

March 4, 2002

Project Reference #7115

Ms. Gina Keenan
Wisconsin Department of Natural Resources
P.O. Box 12436
Milwaukee, WI 53212

RE: FID #241855460
Badger Lease & Auto Sales, Inc.
9601 West Greenfield Avenue
West Allis, Wisconsin

Dear Ms. Keenan:

The purpose of this letter is to provide you with an update regarding investigation results for the Badger Lease and Auto Sales, Inc. property located at 9601 West Greenfield Avenue, West Allis, Wisconsin (Figure 1).

SITE BACKGROUND INFORMATION

Site Assessment

A limited site assessment was completed in September 1995, by Sigma, to determine if the subsurface had been impacted near two gasoline underground storage tanks (USTs) formerly used at the property. Soil sampling and laboratory analysis, detected concentrations of Gasoline Range Organic (GRO) above Wisconsin Department of Natural Resources (WDNR) soil standards within the soil. The WDNR was notified of the release on October 27, 1995, and subsequently submitted a Responsible Party (RP) letter to Badger Lease in January 1996.

Subsurface Investigation

A site investigation, consisting of the installation of six soil borings and three monitoring wells was completed by Sigma on February 15 and 16, 1996. The soil boring and monitoring well locations were distributed near the area occupied by the decommissioned gasoline distribution system (Figure 2).

Soil samples collected during the soil boring advancement were submitted for Volatile Organic Compound (VOC), GRO, and total lead analysis. Relatively low concentrations of VOCs and GRO were detected within the soil samples collected from soil borings MW-3, B-5 and B-6. Detections of total lead at soil borings MW-3, B-4 and B-5 reflected typical background concentrations. Concentrations of BTEX constituents (benzene, toluene, ethylbenzene, and total xylene) and GRO greater than the Chapter NR 720 Soil Cleanup Guidelines were

I:\bdgrleas\7115\DNRupadte.wpd



detected within soil samples collected from soil borings MW-1, MW-2, B-3, and B-4. Elevated concentrations of tetrachloroethylene and 1,2-dichloroethane were also detected at soil boring B-4. The analytical results are summarized in Table 1.

The site monitoring wells were developed on February 27, 1996, and sampled on March 1, 1996. Groundwater samples were submitted for VOC, GRO and soluble lead analysis. No detectable concentrations of VOCs or GRO were reported within the groundwater sample collected from monitoring well MW-3. Soluble lead was detected at monitoring well MW-2 (1.76 $\mu\text{g/l}$) at a concentration typical of background conditions. Concentrations of benzene (635 $\mu\text{g/l}$), cis-1,2 dichloroethylene (2,440 $\mu\text{g/l}$), tetrachloroethylene (2,750 $\mu\text{g/l}$), trichloroethylene (70.2 $\mu\text{g/l}$), and vinyl chloride (500 $\mu\text{g/l}$), greater than their respective Chapter NR 140 Enforcement Standards, were detected within the groundwater sample collected from monitoring well MW-1. In addition, tetrachloroethylene was detected at a concentration greater than the Chapter NR 140 ES within the groundwater sample collected from monitoring well MW-2. The groundwater sampling results are summarized in Table 2.

Groundwater level measurements collected during the groundwater sampling event show the site groundwater flow direction to be to the east, which is consistent with the site topography. The groundwater elevation data is summarized in Table 3.

DISCUSSION

Concentrations of petroleum and chlorinated related constituents have been detected within the soil and groundwater beneath the site at concentrations greater than Chapters NR 720 and 140, respectively. The extent of the petroleum and chlorinated compound impacted soil and groundwater has not been determined.

The presence of chlorinated constituents is likely the result of former dry cleaning practices at the site which typically use tetrachloroethylene in the cleaning process. The other chlorinated constituents detected, at the site: trichloroethylene, 1,2-dichloroethane, cis 1,2-dichloroethane, and vinyl chloride are natural degradation products of tetrachloroethylene.

RECOMMENDATIONS

Based on review of the investigation results collected to date, Sigma recommends that additional investigation activities be completed to further evaluate the extent of soil and groundwater impacts, potential off-site migration pathways and potential receptors.

Wisconsin Department of Natural Resources
March 4, 2002
Page 3

We may be reached at (414)768-7144 if you have any questions.

Sincerely,

SIGMA ENVIRONMENTAL SERVICES, INC.



Kristin K. Kurzka, P.E.
Project Engineer



Randy E. Boness, P.G.
Senior Scientist

Enclosures

cc: Ms. Christine Vernon, Badger Lease & Auto Sales, Inc.
Mr. Mark Treter, Reinhart Boerner Van Deuren, S.C.
Ms. Sharon Kaboord, Firstar

Attachments

Table 1 - Soil Analytical Results
Table 2 - Groundwater Analytical Results
Table 3 - Groundwater Elevations

Figure 1 - Site Location Map
Figure 2 - Soil Boring and Monitoring Well Location Map
Figure 3 - Proposed Soil Boring, Monitoring Well and Piezometer Location Map

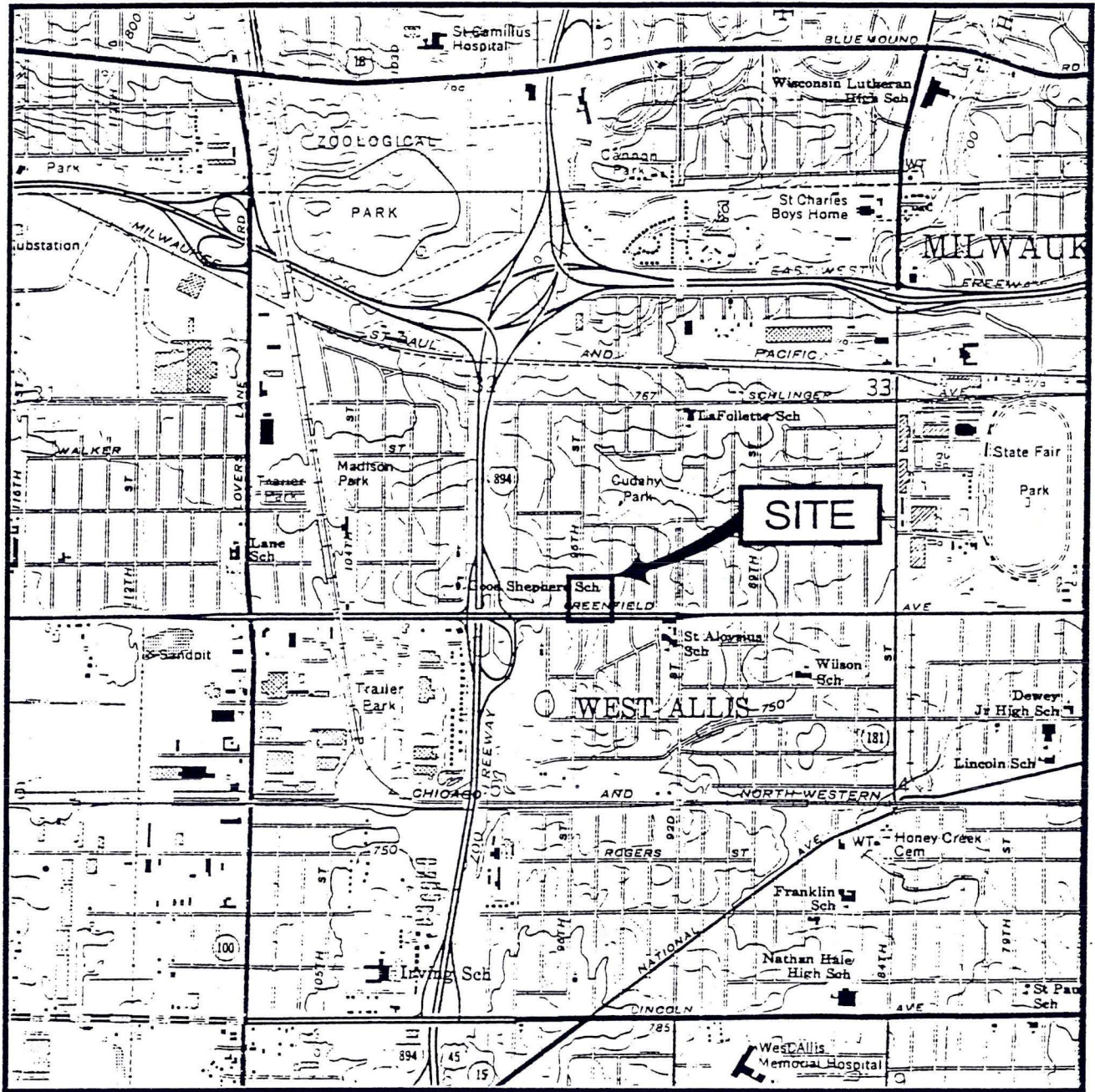
Table 2
Groundwater Analytical Results
 Badger Lease and Auto Sales, Inc.

Sample Location	Units	MW-1		MW-2		MW-3		Chapter NR 140	
Collection Date		03/01/96	07/03/97	03/01/96	07/03/97	03/01/96	07/03/97	ES	PAL
Benzene	µg/l	635	890	<4000	660	<0.2	<0.21	5	0.5
n-Butylbenzene	µg/l	<100	<38	<20000	11	<1.0	<0.38	NS	NS
cis-1,2-Dichloroethylene & 2,2-Dichloropropane	µg/l	2,440	8,800	<10,000	6700	<0.5	0.78	70	7
trans-1,2-Dichloroethylene	µg/l	79.9	200	<10,000	37	<0.5	0.78	100	20
Di-isopropyl Ether	µg/l	<100	34	<20000	<2.8	<1.0	<0.28	NS	NS
Isopropylbenzene	µg/l	<100	<38	<20000	22	<1.0	<0.38	NS	NS
Ethylbenzene	µg/l	<100	290	<20000	680	<1.0	<0.68	700	140
Naphthalene	µg/l	<100	<100	<20000	180	<1.0	<1	40	8
n-Propylbenzene	µg/l	<100	>40	<20000	49	<1.0	<0.4	NS	NS
Tetrachloroethylene	µg/l	2,750	600	222,000	1,900	<0.5	1.1	5	0.5
Toluene	µg/l	<200	176	<40000	160	<2.0	<1.5	343	68.6
Trichloroethylene	µg/l	70.2	440	<4,000	240	<0.2	<0.13	5	0.5
1,2,4-Trimethylbenzene	µg/l	<100	<100	<20000	170	<1.0	<1	NS	NS
1,3,5-Trimethylbenzene	µg/l	<100	<86	<20000	19	<1.0	<0.86	NS	NS
Vinyl Chloride	µg/l	500	760	<4,000	<0.45	<0.2	<0.045	0.2	0.02
Xylene (total)	µg/l	<100	228	<20000	507	<1.0	<1.2	620	124
Gasoline Range Organics	mg/kg	2,230	NA	104,000	NA	<50	NA	NS	NS
Soluble Lead	µg/l	<1.55	NA	1.76	NA	<1.55	NA	15	1.5

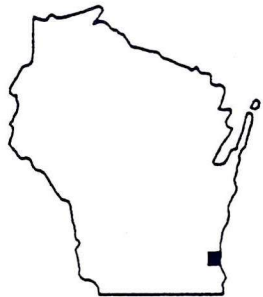
bold = concentration exceeds Chapter NR 140 ES
bold = concentration exceeds Chapter NR 140 PAL
 NS = standard not established

Table 3
Groundwater Elevations
 Badger Lease & Auto Sales, Inc.

	Monitoring Well					
	MW-1		MW-2		MW-3	
Date	03/01/96	07/03/97	03/01/96	07/03/97	03/01/96	07/03/97
Top of Casing Elevation	789.92		788.8		790.45	
Depth to Groundwater	7.68	6.32	8.86	5.12	5.10	3.79
Groundwater Elevation	782.24	783.60	779.98	784.80	785.35	786.13
All measurements in feet and referenced to mean sea level.						

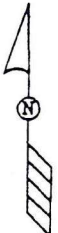



SW/4 SE/4 Sec.32 T.7N R.21E

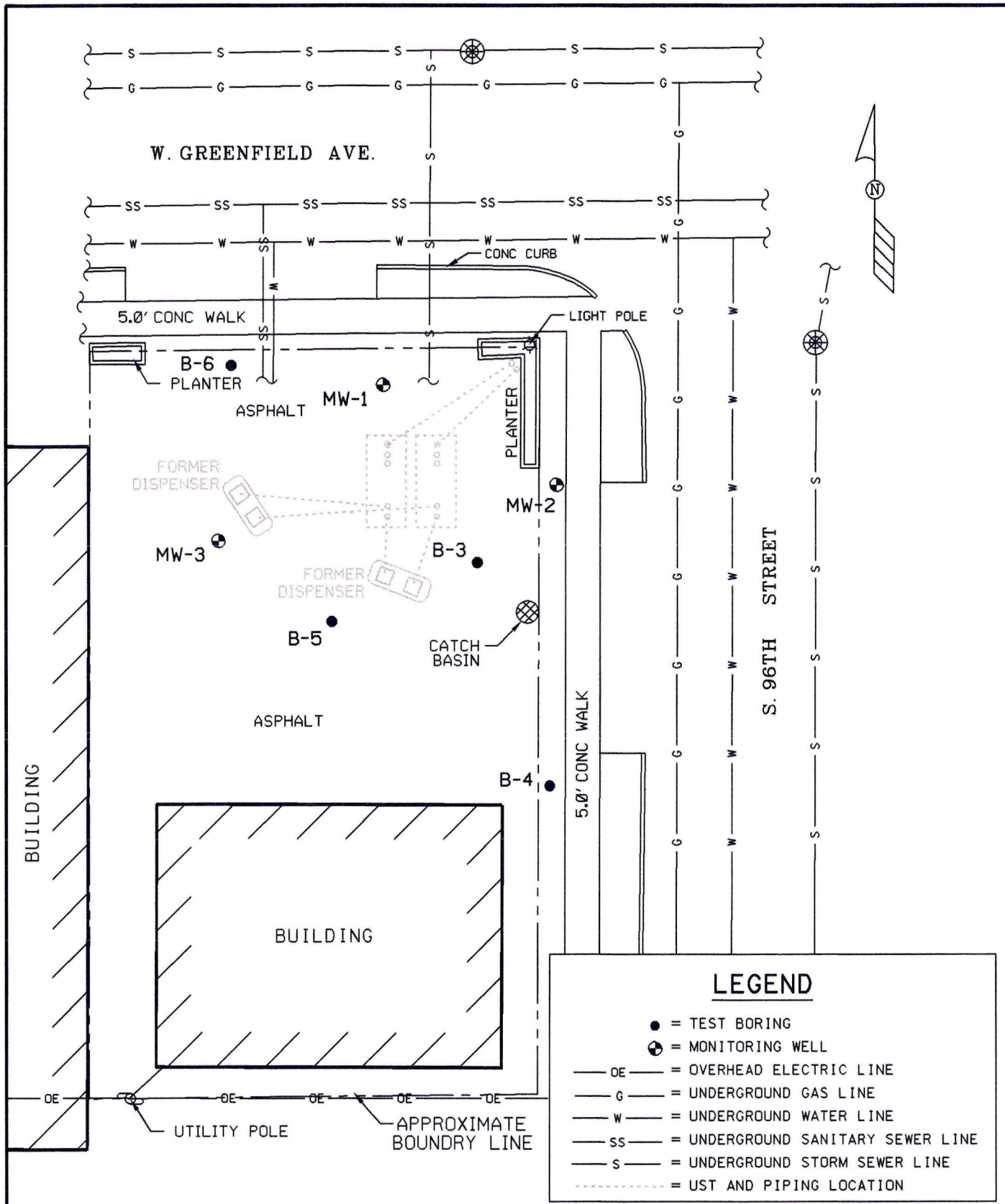


WISCONSIN

ADAPTED FROM U.S.G.S. 7.5 MINUTE SERIES, WAUWATOSA, WISCONSIN QUADRANGLE DATED 1958 PHOTOREVISED 1971



BADGER LEASING 9601 W. GREENFIELD AVE., WEST ALLIS, WI		 SIGMA ENVIRONMENTAL SERVICES INC.	
DATE: 1-10-96	DR. BY: TMM		DR.# 2985-001
SITE LOCATION MAP			FIGURE 1



NOTE:
 MAP BASED ON
 SURVEY PERFORMED
 ON (3-7-96), BY
 LAND INFORMATION
 SERVICES, INC.

BADGER LEASING		
9601 W. GREENFIELD AVE., WEST ALLIS, WI		
DATE: 2-4-02	DR. BY: TMM	DR.# 7115-002
SOIL BORING AND MONITORING WELL LOCATION MAP		SCALE: 1" = 20'
		FIGURE 2

Table 1
Soil Analytical Results
Badger Lease & Auto Sales, Inc.

Sample Location	MW-1		MW-2	MW-3		B-3		B-4		B-5		B-6		Chapter NR 720 RCL	NR 746 Table 1	NR 746 Table 2	US EPA PRG		US EPA SSL
	Sample Depth (ft bgs)	9 - 11	19 - 21	11 - 13	3 - 5	7 - 9	9 - 11	13 - 15	5 - 7	17 - 19	3 - 5	13 - 15	3 - 5				17 - 19	Residential	
Collection Date	02/15/96	02/15/96	02/15/96	02/16/96	02/16/96	02/15/96	02/15/96	02/15/96	02/15/96	02/16/96	02/16/96	02/16/96	02/16/96						
Benzene	0.591	0.0078	1.25	<0.026	0.0011	0.197	0.0527	<101	<0.001	<0.024	<0.0008	<0.0012	<0.0009	0.0055	8.5	1.1	0.65	1.50	0.03
n-Butylbenzene	3.75	<0.0037	9.34	<0.026	<0.0055	10.2	0.451	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	NS	NS	140	240	NS
sec-Butylbenzene	<0.47	<0.0037	<1.2	<0.026	<0.0055	1.58	0.062	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	NS	NS	110	220	NS
tert-Butylbenzene	<0.47	<0.0037	<1.2	<0.026	<0.0055	0.731	<0.024	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	NS	NS	130	390	NS
1,2-Dichloroethane	<0.47	0.00295	<1.2	<0.026	<0.0028	<0.047	<0.024	<101	0.00774	<0.024	<0.0021	<0.0031	<0.0022	0.0049	NS	0.54	0.35	0.76	0.02
1,1-Dichloroethylene	<0.47	0.00898	<1.2	<0.026	<0.0022	<0.047	<0.024	<101	0.0156	<0.024	<0.0016	<0.0025	<0.0018	NS	NS	NS	0.054	0.12	0.06
cis-1,2-Dichloroethylene & 2,2-Dichloropropane	<0.47	0.0039	<1.2	<0.026	<0.0028	<0.047	<0.024	<101	0.13	<0.024	<0.0021	<0.0031	<0.0022	NS	NS	NS	43	150	0.4
1,3-Dichloropropane	<0.47	<0.0019	<1.2	<0.026	0.107	<0.047	<0.024	<101	<0.0025	<0.024	<0.0021	<0.0031	<0.0022	NS	NS	NS	0.7	2	0.004
Ethylbenzene	4.54	<0.0037	11.7	<0.026	<0.0055	1.32	0.0281	<101	<0.0049	0.0273	<0.0042	<0.006	<0.0043	2.9	4.6	NS	230	230	13
Isopropylbenzene	<0.47	<0.0037	<1.2	<0.026	<0.0055	1	0.0682	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	NS	NS	NS	NS	NS
Isopropyl Ether	1.29	<0.0037	3.75	<0.026	<0.0055	0.37	0.0793	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	NS	NS	NS	NS	NS
p-Isopropyltoluene	<0.47	<0.0037	<1.2	<0.026	<0.0055	0.823	0.0293	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	NS	NS	NS	NS	NS
Naphthalene	2.65	<0.0037	6.77	<0.026	<0.0055	0.837	0.0701	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	2.7	NS	56	190	84
n-Propylbenzene	1.94	<0.0037	5.22	<0.026	<0.0055	3.09	0.366	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	NS	NS	140	240	NS
Tetrachloroethylene	<0.47	0.00413	<1.2	<0.026	0.0809	<0.047	0.0335	2650	0.0197	<0.024	0.00501	0.0081	<0.0022	NS	NS	NS	5.7	190	0.06
Toluene	0.552	<0.0073	2.25	<0.026	<0.011	1.04	0.135	<101	<0.0049	0.168	<0.0084	<0.012	<0.0086	1.5	38	NS	520	520	12
Trichloroethylene	<0.47	0.00732	<1.2	<0.026	0.00389	<0.047	<0.024	<101	0.03	<0.024	<0.0008	<0.0012	<0.0009	NS	NS	NS	2.8	6.1	0.06
1,2,4-Trimethylbenzene	11.4	<0.0037	26.3	<0.026	<0.0055	2.14	0.39	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	83	NS	52	170	NS
1,3,5-Triethylbenzene	3.31	<0.0037	7.58	<0.026	<0.0055	3.99	0.149	<101	<0.0049	<0.024	<0.0042	<0.006	<0.0043	NS	11	NS	21	70	NS
Total Xylene (& Styrene)	19.8	<0.0037	43.84	0.03	0.00645	1.378	0.1581	<101	0.0089	0.1453	<0.0042	<0.006	<0.0043	4.1	42	NS	210	210	210
Gasoline Range Organics	238	<6.3	450	<6.3	<6.3	803	29.8	752	9	40.4	<6.3	<6.3	<6.3	100/250 ¹	NS	NS	NS	NS	NS
Total Lead	<4.7	<4.7	<4.7	18.8	<4.9	<4.7	<4.9	12.3	<5.0	8.42	<4.7	12.7	<5.1	50/500 ²	NS	NS	400	750	NS
PID (iu)	307	0	1621	1.6	0	984	12	1321	2.6	33.8	2.1	6.1	2.1	--	NA	NA	NA	NA	NA

KEY: Concentrations expressed in mg/kg, unless noted otherwise

-- = Standard not established

bold = concentration exceeds NR 720 Soil Cleanup Guidelines

bold = concentration exceeds US EPA PRG for residential and industrial sites and US EPA SSL

¹ = GRO <100 mg/kg, if K > 1x10⁻⁶ or GRO < 250 mg/kg, if K < 1x10⁻⁶

² = 15 mg/kg standard for non-industrial sites, 150 mg/kg for industrial sites