

October 7, 2002

Project Reference #7115

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

RE: Approval for Solid Waste Disposal
Contained-in Determination
FID #241855460
Badger Lease & Auto Sales, Inc.
9601 West Greenfield Avenue
West Allis, Wisconsin



Dear Ms. Keenan:

The purpose of this letter is to petition the Department of Natural Resources for approval to allow for the disposal of soil generated at Badger Lease and Auto Sales, Inc. property located at 9601 West Greenfield Avenue, West Allis, Wisconsin within a Subtitle D landfill. Sigma Environmental Services, Inc. (Sigma), on behalf of Badger Lease, is requesting the approval specifically for the disposal of chlorinated hydrocarbon impacted soil generated during site investigation activities. The identified site impacts are likely associated with a former dry cleaner operation and gasoline service station at the site, but are at concentrations that fall within the "contained-in" policy.

DISCUSSION

A total of 36 drums of impacted soil have been generated at the site to date. A review of laboratory analytical results from soil samples collected during soil boring advancement indicated that the soil in the drums contains detectable concentrations of gasoline-related compounds and total Tetrachloroethylene (PCE) ranging from 4.13 to 2,650,000 $\mu\text{g}/\text{kg}$. EPA guidance document EPA530-F-98-026, October 1998, regarding the Contained-in Policy allows for the disposal of contaminated environmental media that does not exhibit a characteristic of hazardous waste or contain concentrations of hazardous constituents that are above health-based levels. According to this guidance, the soil that meets the site-specific RCL and is not characteristically hazardous as determined by TCLP analysis may be taken to a Subtitle D landfill, with approval of the implementing state agency.

EVALUATION OF SITE SPECIFIC RCLs

Site-specific RCLs associated with the identified chlorinated compounds for the protection of human health were calculated using the EPA web-site and Wisconsin default values. The calculated site specific RCL for PCE is 33 mg/kg. Based on an evaluation of the PCE

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concentrations, 33 of the 36 soil drums at the site meet the contained-in policy requirements. In addition, composite soil samples from the 33 drums passed the TCLP tests. The three soil drums that have concentrations of chlorinated compounds greater than the site specific RCL will be disposed of at a Subtitle C landfill. A summary of the soil analytical results, the laboratory analytical results from the TCLP analysis and a copy of the EPA site specific RCL calculation are enclosed for your review.

If you have any questions or comments regarding this request, please contact us at (414)768-7144.

Sincerely,

SIGMA ENVIRONMENTAL SERVICES, INC.



Martin D. Nessman, P.G.
Project Manager/Hydrogeologist



Randy E. Boness, P.G.
Geosciences Group Leader

Enclosures

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

Table 1
Soil Quality Results - Detections Only
Badger Lease & Auto Sales, Inc.
9601 W. Greenfield Avenue
West Allis, WI

Boring ID		MW-1		MW-2	MW-3		B-3		NR 720 RCL	NR 746 Table 1	NR 746 Table 2	USEPA SSL For Inhalation*
Depth (feet bgs)	Units	9 - 11	19 - 21	11 - 13	3 - 5	7 - 9	9 - 11	13-15				
Date		02/15/1996	02/15/1996	02/15/1996	02/16/1996	02/16/1996	02/15/1996	02/15/1996				
Analyte												
GRO	mg/kg	238	<6.3	450	<6.3	<6.3	803	29.8	100	**	**	**
Lead	mg/kg	<4.7	<4.7	<4.7	18.8	<4.9	<4.7	<4.9	50	**	**	**
Volatile Organic Compounds												
Benzene	µg/kg	591	7.8	1250	<26	1.1	197	52.7	5.5	8500	1100	**
Ethylbenzene	µg/kg	4540	<3.7	12,000	<26	<5.5	1320	28.1	2900	4600	**	**
Toluene	µg/kg	552	<7.3	2250	<26	<11	1040	135	1500	38000	**	**
Xylenes	µg/kg	19800	<3.7	43840	30	6.45	1378	158.1	4100	42000	**	**
n-Butylbenzene	µg/kg	3750	<3.7	9340	<26	<5.5	10200	451	**	**	**	**
sec-Butylbenzene	µg/kg	<470	<3.7	<1200	<26	<5.5	1580	62	**	**	**	**
tert-Butylbenzene	µg/kg	<470	<3.7	<1200	<26	<5.5	731	<24	**	**	**	**
1,2-Dichloroethane	µg/kg	<470	2.95	<1200	<26	<2.8	<47	<24	4.9	600	540	**
1,1-Dichloroethylene	µg/kg	<470	8.98	<1200	<26	<2.2	<47	<24	**	**	**	**
cis-1,2-Dichloroethylene & 2,2-Dichloropropane	µg/kg	<470	3.9	<1200	<26	<2.8	<47	<24	**	**	**	1,300,000
1,3-Dichloropropane	µg/kg	<470	<1.9	<1200	<26	107	<47	<24	**	**	**	**
Isopropylbenzene	µg/kg	<470	<3.7	<1200	<26	<5.5	1000	68.2	**	**	**	**
Isopropyl Ether	µg/kg	1290	<3.7	3750	<26	<5.5	370	79.3	**	**	**	**
p-Isopropyltoluene	µg/kg	<470	<3.7	<1200	<26	<5.5	823	29.3	**	**	**	**
Naphthalene	µg/kg	2650	<3.7	6770	<26	<5.5	837	70.1	**	2700	**	**
n-Propylbenzene	µg/kg	1940	<3.7	5220	<26	<5.5	3090	366	**	**	**	**
Tetrachloroethylene	µg/kg	<470	4.13	<1200	<26	80.9	<47	33.5	**	**	**	35,000
Trichloroethylene	µg/kg	<470	7.32	<1200	<26	3.89	<47	<24	**	**	**	15,000
1,2,4-Trimethylbenzene	µg/kg	11400	<3.7	26300	<26	<5.5	2140	390	**	83000	**	**
1,3,5-Trimethylbenzene	µg/kg	3310	<3.7	7580	<26	<5.5	3990	149	**	11000	**	**

KEY:

mg/kg milligrams per kilogram
** No standard established

Bold Analyte detected above NR 720 Residual Contaminant Levels
Bold Analyte detected above NR 746 Table 1 and 2 values

NR 720 RCL Chapter NR 720 Generic Residual Contaminant Limit
NR 746 Table 1 Chapter NR 746 Table 1, Indicators of Residual Petroleum Products.
NR 746 Table 2 Chapter NR 746 Table 2, Protection of Human Health from Direct Contact with Contaminated Soil.

Table 1
Soil Quality Results - Detections Only
Badger Lease & Auto Sales, Inc.
9601 W. Greenfield Avenue
West Allis, WI

Boring ID		B-4		B-5		B-6		NR 720 RCL	NR 746 Table 1	NR 746 Table 2	USEPA SSL For Inhalation*
Depth (feet bgs)		5-7	17-19	3-5	13-15	3-5	17-19				
Date	Units	02/15/1996	02/15/1996	02/16/1996	02/16/1996	02/16/1996	02/16/1996				
Analyte											
GRO	mg/kg	752	9	40.4	<6.3	<6.3	<6.3	100	**	**	**
Lead	mg/kg	12.3	<5.0	8.42	<4.7	12.7	<5.1	50	**	**	**
Volatile Organic Compounds											
Benzene	µg/kg	<101,000	<1	<2.4	<0.80	<1.2	<0.9	5.5	8500	1100	**
Ethylbenzene	µg/kg	<101,000	<4.9	27.3	<4.2	<6	<4.3	2900	4600	**	**
Toluene	µg/kg	<101,000	<4.9	168	<8.4	<12	<8.6	1500	38000	**	**
Xylenes	µg/kg	<101,000	8.9	145.3	<4.2	<6	<4.3	4100	42000	**	**
n-Butylbenzene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	**	**	**
sec-Butylbenzene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	**	**	**
tert-Butylbenzene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	**	**	**
1,2-Dichloroethane	µg/kg	<101,000	7.74	<24	<2.1	<3.1	<2.2	4.9	600	540	**
1,1-Dichloroethylene	µg/kg	<101,000	15.6	<24	<1.6	<2.5	<1.8	**	**	**	**
cis-1,2-Dichloroethylene & 2,2-Dichloropropane	µg/kg	<101,000	130	<24	<2.1	<3.1	<2.2	**	**	**	1,300,000
1,3-Dichloropropane	µg/kg	<101,000	<2.4	<24	<2.1	<3.1	<2.2	**	**	**	**
Isopropylbenzene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	**	**	**
Isopropyl Ether	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	**	**	**
p-Isopropyltoluene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	**	**	**
Naphthalene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	2700	**	**
n-Propylbenzene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	**	**	**
Tetrachloroethylene	µg/kg	2,650,000	19.7	<24	5.01	8.1	<2.2	**	**	**	35,000
Trichloroethylene	µg/kg	<101,000	30	<24	<0.80	<1.2	<0.9	**	**	**	15,000
1,2,4-Trimethylbenzene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	83000	**	**
1,3,5-Trimethylbenzene	µg/kg	<101,000	<4.9	<24	<4.2	<6	<4.3	**	11000	**	**

KEY:

mg/kg milligrams per kilogram

** No standard established

BOLD Analyte detected above NR 720 Residual Contaminant Levels

Bold Analyte detected above NR 746 Table 1 and 2 values

NR 720 RCL Chapter NR 720 Generic Residual Contaminant Limit

NR 746 Table 1 Chapter NR 746 Table 1, Indicators of Residual Petroleum Products.

NR 746 Table 2 Chapter NR 746 Table 2, Protection of Human Health from Direct Contact with Contaminated Soil.

Table 1
Soil Quality Results - Detections Only
Badger Lease & Auto Sales, Inc.
9601 W. Greenfield Avenue
West Allis, WI

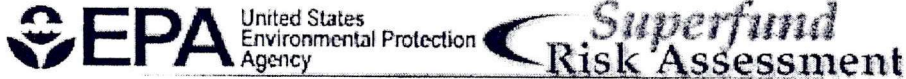
Boring ID		MW-4	MW-4	MW-5	MW-5	MW-6	MW-6	NR 720	NR 746	NR 746	USEPA
Depth (feet bgs)	Units	2-4	12-14	4-6	10-12	2-4	8-10	RCL	Table 1	Table 2	Inhalation SSLs
Volatile Organic Compounds											
Benzene	µg/kg	<29	<31	129	181	<28	<31	5.5	8,500	1,100	**
Ethylbenzene	µg/kg	<29	<31	1,150	3,610	<28	<31	2,900	4,600	**	**
Toluene	µg/kg	<29	<31	54	650	<28	<31	1,500	38,000	**	**
Xylenes	µg/kg	<41	<44	982	11,700	<40	<43	4,100	42,000	**	**
n-Butylbenzene	µg/kg	<29	<31	245	<144	<28	<31	**	**	**	**
sec-Butylbenzene	µg/kg	<29	<31	72	<144	<28	<31	**	**	**	**
cis-1,2-Dichloroethene	µg/kg	<29	1,380	<36	1,440	<28	4,790	**	**	**	1,300,000
trans-1,2-Dichloroethene	µg/kg	<29	36	<36	<144	<28	<31	**	**	**	3,200,000
Isopropylbenzene	µg/kg	<29	<31	129	337	<28	<31	**	**	**	**
Naphthalene	µg/kg	<29	<31	2,580	3,010	<28	<31	**	2,700	**	**
n-Propylbenzene	µg/kg	<29	<31	543	1,180	<28	<31	**	**	**	**
Tetrachloroethene	µg/kg	5,570	122,000	<36	<144	114	24,500	**	**	**	35,000
Trichloroethene	µg/kg	81	1,000	<36	<144	<28	11,200	**	**	**	15,000
1,2,4-Trimethylbenzene	µg/kg	<29	65	245	7,940	<28	<31	**	83,000	**	**
1,3,5-Trimethylbenzene	µg/kg	<29	<31	155	2,890	<28	<31	**	11,000	**	**
Vinyl Chloride	µg/kg	<29	<31	<36	313	<28	52	**	**	**	930

KEY: Soil Samples collected on June 13, 2002
µg/kg micrograms per kilogram
** No standard established
BOLD Analyte detected above NR 720 Residual Contaminant Levels
NR 720 RCL Chapter NR 720 Generic Residual Contaminant Limit
NR 746 Table 1 Chapter NR 746 Table 1, Indicators of Residual Petroleum Products.
NR 746 Table 2 Chapter NR 746 Table 2, Protection of Human Health from Direct Contact with Contaminated Soil.

Table 1
Soil Quality Results - Detections Only
Badger Lease & Auto Sales, Inc.
9601 W. Greenfield Avenue
West Allis, WI

Boring ID		MW-7	MW-7	MW-8	MW-8	PZ-1	PZ-1	PZ-2	NR 720	NR 746	NR 746	USEPA
Depth (feet bgs)	Units	2-4	12-14	4-6	10-12	2-4	18-20	16-18	RCL	Table 1	Table 2	Inhalation SSLs
Volatile Organic Compounds												
Benzene	µg/kg	<28	<30	<32	<31	<29	<28	<29	5.5	8,500	1,100	**
Ethylbenzene	µg/kg	<28	<30	<32	<31	<29	<28	<29	2,900	4,600	**	**
Toluene	µg/kg	<28	<30	<32	<31	<29	<28	<29	1,500	38,000	**	**
Xylenes	µg/kg	<39	<42	<45	<44	<40	<40	<41	4,100	42,000	**	**
n-Butylbenzene	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	**	**	**
sec-Butylbenzene	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	**	**	**
cis-1,2-Dichloroethene	µg/kg	<28	214	<32	452	<29	<28	<29	**	**	**	1,300,000
trans-1,2-Dichloroethene	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	**	**	3,200,000
Isopropylbenzene	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	**	**	**
Naphthalene	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	2,700	**	**
n-Propylbenzene	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	**	**	**
Tetrachloroethene	µg/kg	<28	14,200	421	28,900	<29	262	<29	**	**	**	35,000
Trichloroethene	µg/kg	<28	1,010	<32	5,140	<29	<28	<29	**	**	**	15,000
1,2,4-Trimethylbenzene	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	83,000	**	**
1,3,5-Trimethylbenzene	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	11,000	**	**
Vinyl Chloride	µg/kg	<28	<30	<32	<31	<29	<28	<29	**	**	**	930

KEY: Soil Samples collected on June 13, 2002
µg/kg micrograms per kilogram
** No standard established
BOLD Analyte detected above NR 720 Residual Contaminant Levels
NR 720 RCL Chapter NR 720 Generic Residual Contaminant Limit
NR 746 Table 1 Chapter NR 746 Table 1, Indicators of Residual Petroleum Products.
NR 746 Table 2 Chapter NR 746 Table 2, Protection of Human Health from Direct Contact with Contaminated Soil.



Industrial Values
Using WI Defaults

- What's New
- Risk Assessment & Superfund
- Tools of the Trade
- Calculation Tools
- Human Health
- Ecological
- Improving the Science
- Frequently Asked Questions

Equation Values for Ingestion

Noncarcinogenic Parameter	Value	Carcinogenic Age-adjusted Parameter	Value	Carcinogenic Nonadjusted Parameter	Value
Target Hazard Quotient (unitless)	1	Target Risk (unitless)	1.0E-7	Target Risk (unitless)	1.0E-6
Body Weight (kg)	70	Adult Body Weight (kg)	70	Body Weight (kg)	70
		Child Body Weight (kg)	15		
Exposure Duration (yr)	25	Adult Exposure Duration (yr)	24	Exposure Duration (yr)	25
		Child Exposure Duration (yr)	6		
Exposure Frequency (day/yr)	250	Exposure Frequency (day/yr)	350	Exposure Frequency (day/yr)	250
Intake Rate (mg/day)	100	Adult Intake Rate (mg/day)	100	Intake Rate (mg/day)	100
		Child Intake Rate (mg/day)	200		
		Average Lifetime (yr)	70	Average Lifetime (yr)	70
		Age-adjusted Ingestion Factor (mg-yr/kg-day)	114.29		

Soil Screening Levels for Ingestion (mg/kg)

Analyte	Cas Number	Oral RfD	Oral Slope Factor	Noncarcinogenic	Carcinogenic (Age-adjusted)	Carcinogenic (Nonadjusted)
Dichloroethylene, 1,2-cis-	156592	1.00E-02 ^b		1.02E+04		
Dichloroethylene, 1,2-trans-	156605	2.00E-02 ^a		2.04E+04		
Tetrachloroethylene	127184	1.00E-02 ^a	5.20E-02 ^v	1.02E+04	1.23E+00	5.50E+01

Trichloroethylene	79016	6.00E-03	1.10E-02	6.13E+03	5.81E+00	2.60E+02
Vinyl Chloride	75014	3.00E-03	1.40E+00	3.07E+03	4.56E-02	2.04E+00

Equation Values for Inhalation of Volatiles

Volatilization Factor Parameter	Value	Soil Saturation Concentration Parameter	Value	Noncarcinogenic Parameter	Value	Carcinogenic Parameter	Value
Surface Area (acres)	0.5			Target Hazard Quotient (unitless)	1	Target Risk (unitless)	1.0E-6
City (climate zone)	Chicago (VII)			Exposure Duration (yr)	25	Exposure Duration (yr)	25
Q/C (g/m ² -s per kg/m ³)	97.78			Exposure Frequency (day/yr)	250	Exposure Frequency (day/yr)	250
Fraction organic carbon (unitless)	0.006	Fraction organic carbon (unitless)	0.006			Average Lifetime (yr)	70
Dry soil bulk density (g/cm ³)	1.5	Dry soil bulk density (g/cm ³)	1.5				
Soil particle density (g/cm ³)	2.65	Soil particle density (g/cm ³)	2.65				
Water-filled soil porosity (L _{water} /L _{soil})	0.2	Water-filled soil porosity (L _{water} /L _{soil})	0.2				
Exposure interval (s)	9.5e08						

Soil Screening Levels for Inhalation of Volatiles (mg/kg)

Analyte	Cas Number	Inhalation RfC	Inhalation Unit Risk	Volatilization Factor	Soil Saturation Concentration	Noncarcinogenic	Carcinogenic
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Dichloroethylene, 1,2-cis-	156592			5.9E+03	1.3E+03		
Dichloroethylene, 1,2-trans-	156605			4.6E+03	3.2E+03		
Tetrachloroethylene	127184	6.0E-01 ^v	5.8E-07 ^v	5.0E+03	2.4E+02	4.4E+03	3.5E+01 ^v
Trichloroethylene	79016		1.7E-06 ^v	6.4E+03	1.3E+03		1.5E+01 ^v
Vinyl Chloride	75014	1.0E-01	8.8E-06 ^b	2.0E+03	1.2E+03	2.9E+02	9.3E-01 ^v

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