

Seymour

Environmental Services, Inc.

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March 2, 2012

Jim Walden
Wisconsin Department of Natural Resources
101 South Webster Street
Madison, Wisconsin 53707

**Re: Progress Update-Soil and Groundwater
Miller's Liquor Property
Madison, Wisconsin**

Dear Mr. Walden:

Groundwater with dry cleaning chemicals was discovered in the area from a separate environmental investigation. Since a dry cleaner formerly was operated at the Miller's Liquor property it was identified as a suspected source of the chemicals. The WDNR notified Miller's Liquor LLC in 2003 of their responsibility to investigate the identified tetrachloroethene (PCE) contaminated groundwater.

SOIL AND GROUNDWATER INVESTIGATION TO DATE

On March 7, 2007 Seymour Environmental installed four geoprobe borings at the site. In total, 5 soil samples and 4 groundwater samples were collected at the site. Dry-cleaning related compounds were present in soil samples from three of the borings. Groundwater from all four of the borings also contained dry-cleaning related compounds. Based on the data collected during the assessment we determined that the dry cleaning activities formerly conducted at the property have contributed to PCE contamination in groundwater in the area.

Based on the information from the geoprobe borings we installed three water table monitoring wells and a piezometer (deeper well) on the property. Groundwater level data collected from the wells indicated that shallow groundwater is present at a depth of ~20 feet and flow at the property is toward the east. The information from the piezometer indicates that a slight downward gradient is present in the groundwater at the site. Analytical data from groundwater samples shows that PCE is present in groundwater across the site at levels exceeding the WDNR standards. PCE concentrations in shallow groundwater on the northern part of the site are 100-200 ug/l. Lower concentrations of PCE are present in the groundwater to the south of the building (10-20 ug/l). Based on the analytical data from the piezometer the contaminant levels in the groundwater on site appear to decline sharply with depth. The wells have been sampled twice, the results are attached.

In the summer of 2011 the City of Madison upgraded the utilities along University Avenue. During that work several samples were collected along the sewer main and laterals. Very high PCE levels were identified in soils directly beneath the sewer lateral running from the Miller's building toward University Avenue (817,000 ug/kg). Additionally, significant soil contamination was identified adjacent to a manhole located near the intersection of University and Chestnut Street (3,500-13,500 ug/kg). The higher concentration was present in soil below the sewers.

Based on the information that we have collected to date we will need to conduct additional investigation at the site. Our first priority is to determine if the identified contamination is infiltrating into utility trenches or neighboring structures. We then need to define the extent of both the soil and groundwater contamination in order to determine what remedial actions will be appropriate.

We describe our proposed activities below.

PROPOSED ACTIVITIES

The following items will be dealt with at the site to move toward closure: These items are inter-related and tasks conducted during one step will also impact other steps.

1. Vapor intrusion
2. Migration of PCE through sewer trenches
3. Additional groundwater investigation
4. Extent of the onsite soil contamination
5. Remediation

1. Vapor Intrusion Assessment

The most pressing concern at the site is the possibility that potentially hazardous vapors originating from the site are migrating into nearby buildings. This is a particular concern at this site since the contaminants present cannot be detected by smell at the levels that represent a long-term health risk. Therefore, this item needs immediate attention. Our plan is to first address the residential properties that lie within ~100 feet of the identified contamination. It is likely that the highest vapor levels are present within this area and sampling at those properties will provide an idea of the magnitude and distribution of hazardous vapors in the area. Upon approval of our budget I will coordinate with Dave Miller to contact the neighbors that will or may be affected by our vapor intrusion investigation. An outline for the proposed vapor intrusion assessment follows

Task 1 - Mitigation system installation/sampling

We will install a vapor mitigation system at the subject property. Previously collected data show that very high levels of PCE are present in shallow soils along the sewer lateral. These soils likely extend beneath the building and could be leaking into the structure. Additionally, data collected at the adjacent property to the south showed elevated levels of radon gas in that building; the proposed mitigation system would take care of any radon issues at the store.

We will evaluate the radon mitigation system at the neighboring property located at 414 Kendall to determine whether it is properly installed to alleviate buildup of hazardous vapors below the slab. This will likely involve pressure testing to confirm that the system is sufficient to induce a negative pressure throughout the sub-slab area. A sample of the off-gas from the mitigation system will be collected to determine the general vapor levels beneath the slab.

Task 2 - Sub-slab sampling

Samples of the soil vapors will be collected from beneath six residences located within ~100 feet of the known area of contamination. At each of the six properties two sampling points will be installed through the floor or basement floor depending on the structure, one will be near the entry point of the sewer lateral, and one nearest to the subject site. The vapor samples collected from beneath the structures will be analyzed for TO-15. The results of the sampling will be compared to the USEPA indoor air risk screening levels. The proposed properties for sub-slab soil vapor sampling are located at the following addresses:

2415 University Avenue
413 Chestnut Street
2408 Kendall Avenue

2417 University Avenue
2402 Kendall Avenue
2410 Kendall Avenue

Task 3 - Additional sub-slab Assessment/Mitigation (possible)

Data from the initial sub-slab sampling and passive vapor sampling (described later) will be used to evaluate whether additional vapor intrusion testing or mitigation will be needed in the area. Data from the initial sub-slab vapor sampling will be used to determine whether a mitigation system will need to be installed at any of the residences. Generally, a mitigation system will be required at any residences where the contaminant concentrations in the sub-slab vapors are greater than 10 times the indoor air risk screening levels. The approximate cost to install a residential mitigation system is ~\$1,500 per property. In addition the sub-slab vapor data, passive vapor sampling, sewer integrity data will be used to determine whether additional sub slab sampling will be required. In particular we are concerned about conditions at several large commercial/mixed use properties located nearby. If the data indicate that hazardous vapors may be a problem in these locations we will investigate the construction of the buildings to determine appropriate methods for characterizing the sub-slab vapors. The particular buildings of concern are located at:

2355 University Avenue
2308 University Avenue

2424 University Avenue
2302 University Avenue

2. Investigation of PCE Migration Through the Sewer Trenches

Significant PCE contamination was identified in soils near the sanitary sewers along University Avenue during the city upgrades performed in the summer of 2011. The sampling was conducted to determine proper handling of soils during the construction so samples were only collected adjacent to properties where contamination was expected. No samples were collected along the sewers to evaluate how far the impacted materials extend. However, historic groundwater analytical data from properties along the north side of University Avenue slightly east of the Miller's property indicates groundwater in that area contains PCE at higher concentrations than identified on the subject parcel. This may be an indication that significant amounts of PCE entered the sanitary sewers and leaked into the groundwater somewhere other than the source property.

Task 1 - Record review and sewer integrity evaluation

Since the existing data seems to indicate preferential migration of PCE through the utility corridors we will investigate them. Proposed activities are:

- Obtain as-built maps from the City of Madison of the utility trenches, especially the sanitary sewer trenches in the area. Since sewers have been replaced we will attempt to find old videos to locate cracks and low spots in the historic sewers.
- Locate the lateral(s) for the Miller's building. Televis the lateral(s) to inspect for cracks or breaks that may help explain the elevated PCE levels identified in shallow soils near University Avenue. This lateral was not replaced during the sewer upgrade; it was only extended to meet the new main.
- Video log the sewer line from the manhole at University and Chestnut looking for cracks and low spots.

Task 2 - Preferential contaminant migration assessment

Conduct passive vapor sampling along University Avenue to investigate potential vapor migration through the sewers. Passive vapor sampling involves subgrade installation of samplers, which adsorb volatile contaminants present within the soils. The samplers are left in the ground for several days. The samplers are removed from the ground and the laboratory analyzes the adsorptive media to determine the total mass of contaminants. This data will be used to construct a contour map showing the relative levels of contamination around the site. The contaminants may originate from contaminated soils or groundwater or merely lateral diffusion of contaminated vapors.

We plan to install passive soil samples throughout an area extending from the site to Highland Avenue (west) to Walnut Street (east) and extending south to north from Kendall Avenue to Campus Drive. Most of the samplers will be placed along the University Avenue; samplers will be alternated from the north and south sides of the road. Selected samplers will be located near any compromised sections of the former sewer. Several samplers also will be installed along the cross streets (Chestnut, Walnut, and Highland) to evaluate migration along utility corridors. Finally, several samplers will be installed in areas around the site where groundwater contamination has been identified historically and adjacent to structures where actual sub-slab vapor samples were collected.

Data collected from the passive gas samplers will be used to identify areas where additional assessment of contamination is warranted. Passive vapors screening results will be compared to the actual vapor concentration results determine during the sub-slab sampling. This comparison should aid in identifying any other properties where sub-slab sampling or vapor mitigation is needed. Additionally, the contour map showing the PCE distribution generated from the passive sampling data will be used to identify areas for additional soil and/or groundwater sampling.

3. Additional Soil Investigation

Only limited soil sampling has been conducted at the site to date. The data collected to date confirm that PCE-impacted soils are present on the Miller property and the Chestnut and University right-of-way immediately adjacent to the site. Shallow soil contamination (within 4 feet of the surface) has been identified along the eastern side of the parcel. The maximum depth of the soil contamination in this area has not been determined; a soil sample collected beneath the sanitary sewer manhole near the University and Chestnut intersection indicates that the contamination extends to a depth of at least 10 feet. PCE-impacted soils also have been identified in the north central portion of the property. No shallow soil contamination was identified in this area. Soil samples collected below the sanitary sewer lateral (~8 feet deep) and slightly above the water table contained high levels of PCE. Additional geoprobe borings/hand auger sampling will be installed to define the extent of soil contamination around the site.

Task 1 - Source area/on site soil sampling

Shallow soil sampling will be conducted where access for drilling equipment is limited. This includes inside of the building near former dry cleaning machines/storage areas and near a former fluid storage tank located near the southwest corner of the building. The objective of this sampling is to find the release location(s) if possible. These soils samples will be collected using a combination of hand augering and direct-push sampling. Soil samples will be collected continuously at each sampling point and will be field screened for organic vapors. Based on the field screening at least one sample from each boring will be submitted for laboratory analysis of VOCs.

Soil sampling will be conducted at eight locations to characterize the lateral and vertical distribution of PCE in the area immediately surrounding the site. This sampling will be performed using direct push (geoprobe) methods. Soil samples will be collected from the surface to the water table. The soil samples will be screened for organic vapors in the field. Based on the field observations samples will be selected for laboratory analysis of VOCs. We anticipate that two samples will be analyzed from each boring, one near the top of suspected contamination and one near the bottom of suspected contamination or near the water table. During the drilling grab groundwater samples will be collected at two of the locations to evaluate the PCE levels in groundwater to the south and west. These geoprobe borings will be installed in the following areas:

- Near the sanitary sewer lateral toward University Avenue
- Near the sanitary sewer lateral toward Chestnut Street
- In the front parking lot near the east and west ends
- In the south side of the property near the back door
- Along the east side of Chestnut Street near the manhole on the sanitary sewer main

Task 2 - Off site hotspot soil sampling

Based on the results of the passive soil vapor sampling and the sewer integrity analysis additional areas with high probability of heavy PCE contamination will also be investigated.

4. Additional Groundwater Investigation

Groundwater contamination from dry cleaning chemicals has been identified at the Miller's property as well as a number of other properties in the area. Our data indicates that the PCE level in the shallow groundwater at Millers is ~200 ug/l. Data collected at other nearby properties during unrelated environmental investigations indicate that PCE contamination of the groundwater is widespread in the area. During assessment work performed at the Highland Transitional Care property from 2000 until 2002, which is located immediately northeast of Miller's Liquor, PCE was identified in shallow groundwater at concentrations ranging from 110 to 1,000 ug/l. PCE also was identified in groundwater further to the northeast of that property. Elevated PCE levels also have been identified to the west of the property. In 2011 a grab water sample was collected near the intersection of University and Highland Avenues adjacent to the former One Hour Cleaners. That sample contained 2,730 ug/l PCE.

Based on the available groundwater chemistry data in the area we propose to install six additional water-table monitoring wells to characterize the contaminant distribution in the shallow groundwater. Three of the wells will be installed ~300 feet north of the site along Campus Drive and extend from just west of the site to the intersection of Campus and Walnut. One well will be installed to the east of the site near Walnut Street or where passive vapor sampling indicates PCE levels drop off. One well will be installed to the west of the site approximately half way to Highland Avenue or where passive vapor sampling indicates PCE levels drop off. The final well will be installed along the north side of University Avenue either slightly northeast of the site or where utility assessment work shows the highest PCE vapor levels.

Two rounds of groundwater monitoring will be conducted. Groundwater monitoring will consist of water level measurements and groundwater sampling. Water level data will be used to evaluate the direction of groundwater flow in the area of the site. Analytical data from the sampling will be used to construct maps showing the distribution of contaminants in the groundwater. Along with the data collected in other proposed activities we expect this data to provide a good picture of the where the PCE is "entering" the groundwater and how the contaminant levels change downgradient from the site. The proposed monitoring network will not be sufficient to complete assessment of the groundwater contamination. Additional wells screened deeper within the aquifer will be needed to evaluate the vertical distribution, however, we will first define the lateral extent of the contamination and then plan to install a piezometer near the monitoring wells with the highest PCE concentration.

We will also review the WDNR files for sites nearby to use any information that is already available to assist with our investigation.

We will contact the consulting firm that is dealing with the newly opened site on University Avenue (former One Hour Cleaners) and the new Cogen project, since the data has not yet been submitted to the WDNR.

5. Remediation

We will evaluate the data collected during the investigation to determine the remediation that will be required to bring the site to closure. If we identify vapor intrusion issues they will be dealt with prior to completing the investigation as an interim action.

Remediation at the site will most certainly require a combination of several technologies. Based on the known depth of soil contamination and spatial limitations at the site, excavation of all of the impacted soils will not be possible. A likely scenario for soil remediation involves excavation of highly-impacted contaminated soils, such as have already been identified around the sewers, coupled with soil vapor extraction or enhanced in-situ bioremediation to address deeper and inaccessible soil contamination.

Once we have determined the extent of the groundwater contamination we will conduct a risk assessment. We will evaluate groundwater remedial alternatives including long term monitoring and enhanced in-situ bioremediation.

Sincerely,
Seymour Environmental Services, Inc.



Robyn Seymour, P.G.
Hydrogeologist

Figures (4)
Tables (2)

cc: Bonnie Miller



SOLVENTS IN GROUNDWATER

USDA FOREST PRODUCTS LAB
 USDA FOREST PRODUCTS LAB SITE #2

FOREST PRODUCTS LAB - USDA

HIGHLAND TRANSITIONAL CARE FACILITY

MILLERS LIQUOR LLC

SITE LOCATION

ERICKSON FREEDOM STATION

NEW FREEDOM SERVICE STATION



1 INCH = 150 FEET
 SCALE IS APPROXIMATE

FILE/PATH: D:\PROJECTS\millers liquor\ Fig1-Location.cdr
 DATE: 12/14/2006
 PREPARED: TMB APPROVED:
 SOURCE:
 WDNR R&R SITE MAPS

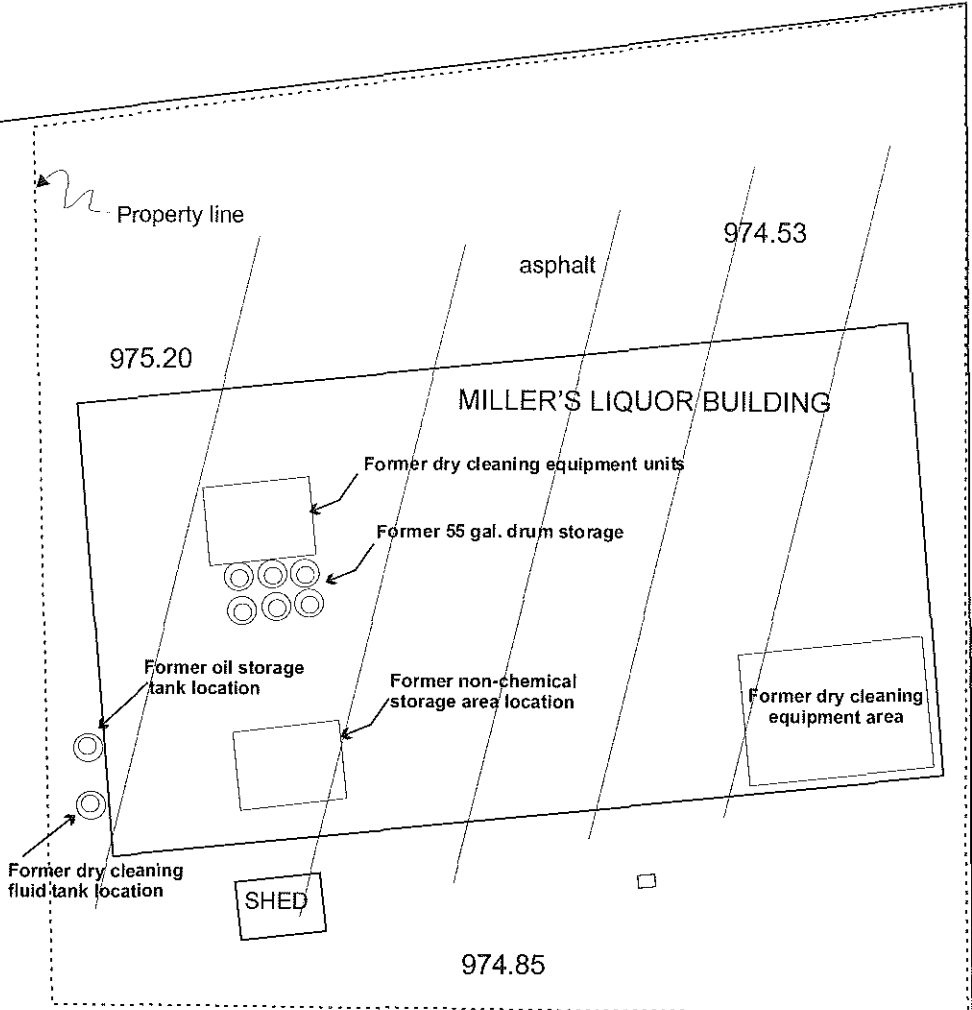
SEYMOUR ENVIRONMENTAL SERVICES, INC.

SITE LOCATION
 Miller's Liquor
 2401 University Avenue
 Madison, Wisconsin

FIGURE
1

Best Western In-Towner

UNIVERSITY AVE



1 INCH = 20 FEET
SCALE IS APPROXIMATE

D:\PROJECTS\MILLERLIQUOR\ Basemap2009.cdr
FILE/PATH:
DATE: 12/04/2006
PREPARED: TMB APPROVED:
SOURCE: Delmer Friederichs, pers. Corr.
Sigma Env. Services, 2000

SEYMOUR
ENVIRONMENTAL
SERVICES, INC.

SITE MAP
Miller's Liquor Property
2401 University Avenue
Madison, Wisconsin

Best Western In-Towner

UNIVERSITY AVE

Previous MW-8 Location

Groundwater Flow

Property line

asphalt

B-4

MILLER'S LIQUOR BUILDING

B-3

CHESTNUT ST

Former dry cleaning equipment units

Former 55 gal. drum storage

Former oil storage tank location

Former non-chemical storage area location

Former dry cleaning equipment area

Former dry cleaning fluid tank location

SHED

B-2

B-1

LEGEND

B-2

⊙ - Geoprobe Location

⊕ - Monitoring Well (abandoned)



1 INCH = 20 FEET
SCALE IS APPROXIMATE

FILE/PATH: D:\PROJECTS\MILLERLIQUOR\Basemap2009.cdr

DATE: 12/04/2006

PREPARED: TMB APPROVED:

SOURCE: Delmer Friederichs, pers. Corr.
Sigma Env. Services, 2000

SEYMOUR ENVIRONMENTAL SERVICES, INC.

Site Layout
Miller's Liquor Property
2401 University Avenue
Madison, Wisconsin

FIGURE

2

Best Western In-Towner

UNIVERSITY AVE

Previous MW-8 Location

Property line

asphalt

B-4

B-3

MILLER'S LIQUOR BUILDING

Former dry cleaning equipment units

Former 55 gal. drum storage

CHESTNUT ST

Former oil storage tank location

Former non-chemical storage area location

Former dry cleaning equipment area

PCE in Soil

Former dry cleaning fluid tank location

SHED

B-2

B-1

LEGEND

B-2

⊙ - Geoprobe Location

⊕ - Monitoring Well (abandoned)



1 INCH = 20 FEET
SCALE IS APPROXIMATE

FILE/PATH: D:\PROJECTS\MILLER\LIQUOR\Basemap2009.cdr

PREPARED: TMB APPROVED:
SOURCE: Delmer Friederichs, pers. Corr.
Sigma Env. Services, 2000



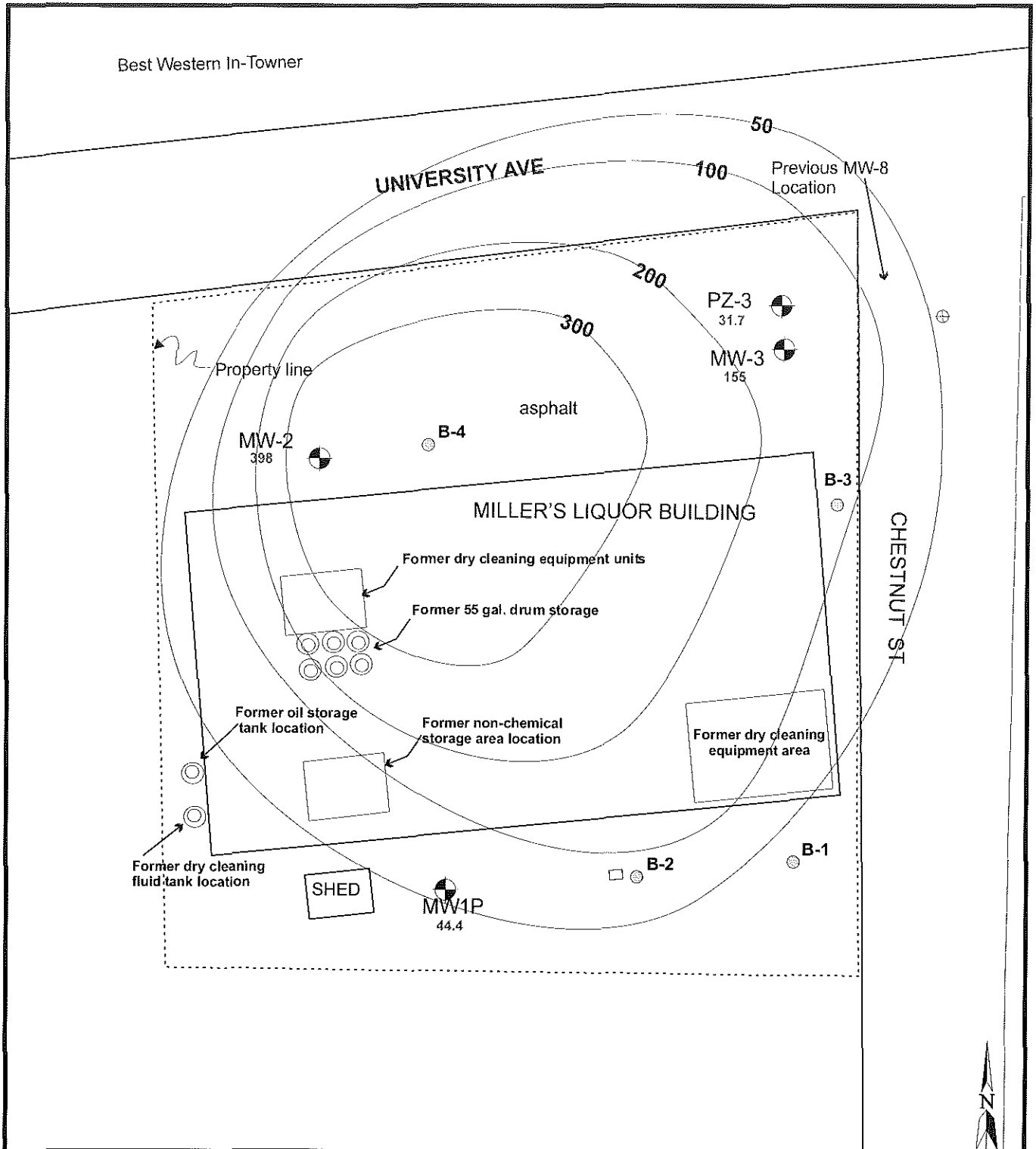
SEYMOUR ENVIRONMENTAL SERVICES, INC.

Identified Soil Contamination
Miller's Liquor Property
2401 University Avenue
Madison, Wisconsin

FIGURE

3

Best Western In-Towner



LEGEND

- B-2 ○ - Geoprobe Location
- ⊗ - Monitoring Well
- ⊕ - Monitoring Well (abandoned)

0 20' 40'

1 INCH = 20 FEET
SCALE IS APPROXIMATE

FILE/PATH: D:\PROJECTS\MILLERLIQUOR\Basemap2009.cdr
 DATE: 12/04/2008
 PREPARED: TMB APPROVED:
 SOURCE: Sigma Env. Services, 2000

SEYMOUR ENVIRONMENTAL SERVICES, INC.

Identified Groundwater Contamination
 Miller's Liquor Property
 2401 University Avenue
 Madison, Wisconsin

FIGURE 4

TABLE 1
SUMMARY OF GEOPROBE SOIL CHEMISTRY (03/07/2007)
Miller's Liquor Property – 2401 University Avenue - Madison, Wisconsin

Sample Locations	B-1	B-2	B-3	B-4	B-4
Depth (ft)	0-4	4-8	3-4	2-3	20-24
Select VOCs					
Tetrachloroethene	170	<25	4800	<25	7300
Trichloroethene	<25	<25	<25	<25	<25
cis 1,2 dichloroethene	<25	<25	<25	<25	<25
trans 1,2 dichloroethene	<25	<25	<25	<25	<25
Vinyl chloride	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25
Methylene chloride	<25	<25	<25	<25	<25
<ul style="list-style-type: none"> - All concentrations are listed in ug/kg - Samples were analyzed for VOCs (EPA 8260) 					

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
Miller's Liquor Property
2401 University Avenue - Madison, Wisconsin

Sample Location	Date	Tetrachloroethene	Trichloroethene	cis 1,2 dichloroethene	trans 1,2 dichloroethene	Vinyl chloride	Toluene	1,2,4 Trimethylbenzene	Benzene	Ethylbenzene	Dibromo-chloromethane	Methylene Chloride
Geoprobes												
B-1	3/7/2007	44	2.1	<0.83	<0.89	<0.18	<0.67	<0.97	nd	nd	nd	nd
B-2	3/7/2007	85	1.4	<0.83	<0.89	<0.18	<0.67	0.98	nd	nd	nd	nd
B-3	3/7/2007	120	2.7	<0.83	<0.89	<0.18	<0.67	<0.97	nd	nd	nd	nd
B-4	3/7/2007	370	7.4	<2.1	<2.2	<0.45	<1.7	<2.4	nd	nd	nd	nd
Monitoring Wells												
MW-1	11/06/09	44.4	0.51	<0.83	<0.89	<0.18	<0.67	<0.97	<0.41	<0.54	<0.81	<0.43
	03/12/11	24.6	<0.48	<0.83	<0.89	<0.18	<0.67	<0.97	<0.41	<0.54	<0.81	<0.43
MW-2	11/06/09	398	4.5	<4.2	<4.4	<0.90	<3.4	<4.8	<2.0	<2.7	nd	nd
	03/12/11	117	0.99	<0.83	<0.89	<0.18	<0.67	<0.97	<0.41	<0.54	3.8	<0.43
MW-3	11/06/09	155	2.7	<2.1	<2.2	<0.45	<1.7	<2.4	<1.0	<1.4	nd	nd
	03/12/11	116	1.9	<1.7	<1.8	<0.36	<1.3	<1.9	<0.82	<1.1	<1.6	1.2
PZ-3	11/06/09	31.7	<0.48	<0.83	<0.89	<0.18	1.6	<0.97	1.0	1.1	<0.81	<0.43
	03/12/11	6.7	<0.48	<0.83	<0.89	<0.18	<0.67	<0.97	<0.41	<0.54	<0.81	<0.43
NR140	PAL	0.5	0.5	7	20	0.02	200	96	0.5	140	6	0.5
	ES	5	5	70	100	0.2	1000	480	5	700	60	5

- All concentrations are listed in ug/l
- na = not analyzed
- ns = no standard established

- NR140 PAL = Preventative action level (exceedances bold)
- NR140 ES = Enforcement standard (exceedances shaded)