DISCLAIMER

As of August 1, 2002 the DNR began adding sites previously closed with what are now known as continuing obligations to the Wisconsin Remediation and Redevelopment Database (WRRD).

Certain documents that are currently required by ch. NR 726, Wis. Adm. Code may therefore not be included in this packet as they were unavailable at the time the case was closed.

The information contained in this document was assembled by DNR from the case file to provide the public with information on residual contamination and continuing obligations. More information may be found in the site file, which, if available, will also be listed on BRRTS on the Web.

Wisconsin
Department of Commerce

ENVIRONMENTAL & REGULATORY SERVICES
101 West Pleasant Street Suite 205
Milwaukee, Wisconsin 53212
www.commerce.state.wi.us
Fax: (414) 220-5374
Tommy G. Thompson, Governor
Brenda Blanchard, Secretary

BRRTS: 03-52-001336

April 28, 2000

Keith Haas
City of Racine
Department of Public Works
730 Washington Ave.
Racine WI 53403

RE: COMMERCE # 53403-9999-00A, City of Racine FS, 2 S. Main St. Racine, WI

Case Closure

Dear Mr. Haas:

On April 27, 2000, the Department received the groundwater monitoring well abandonment forms and the copy of the recorded deed notification. The Departments database has been update to reflect the closed status of your site.

Thank you for your efforts in the protection of the environment, if you have any questions you can reach me at (414) 220-5375.

Sincerely,

Gregory S. Michael
Hydrogeologist
PECFA Site Review Section

Cc: Electronic filing
Foth & VanDyke

Department of Public Works

Richard M. Jones, P.E.
Commissioner of Public Works

Keith E. Haas, P.E.
Assistant Commissioner of Public Works

RACINE ON THE LAKE
City of Racine, Wisconsin

City Hall
730 Washington Avenue
Racine, Wisconsin 53403
262-636-9121

April 24, 2000

RECEIVED
APR 27 2000
ERS DIVISION

Mr. Gregory Michael
Environmental & Regulatory Services
Wisconsin Department of Commerce
101 W. Pleasant St., Suite 205
Milwaukee, WI 53212

Dear Mr. Michael:

Enclosed with this letter you will find a copy of the deed restriction for the former underground storage tank site at 2nd and Main Streets in Racine, Wisconsin. This is your site BRRTS: 03-52-001336, Commerce #53403-9999-00A. This deed restriction is one of the requirements listed in your letter, dated February 22, 2000, discussing conditional case closure. The other requirement is the submission of well abandonment forms. It is my understanding that our environmental consultant, Foth and Van Dyke, will be submitting these forms to your office this week.

We would appreciate it if you could forward the closure letter to us at your earliest convenience. Our City Attorney is trying to schedule a land transfer with the attorneys representing the developer of the site. Currently a multi-million dollar office building is being constructed on the site. The City of Racine is in the process of transferring property held by the City to the private developer to facilitate the private investment in our City.

If I can offer any assistance to expedite the paperwork, please let me know. I can be reached at 262-636-9121.

Sincerely,

Keith E. Haas, P.E.
Assistant Commissioner of Public Works

KEH:das

cc: Richard M. Jones
Daniel P. Wright
Janis Kesy, Foth and Van Dyke

DOCUMENT #

1720175

Ret to:

REGISTER'S OFFICE
RACINE COUNTY, WI

RECORDED

2000 MAR 10 PM 4: 16

MARK A. LADD
REGISTER OF DEEDS

3010 939-944

Drafted by:
Racine City Attorney
730 Washington Av
Racine, WI 53403

NOTICE OF CONTAMINATION
TO PROPERTY

RECEIVED
APR 13 2000
CITY CLERK - RACINE

14

The City of Racine, a municipal corporation, is the owner of the below-described Parcel I with PIN 00021001 and Parcel II with PIN 00021002.

One or more petroleum discharges have occurred at this property. Benzene contaminated groundwater above NR 140 enforcement standards levels of the Wisconsin Administrative Code exist(s) on this property.

The owner hereby declares that all of the property described below is held and shall be held, conveyed or encumbered, leased, rented, used, occupied and improved subject to the following limitations and/or restrictions: Anyone who proposes to construct or reconstruct a well on this property is required to contact the Department of Natural Resources' Bureau of Drinking Water and Groundwater, or its successor agency, to determine what specific prohibitions or requirements are applicable, prior to constructing or reconstructing a well on this property. No well may be constructed or reconstructed on this property unless applicable requirements are met.

The property is more particularly described as follows:

Parcel I:

That part of Block Six (6), and of adjacent platted streets according to the recorded Original Plat of the Village of Racine, now in the City of Racine, in the

County of Racine and State of Wisconsin, described as follows: Begin at the Southwest corner of said Block 6 as platted; thence North along the West line thereof 145 feet; thence South 89°58' East, 170 feet; thence South parallel to the West line of said Block 6, 145 feet to the South line thereof; thence North 89°58' West along last said South line 170 feet to the point of beginning. Excepting land conveyed to City of Racine by Deed executed by Chicago, Milwaukee, St. Paul and Pacific Railroad Company, a Municipal corporation, dated November 13, 1953 and recorded in the office of the Register of Deeds for Racine County, Wisconsin on December 8, 1953 in Volume 554 of Deeds at page 3, as Document No. 610289. Said land being in the City of Racine, County of Racine, State of Wisconsin.

Parcel II:

That part of Block Six (6), and of adjacent platted streets according to the recorded original Plat of the Village of Racine, now in the City of Racine, in the County of Racine and State of Wisconsin, bounded as follows: Begin on the West line of said Block 6, distant 145 feet North of the Southwest corner thereof; thence North along said West line and said West line produced North, 62.86 feet; thence South 81°0' East, 7.38 feet; thence South 78°0' East, 31.96 feet; thence South 76°14' East, 164.61 feet; thence South 76°11' East, 104.76 feet to the West line of said Block 7; thence South 0°05' East along last said West line 136.03 feet to the South line of said Block 6, or an Easterly prolongation thereof; thence North 89°58' West along last said South line 130 feet; thence North parallel to the West line of said Block 6, 145 feet; thence North 89°58' West, 170 feet to the point of beginning.

Any person who is or becomes owner of the property described above may request that the Wisconsin Department of Commerce, or its successor, issue a determination that the restrictions set forth in this covenant are no longer required. That property owner shall provide any and all necessary information to the Department in order for the Department to be able to make a determination. Upon receipt of such a request, the Department shall determine whether or not the restrictions contained herein can be extinguished. Conditions under which a restriction may be extinguished will be determined in accordance with the site specific standards, rules and laws for this property. If the Department determines

that the restrictions can be extinguished, an affidavit, with a copy of the Department's written determination, may be recorded to give notice that this restriction, or portions of this restriction are no longer binding. Any restriction placed upon this property shall not be extinguished without the Department's written determination.

IN WITNESS WHEREOF, the owner of the property has executed this document, this 8th day of March, 2000.

CITY OF RACINE

James M. Smith, Mayor

Karen M. Norton, City Clerk

Approved as to form:

Daniel P. Wright
City Attorney

Subscribed and sworn to before me
this 8th day of March, 2000.

Notary Public, Racine County, WI
My commission: 10-28-2001

Foth & Van Dyke
consultants · engineers · scientists

July 27, 1999

Ms. Brenda Brown
Program Assistant
Wisconsin Department of Natural Resources
Richards Street Annex
4041 North Richards Street P.O. Box 12436
Milwaukee, WI 53212

Dear Ms. Brown:

Re: City of Racine Department of Public Works
2nd and Main Streets Site
Racine, Wisconsin
BRRTS # 03-52-001336

On behalf of the City of Racine Department of Public Works, Foth & Van Dyke is pleased to submit a Site Closure Request for the 2nd and Main Streets site. This closure request summarizes the remediation activities, including soil excavation and off-site disposal, soil analytical results and groundwater analytical results.

Based upon the activities completed and the results of laboratory analysis we are recommending that the Wisconsin Department of Natural Resources (WDNR) close the site with a groundwater deed restriction. A WDNR Case summary and Closeout Form 4400-202 has been provided with this letter for your use.

A check for $750.00 is enclosed for the review fee.

Please review this case and close out the site as soon as possible. If you have any questions regarding the information contained in this report or on this case, please contact Ms. Janis Kesy, Project Manager at (920) 497-2500.

Sincerely,

Foth & Van Dyke

Janis Schallhorn Kesy

Janis Schallhorn Kesy, P.G.
Senior Project Manager

JSK:laj

Enclosures

cc: Mr. Keith Haas, City of Racine
Mr. Philip Brochocki, Foth & Van Dyke

LAJ\92R3\GBAPP\77361.61\4000

2737 South Ridge Road · P.O. Box 19012 · Green Bay, WI 54307-9012 · 920-497-2500 · Fax: 920-497-8516

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
CASE SUMMARY AND CLOSE OUT FORM

Form 4400-202
5/98

NOTE: Use of this form is required by the Department for any case close out application filed pursuant to ch. 292, Wis. Stats. and ch. NR 726, Wis. Adm. Code. Completion of this form is mandatory for applications for case closure. The Department will not consider or act upon your application unless you complete and submit this application form. It is not the Department's intention to use any personally identifiable information from this form for any purpose other than reviewing close out requests and determining the need for additional response action.

I certify that, to the best of my knowledge, the information presented on and attached to this form are true and accurate. This recommendation for case closure is based upon all available data as of 7/27/99 (date). I have read the Case Summary and Close Out Form Instructions and all required information has been included.

Form completed by:

Philip R. Brochocki 7/27/99
(Signature) (Date)

Printed Name: Philip R. Brochocki Company Name: Foth & Van Dyke

If not site owner, relationship to site owner: Consultant

Address: 2737 S. Ridge Road, P.O. Box 19012

Telephone Number: (920)497-2500 FAX Number: (920)497-8576

Environmental Consultant (if different then above): _____

Address: _____

Telephone Number: (____)_____ FAX Number: (____)_____

FOR DEPARTMENT USE ONLY

Type of Case: LUST Spill ER Land Recycling Other _____ DNR Reviewer _____

WDNR Site Name: City of Racine - 2nd and Main Street Site

Complete Site Address: _____

WDNR BRRTS Case #: 0 3 - 5 2 - 0 0 1 3 3 6 FID #: 2 5 2 1 8 0 1 7 0

PECFA Claim #: 5 3 4 0 3 - 9 9 9 9 - 0 0

Responsible Party Name: Keith Haas, P.E.

Complete Responsible Party Address: City of Racine, Department of Public Works, 730 Washington Avenue, Racine, WI 53403

Site Legal Description: ___¼, SE ¼, NE ¼, Sec 9 , T 3 N, R 23 (E /W) Town: Racine

County: Racine Latitude: ___°___'___ ___.___" Longitude: : ____°___'___ ___.___"

Type Of Closure Requested:

Soil
- X < NR 720.09/720.11 Generic RCLs
- ___ NR 720.19(2) Soil Performance Stds.
- ___ NR 720.19(3) Site Specific Stds.

Groundwater
- X < NR 140.10 Table 1 & Table 2 Values
- X NR 140.28(2) PAL Exemption
- X NR 726.05(2)(b) Natural Attenuation

Contaminant Type(s) GRO, PVOC Quantity Released Unknown

Date of Incident/Discovery: January 1991 Zoning of Property: Commercial

Enforcement Actions Closed Out? ____Yes __X__No ____NA Permits Closed Out? ____Yes __X__No ____NA

Form 4 Pending? ____Yes __X__No ____NA Date Closure Submitted to DNR: July 1999

WDNR BRRTS Case #: 0 3 - 5 2 - 0 0 1 3 3 6 WDNR Site Name: City of Racine, 2nd and Main Street

1. CASE HISTORY AND JUSTIFICATION FOR CLOSURE ATTACHED? __X__ Yes ____ No

2. SOIL PRE-REMEDIATION OR INVESTIGATION ANALYTICAL RESULTS

Extent Defined? __X__ Yes ____ No Soil Type(s): CL, ML, SM+ GP (Fill) Depth to Bedrock: 87-89

Potential Receptors for Direct Contact (i.e. vapor migration, contaminated soil left in place): None

Tables of Pre-remedial Analytical Results Attached? X Yes __No Maps of Pre-remedial Sample Locations Attached? X Yes ___No

3. SOIL POST REMEDIATION ANALYTICAL RESULTS

Remedial Action Completed? __X__Yes ____No 720.19 Analysis? ____Yes ____No (If yes, attach supporting documentation)

Were Soils Excavated? __X__Yes ____No Quantity: 7200 cy Disposal Method: Landfill

Final Confirmation Sampling Methods: TPH, BETX

Soil Disposal Form Attached? __X__ Yes ____ No Final Disposal Location: Land Reclamation landfill

Estimated volume of insitu soils exceeding NR 720 RCLs: None

Tables for Post Remedial Analytical Results Attached? X Yes __No Maps of Post Remedial Sample Locations Attached? X Yes __No

Brief Description of Remedial Action Taken: Over-excavated and landfilling of contaminated soils November 1991 and August 1992.

4. GROUNDWATER ANALYTICAL RESULTS

Potential Receptors for Groundwater Migration Pathway: None

Extent of Contamination Defined? __X__Yes ____No ____NA Remedial Action Completed? __X__Yes ____No ____NA

# of Sample Rounds: 12 Depth(s) to Groundwater/Flow Direction(s): 6.5 - 11.5/North-Northeast

Field Analyses? __X__Yes ____No Lab Analyses? X Yes ____No # of Sampling Points: ____

NR 141 Monitoring Wells Sampled: ____ # Temporary Groundwater Sampling Points Sampled: 0

Recovery Sumps Sampled: 0 # Municipal Wells Sampled: 0 # Private Wells Sampled: 0

Has DNR Been Notified of Substances in Groundwater w/o Standards? __X__Yes ____No

X Any Potable Wells Within 1200 Feet of Site? __X__Yes ____No If Yes, How Many? 2

Have They Been Samples? ____Yes __X__No Have Well Owners/Occupants Been Notified of Results? ____Yes ____No

Preventive Action Limit Exceeded? __X__Yes ____No (If Yes, identify location(s) MW-STS

Enforcement Standard Exceeded? __X__Yes ____No (If Yes, identify location(s) MW-2, MW-6

Tables of Analytical Results Attached? X Yes ___No Map of Groundwater Sample Location Map Attached? X Yes ___No

Brief Description of Remedial Action Taken: Groundwater sampling for PVOC and natural attenuation parameters

Project Summary

The 2nd and Main Streets site was a former service station which is currently owned by the City of Racine. The site is located on the northeast corner of the former 2nd Street(Gaslight Drive) and Main Street. In January 1991 five underground storage tanks were removed from the site. At that time two USTs which had previously been abandoned in-place still remained. Petroleum contaminated soil and groundwater were observed.

In March 1991 a site investigation was performed involving a soil gas survey, soil sampling and the installation and sampling of groundwater monitoring wells . The investigation confirmed the presence of soil and groundwater contamination. As a result of the investigation Foth & Van Dyke recommended soil remediation.

In November 1991 soil excavation activities resulted in the removal and landfilling of 6,350 cy of contaminated soil. Also, the two USTs previously abandoned in place were removed and a third UST was found and removed. The former use and contents of these USTs were not known.

In March and April 1992, additional boring and monitoring well installation activities and groundwater sampling occurred. In August 1992 an additional 850 cy of contaminated soil was excavated and landfilled. A total of 7200 cy of hydrocarbon contaminated soil was excavated from 1991-1992.

In 1996 a new Main Street bridge was constructed over the Root River resulting in a change in the alignment of Main Street. The new Main Street is slightly west of the original alignment. No changes were made in the right-of-way property lines along Main Street where it shares a boundary with the former gas station. In January 1997 three new monitoring wells were installed at the site. The purpose of these wells was to determine groundwater quality within the backfill material and in the Main Street right-away. Benzene enforcement standard exceedances were found on this additional property. However, the maximum benzene level measured was 35 μg/l. The area contains numerous underground utilities (water, sewer, telephone and electric) which will affect the feasibility of remediation alternatives. The utilities make excavation for source control impractical. Because of the soil types and preferential flow paths through the utility trenches, groundwater recovery and treatment is not likely to provide effective treatment.

In July 1998, in response to Wisconsin Department of Natural Resources requests, MW-9 and MW-10 were installed in order to define the extent of groundwater contamination. Between August 1998 and May 1999, four rounds of groundwater sampling took place. The groundwater samples collected from these new wells and the available wells at the site were sampled for PVOC and natural attenuation parameters. Results indicate that groundwater contamination has been defined and contaminant concentrations are reducing indicating that natural attenuation is occurring.

Foth & Van Dyke has evaluated this site and deemed it is suitable for flexible case closure due to the following factors:

- Groundwater flow is north-northeasterly towards the Root River which is located approximately 150 ft north of the site.

- The maximum benzene levels detected in the monitoring wells (35 ppb) is less than WPDES discharge limits to surface water of 50 ppb benzene and 750 ppb total BETX. Therefore, if groundwater reaches the Root River and Lake Michigan the levels of benzene will be diluted to harmless levels.

- Adjacent land to the north is being developed into a River Walk. Commercial development is planned for this site and the adjacent parcel to the north pending closure. The planned Gas Light Point Plaza development will consist of a bank and grocery store. The paved parking lot will accommodate approximately 270 parking spaces.

- The site and surrounding properties are served by City Water. WGNHS well constructor reports indicate a well 1,000 ft south (upgradient) and a second well northwest of the Root River. Therefore, the site would not affect any potable water supply.

- Approximately 7200 cy of contaminated soil has been removed from the site.

- The following post-remediation soil sample results appear to be above NR 720 Soil Standards:

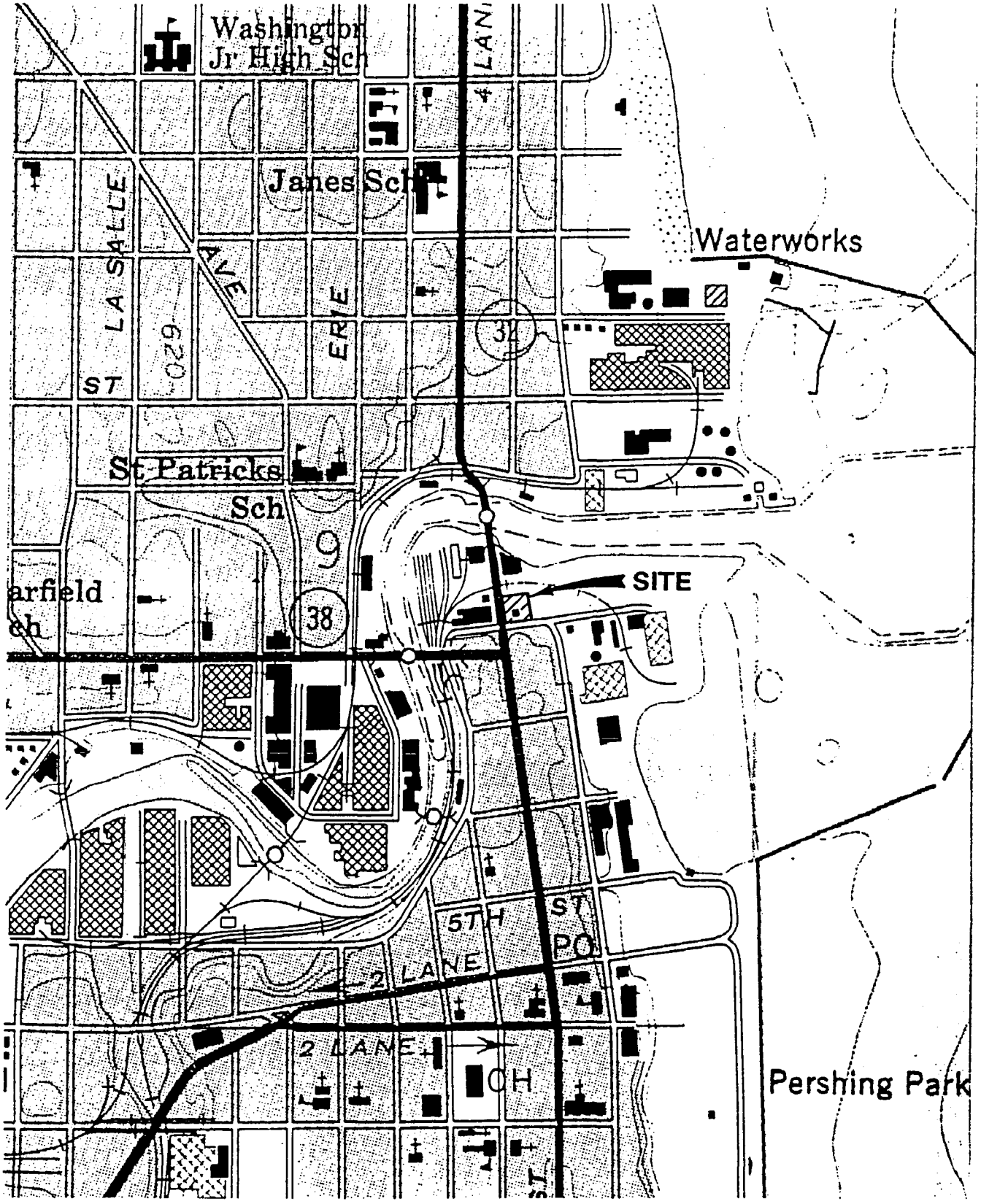
  CR-CS-2M-11WW - Depth of 10 ft
  CR-CS-2M-12W - Depth of 10 ft
  R2M-SS-W - Depth of 9.5 ft

  Other soil samples collected from the 1991 soil removal have exceeded NR 720 standards but appear to have been over excavated during the 1992 soil removal.

  The depth to groundwater at MW-6 varies between 6 ft and 9 ft. Therefore, it appears that these soil samples were collected below the water table and, therefore, reflect groundwater conditions.

- Groundwater results indicate that groundwater contamination is reducing through natural attenuation.

- Groundwater contamination does not appear to extend off-site.



SOURCE: USGS 7.5 MIN. QUADRANGLE
RACINE SOUTH, WISCONSIN

N

FIGURE 1-1

SITE LOCATION MAP
DEPARTMENT OF PUBLIC WORKS
2nd. & MAIN STREET
RACINE, WISCONSIN

SCALE: **NOT TO SCALE**	DATE: **MAY, 1991**
PREPARED BY: FOTH & VAN DYKE	BY: **B.J.Z.**

TABLE 4-1

Soil Gas Survey
City of Racine
Department of Public Works - 2nd and Main Streets Site

Identification Number	In-Situ PID Analysis parts-per-million (ppm)	Boring Depth (feet)	Cave-In Depth (feet)	Depth to Groundwater (feet)
SB-1	3.7	15	7.9	----
SB-2	39.7	15	9.0	7.2
SB-3	43.6	15	8.7	8.0
SB-4	57.7	15	9.4	9.1
SB-5	447	15	6.9	----
SB-6	310	15	8.7	----
SB-7	309	15	7.5	7.5
SB-8	35.8	15	10.8	10.8
SB-9	17.4	15	10.4	10.2
SB-10	10.8	15	14.7	14.2
SB-11	53.5	15	9.1	8.4
SB-12	89.4	15	10.8	6.3
SB-13	7.4	15	9.1	8.6
SB-14	108.6	15	9.9	----
SB-15	839	15	6.9	6.9
SB-16	98.7	15	11.4	11.1
SB-17	98.3	15	13.8	13.4
SB-18	38.3	15	10.9	7.9

May 17, 1991
[370,222]/91R8
R-Racine/2nd&Main-T.4-1

Pre-remediation

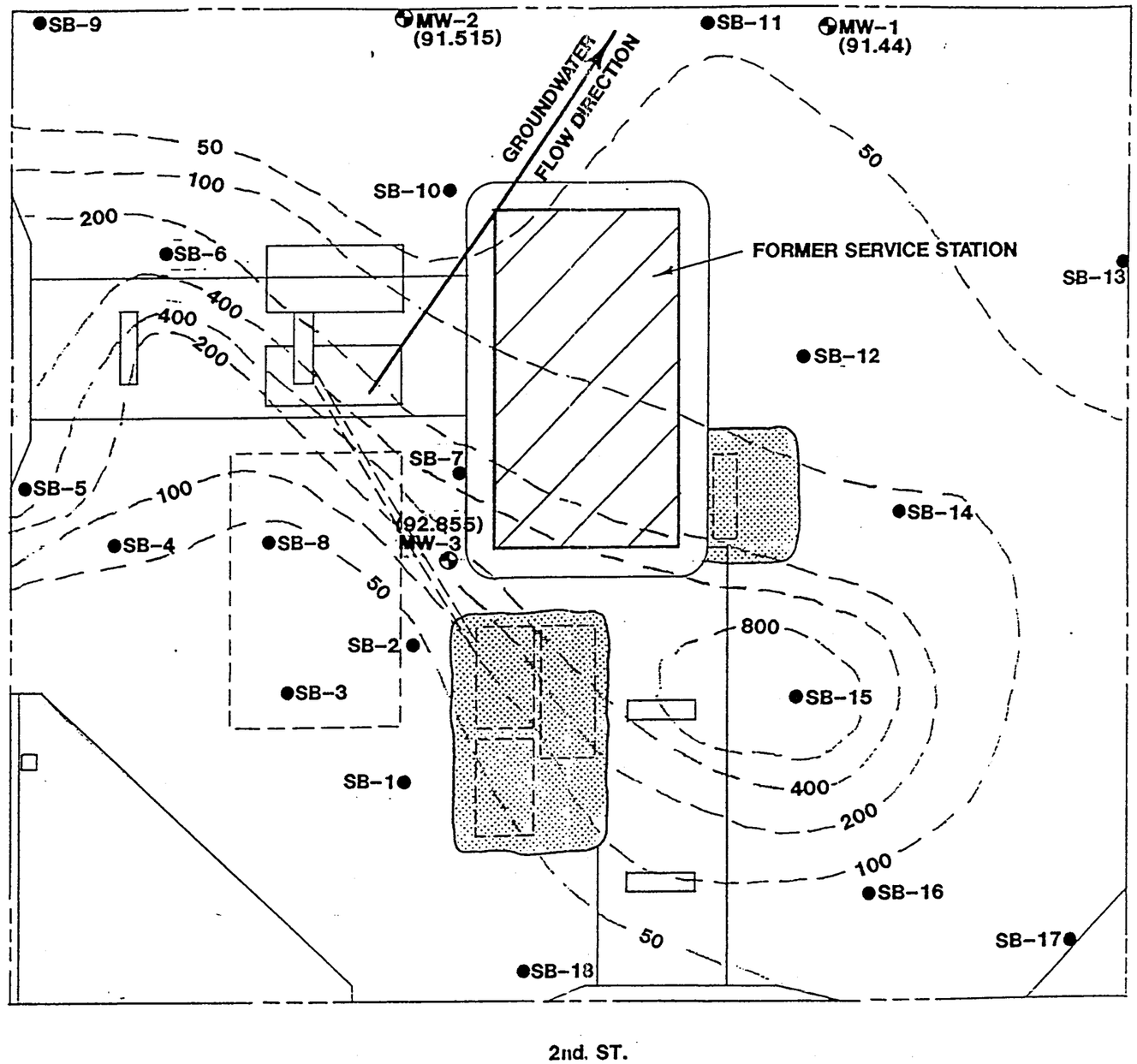
TABLE 5-1

Soil Analytical Results
City of Racine
Department of Public Works - 2nd and Main Streets Site

Sample I.D.	Depth (feet)	Parameters: Total Petroleum Hydrocarbons by Gas Chromatography (TPH-GC) in parts-per-million (ppm)	Parameters: Benzene, Ethylbenzene, Toluene, and Xylene by Gas Chromatography (BETX-GC) (ppm)
MW-1-1	10.0 - 12.0	ND	ND
MW-2-1	5.0 - 7.0	18	---
MW-2-2	10.0 - 12.0	190	0.795
MW-2-3	12.5 - 14.5	300	---
MW-3-1	7.5 - 9.5	ND	---

ND = No Detectable Levels

May 17, 1991
[370,222]/91R8
R-Racine/2nd&Main-T.5-1



NOTE: SOIL GAS CONTOURS BASED ON PID READINGS ONLY.

N

CITY OF RACINE	
FIGURE 1-2	
SOIL BORING & MONITORING WELL LOCATIONS DEPARTMENT OF PUBLIC WORKS 2nd. & MAIN STREET	
SCALE: 1"=20'	DATE: APRIL, 1991
PREPARED BY: FOTH & VAN DYKE	BY: B.J.Z.

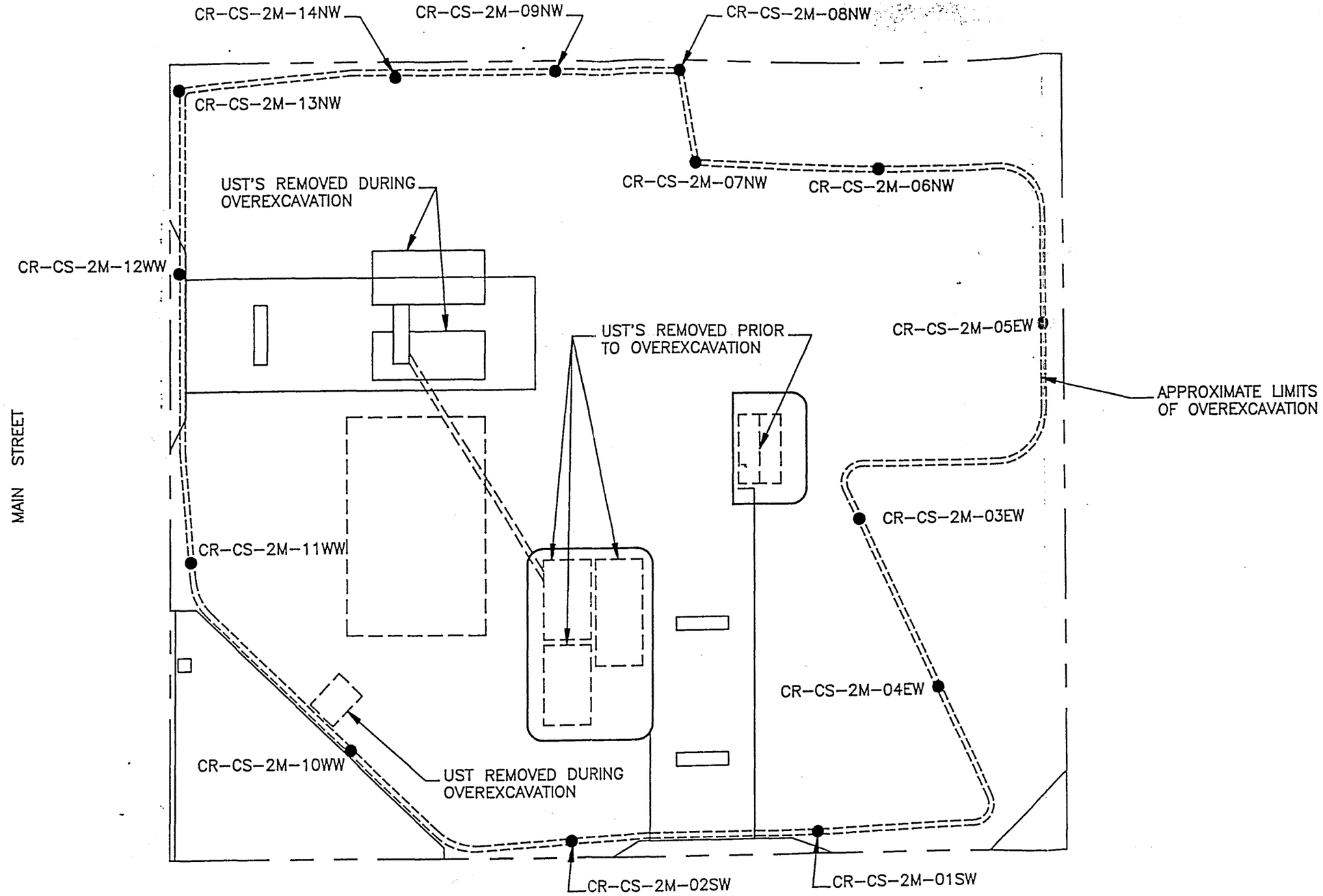
Post-remediation November 1991

TABLE 5-1

Soil Analytical Results and Field Readings
Department of Public Works
2nd Main Streets Site
Racine, Wisconsin

Sample I.D.	Excavation Location	Depth (ft.)	TPH-GC (mg/kg)	BETX-GC (mg/kg)	PID Analysis (ppm)
CR-CS-2M-01SW	South Wall	5.5	7	ND	89.3
CR-CS-2M-02SW	South Wall	5.5	10	ND	28.7
CR-CS-2M-03EW	East Wall	5.5	ND	ND	0
CR-CS-2M-04EW	East Wall	5.5	ND	ND	0
CR-CS-2M-05EW	East Wall	7.5	ND	ND	0
CR-CS-2M-06NW	North Wall	7.5	ND	ND	7.2
CR-CS-2M-07NW	North Wall	7.5	36	ND	45.9
CR-CS-2M-08NW	North Wall	7.5	ND	ND	7.5
CR-CS-2M-09NW	North Wall	7.5	170	0.2	528
CR-CS-2M-10WW	West Wall	7.0	35	0.5	18.7
CR-CS-2M-11WW	West Wall	10.0	35	0.2	1,002
CR-CS-2M-12WW	West Wall	10.0	174	0.5	> 9,999
CR-CS-2M-13NW	North Wall	7.0	360	0.15	> 9,999
CR-CS-2M-14NW	North Wall	8.0	32	ND	> 9,999

TPH-GC = Total petroleum hydrocarbons by gas chromatography
BETX-GC = Benzene, ethylbenzene, toluene, and xylene by gas chromatography
PID = Photoionization detector
mg/kg = milligrams per kilogram
ppm = parts-per-million
ND = Non-detectable levels



LEGEND

● CONFIRMATORY SOIL SAMPLING LOCATIONS

CITY OF RACINE	91R8
FIGURE 4-1	
SAMPLE LOCATION MAP DEPARTMENT OF PUBLIC WORKS 2nd. & MAIN STREETS SITE	
SCALE: 1"=20'	DATE: FEBRUARY, 199
PREPARED BY: FOTH & VAN DYKE	BY: PDP

Table 7-3

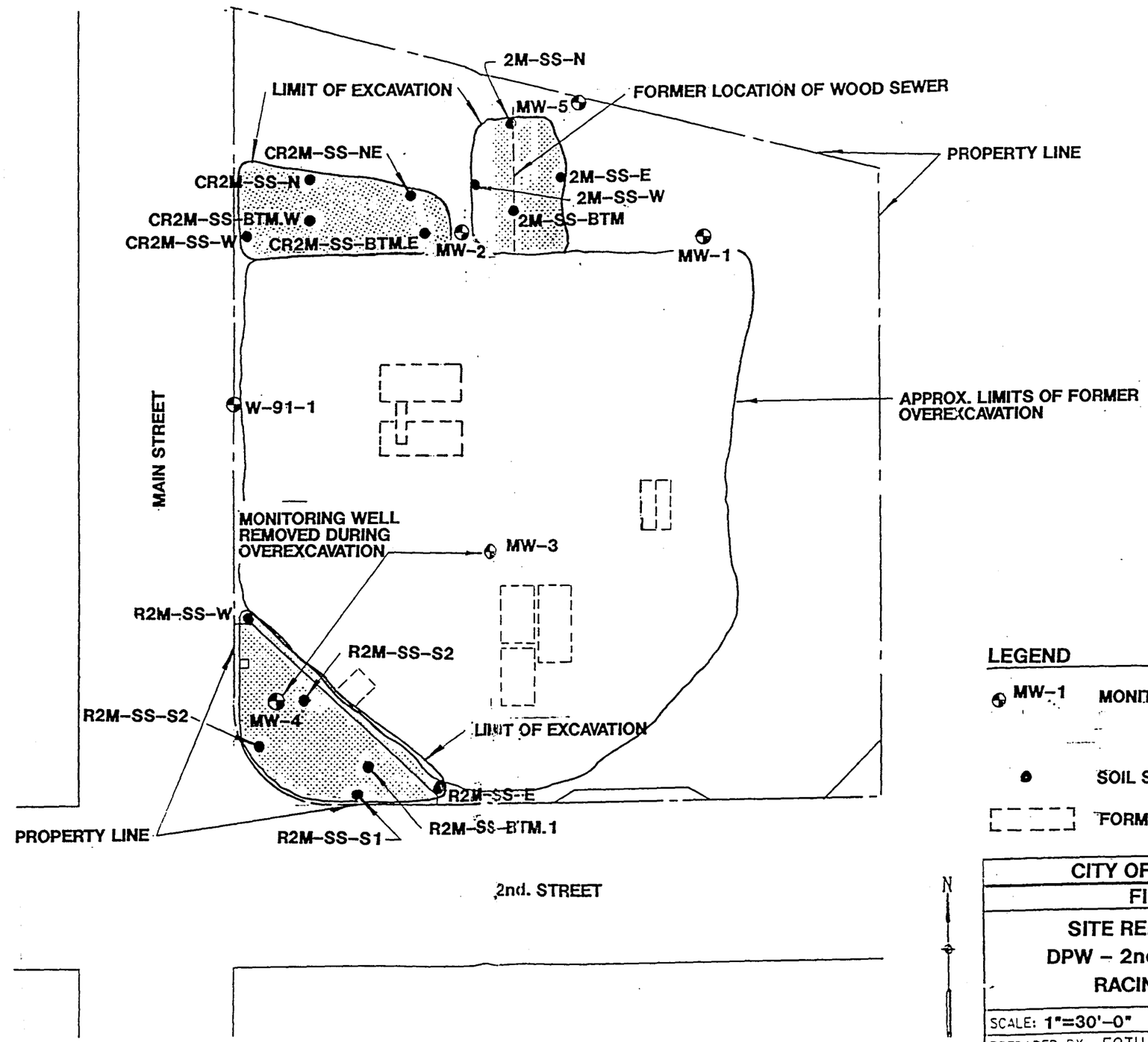
City of Racine
Department of Public Works - 2nd and Main Streets Site
Soil Remediation Analytical Results and Field Readings

Sample I.D. No.	Excavation Location	Sample Collection Date	Depth (ft.)	Field PID Readings (ppm)	Detected Analytical Parameters (ppm)													
						Volatile Organic Compounds (VOCs)												
					TPH-GC (5.0)	N (0.1)	1,2,4 -T (0.1)	X (0.1)	T (0.1)	B (0.1)	n-B (0.1)	E (0.1)	n-P (0.1)	1,3,5 -T (0.1)	I (0.1)	1,1-D (0.1)	C (0.1)
CR2M-SS-BTM.W	West bottom	8/10/92	10.5	< 5.0	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
CR2M-SS-N	North sidewall	8/10/92	9.0	< 5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CR2M-SS-NE	Northeast sidewall	8/10/92	9.5	< 5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CR2M-SS-BTM.E	East bottom	8/10/92	10.5	< 5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CR2M-SS-300	Stockpile	8/10/92	10.0	243	ND	ND	0.2	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
PID CR2M-SS-W	West sidewall	8/10/92	9.5	8	590	3.8	9.3	6.5	ND	ND	7.4	4.7	2.5	6.5	ND	ND	3.1
R2M-SS-BTM.1	East bottom	8/11/92	10.0	< 5.0	ND	0.1	0.2	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
R2M-SS-BTM.2	North bottom	8/11/92	10.0	< 5.0	ND	0.2	ND	0.3	0.3	ND	ND	ND	ND	ND	ND	ND	ND
R2M-SS-S1	South sidewall	8/11/92	8.5	< 5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
R2M-SS-S2	Southwest sidewall	8/11/92	8.5	< 5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
R2M-SS-W	West sidewall	8/11/92	7.0	< 5.0	ND	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
R2M-SS-E	East sidewall	8/11/92	7.5	< 5.0	ND	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
R2M-SS-600	Stockpile	8/11/92	9.5	1,332	ND	0.3	1.3	1.2	ND	0.1	0.9	0.1	0.3	0.5	ND	ND	ND

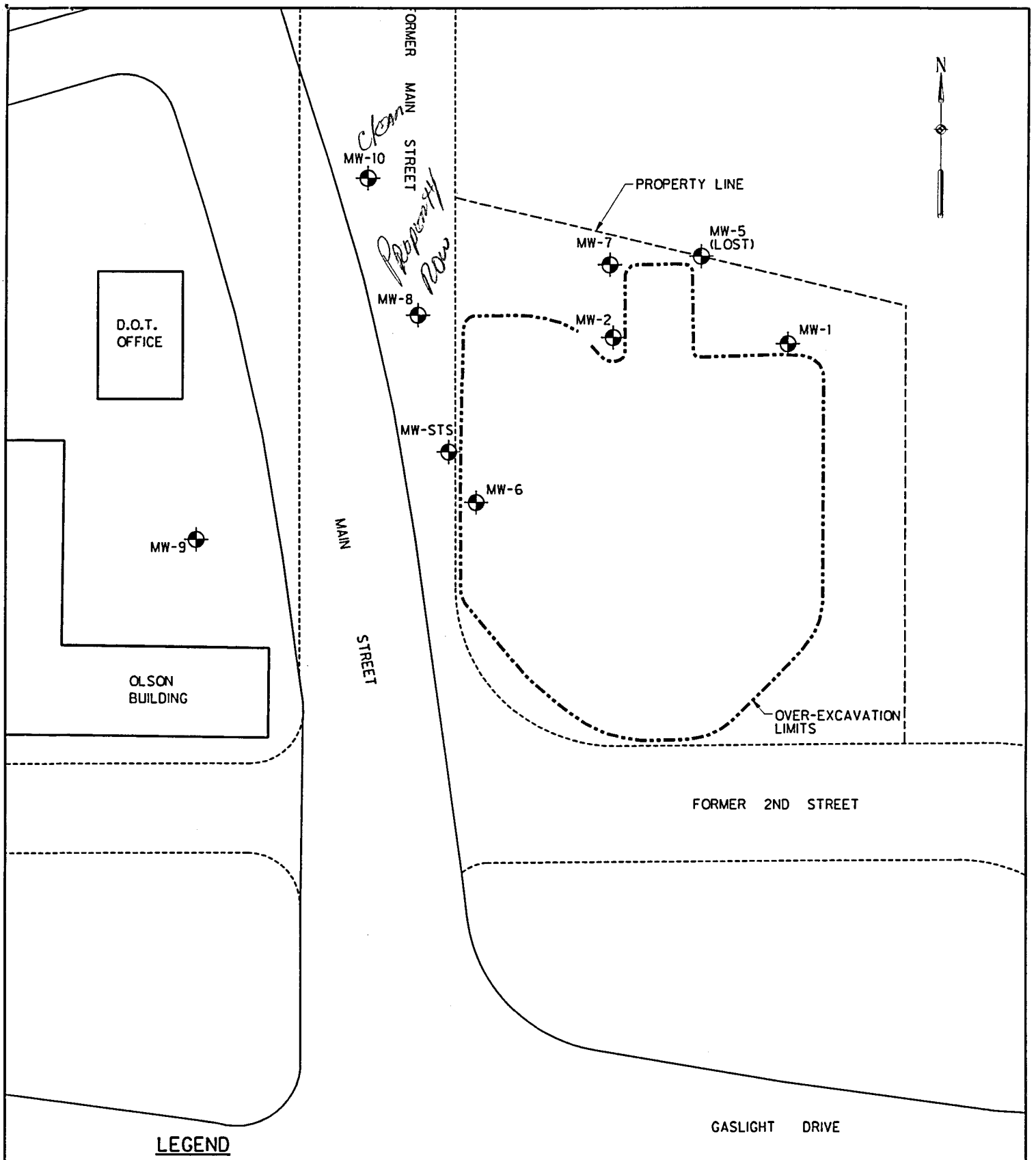
Table 7-3 *(continued)*

Sample I.D. No.	Excavation Location	Sample Collection Date	Depth (ft.)	Field PID Readings (ppm)	Detected Analytical Parameters (ppm)													
						Volatile Organic Compounds (VOCs)												
					TPH-GC (5.0)	N (0.1)	1,2,4 -T (0.1)	X (0.1)	T (0.1)	B (0.1)	n-B (0.1)	E (0.1)	n-P (0.1)	1,3,5 -T (0.1)	I (0.1)	1,1-D (0.1)	C (0.1)
2M-SS-N	North sidewall	8/11/92	7.0	1,920	ND	0.1	0.9	1.1	0.2	ND	0.4	0.3	0.9	0.4	0.2	ND	ND
2M-SS-E	East sidewall	8/11/92	7.0	< 5.0	ND	2.3	0.4	0.9	0.5	ND	0.2	0.2	ND	0.2	ND	ND	ND
2M-SS-W	West sidewall	8/11/92	6.5	< 5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2M-SS-BTM	South bottom	8/11/92	7.5	< 5.0	ND	ND	0.4	0.3	ND	ND	0.2	ND	ND	0.4	ND	ND	ND
2M-SS-900	Stockpile	8/11/92	9.5	415	ND	0.1	0.4	1.4	ND	ND	ND	ND	ND	0.2	ND	2.8	ND

PID = Photoionization detector
ppm = parts-per-million
TPH-GC = Total petroleum hydrocarbons by gas chromatography per the gasoline standard
N = Naphthalene
1,2,4-T = 1,2,4-Trimethylbenzene
X = Total xylenes
T = Toluene
B = Bromobenzene
n-B = n-Butylbenzene
E = Ethylbenzene
n-P = n-Propylene
1,3,5-T = 1,3,5-Trimethylbenzene
I = Isopropylbenzene
1,1-D = 1,1-Dichloroethene
C = Chlorobenzene
ND = Analyte detected below laboratory detection limit given in parentheses.



CITY OF RACINE	92R3
FIGURE 5-1	
SITE REMEDIATION MAP DPW – 2nd. & MAIN STREETS RACINE, WISCONSIN	
SCALE: 1"=30'-0"	DATE: DECEMBER, 1992
PREPARED BY: FOTH & VAN DYKE	BY: B.J.Z.



LEGEND

MW-2 MONITORING WELL LOCATION, NUMBER AND WATER TABLE ELEVATION

APPROXIMATE OVER-EXCAVATION LIMITS

APPROXIMATE PROPERTY LINE

APPROXIMATE FORMER STREET LOCATION

CITY OF RACINE - 2ND & MAIN STREET SITE

FIGURE 1

MONITORING WELL LOCATION MAP

Scale: 0 25' 50'

Date: JULY, 1999

Prepared By: Foth & Van Dyke

By: JOW

I:\92w144\92r3\2r03f6.dgn Jul. 23, 1999 11:07:47

Table 1

Groundwater Sampling Results Summary
City of Racine DPW - 2nd and Main Streets
Racine, Wisconsin

Sample Location	Sampling Date	Benzene (μg/l)	Ethylbenzene (μg/l)	Methyl-tert butyl ether (μg/l)	1,2,4-Tri-methylbenzene (μg/l)	1,3,5-Tri-methylbenzene (μg/l)	m-& p-Xylene (μg/l)	o-Xylene (μg/l)	Toluene (μg/l)	Naphthalene (μg/l)
					Monitoring Well Samples					
MW-1	05/06/99	<0.50	<0.54	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	NA
	02/01/99	<0.50	<0.55	2.0	<0.55	<0.52	<1.0	<0.50	<0.52	<0.52
	11/12/98	<0.35	<0.39	0.91[2]	<0.47	<0.44	<1.1	<0.47	<0.36	<0.51
	08/17/98	<0.35	<0.39	0.99[2]	<0.47	<0.44	<1.1	<0.47	<0.36	<0.51
	05/08/97	<0.36	<0.26	2.1	<0.30	<0.20	1.3[2]	<0.26	<0.25	<0.58
	01/07/97	<0.2	<0.3	1.2	<0.3	<0.3	<0.9	<.20	<.4	<0.8
	10/16/95	<0.32	<0.34	2.1	<0.38	<0.25	<0.59	<0.29	<0.27	<0.44
	04/04/95	<0.51	<0.23	<0.12	7.1	2.4	<0.88*	<0.88*	<0.16	4.8
	08/30/94	<1.0	<1.0	1.3	<1.0	<1.0	<2.0*	<2.0*	<1.0	<1.0
	01/14/93	<1.0	<1.0	3.0	<1.0	<1.0	<3.0*	<3.0*	<1.0	<1.0
	04/14/92	65	14	6.5	7.9	3.1	35*	35*	36	3.1
	04/12/91	<1	<1	NA	NA	NA	<1*	<1*	<1	NA
MW-2	05/06/99	9.1	56	<2.4	59	4.9[2]	11[2]	7.1[2]	6.1[2]	NA
	02/01/99	8.9	36	5.4	24	2.1[2]	<2.1	5.4	5.2	3.8
	11/12/98	<1.8	5.3[2]	<2.2	10	18	<5.6	<2.3	9.5	13
	08/17/98	7.5[2]	45	<4.5	43	14[2]	<11	<4.7	12	<5.1
	05/08/97	<0.36	<0.26	<0.24	<0.3	<2.0	1.3[2]	<0.26	0.88	<0.58
	01/07/97	4.5	15	<0.2	11	1.9	3.9	<.2	<0.4	2.5
	10/16/95	4.8	3.4	<0.28	0.95	<0.25	1.7	6.2	16	1.4
	04/04/95	<2.6	130	<0.60	150	<3.6	88*	88*	14	11
	08/30/94	11	69	2.2	65	<2.0	41*	41*	2.0	<2.0
	01/14/93	20	110	<10	150	<10	130*	130*	10	38
	04/14/92	2.2	3.3	<1.0	3.5	<1.0	3.9*	3.9*	1.2	1.2
	04/12/91	100	22	NA	NA	NA	170[2]	170*	33	NA

Sample Location	Sampling Date	Benzene (μg/l)	Ethylbenzene (μg/l)	Methyl-tert butyl ether (μg/l)	1,2,4-Tri-methylbenzene (μg/l)	1,3,5-Tri-methylbenzene (μg/l)	m-& p-Xylene (μg/l)	o-Xylene (μg/l)	Toluene (μg/l)	Naphthalene (μg/l)
MW-5[1]	01/14/93	<1.0	<1.0	1.8	<1.0	<1.0	3.0*	3.0*	<1.0	<1.0
	04/14/92	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0*	<1.0*	<1.0	<1.0
	04/12/91	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-STS (W-91-1)	05/06/99	4.7	2.0	1.4[2]	7.8	1.6[2]	2.6[2]	<0.50	2.2	NA
	02/01/99	0.97[2]	0.92[2]	<0.47	1.5[2]	0.85[2]	1.1[2]	<0.50	1.3[2]	<0.52
	11/12/98	<0.35	0.61[2]	1.2[2]	9.3	1.5	1.9[2]	0.69[2]	0.86[2]	1.2[2]
	08/17/98	0.52[2]	0.75[2]	2.6	13	1.4[2]	<1.1	0.60[2]	1.4	1.2[2]
	05/08/97	7.2	1.5	<0.24	4.0	1.2	2.3	1.5	2.1	1.3[2]
	01/07/97	6.0	<.3	<.2	4.7	0.6[2]	2.5	0.3	3.5	<.8
	10/16/95	8.7	0.81	<0.28	54	2.6	<0.59	2.1	8.1	1.2
	04/04/95	14	<0.23	<0.12	34	2.3	2.5[2]	2.5[2]	3.3	<0.70
	08/30/94	16	<1.0	2.0	53	<1.0	<1.0	<1.0	1.2	<1.0
	01/14/93	17	3.0	<1.0	77	5.7	8.9*	8.9*	3.0	1.5
	04/14/92	37	30	<10	63	19	42*	42*	24	70
	05/91	13.6	17.3	NA	NA	NA	28.7	2.7	2.2	NA
MW-6	05/06/99	5.6	2.6	<0.47	3.0	0.92[2]	1.5[2]	<0.50	1.2[2]	NA
	02/01/99	<0.50	<0.55	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	<0.52
	11/12/98	0.36[2]	<0.39	<0.45	0.66[2]	<0.44	<1.1	<0.47	<0.36	<0.51
	08/17/98	1.3	<0.39	<0.45	0.67[2]	<0.44	<1.1	<0.47	<0.36	<0.51
	05/08/97	14	30	<1.2	27	63	11	5.1	5.9	7[2]
	01/07/97	1.8	0.7[2]	<.2	11	2.3	4.1	.5[2]	.8[2]	.9
MW-7	05/06/99	<0.50	<0.54	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	NA
	02/01/99	<0.50	<0.55	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	<0.52
	11/12/98	<0.35	<0.39	<0.45	<0.47	<0.44	<1.1	<0.47	<0.36	<0.51
	08/17/98	5.6	1.2[2]	1.0[2]	2.5	<0.44	<1.1	<0.47	1.2	2.1
	05/08/97	9.9	642	<1.2	77	<1.0	15	8.6	5.6	7.8
	01/07/97	<.2	<.3	<.2	<.3	<.3	<.9	<.2	<.4	<.8

Table 1 *(Continued)*

Sample Location	Sampling Date	Benzene (μg/l)	Ethylbenzene (μg/l)	Methyl-tert butyl ether (μg/l)	1,2,4-Tri-methylbenzene (μg/l)	1,3,5-Tri-methylbenzene (μg/l)	m-& p-Xylene (μg/l)	o-Xylene (μg/l)	Toluene (μg/l)	Naphthalene (μg/l)
MW-8	05/06/99	5.5	<0.54	<0.47	3.3	<0.52	1.7[2]	<0.50	1.2[2]	NA
	02/01/99	1.4[2]	1.0[2]	2.9	1.1[2]	<0.52	1.1[2]	<0.50	1.4[2]	<0.52
	11/12/98	0.85[2]	0.79[2]	2.8	0.77[2]	1.1[2]	<1.1	<0.47	1.0[2]	2.5
	08/17/98	5.9	1.3	1.0[2]	2.9	<0.44	<1.1	<0.47	1.1[2]	2.3
	05/08/97	19	2.2	7.8	41	4.4	26	2.0	1.8	2.6
	01/07/97	37	1.2	5.5	55	1.7	28	1.9	2.8	2.6
MW-09	05/06/99	<0.50	<0.54	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	NA
	02/01/99	<0.50	<0.55	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	<0.52
	11/12/98	<0.35	<0.39	<0.45	<0.47	<0.44	<1.1	<0.47	<0.36	<0.51
	08/17/98	<0.35	<0.39	<0.45	<0.47	<0.44	<1.1	<0.47	<0.36	<0.51
MW-10	05/06/99	<0.50	<0.54	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	NA
	02/01/99	<0.50	<0.55	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	<0.52
	11/12/98	<0.35	<0.39	1.1[2]	<0.47	<0.44	<1.1	<0.47	<0.36	<0.51
	08/17/98	1.0[2]	<0.39	2.1	<0.47	<0.44	1.7[2]	1.3[2]	0.82[2]	1.7
					Quality Assurance/Quality Control Samples					
Duplicates: MW-202	10/16/95	4.5	3.3	<0.28	0.84	<0.25	1.6	6.0	16	1.4
	04/04/95	18	160	<1.2	240	<7.3	120*	120*	7.7	<7.0
	08/30/94	17	93	4.0	79	<2.0	60*	60*	3.4	<2.0
	01/14/93	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/14/92	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/12/91	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-808	11/12/98	0.72[2]	0.86[2]	2.4	0.65[2]	0.96[2]	<1.1	<0.47	0.86[2]	2.1
	08/17/98	<0.35	<0.39	<0.45	<0.47	<0.44	<1.1	<0.47	<0.36	<0.51
	05/08/97	16	2.0	6.8	33	3.8	22	1.7	1.6	2.6
	01/07/97	36	1.9	6.0	55	1.7	28	1.9	2.7	2.4[2]

Table 1 *(Continued)*

Sample Location	Sampling Date	Benzene (μg/l)	Ethylbenzene (μg/l)	Methyl-tert butyl ether (μg/l)	1,2,4-Tri-methylbenzene (μg/l)	1,3,5-Tri-methylbenzene (μg/l)	m-& p-Xylene (μg/l)	o-Xylene (μg/l)	Toluene (μg/l)	Naphthalene (μg/l)
Trip Blank	02/01/99	<0.50	<0.55	<0.47	<0.55	<0.52	<1.0	<0.50	<0.52	<0.52
	11/12/98	<0.35	<0.39	<0.45	<0.47	<0.44	<1.1	<0.47	<0.36	0.88[2]
	08/17/98	<0.35	<0.39	<0.45	<0.47	<0.44	<1.1	<0.47	<0.36	<0.51
	05/08/97	<0.36	<0.26	<.24	<0.3	<0.2	1.42	<.26	0.85	<0.58
	01/07/97	<0.2	<.3	<.2	<.3	<.3	<.9	<.2	<.4	<.8
	10/16/95	<0.32	<0.34	<0.28	<0.38	<0.25	<0.59	<0.29	<0.27	<0.44
	04/04/95	<0.51	<0.23	<0.12	<0.40	<0.73	<0.88[2]	<0.88[2]	<0.16	<0.70
	08/30/94	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0[2]	<2.0[2]	<1.0	<1.0
	01/14/93	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/14/92	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/12/91	NA	NA	NA	NA	NA	NA	NA	NA	NA
Wisconsin Groundwater Quality Standards, NR 140.10										
Preventive Action Limit		0.5	140	12	NE	NE	(124)	(124)	68.6	8
Enforcement Standard		5	700	60	NE	NE	(620)	(620)	343	40

Table 1 *(Continued)*

Sample Location	Sampling Date	Lead (μg/l)	Gasoline Range Organics (μg/l)	Diesel Range Organics (μg/l)
		Monitoring Well Samples		
MW-1	11/12/98	<12	<20	<86
	08/17/98	2.6[2]	<20	0.13[2]
	05/08/97	3.5[2]	<14	<86
	01/07/97	<1.5	<50	240
	10/16/95	<1.9	<10	
	04/04/95	3	<100	
	08/30/94	<1	<100	
	01/14/93	NA	NA	
	04/14/92	NA	NA	
	04/12/91	NA	NA	
MW-2	11/12/98	<12	600	500
	08/17/98	<1.2	910	470
	05/08/97	<1.5	<14	<86
	01/07/97	<1.5	800	820
	10/16/95	<1.9	830	
	04/04/95	<2	3000	
	08/30/94	<1	1300	
	01/14/93	NA	NA	
	04/14/92	NA	NA	
	04/12/91	NA	NA	
MW-5[1]	01/14/93	NA	NA	
	04/14/92	NA	NA	
	04/12/91	NA	NA	
MW-STS (W-91-1)	11/12/98	<12	360[2]	190[2]
	08/17/98	<1.2	360[2]	<86
	05/08/97	<1.5	490	240[2]
	01/07/97	<1.5	620	540
	10/16/95	<1.9	1100	
	04/04/95	3	1100	
	08/30/94	2	890	
	01/14/93	NA	NA	
	04/14/92	NA	NA	
	05/91	4.0	NA	

Table 1 *(Continued)*

Sample Location	Sampling Date	Lead (μg/l)	Gasoline Range Organics (μg/l)	Diesel Range Organics (μg/l)
MW-6	11/12/98	<12	20[2]	<86
	0817/98	<1.2	36[2]	210[2]
	05/08/97	1.5	650	470
	01/07/97	<1.5	150	360
MW-7	11/12/98	<12	<20	<86
	08/17/98	<1.2	270	<86
	05/08/97	1.5	1600	390
	01/07/97	<1.5	<50	360
MW-8	11/12/98	<12	130	110[2]
	08/17/98	<1.2	270	190[2]
	05/08/97	<1.5	880	210[2]
	01/07/97	<1.5	700	490
MW-9	11/12/98	<12	<20	<86
	0817/99	<1.2	<20	180[2]
MW-10	11/12/98	<1.2	20[2]	1000
	08/17/98	38	22[2]	1400
			Quality Assurance/Quality Control Samples	
Duplicates: MW-202	10/16/95	<1.9	810	
	04/04/95	2	3000	
	08/30/94	1	1700	
	01/14/93	NA	NA	
	04/14/92	NA	NA	
	04/12/91	NA	NA	
MW-808	11/12/98	<12	120	100[2]
	08/17/98	<1.2	<20	310
	05/08/97	<1.5	900	260[2]
	01/07/97	<1.5	680	490

Table 1 *(Continued)*

Sample Location	Sampling Date	Lead (μg/l)	Gasoline Range Organics (μg/l)	Diesel Range Organics (μg/l)
Trip Blank	05/08/97	NA	<14	
	01/07/97	NA	<50	NA
	10/16/95	NA	<10	
	04/04/95	NA	NA	
	08/30/94	NA	<100	
	01/14/93	NA	NA	
	04/14/92	NA	NA	
	04/12/91	NA	NA	
			Wisconsin Groundwater Quality Standards, NR 140.10	
Preventive Action Limit		1.5	NE	NE
Enforcement Standard		15	NE	NE

< = Constituent was not identified above the detection limit shown
μg/L = Micrograms per liter
NE = Groundwater quality standard has not been established
( ) = Groundwater quality standard has been established for total xylenes
NA = Analysis was not performed
VOC = Volatile organic compound
GRO = Gasoline range organics
*Value represents total xylenes concentration
[1]MW-5 has been missing since 1993 event
[2]Value between limit of detection and limit of quantification

Prepared by: JSK
Checked by: JRB2

City of Racine
2nd and Main Street Site

Groundwater Elevations

	MW-01	MW-02	MW-06	MW-07	MW-08	MW-STS	MW-09	MW-10
Top of PVC	595.21	591.86	592.86	590.02	591.12	592.09	592.01	589.1
08/17/1998	14.42	7.04	7.92	6.24	7.28	7.58	6.82	6.93
	580.79	584.82	584.94	583.78	583.84	584.51	585.19	582.17
11/12/1998	15.7	7.95	9.15	8.03	7.82	8.44	7.95	6.25
	579.51	583.91	583.71	581.99	583.3	583.65	584.06	582.85
02/01/1999	15.65	8.14	9.05	8.82	7.97	8.38	7.68	7.31
	579.56	583.72	583.81	581.2	583.15	583.71	584.33	581.79
05/06/1999	11.22	5.98	6.34	5.38	7.14	6.95	6.24	6.62
	583.99	585.88	586.52	584.64	583.98	585.14	585.77	582.48

Dissolved Oygen

	MW-01	MW-02	MW-06	MW-07	MW-08	MW-STS	MW-09	MW-10
08/17/1998	1.96	0.29	1.42	0.77	0.58	0.29	2.04	2.18
11/12/1998	1.1	0.27	0.34	0.4	0.33	0.37	0.37	1.75
02/01/1999	1.33	0.77	0.48	0.37	0.57	0.53	2.3	3.08
05/06/1999	2.57	1.63	0.91	1.7	0.98	1	2.46	3.36

Ferrous Iron

	MW-01	MW-02	MW-06	MW-07	MW-08	MW-STS	MW-09	MW-10
08/17/1998	2.6	2.7	29.2	1.6	9.7	24.5	0.8	0.2
11/12/1998	1.4	0	16.4	1.8	16.9	16.1	7.7	0
02/01/1999	3.341	1.05	18.732	8	6.636	7.137	0.264	9.183
05/06/1999	0.34	1.957	13.657	3.389	8.822	11.029	2.35	0

Redox - Eh

	MW-01	MW-02	MW-06	MW-07	MW-08	MW-STS	MW-09	MW-10
08/17/1998	164	22	12	-46	-88	-26	151	197
11/12/1998	151	-110	34	134	18	8	7	4
02/01/1999	259	36	77	131	52	72	140	85
05/06/1999	347	154	147	187	98	120	129	137

Specific Conductivity @ 25 C

	MW-01	MW-02	MW-06	MW-07	MW-08	MW-STS	MW-09	MW-10
08/17/1998	4040	4110	3430	3010	6220	2550	1942	6130
11/12/1998	4250	4080	3980	3720	6730	3170	4790	2620
02/01/1999	4120	3700	4600	3680	7330	5680	5420	2560
05/06/1999	4064	3218	3806	2683	5693	2090	4248	2333

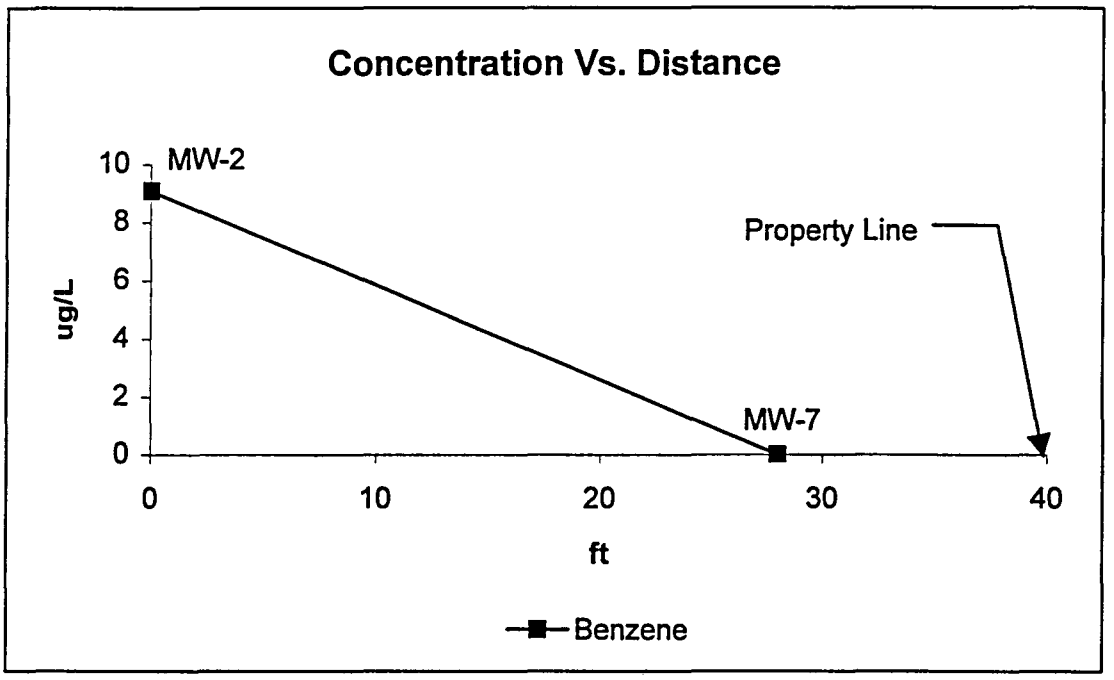
Temperature C

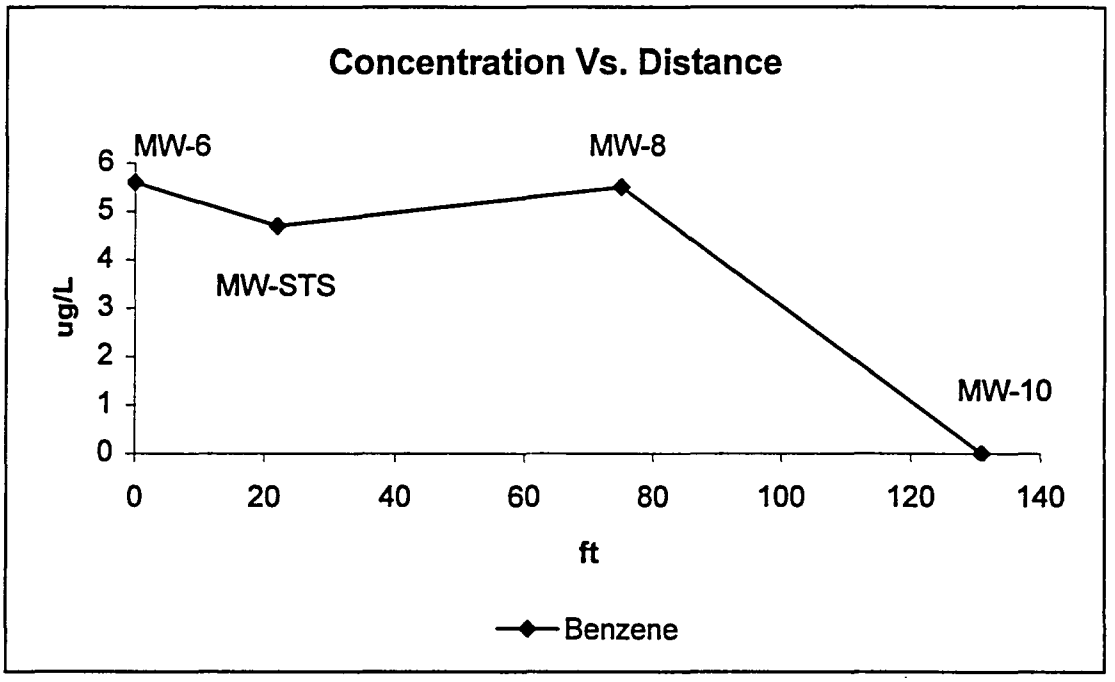
	MW-01	MW-02	MW-06	MW-07	MW-08	MW-STS	MW-09	MW-10
08/17/1998	11.07	11.48	12.01	12.46	12.85	12.96	12.08	10.46
11/12/1998	12.47	14.29	13.61	14.54	14.02	13.9	14.47	14.12
02/01/1999	12.2	9.43	10.19	10.97	9.51	10.6	8.9	9.73
05/06/1999	10.05	7.82	8.02	7.81	8.02	8.69	7.11	8.51

pH

	MW-01	MW-02	MW-06	MW-07	MW-08	MW-STS	MW-09	MW-10
08/17/1998	7.07	7.49	6.91	7.1	7.17	7.02	7.68	6.98
11/12/1998	6.71	6.9	6.42	6.59	6.85	6.55	6.83	11.28
02/01/1999	7.23	6.28	5.61	5.78	6.54	6.52	7.27	9.88
05/06/1999	7.27	7.62	6.93	7.43	7.45	7.02	7.75	12.08

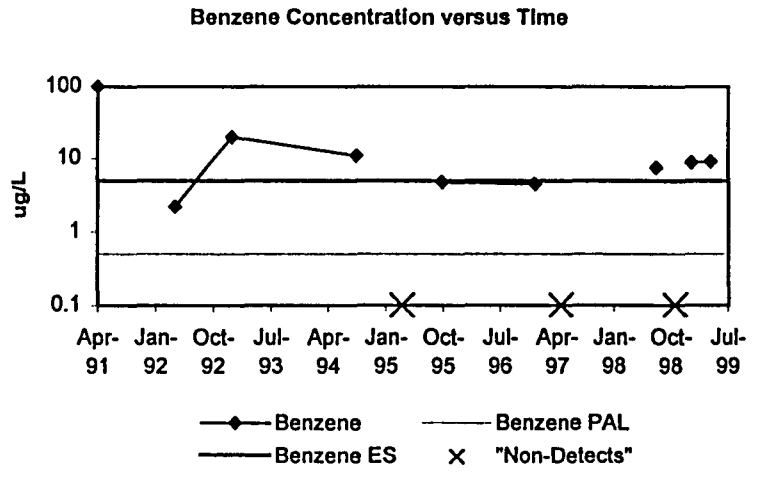
City of Racine
2nd and Main Street Site

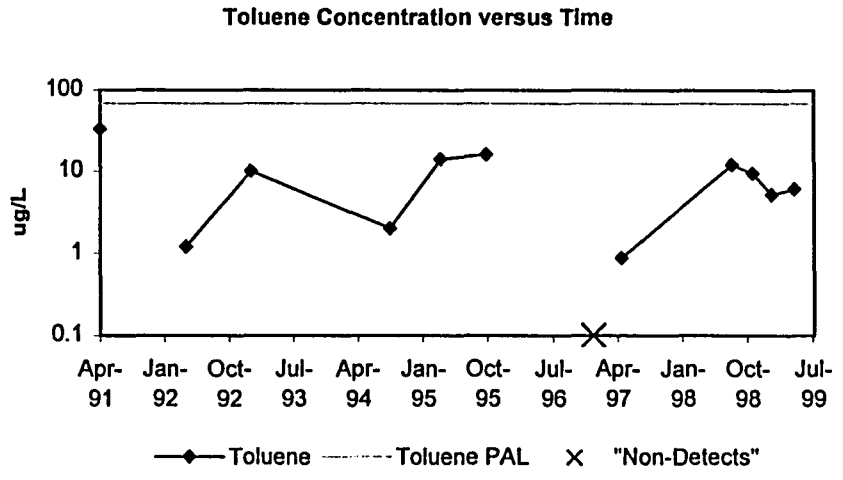


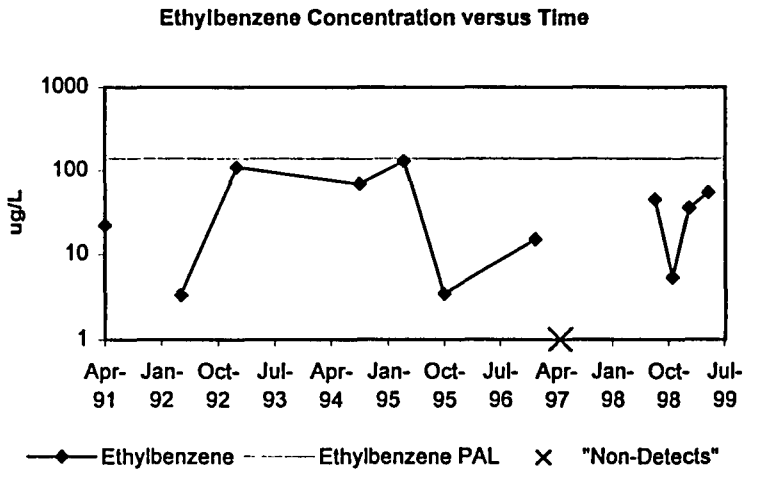


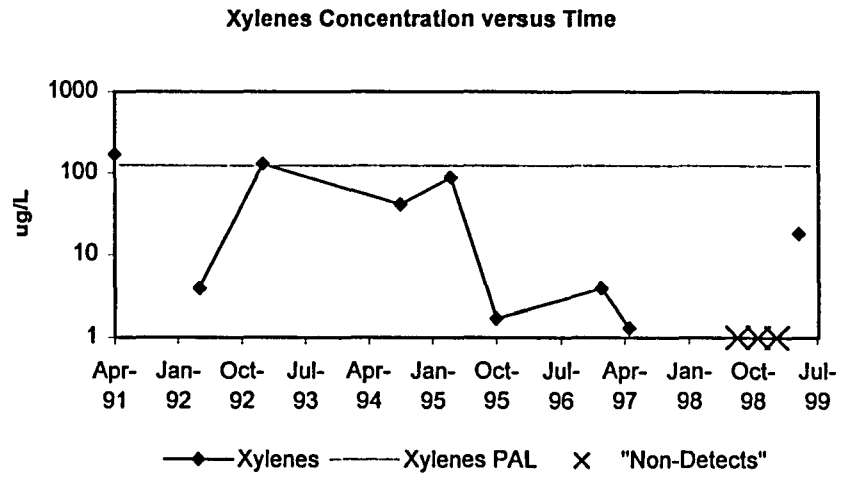
City of Racine
2nd and Main Site

MW-02



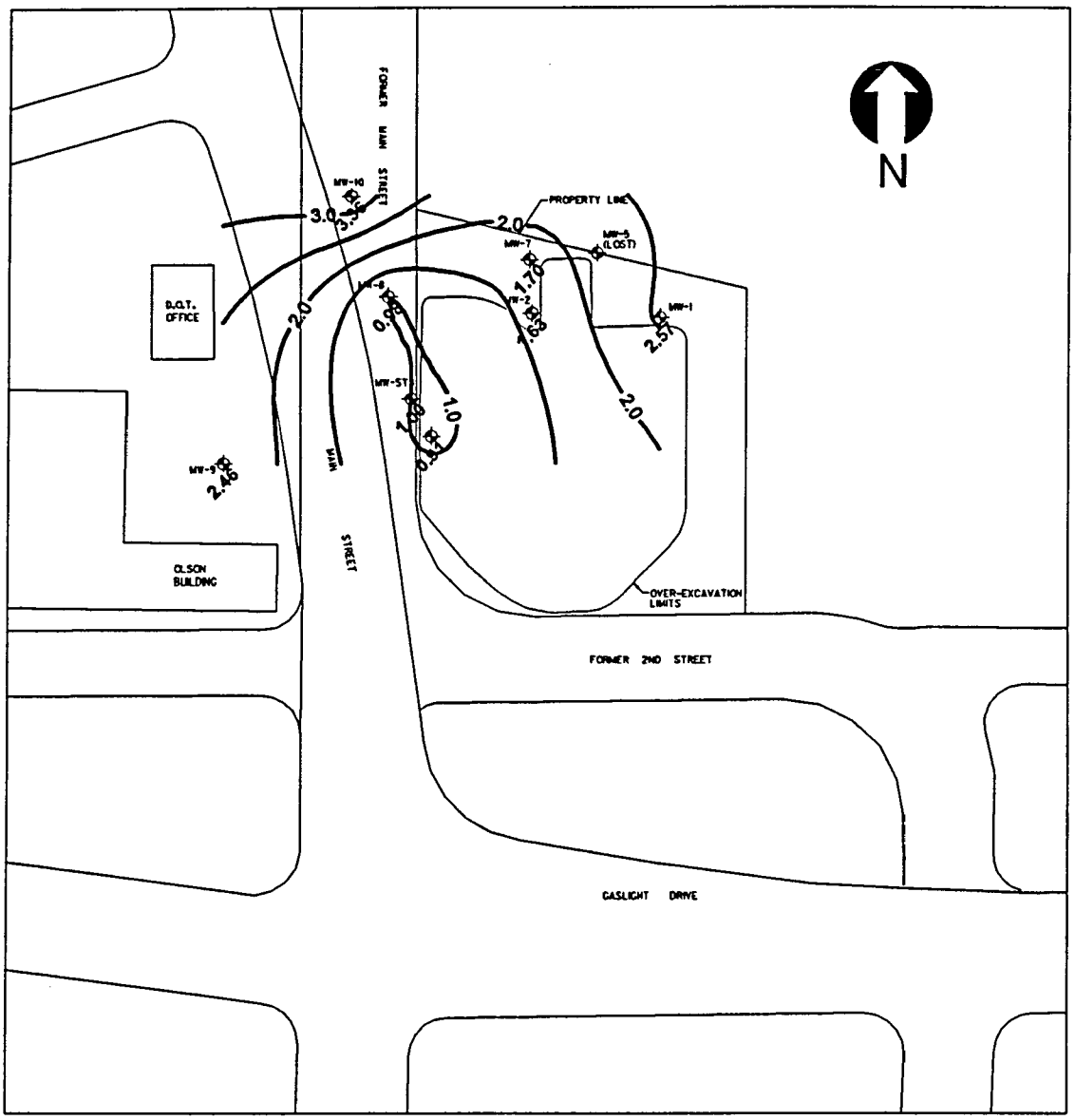






City of Racine
2nd and Main Street Site

May 1999 Dissolved Oxygen Contour Plot



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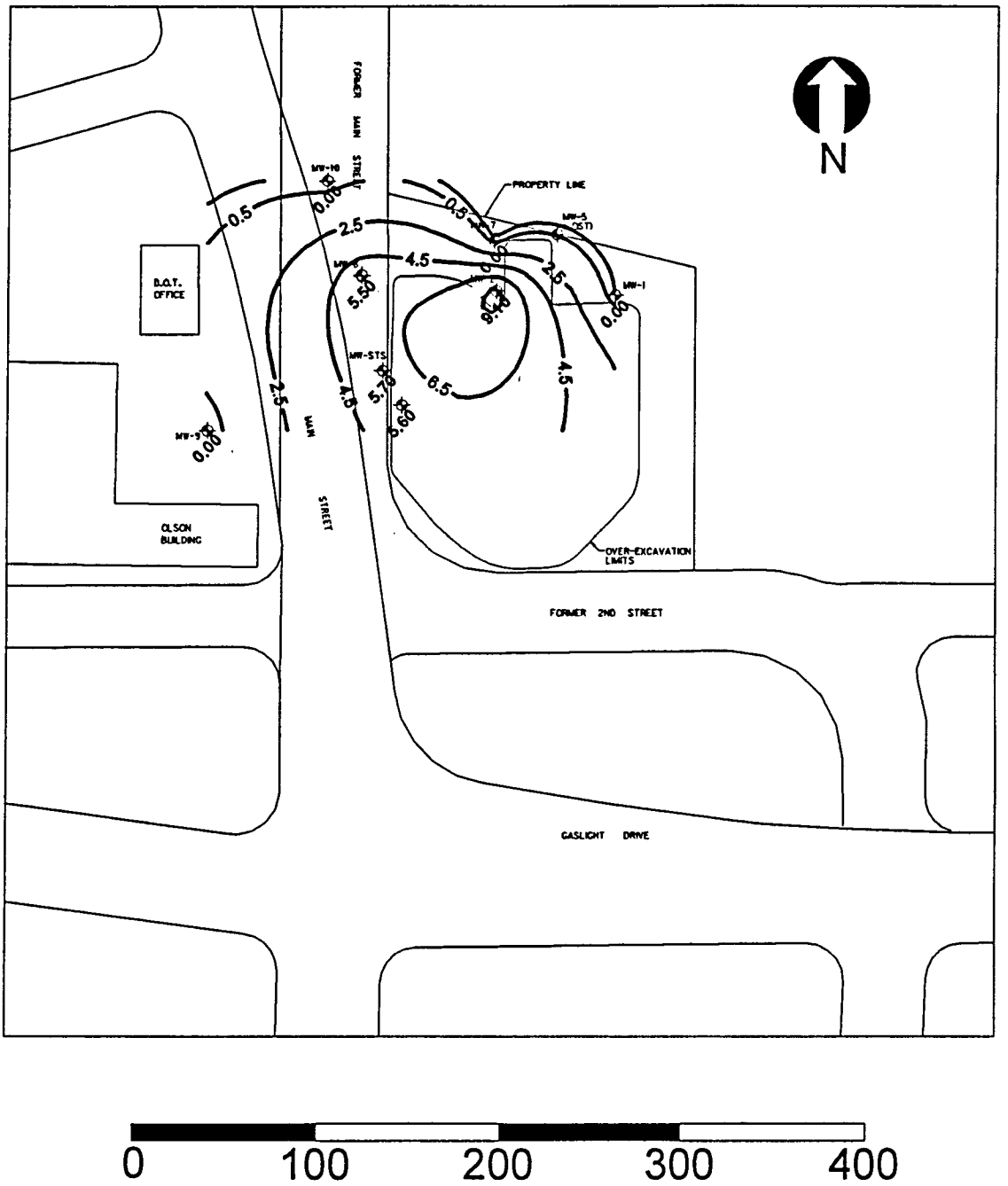
City of Racine
2nd and Main Street Site

May 1999 Benzene Contour Plot



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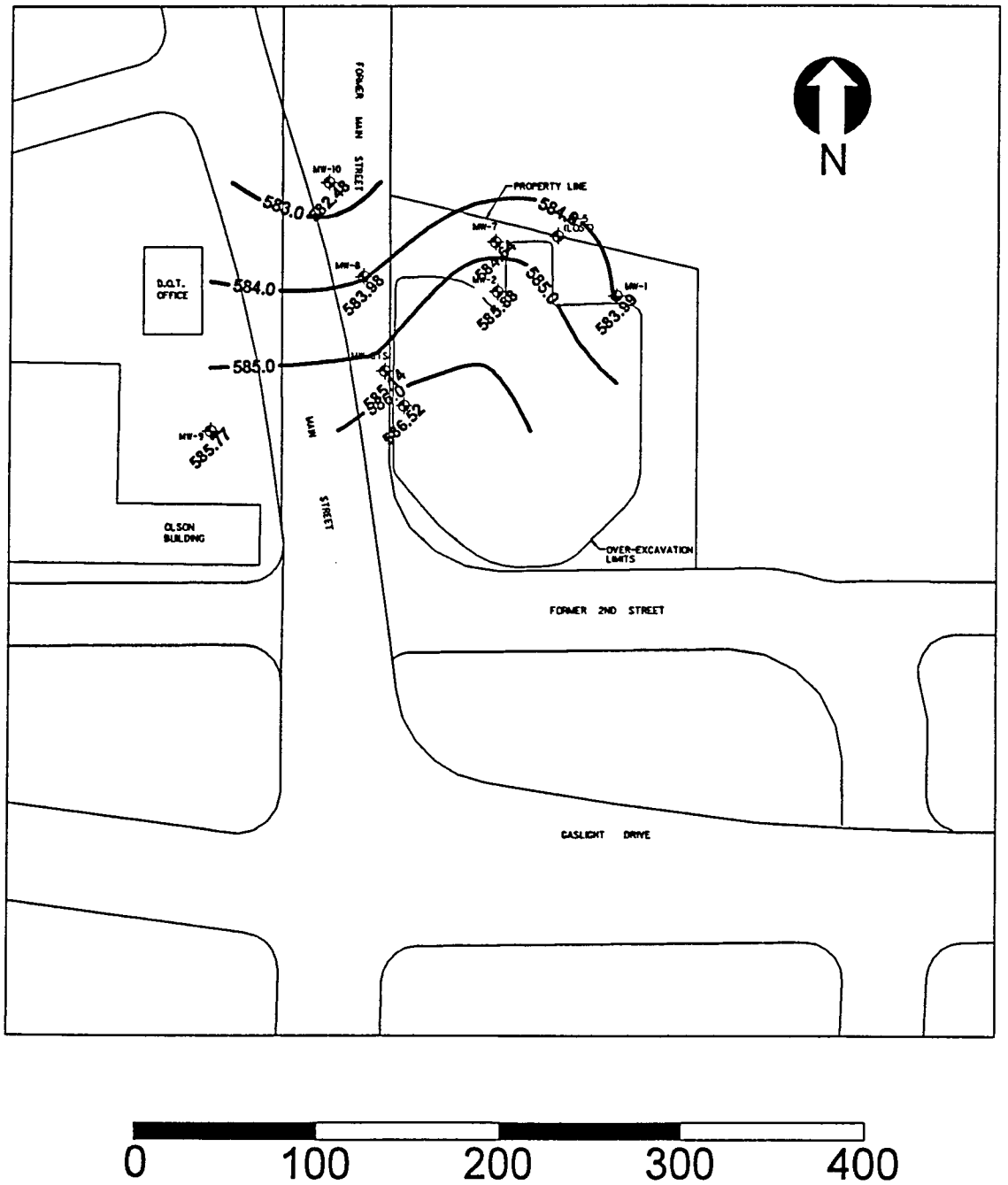
City of Racine
2nd and Main Street Site

May 1999 Water Table Contour Plot



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