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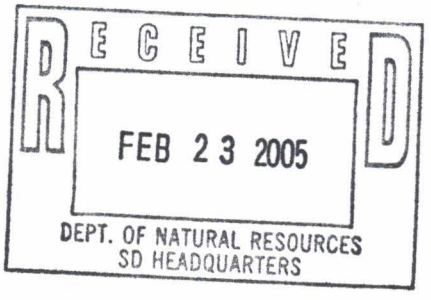

Mark Harder
Solid Waste Management Section
Dept. of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

RE: Olbrich Park Landfill (Pre-license) - Request for No Further Investigation/Remediation
3400 Block of Atwood Avenue, Madison

Dear Mr. Harder:

The City of Madison is requesting a finding of no further investigation and remediation for the closed landfill site located at 3402 Atwood Avenue, Madison, WI. The site, known as the Olbrich Park Landfill, has a WDNR monitoring number of 3918 and FID number of 113068120. An assessment of the site's environmental conditions indicates that additional investigation and remediation efforts are not needed at this site. The following is a summary of the most recent groundwater assessment activities the City has conducted at the site.

Site Background

The City of Madison's Olbrich Park is a 40 acre recreational facility located on the shores of Lake Monona in the Town of Blooming Grove, SW 1/4, SE 1/4 of Section 5, T7N, R10E, City of Madison, Dane County, WI.

A portion of the park was filled by the City with demolition debris and residential garbage between the approximate years of 1933 and 1950. Much of the organic waste delivered to the site was burned or has since degraded. The area of waste lies just north of Atwood Avenue, south of the Chicago & Northwestern Railroad/city bikepath, west of Walter Street, and immediately east of Starkweather Creek (Figure 1). The site is currently covered with 12 to 24 inches of clean granular fill and 4 to 8 inches of topsoil.

A license to operate was never issued by the Department. The Department, however, has granted the City two different exemptions for this site. An exemption to build on an abandoned landfill was granted in 1995 to allow construction of a public rest room at the site. In 2001, an exemption to

excavate the final cover of an abandoned landfill was granted to allow construction of a pavilion. Site reports were submitted by the City to the Department for both exemptions. For a complete history of the site, including soil conditions, methane levels, and construction activities, please refer to these two reports.

Groundwater Monitoring

Three groundwater monitoring wells currently exist at the site (Figure 1). The first monitoring well (MW-1) was installed in February of 1995 to assess the quality of the site's groundwater. Two additional wells (MW-2 and MW-3) were installed in September of 2003 to provide additional information, including local groundwater flow directions. All three are water table observation wells set at depths between 17 and 18 feet below the ground surface. Well construction forms and boring logs are attached.

The original well, MW-1, was sampled in December of 2000 and March of 2001. During the March 2001 sampling round, water samples were also collected from Starkweather Creek at the bikepath (upgradient) and at Atwood Avenue (downgradient), and from the ditch which runs along the northern edge of the site (Figure 1). This ditch, which empties into Starkweather Creek, often contains water for extended periods of time.

Beginning in October of 2003, the three wells (MW-1, MW-2, and MW-3) and Starkweather Creek at both the bikepath and Atwood Avenue were sampled a total of four times (October 2003, November 2003, May 2004, and August 2004).

The City's Health Department conducted all of the sampling utilizing dedicated pumps and low flow/micro purge techniques. All samples were filtered. Samples were analyzed for As, Ba, Ca, Cd, Cl, Cr, Fe, Mg, Mn, $NO_2 + NO_3$, Pb, Se, SO_4, Zn, Alkalinity, COD, Total Hardness, Groundwater Elevation, Field Temperature, Lab Conductivity, and Lab pH. An analysis of volatile organic compounds (VOCs) was conducted on the December 2000 and March 2001 groundwater samples collected from MW-1. With approval from the Department, subsequent samples were not analyzed for VOCs.

Groundwater Quality

Analytical results were relatively consistent between sampling rounds. During the rounds of sampling, a total of seven different inorganic compounds were detected at levels exceeding a Departmental P.A.L. and/or E.S. These compounds included arsenic, chloride, lead, nitrate/nitrite, iron, manganese, and sulfate (Table 1). Several of these detects (i.e., arsenic and lead), however, were low level, one time occurrences and were not reproducible. All of the samples, including those from the Starkweather Creek, contained elevated levels of iron and manganese. Both of these metals are considered aesthetic parameters and the concentrations identified here are not considered health hazards.

The quality of the water sampled from the creek downgradient of the site was not significantly different from that sampled upgradient of the site. As a result, the landfill does not appear to be affecting the quality of Starkweather Creek. Comparing the quality of the creek waters to that of the groundwater in the monitoring wells reveals that the site's groundwater contains slightly higher levels of manganese, chloride, and sulfate but lower levels of nitrate/nitrite. There appears to be no correlation between iron levels in the creek and those detected in the groundwater.

No VOC compounds were detected above an established P.A.L. or E.S. (Table 2).

Groundwater Flow Characteristics

Four rounds of water level measurements were collected over a period of two years at the site's monitoring wells. There is no stream gage at the site to monitor the level of Starkweather Creek. Because the waters of Starkweather Creek enter Lake Monona immediately down gradient of the site, there is little to no difference between the site's creek levels and those of Lake Monona. USGS water elevation data recorded on a daily basis from Lake Monona was therefore used to represent the Starkweather Creek water levels. The water elevation data is presented in Table 3.

Results indicate that the surface of the site's groundwater table varies slightly on both a seasonal and annual basis. Lake and creek levels were higher than groundwater levels during all sampling rounds suggesting the lake and creek are recharging the local groundwater system. Groundwater flow at the site was determined to be toward the east/northeast and heavily influenced by the lake and creek waters. It appears that MW-2 is the most down gradient located monitoring well. Figures 2 and 3 depict groundwater flow patterns during two different monitoring periods. There is little likelihood that contaminants from the landfill site are entering the creek or lake as both appear to be sources of groundwater recharge.

Water Utility Well #8

The City of Madison's Water Utility has a public drinking water well located at 3206 Lakeland Avenue. This well, which was installed in 1945, primarily draws water from the Mt. Simon Sandstone. It is thought that a small percentage of its water is also derived from downward leakage from Lake Monona. Total depth of the well is 774 feet deep of which the top 280 feet is cased. It is typically on-line between the months of May and December only. Pumped intermittently, its annual pumpage volumes average around 138,000,000 gallons.

The well and reservoir are located approximately 1325 feet southwest of the site's edge of waste (Figure 4). Water from this well is sampled by the Water Utility and analyzed for inorganic parameters by the City's Health Department on an annual basis. Water quality data from the last five years is presented in Table 4. Results indicate that there are no parameters above Departmental Maximum Contaminant Levels (MCLs).

In terms of the upper aquifer, it appears that the location of this public drinking water well is not downgradient of the landfill and therefore less likely to be impacted by migrating contaminants. This, and the fact that contaminant levels in the water at UW #8 are well below Departmental established MCLs, suggest there is little reason for concern.

Surface Cover Conditions

A reconnaissance trip to the site was recently conducted by City staff. Cover conditions for the entire site, including the ditch area, were visually examined. No evidence of exposed waste was found and there were no signs of leachate seeps within the creek. Cover improvements to the ditch banks performed by the City in 1995 appear to have been successful.

Summary

It is evident from the analytical data that the landfill is a source for some of the groundwater contamination which exists in this area (e.g., iron and manganese concentrations). The results from

the City's groundwater assessment activities, however, indicate that the following site conditions exist:

- The site's debris and waste are well covered by fill/topsoil.
- City is maintaining surface drainage at the site.
- No significant contaminants are entering the local groundwater system.
- There is no apparent impact on surrounding surface water sources (i.e., Lake Monona and Starkweather Creek).
- There is no apparent impact on the nearby municipal well (UW #8).

Based on the site conditions listed above, the City believes that the landfill site is not causing significant environmental contamination or endangering human health and welfare. It is the City's opinion that no additional investigation or remediation efforts are necessary for the Olbrich Landfill site and is requesting such a finding from the Department.

Any questions regarding this request should be directed to Joe DeMorett of my staff at 267-1986.

Sincerely,

Larry D. Nelson, City Engineer

LDN:DEM
Attachments
cc: Janet Battista

Table 1: Olbrich Park P.A.L./E.S. Exceedances
Inorganics

	MW-1					MW-2				MW-3				Starkweather @ Atwood					Starkweather @ Bike Path					Ditch	P.A.L.	E.S.
Parameter	Aug-04	May-04	Nov-03	Oct-03	Mar-01	Aug-04	May-04	Nov-03	Oct-03	Aug-04	May-04	Nov-03	Oct-03	Aug-04	May-04	Nov-03	Oct-03	Mar-01	Aug-04	May-04	Nov-03	Oct-03	Mar-01	Mar-01	ug/l	ug/l
Arsenic								7.3 J																	5	50
Barium																									400	2000
Boron																									0.19 mg/l	0.96 mg/l
Cadmium																									0.5	5
Chromium																									10	100
Fluoride																									0.8 mg/l	4 mg/l
Lead											1.5 J					2.6 J				2.3 J					1.5	15
Mercury																									0.2	2
Nitrate/Nitrite																5.24		2.84			5.38		2.96		2 mg/l	10 mg/l
Selenium																									10	50
Silver																									10	50
Chloride										307.9	323.8	336.6	347.9												125 mg/l	250 mg/l
Copper																									130	1300
Iron	0.935	0.150	0.392	0.927	1.270	0.963	0.396	2.970	3.210	1.48	0.227	0.300	0.217	0.242	0.609	0.478	0.175	0.586	0.215	0.547	0.510	0.197	0.580	0.625	0.15 mg/l	0.3 mg/l
Manganese	542	490	297	401	564	160	240	314	325	386	150	140	130	36	129	91	53	122	33	125	98	56	126	56	25	50
Sulfate				128.7		144.0	135.8																		125 mg/l	250 mg/l
Zinc																									2500	5000
Conductivity																									#	#
pH																									No Limit	No Limit
Alk (filtered)																									#	#
COD																									#	#
Ttl Hardness																									#	#
Calcium																									#	#
Magnesium																									#	#

Notes:
J: Analyte detected below level of quantification; value is estimate.

Table 2: Olbrich Park P.A.L./E.S. Exceedances
VOCs

Compound	MW-1 3/12/2001	MW-1 12/4/2000	P.A.L. ug/l	E.S. ug/l
1,1,1-Trichloroethane			40	200
1,1,2-Trichloroethane			0.5	5
1,1-Dichloroethane			85	850
1,1-Dichloroethylene			0.7	7
1,2-Dibromo-3-chloropropane			0.02	0.2
1,2-Dibromoethane (EDB)			0.005	0.05
1,2-Dichlorobenzene (()-)			60	600
1,2-Dichloroethane			0.5	5
1,2-Dichloropropane			0.5	5
1,3-Dichlorobenzene (M-)			125	1250
1,4-Dichlorobenzene (P-)			15	75
2-Butanone (MEK)			90	460
Acetone			200	1000
Benzene			0.5	5
Bromodichloromethane			0.06	0.6
Bromoform			0.44	4.4
Bromomethane			1	10
Carbon Disulfide			200	1000
Carbon Tetrachloride			0.5	5
Chlorobenzene			20	100
Chlorodibromomethane			6	60
Chloroethane			80	400
Chloroform			0.6	6
Chloromethane			0.3	3
cis-1,2-Dichloroethylene			7	70
cis-1,3-Dichloropropylene			0.02	0.2
Dibromomethane				
Dichlorodifluoromethane			200	1000
Ethylbenzene			140	700
Fluorotrichloromethane			698	3490
MTBE			12	60
Methylene chloride			0.5	5
Naphthalene			8	40
Styrene			10	100
Tetrachloroethylene			0.5	5
Tetrahydrofuran			10	50
Toluene			200	1000
trans-1,2-Dichloroethylene			20	100
trans-1,3-Dichloropropylene			0.02	0.2
Trichloroethylene (TCE)			0.5	5
Vinyl chloride			0.02	0.2
Xylenes (total)			1000	10000

Table 3: Olbrich Park Groundwater Elevations

	MW-1		MW-2		MW-3		Lake Monona
Date	Water Level	Water Elevation	Water Level	Water Elevation	Water Level	Water Elevation	Water Elevation
8/18/2004	8.53	**845.86**	7.40	**845.63**	7.98	**845.87**	**845.90**
5/11/2004	9.62	**844.77**	8.55	**844.48**	9.22	**844.63**	**844.97**
11/11/2003	9.25	**845.14**	8.18	**844.85**	8.78	**845.07**	**845.22**
10/16/2003	10.07	**844.32**	9.30	**843.73**	9.70	**844.15**	**844.79**
3/12/2001	9.49	**844.90**	NA	NA	NA	NA	NA
12/4/2000	10.05	**844.34**	NA	NA	NA	NA	NA
5/18/1995	9.15	**845.24**	NA	NA	NA	NA	NA
3/6/1995	10.34	**844.05**	NA	NA	NA	NA	NA

Table 4: Unit Well #8 Water Quality

Inorganics

Parameter	Units	Sample Year 2004	2003	2002	2001	2000	LOD	MCL
Aluminum	(ug/l)	ND	ND	ND	ND	ND	15.2	
Antimony	(ug/l)	ND	ND	ND	ND	ND	3.76	6
Arsenic	(ug/l)	ND	ND	ND	ND	ND	3.15	10
Barium	(ug/l)	34	38	37	33	32	0.65	2000
Beryllium	(ug/l)	ND	ND	ND	ND	0.13	0.05	4
Cadmium	(ug/l)	ND	ND	ND	ND	ND	0.2	5
Calcium	(mg/l)	68	81	70.0	72.0	71.0	0.013	
Chromium	(ug/l)	ND	ND	ND	ND	ND	0.48	100
Copper	(ug/l)	ND	2.4	28	2.6	12	1.64	
Cyanide	(mg/l)	NA	NA	ND	NA	NA	0.004	
Iron	(mg/l)	0.618	0.704	0.278	0.516	0.492	0.0008	
Lead	(ug/l)	ND	1.5	ND	ND	1.2	1.49	
Magnesium	(mg/l)	41	45	43	42	41	0.021	
Manganese	(ug/l)	47	43	21	48	48	0.23	
Mercury	(ug/l)	NA	NA	ND	NA	NA	0.03	
Nickel	(ug/l)	ND	ND	ND	ND	ND	1.53	100
Selenium	(ug/l)	ND	ND	ND	ND	ND	4.21	50
Silver	(mg/l)	ND	ND	ND	ND	ND	3.46	
Sodium	(mg/l)	8.9	11.6	108	8	7.6	0.022	
Thallium	(ug/l)	NA	ND	0.6	ND	ND	0.4	2
Zinc	(ug/l)	5.1	5.1	3.7	2.5	3.9	0.45	
Alkalinity	(mg/l)	307	317	317	314	312.5	2.341	
Chloride	(mg/l)	16.99	22.07	19.15	14.02	13.17	1.203	
Conductivity	umhos / cm	642	674	657	620	623	3	
Fluoride	(mg/l)	0.892	1.230	1.3	0.13	0.67	0.079	4
Hardness	(mg/l)	339	388	352	353	346	0.119	
Nitrate & Nitrite	(mg/l)	ND	ND	ND	ND	ND	0.141	
Nitrate	(mg/l)	ND	ND	ND	ND	ND	0.079	10
Nitrite	(mg/l)	ND	ND	ND	ND	ND	0.058	1
pH Lab	s.u.	7.51	7.44	7.74	7.11	7.42		
Total Solids	(mg/l)	404	368	394	370	378	6	
Sulfate	(mg/l)	17.75	20.73	19.54	16.61	16.27	0.767	

Notes:

NA: Parameter not analyzed for.
ND: Parameter not detected.
LOD: Limit of Detection.
MCL: Maximum Contaminant Level (NR 800)