



004 00 00 00 17 000

December 19, 2000

Mr. Bob Haslam
Sites Management Section
VTDEC WMD
103 South Main St./ West Bldg.
Waterbury, VT 05671-0404

RE: Initial Site Investigation Report, Hartford Mini-Mart Facility, Hartford, Vermont. (VTDEC Site #99-2727).

Dear Mr. Haslam:

Please find enclosed a copy of the latest monitoring report for the above referenced site. Mr. Brian Molloy of Foodstop requested that a copy be forwarded to you for review. Please do not hesitate to call, if you have any questions or comments.

Sincerely,

Robert Higgins
Engineer

Enc.

cc: GI Project 20041670
Mr. Brian Molloy, Foodstop (w/o enclosure)

**INITIAL SITE INVESTIGATION OF
SUBSURFACE PETROLEUM CONTAMINATION AT
THE HARTFORD MINI-MART FACILITY**

DECEMBER 15, 2000

Site Location:

**Hartford Mini-Mart
Route 14
Hartford, VT**

**VTDEC SITE #99-2727
GI Project #20041670**

Prepared For:

**Mr. Brian Molloy
Foodstop, Inc.
P.O. Box 5387
West Lebanon, NH 03784**

Prepared By:



P.O. Box 943 / 20 Commerce Street Williston, VT 05495 (802) 865-4288

12/15/00
12:15 PM '00



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I. INTRODUCTION

This report summarizes the initial investigation of subsurface petroleum contamination at the Hartford Mini-Mart Facility (site) located on Route 14 in Hartford, VT (see Site Location Map in Appendix A). This investigation was conducted by Griffin International, Inc. (Griffin) for Foodstop, Inc.

Subsurface petroleum contamination was detected in soil at the subject site during underground storage tank (UST) system upgrades on December 30, 1999. This investigation was conducted to define the extent and degree of residual petroleum contamination remaining in the subsurface at the site from these USTs.

The investigation consisted of the following tasks:

1. The installation of one groundwater monitoring well (MW-1) and advancement of three soil borings (B-1 through B-3).
2. The collection and laboratory analysis of soil samples from the soil borings.
3. Sensitive receptor survey.
4. Preparation of a summary report (this document).

Investigative activities were initially requested at the site by Mr. Chuck Schwer of the State of Vermont Department of Environmental Conservation (VTDEC) in a letter dated January 25, 2000, and reiterated by Mr. Bob Haslam, also of the VTDEC in a letter dated March 2, 2000. This work was conducted generally in accordance with Griffin's *Work Plan and Cost Estimate* dated March 10, 2000. The work plan was approved in a June 13, 2000 letter from Mr. Haslam to Robert Higgins of Griffin.

II. BACKGROUND

A. *Site Description*

The subject property is located on Route 14 in the town of Hartford, Vermont. The site is operated as a gasoline station and convenience store. The Mini-Mart property and on-site building are owned by Foodstop, Inc. The grounds of the Hartford Mini Mart are largely covered by asphalt (see Site Map). According to area resident Mr. Bob Follensbee [1], the site has been a gas station/service station since pre-1957.

One 20,000-gallon underground storage tank (UST) is located on the Hartford Mini Mart property (see Site Map). The UST is used to store gasoline and diesel fuel for retail sale. A pump island located on the north side of the Mini Mart store dispenses fuel for retail sale. The UST is equipped with in-tank monitoring systems to prevent the unknown loss of petroleum product.

The subject property is located in a commercial and residential district of Hartford. The immediate adjacent properties to the north, northeast, and northwest of the site are residential lots, some with structures and some vacant. The Follensbee Residence is the nearest structure

not on the site property; the Follensbee Residence is approximately 30 feet to the north of the former UST area. To the southeast, across Route 14, lies the Hartford Diner property. The Diner is currently in a phase of reconstruction; at the time of the site visit there was no foundation beneath the structure. To the southeast of the diner, the ground surface slopes sharply down to the White River valley. There are no other structures immediately adjacent to the site across Route 14. The Hartford Historical Foundation building abuts the southeastern property boundary.

There is limited space on the southwest side of Route 14 for monitoring well installation. There are several underground and aboveground obstructions (i.e., overhead wires, municipal water and sewer conduits, and diner structure). There is insufficient room for a hollow stem auger drill rig to operate in this area.

B. Background Information

Subsurface petroleum contamination was detected in soil at the subject site during the December 30, 1999, excavation and upgrade of the gasoline USTs system. Three 4,000-gallon gasoline USTs and associated piping were permanently closed and removed from the subsurface at the site. Volatile organic compound (VOC) concentrations, measured with an HNu™ Model PI-101 photoionization detector (PID) equipped with a 10.2 eV bulb, ranged from 0 parts per million (ppm) to 260 ppm in the excavation [2].

Soils at this site in the vicinity of the excavation consisted of medium to coarse brown sands with trace gravel from the surface to thirteen feet below surface grade. All soils excavated during the UST closure were placed back into the excavation. Groundwater was not encountered during this excavation. Further information regarding the UST closure can be found in Griffin's January 4, 2000 *UST Closure Inspection* report.

This investigation was conducted to define the extent and degree of residual petroleum contamination remaining in the subsurface at the site.

C. Site Geology

According to the *Surficial Geologic Map of Vermont* [3], the site is underlain by till; closer to the White River, surficial materials are mapped as silt and silty clay. Bedrock underlying these overburden deposits is mapped as the Gile Mountain formation, consisting primarily of gray quartz [4].

III. INVESTIGATIVE PROCEDURES

A. Soil Boring / Monitoring Well Installation

On October 4, 2000, four soil borings were advanced by T&K Drilling, of East Swanzey, New Hampshire under the direct supervision of a Griffin engineer. Soil borings were advanced

using hollow-stem auger drilling technology. Undisturbed soil samples, collected from the boring with the sampler, were logged by the supervising engineer and screened for the presence of VOCs using an HNu™ systems PID. Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Contaminant concentrations and soil characteristics were recorded in detailed boring logs by the supervising Griffin engineer (see Soil Boring / Monitoring Well Construction Diagrams, Appendix B).

Given the significant depth to groundwater at the site (B-1 was advanced to a depth of 57 feet bsg without encountering groundwater), it is possible that contaminant concentrations would decrease to non-detectable levels before reaching water table depth. Therefore, Griffin proposed the following drilling scheme from the field: drill the borings to either the water table, refusal, or until two consecutive split spoon intervals are non-detect for VOCs, whichever occurs first.

If contamination was not detected by PID in soil samples collected from two consecutive split spoon intervals, and if no water table has been intersected by this depth, no monitoring well would be installed. A soil sample was collected from the base of the boring for confirmatory laboratory analysis per EPA Method 8021B.

Mr. Bob Haslam of the VTDEC was contacted from the site on October 4, 2000 during the drilling activities; Mr. Robert Higgins of Griffin conveyed the proposed drilling plan to Mr. Haslam, who agreed to the revised scope.

Monitoring wells were not constructed in borings B-1 through B-3; soil samples were collected from the base of these borings. Soils encountered at a depth of approximately 25 feet below grade in boring B-4 were significantly wet, indicating the potential of a perched water table. For this reason, monitoring well MW-1 was constructed in boring B-4. A confirmatory soil sample was not collected from boring B-4.

B-1

Soils encountered in boring B-1 consisted primarily of sand and silt from grade to 37 feet bsg; underlain by clean sand to a depth of 57 bsg. Drilling was suspended at a depth of 57 feet bsg. VOCs were not recorded by the PID in soils screened from this boring. There was no olfactory evidence of petroleum contamination observed in soils collected from this boring. A soil sample collected from B-1 at a depth of 57 feet bsg was submitted for laboratory analysis per EPA Method 8021B. Sample analysis results are summarized in Appendix C. According to the results of the laboratory analysis, none of the compounds targeted by the analysis were detected above method detection limits.

B-2

Soils encountered in boring B-2 consisted primarily of sand and silt from grade to 22 feet bsg; drilling was suspended at a depth of 22 feet bsg. VOCs were not recorded by the PID in soils screened from this boring. There was no olfactory evidence of petroleum contamination observed in soils collected from this boring. A soil sample collected from B-2 at a depth of 22

feet bsg was submitted for laboratory analysis per EPA Method 8021B. Sample analysis results are summarized in Appendix C. According to the results of the laboratory analysis, none of the compounds targeted by the analysis were detected above method detection limits.

B-3

Soils encountered in boring B-3 consisted primarily of sand and silt from grade to 17 feet bsg; drilling was suspended at a depth of 17 feet bsg. VOCs were not recorded by the PID in soils screened from this boring. There was no olfactory evidence of petroleum contamination observed in soils collected from this boring. A soil sample collected from B-2 at a depth of 17 feet bsg was submitted for laboratory analysis per EPA Method 8021B. Sample analysis results are summarized in Appendix C. According to the results of the laboratory analysis, none of the compounds targeted by the analysis were detected above method detection limits.

B-4 / MW-1

The boring for B-4 / MW-1 was advanced to 32 feet below grade. Subsurface conditions encountered from zero to approximately 2 feet bsg in the boring B-4 consisted of coarse gravel. Dry, light brown, fine sand with silt was observed from depths of 5 to 7 feet bsg. Dry, gray silt and clay was observed from 10 to 12 feet bsg; underlain by moist sand and clay to a depth of 22 feet bsg. Wet, gray, silt and clay were observed in the sample spoons at the intervals of 25 to 27 feet bsg and 30 to 32 feet bsg. Odors resembling gasoline were observed in soil samples collected from intervals between 10 feet and 27 feet bsg. VOC concentrations ranging from 0 to 200 ppm were measured in soils from this boring.

The monitoring well is constructed of newly threaded, flush-joint, schedule 40, 2-inch ID polyvinyl chloride (PVC) riser attached to a 0.010-slot, 2-inch ID PVC screen. The screen is attached to the riser by a watertight, threaded, flush joint coupling. A sealed, watertight roadway box was installed at grade to protect the well, and the top of the riser is capped with a lockable expansion plug. The screened interval in well MW-1 is from 20-feet to 30-feet bsg. A silica sand pack was placed around the screened portion of the well and a bentonite seal was placed in the annulus immediately above the sand pack. Please refer to the Soil Boring/Monitoring Well Construction Diagrams in Appendix B for details on the construction of the well.

B. Groundwater Monitoring / Site Survey

On October 9, 2000 Griffin visited the site for the purpose of gauging and sampling monitoring well MW-1. At the time of the site visit there was not sufficient water in the well to allow either measurement or sample collection. The apparent perched water table identified during monitoring well installation did not infiltrate the monitoring well screen. Monitoring well and soil boring locations and elevations; and pertinent site features were surveyed on April 14, 2000, for inclusion on the Site Map (Appendix A).

Based on the site topography and the relative location of the White River, groundwater is believed to flow to the south. Based on this estimate, boring B-4/MW-1 is likely the furthest downgradient monitoring point on the site.

C. Sensitive Receptor Risk Assessment

A visual survey of the area surrounding the Site was conducted in October 2000 in conjunction with the monitoring well installation activities. Based on these observations, an estimation of the potential risk to identified receptors was made based on proximity to the former UST source area and contaminant concentration levels in subsurface soils and groundwater.

Water Supplies

According to Mr. Rick Kenney [5] of the Hartford Water Department, the town of Hartford receives its water from a drilled well which is located in the village of Wilder, approximately 3-4 miles to the west of the site. The Hartford Mini-Mart and properties immediately surrounding the Hartford Mini-Mart are reportedly all served by this municipal water source. Due to the significant distance from the site to this municipal water source, there is likely little risk posed to area drinking water by the Hartford Mini-Mart site.

Buildings in the Vicinity

The Hartford Mini-Mart building is situated on a concrete slab foundation. Since this building does not contain a basement, there is likely minimal risk of petroleum vapor migration posed to the site building by the former UST source area.

The adjacent Follensbee residence is located in what is believed to be a hydraulically upgradient direction with respect to the former source area. On October 4, 2000, Griffin screened the airspace in the basement and first floor levels of the Follensbee Residence using an HNu™ systems PID. PID screening results were non-detect for VOCs in this building. Based on its upgradient location and the PID screening results, this residence is not likely at significant risk of petroleum vapor migration from former UST source area.

On March 28, 2000, Griffin visited the Hartford Diner property following a complaint of petroleum vapors by the property owner Mr. Mark Wood. Upon arrival to the diner, Griffin discovered that there were no walls on the basement of the structure making it improbable for vapors to accumulate. Griffin collected samples of soil from beneath the diner using a hand auger. Soils were screened in the field using an HNu™ systems PID. Sample depths ranged from 1 foot to 4.5 feet bsg. Each of the samples was non-detect for VOCs by PID. The ground surface on the northeast, southwest, and northwest sides of the Diner has eroded significantly and is unstable. Photographs of the Hartford Diner property are included in Appendix D. Griffin visited the Diner again during drilling activities on October 4, 2000. There were no significant changes observed in the Diner condition since the March 2000 visit.

It is possible that petroleum contamination migrate from the Hartford Mini-Mart site to the Hartford Diner property; however, there is currently no direct evidence to suggest that the Hartford Diner property is impacted by residual petroleum from the Hartford Mini-Mart site.

Surface Water

The closest surface water body is the White River, located approximately 750 feet to the south of the former UST source area. On October 9, 2000, Griffin inspected the north bank of the White River in the vicinity of the site. No visual or olfactory evidence of petroleum contamination was detected on the river bank at that time. Based on the significant separation distance between the site and the White River, the water body is not anticipated to be at significant risk from the subject site.

Utility Corridors

Based on visual inspection, there are several buried utilities located in the vicinity of the site. The Hartford municipal water line is located on either side of Route 14 to the south of the site; the water service line to the Follensbee Residence is located in the direct area of the former USTs. Three storm drains are observed on the shoulder of Route 14 directly to the south of the site; on October 4, 2000, the storm drains were screened for VOCs using an HNu™ systems PID. No VOCs were detected by the PID in the storm drains screened on October 4, 2000.

Groundwater is found at depths greater than 50 feet bsg at the site; this elevation is deeper than the elevation (4 to 5 feet below grade) where utilities are typically found. Contaminated soils were encountered in boring B-4 at a depth of 10 feet bsg; this depth is also greater than typical buried utility depth. Based on these facts, there is likely little chance of contaminant migration along utility corridors at this site.

IV. CONCLUSIONS

Based on this initial site investigation, the following conclusions are offered:

1. Subsurface petroleum contamination was detected in soil at the subject site during the UST system closures on December 30, 1999.
2. Four soil borings (B-1 through B-4) were advanced in the subsurface on October 4, 2000; monitoring well MW-1 was installed in boring B-4.
3. None of the compounds targeted by the laboratory analyses of soil samples B-1 through B-3 were detected above method detection limits.
4. If soils at an elevation above the groundwater table are non-detect for VOCs, it indicates that groundwater in that vicinity is likely not impacted.
5. Monitoring well MW-1, installed in boring B-4 was dry at the time of the sampling event. Boring B-4 contained VOCs as measured by the PID ranging from 0 to 200 ppm.

6. The source of the contamination, the former UST systems, has been removed from the site.
7. The downgradient extent of contamination has not been defined.
8. It is possible that petroleum contamination could migrate from the Hartford Mini-Mart site to the Hartford Diner property; however, there is currently no direct evidence to suggest that the Hartford Diner property is impacted by residual petroleum from the Hartford Mini-Mart site.
9. There is very little room to accommodate drilling on the south side of Route 14, in the vicinity of the Hartford Diner.

V. RECOMMENDATIONS

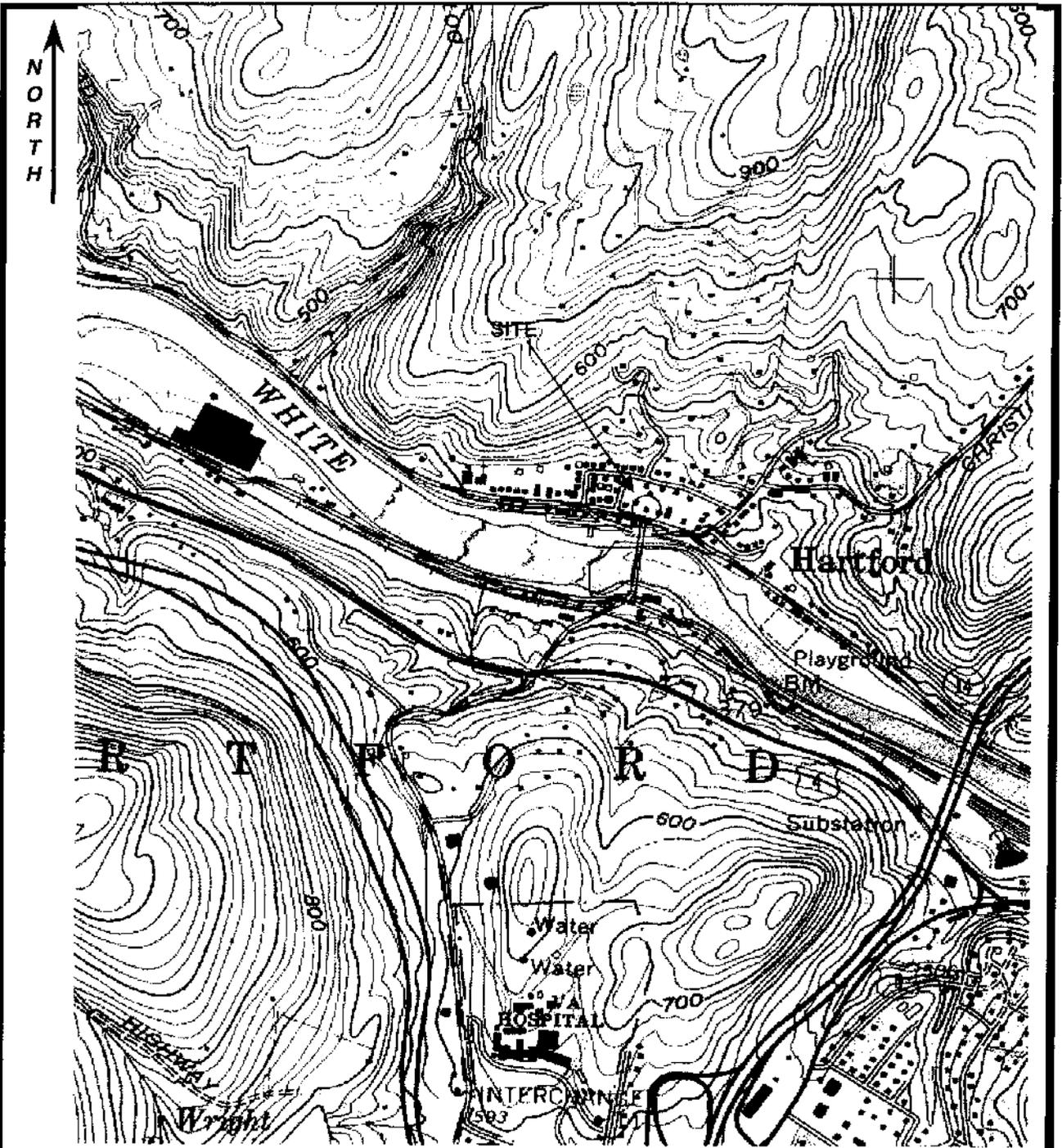
Based on the results of this site investigation, Griffin recommends the following:

An additional attempt should be made to collect a groundwater sample from monitoring well MW-1. The sample should be collected during the spring season to increase the likelihood that there would be sufficient water for sampling. The sample should be analyzed per EPA Method 8021B for the presence of petroleum compounds. Following this monitoring event, Griffin will make additional recommendations as to future monitoring/investigative efforts.



Appendix A

Maps



Griffin Job Number: 20041670

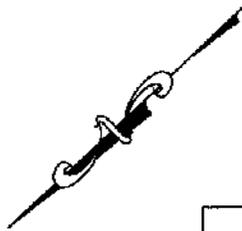
Source: USGS Mapping Hanover, NH Quadrangle 1959, Photorevised 1988.



**Hartford Mini-Mart
Hartford, Vermont**

Site Location Map
USGS Mapping

Date: 12/14/00	Drawing No. 0	Scale: 1:24,000	By: RH
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HISTORICAL SOCIETY

FOLLENSBEE RESIDENCE

STORE

PUMP ISLAND

ROUTE 14

BRIDGE STREET

HARTFORD DINER

STEEP BANK TO THE WHITE RIVER

JOB #: 20041670

VTDEC SITE #: 99-2727



HARTFORD MINI--MART

HARTFORD, VERMONT

AREA MAP

DATE: 12/14/00

DWG.#: 1

SCALE: 1" = 30'

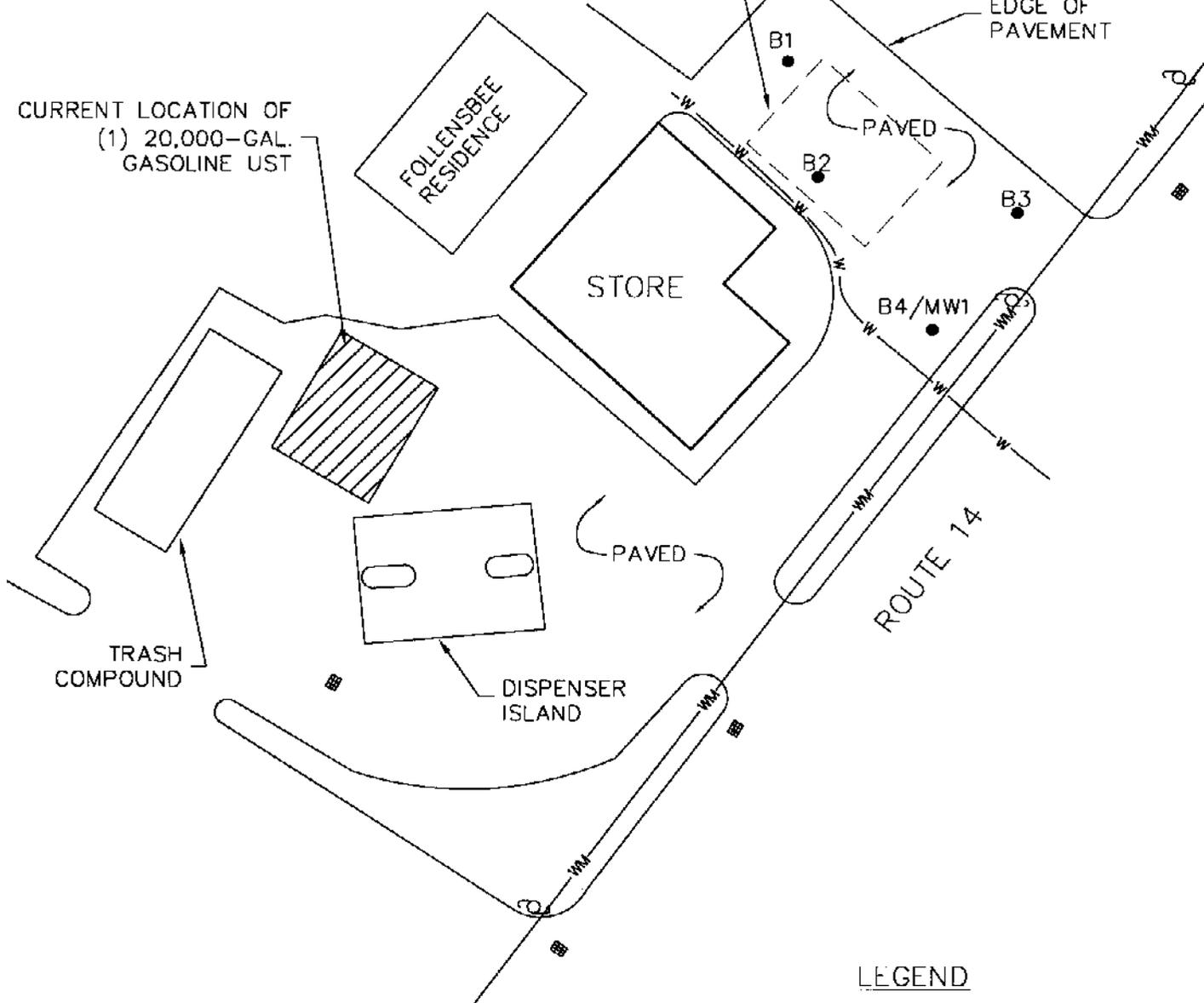
DRN.: MP APP.: MP



APPROX. FORMER LOCATION
OF (3) 4,000-GAL. GASOLINE
UST's, REMOVED 12/30/99

CURRENT LOCATION OF
(1) 20,000-GAL.
GASOLINE UST

EDGE OF
PAVEMENT



LEGEND

- B1 ● SOIL BORING
- ▣ STORM DRAIN
- W-W- WATER SERVICE LINE (APPROXIMATE LOCATION)
- WM-WM- WATER MAIN LINE (APPROXIMATE LOCATION)

SOURCE: GRIFFIN INTERNATIONAL SURVEY, 10/9/00
JOB #: 20041670 VTDEC SITE #: 99-2727



HARTFORD MINI-MART

HARTFORD, VERMONT

SITE MAP

DATE: 12/14/00 DWG.#: 2 SCALE: 1" = 30' DRN.: MP APP.: MP

Appendix B

Soil Boring / Monitoring Well Construction Diagrams

BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: SB-1



Hartford Mini-Mart
Hartford, Vermont

VTDEC Site # 99-2727

Griffin Project #: 20041670	Date Installed: 10/3/00	
Drilled by: Griffin International	Drilling Method: Hollow-stem Auger	
Driller: T&K Drilling	Boring Diameter.: 6.25	
Supervised by: RH	Development Method: na	
Logged by: RH	Screened Length: na	

Grade = 0	Well Construction	Pan/Rec (")	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
		Blow Count	PID (ppm)			
1.00		na	0-2	Asphalt Surface		
2.00			0 ppm			
3.00	Ft < Grade ↓					
4.00						
5.00		3/2/2/2	5-7	Sand with silt. 50% fine sand, 50% silt. Moist, brown.	SM	
6.00			0 ppm			
7.00						
8.00						
9.00						
10.00		6/7/12/15	10-12	Poorly graded sand. 75% coarse sand, 25% silt. Moist, brown.	SP	
11.00			0 ppm			
12.00						
13.00						
14.00						
15.00		7/11/10/9	15-17	Poorly graded sand. 75% fine sand, 25% silt. Dry, brown.	SP	
16.00			0 ppm			
17.00						
18.00						
19.00						
20.00		2/5/5/9	20-22	Clay and silt. 100% clay/silt. Wet, gray. Underlain by Sand and silt. 75% fine sand, 25% silt. Dry, light brown.	CL	
21.00			0 ppm			
22.00						
23.00						
24.00						
25.00		8/13/14/8	25-27	Sand with silt. 75% fine sand, 25% silt. Moist, brown.	SM	
26.00			0 ppm			
27.00						
28.00						
29.00						
30.00		7/8/9/12	30-32	Sand with silt. 50% fine sand, 50% silt. Moist, brown.	SM	
31.00			0 ppm			
32.00						
33.00						
34.00						
35.00		8/11/13/13	35-37	Sand with silt. 50% fine sand, 50% silt. Moist, brown.	SM	
36.00			0 ppm			

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.

- Locking Plug.
- Static Water Level (9/6/2000)
- 2.0" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point

Approximate Water Level During Drilling

Static Water Level (9/6/2000)

NA - Not Available due to PID Malfunction

BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: SB-1



Hartford Mini-Mart
Hartford, Vermont

VTDEC Site # 99-2727

Griffin Project #: 20041670	Date Installed: 10/3/00	
Drilled by: Griffin International	Drilling Method: Hollow-stem Auger	
Driller: T&K Drilling	Boring Diameter.: 6.25	
Supervised by: RH	Development Method: na	
Logged by: RH	Screened Length: na	

	Well Construction	Pen/Rec (")	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
		Blow Count	PID (ppm)			
37.00				Asphalt Surface		
38.00						
39.00	Flc Grade					
40.00		11/13/17/21	40-42	Well sorted clean sand. 100% fine to medium sand. Dry, brown.	SW	
41.00			0 ppm			
42.00						
43.00						
44.00						
45.00		10/16/20/22	45-47	Well sorted clean sand. 100% fine to medium sand. Dry, brown.	SW	
46.00			0 ppm			
47.00						
48.00						
49.00						
50.00		8/14/16/17	50-52	Well sorted clean sand. 100% fine to medium sand. Dry, brown.	SW	
51.00			0 ppm			
52.00						
53.00						
54.00						
55.00		7/7/8/10	55-57	Well sorted clean sand. 100% fine to medium sand. Moist, brown	SW	
56.00			0 ppm			
57.00				57 feet below grade - end of exploration		
58.00				collect soil sample from 55-57 foot spoon interval for laboratory analysis		
59.00						
60.00						
61.00						
62.00						
63.00						
64.00						
65.00						
66.00						
67.00						
68.00						
69.00						
70.00						
71.00						
72.00						

Legend

- Road Box with Bolt Down Cover. Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.

- Locking Plug.
- Static Water Level (9/6/2000)
- 2.0" ID, Schedule 40 PVC, 0.010" Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling
- Static Water Level (9/6/2000)

NA - Not Available due to PID Malfunction

BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: SB-2



Hartford Mini-Mart
Hartford, Vermont

VTDEC Site # 99-2727

Griffin Project #: 20041670	Date Installed: 10/3/00
Drilled by: Griffin International	Drilling Method: Hollow-stem Auger
Driller: T&K Drilling	Boring Diameter.: 6.25
Supervised by: RH	Development Method: na
Logged by: RH	Screened Length: na

Grade = 0	Well Construction	Pen/Rec (")	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
		Blow Count	PID (ppm)	Asphalt Surface		
1.00		na	0-2	Sand with silt. 50% fine sand, 50% silt. Dry, brown.	SM	
2.00			0 ppm			
3.00	Fl<Grade					
4.00						
5.00		8/3/5/6	5-7	Sand with silt. 75% fine sand, 25% silt. Dry, gray	SM	
6.00			52 ppm			
7.00						
8.00						
9.00						
10.00		2/2/2/3	10-12	Well graded clean sand. 100% coarse sand. Dry, brown.	SW	
11.00			0 ppm			
12.00						
13.00						
14.00						
15.00		4/8/11/13	15-17	Sand with silt. 50% fine sand, 50% silt. Dry, brown.	SM	
16.00			0 ppm			
17.00						
18.00						
19.00						
20.00		4/8/9/9	20-22	Sand with silt. 50% fine sand, 50% silt. Dry, brown.	SM	
21.00			0 ppm			
22.00				22 feet below grade - end of exploration		
23.00				collect soil sample from 20-22 foot spoon interval for laboratory analysis		
24.00						
25.00						
26.00						
27.00						
28.00						
29.00						
30.00						
31.00						
32.00						
33.00						
34.00						
35.00						
36.00						

Legend

- | | |
|---|--|
| <ul style="list-style-type: none"> Road Box with Bolt Down Cover, Set in Cement. Existing Surface. Bentonite Seal Placed in Annulus. Grade #1 Silica Sand Pack Placed in Annulus. Drill Cuttings Placed in Annulus. | <ul style="list-style-type: none"> Locking Plug. Static Water Level (9/6/2000) 2.0" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen Plug Point Approximate Water Level During Drilling Static Water Level (9/6/2000) |
|---|--|

NA - Not Available due to PID Malfunction

BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: **SB-3**



Hartford Mini-Mart
Hartford, Vermont

VTDEC Site # 99-2727

Griffin Project #: 20041670	Date Installed: 10/3/00
Drilled by: Griffin International	Drilling Method: Hollow-stem Auger
Driller: T&K Drilling	Boring Diameter.: 6.25
Supervised by: RH	Development Method: na
Logged by: RH	Screened Length: na

Grade = 0	Well Construction	Pen/Rec (")	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
		Blow Count	PID (ppm)	Asphalt Surface		
1.00		na	0-2	Sand with silt. 50% fine sand, 50% silt. Dry, brown.	SM	
2.00			0 ppm			
3.00	Ft < Grade					
4.00						
5.00		3/3/3/4	5-7	Well graded clean sand. 100% coarse sand. Dry, brown.	SW	
6.00			0 ppm			
7.00						
8.00						
9.00						
10.00		4/8/13/12	10-12	Well graded clean sand. 100% coarse sand. Dry, brown.	SW	
11.00			0 ppm			
12.00						
13.00						
14.00						
15.00		3/6/6/8	15-17	Silt and clay. 100% silt and clay. Moist, gray.	CL	
16.00			0 ppm			
17.00				17 feet below grade - end of exploration		
18.00						
19.00				collect soil sample from 15-17 foot spoon interval for laboratory analysis		
20.00						
21.00						
22.00						
23.00						
24.00						
25.00						
26.00						
27.00						
28.00						
29.00						
30.00						
31.00						
32.00						
33.00						
34.00						
35.00						
36.00						

Legend

- | | |
|---|--|
| <ul style="list-style-type: none"> Road Box with Bolt Down Cover, Set in Cement. Existing Surface. Bentonite Seal Placed in Annulus. Grade #1 Silica Sand Pack Placed in Annulus. Drill Cuttings Placed in Annulus. | <ul style="list-style-type: none"> Locking Plug. Static Water Level (9/6/2000) 2.0" ID, Schedule 40 PVC, 0.010" Slotted Well Screen Plug Point Approximate Water Level During Drilling Static Water Level (9/6/2000) |
|---|--|

NA - Not Available due to PID Malfunction

BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: **SB-4/MW-1**



Hartford Mini-Mart
Hartford, Vermont

VTDEC Site # 99-2727

Griffin Project #: 20041670	Date Installed: 10/3/00
Drilled by: Griffin International	Drilling Method: Hollow-stem Auger
Driller: T&K Drilling	Boring Diameter.: 6.25
Supervised by: RH	Development Method: na
Logged by: RH	Screened Length: 10 feet

Letter Symbol
Graphic Symbol

Grade = 0	Well Construction	Pen/Rec (")	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol	
		Blow Count	PID (ppm)	Asphalt Surface			
1.0		na	0-2	Asphalt Surface	GW		
2.0			0 ppm	Well graded clean gravel. 100% coarse gravel. Dry, brown.			
3.0							
4.0							
5.0			2/1/2/2	5-7	Sand with silt. 50% fine sand, 50% silt. Dry, brown.	SM	
6.0				0 ppm			
7.0							
8.0							
9.0							
10.0			7/6/5/6	10-12	Silt and clay. 90% silt/clay, 10% sand. Dry, gray.	CL	
11.0				100 ppm			
12.0							
13.0							
14.0							
15.0			3/10/12/12	15-17	Sand and clay. 50% fine sand, 50% clay. Moist, gray.	SC	
16.0				200 ppm			
17.0							
18.0							
19.0							
20.0			4/8/12/13	20-22	Sand and clay. 50% fine sand, 50% clay. Moist, gray.	SC	
21.0				200 ppm			
22.0							
23.0							
24.0							
25.0			6/8/2/12	25-27	Silt and clay. 90% silt/clay, 10% sand. Wet, gray.	CL	
26.0				11 ppm			
27.0							
28.0							
29.0							
30.0			5/6/7/8	30-32	Silt and clay. 90% silt/clay, 10% sand. Wet, gray.	CL	
31.0				0 ppm			
32.0					32 feet below grade - end of exploration		
33.0				base of well 30 feet below grade			
34.0							
35.0							
36.0							
37.0							
38.0							
39.0							

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.
- Locking Plug.
- 1.5" ID, Schedule 40 PVC Riser.
- 1.5" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling
- Static Water Level

NA - Not Available due to PID Malfunction



Appendix C

Laboratory Analytical Reports



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

Griffin International
PO Box 943
Williston, VT 05495
Attn:

PROJECT: Hartford MiniMar/#20041670
ORDER ID: 9648
RECEIVE DATE: October 5, 2000
REPORT DATE: October 11, 2000

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

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

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

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

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

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



LABORATORY REPORT

CLIENT: Griffin International

ORDER ID: 9648

PROJECT: Hartford MiniMart/#20041670

DATE RECEIVED: October 5, 2000

REPORT DATE: October 11, 2000

SAMPLER: NI

Site: B-1	Ref. Number: 163365	Date Sampled: 10/4/00	Anal. Method: SW 8260	Time Sampled: 11:49 AM	Analyst: 725	Analysis Date: 10/9/00
<u>Parameter</u>	<u>Results ug/kg, dry</u>					
MTBE	< 20.0					
Benzene	< 10.0					
Toluene	< 10.0					
Ethylbenzene	< 10.0					
Xylenes, Total	< 20.0					
1,3,5 Trimethyl Benzene	< 10.0					
1,2,4 Trimethyl Benzene	< 10.0					
Naphthalene	< 20.0					
UIP's	0.					
Percent Solid	81.					
Surrogate 1	98.0%					

Site: B-3	Ref. Number: 163367	Date Sampled: 10/4/00	Anal. Method: SW 8260	Time Sampled: 3:32 PM	Analyst: 725	Analysis Date: 10/9/00
<u>Parameter</u>	<u>Results ug/kg, dry</u>					
MTBE	< 20.0					
Benzene	< 10.0					
Toluene	< 10.0					
Ethylbenzene	< 10.0					
Xylenes, Total	< 20.0					
1,3,5 Trimethyl Benzene	< 10.0					
1,2,4 Trimethyl Benzene	< 10.0					
Naphthalene	< 20.0					
UIP's	0.					
Percent Solid	71.					
Surrogate 1	100.0%					

Site: B-2	Ref. Number: 163366	Date Sampled: 10/4/00	Anal. Method: SW 8260	Time Sampled: 1:24 PM	Analyst: 725	Analysis Date: 10/9/00
<u>Parameter</u>	<u>Results ug/kg, dry</u>					
MTBE	< 20.0					
Benzene	< 10.0					
Toluene	< 10.0					
Ethylbenzene	< 10.0					
Xylenes, Total	< 20.0					
1,3,5 Trimethyl Benzene	< 10.0					
1,2,4 Trimethyl Benzene	< 10.0					
Naphthalene	< 20.0					
UIP's	0.					
Percent Solid	90.					
Surrogate 1	98.0%					

20041670

Project Name: HARTFORD MWINARS HARTFORD VT		Reporting Address:	Billing Address:
Endyne Order ID: 9648 (Lab Use Only)	1-0 -1 -S	Company: Contact Name/Phone #:	Sampler Name: Phone #:

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
163365	B-1	SAL	✓		11/4/00	2	4oz		PK13	—	
163366	B-2	↓	↓		12/4	↓	↓		↓	↓	
163367	B-3	↓	↓		332	↓	↓				

Relinquished by: <i>[Signature]</i>	Date/Time: 12/4/00	Received by: <i>Melissa Salmon</i>	Date/Time: 10/5/00 9:55AM	Received by: <i>A. J. [Signature]</i>	Date/Time: 10/5/00 10:05
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New York State Project: Yes No Requested Analyses

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

Appendix D

Photographs

**Hartford Mini-Mart
Hartford Vermont
VTDEC Site #99-2727**



Hartford Diner



Hartford Diner

**Hartford Mini-Mart
Hartford Vermont
VTDEC Site #99-2727**



Hartford Diner – view to the south



Hartford Diner foundation wall– view to the southeast

**Hartford Mini-Mart
Hartford Vermont
VTDEC Site #99-2727**



**Hartford Diner, view to the east, toward the Hartford Mini-Mart
Erosion near northeast side of building**