CASING DIA. NA LENGTH NA TYPE NA

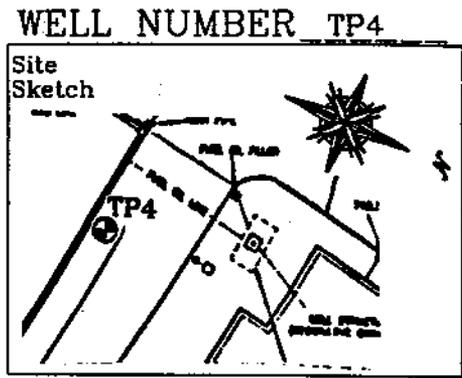
DRILLING CO. TOMCO DRILLING METHOD BACK HOE

DRILLER \_\_\_\_\_ LOG BY E. HODGES

GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	DEPTH INTERVAL & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		NATIVE BACKFILL	ND	Brown, moist, SAND, GRAVEL and COBBLES, tightly compacted.	0
1					1
2					2
3					3
4					4
5					5
6					6
7					7
8					8
9					9
10					10
11		UNDISTURBED NATIVE SOIL	ND	Same as above.	11
12					12
13					13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT MAYO HEALTH CARE FACILITY  
 LOCATION NORTHFIELD, VERMONT  
 DATE DRILLED 7/30/96 TOTAL DEPTH OF HOLE 9.0'  
 DIAMETER NA  
 SCREEN DIA. NA LENGTH NA SLOT SIZE NA  
 CASING DIA. NA LENGTH NA TYPE NA  
 DRILLING CO. TOMCO DRILLING METHOD BACK HOE  
 DRILLER \_\_\_\_\_ LOG BY E. HODGES

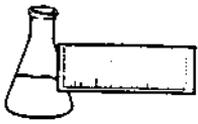


GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	DEPTH INTERVAL & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0	[Hatched area representing backfill]	NATIVE BACKFILL	0'-1' ND	Organic topsoil, slightly moist.	0
1			1'-3' ND	Brown, slightly moist, SAND, GRAVEL and COBBLES, poorly sorted, highly compacted.	1
2			3'-5' ND	Same as above.	2
3			5'-6' ND	Same as above.	3
4			6'-7' ND	Brown, slightly moist, coarse SANDS of medium grading, gravel and small cobbles, native glacial outwash.	4
5				Same as above.	5
6				END OF EXPLORATION AT 9'	6
7	[Stippled area representing native soil]	UNDISTURBED NATIVE SOIL			7
8					8
9					9
10					10
11					11
12					12
13					13
14					14
15					15
16			16		
17			17		
18			18		
19			19		
20			20		
21			21		
22			22		
23			23		
24			24		
25			25		

**APPENDIX D**

**Analytical Soil Results**



**ENDYNE, INC.**

Laboratory Services

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

**REPORT OF LABORATORY ANALYSIS**

CLIENT: Griffin International  
PROJECT NAME: Mayo - Northfield/4964819  
DATE REPORTED: August 12, 1996  
DATE SAMPLED: July 30, 1996

PROJECT CODE: GIMA1578  
REF. #: 91,937 - 91,940

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

Chain of custody indicated sample preservation upon arrival at the laboratory.

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

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

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

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

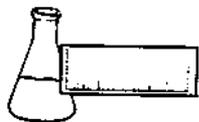
Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

enclosures

RECEIVED AUG 12 1996



**ENDYNE, INC.**

**Laboratory Services**

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

**LABORATORY REPORT**

**EPA METHOD 8020 COMPOUNDS -- PURGEABLE AROMATICS**

CLIENT: Griffin International  
PROJECT NAME: Mayo/4964819  
REPORT DATE: August 12, 1996  
SAMPLER: Edward P. Hodges  
DATE SAMPLED: July 30, 1996  
DATE RECEIVED: July 31, 1996

PROJECT CODE: GIMA1578  
ANALYSIS DATE: August 6, 1996  
STATION: TP-1, 12 feet below grade  
REF.#: 91,937  
TIME SAMPLED: 10:00

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	40	ND <sup>1</sup>
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	20	ND
Toluene	40	ND
Total Xylenes	20	ND
MTBE	20	ND

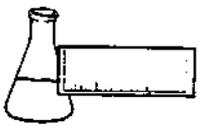
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

BROMOBENZENE SURROGATE RECOVERY: 117%

PERCENT SOLIDS: 77%

**NOTES:**

1 None detected



**ENDYNE, INC.**

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FAX 879-7103

LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Mayo/4964819  
REPORT DATE: August 12, 1996  
SAMPLER: Edward P. Hodges  
DATE SAMPLED: July 30, 1996  
DATE RECEIVED: July 31, 1996

PROJECT CODE: GIMA1578  
ANALYSIS DATE: August 9, 1996  
STATION: TP-2, 10 feet below grade  
REF.#: 91,938  
TIME SAMPLED: 10:30

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	40	ND <sup>1</sup>
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	20	ND
Toluene	40	ND
Total Xylenes	20	ND
MTBE	200	ND

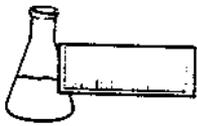
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

BROMOBENZENE SURROGATE RECOVERY: 121%

PERCENT SOLIDS: 78%

NOTES:

1 None detected



**ENDYNE, INC.**

Laboratory Services

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FAX 879-7103

LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Mayo/4964819  
REPORT DATE: August 12, 1996  
SAMPLER: Edward P. Hodges  
DATE SAMPLED: July 30, 1996  
DATE RECEIVED: July 31, 1996

PROJECT CODE: GIMA1578  
ANALYSIS DATE: August 8, 1996  
STATION: TP-3, 10 feet below grade  
REF.#: 91,939  
TIME SAMPLED: 11:00

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	40	ND <sup>1</sup>
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	20	ND
Toluene	40	ND
Total Xylenes	20	ND
MTBE	200	ND

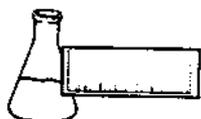
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

BROMOBENZENE SURROGATE RECOVERY: 112%

PERCENT SOLIDS: 79%

NOTES:

1 None detected



**ENDYNE, INC.**

**Laboratory Services**

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FAX 879-7103

**LABORATORY REPORT**

**EPA METHOD 8020 COMPOUNDS -- PURGEABLE AROMATICS**

CLIENT: Griffin International  
PROJECT NAME: Mayo/4964819  
REPORT DATE: August 12, 1996  
SAMPLER: Edward P. Hodges  
DATE SAMPLED: July 30, 1996  
DATE RECEIVED: July 31, 1996

PROJECT CODE: GIMA1578  
ANALYSIS DATE: August 9, 1996  
STATION: TP-4, 9 feet below grade  
REF.#: 91,940  
TIME SAMPLED: 12:00

<u>Parameter</u>	<u>Detection Limit (ug/kg)</u>	<u>Concentration As Received (ug/kg)</u>
Benzene	40	ND <sup>1</sup>
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	20	ND
Toluene	40	ND
Total Xylenes	20	ND
MTBE	200	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

BROMOBENZENE SURROGATE RECOVERY: 116%

PERCENT SOLIDS: 92%

**NOTES:**

1 None detected

**CHAIN-OF-CUSTODY RECORD**

17074

Project Name: <b>4964819</b> Site Location: <b>Mingo - Northfield</b>	Reporting Address: <b>Griffin Int.</b> <b>P.O. Box 943, Williston VT. 05495</b>	Billing Address: <b>Same as reporting</b>
Endyne Project Number: <b>GIMA 1578</b>	Company: <b>Griffin Int.</b> Contact Name/Phone #: <b>E. Hodge / 865-4288</b>	Sampler Name: <b>Edward P. Hodge</b> Phone #: <b>(802) 865-4288</b>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
91,937	TP-1, 12' Below Grade	Soil	✓		7/30/96/10:00	1	200ml Amber glass		20,602	NK	
91,938	TP-2, 10' Below Grade	Soil	✓		7/30/96/10:30	1	200ml Amber glass		20,602	NK	
91,939	TP-3, 10' Below Grade	Soil	✓		7/30/96/11:00	1	200ml Amber glass				
91,940	TP-4, 9' Below Grade	Soil	✓		7/30/96/12:00	1	200ml Amber glass		↓	↓	

Relinquished by: Signature <b>Edward P. Hodge</b>	Received by: Signature <b>Beth Ward</b>	Date/Time <b>7-31-96 9:50</b>
Relinquished by: Signature <b>Beth Ward</b>	Received by: Signature <b>Edward P. Hodge</b>	Date/Time <b>7-31-96 10:24 AM</b>

New York State Project: Yes      No      Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										