

*Protecting Our Water Environment*



*Metropolitan Water Reclamation District of Greater Chicago*

***RESEARCH AND DEVELOPMENT  
DEPARTMENT***

*REPORT NO. 07-15*

*LAWNDALE AVENUE SOLIDS MANAGEMENT AREA*

*MONITORING DATA FOR*

*FOURTH QUARTER 2006*

*MARCH 2007*

Metropolitan Water Reclamation District of Greater Chicago

100 EAST ERIE STREET CHICAGO, ILLINOIS 60611-3154 312-751-5600

Louis Kollias, P.E., BCEE  
Director of Research and Development  
312-751-5190

March 29, 2007

Mr. S. Alan Keller, P.E.  
Manager, Permit Section  
Illinois Environmental Protection Agency  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, IL 62794 -9276

Dear Mr. Keller:

Subject: Lawndale Avenue Solids Management Area - Stickney WRP, Contract No. 80-159-2P, IEPA Permit No. 2005-AO-4283, Monitoring Report for October, November, and December 2006

The attached eight tables contain the monitoring data for the Lawndale Avenue Solids Management Area for October, November, and December 2006 as required by IEPA Operating Permit No. 2005-AO-4283. During the quarter, lysimeters L-7 and L-8 yielded no samples. In a letter dated January 19, 2007, the IEPA granted permission to terminate the monitoring of lysimeters L-7 and L-8. Therefore, monitoring data for these lysimeters will not be included in this and subsequent reports.

The data reported are as follows:

Table 1, Analysis of Water from Monitoring Wells M-11 through M-15 at the Lawndale Avenue Solids Management Area Sampled on October 11, 2006

Table 2, Analysis of Water from Lysimeters L-1 through L-9N at the Lawndale Avenue Solids Management Area Sampled on October 11, 2006

Table 3, Analysis of Water from Lysimeters L-1 through L-9N at the Lawndale Avenue Solids Management Area Sampled on November 8, 2006

Table 4, Analysis of Water from Lysimeters L-1 through L-9N at the Lawndale Avenue Solids Management Area Sampled on December 6, 2006

Table 5, Analysis of Monthly Composited Digested Biosolids Placed in the Lawndale Avenue Solids Management Drying Area During October 2006

Subject: Lawndale Avenue Solids Management Area - Stickney WRP, Contract No. 80-159-2P, IEPA Permit No. 2005-AO-4283, Monitoring Report for October, November, and December 2006

Table 6, Analysis of Monthly Composited Digested Biosolids Placed in the Lawndale Avenue Solids Management Drying Area During November 2006

Table 7, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Lawndale Avenue Solids Management Drying Area During October 2006

Table 8, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Lawndale Avenue Solids Management Drying Area During November 2006

Biosolids were placed in and removed from the solids drying area during October and November 2006.

Very truly yours,

Louis Kollias  
Director  
Research and Development

LK:PL:spy  
Attachments

cc w/att: Mr. Sulski, IEPA  
Records Unit, IEPA  
Mr. W. Stuba  
Dr. T. Granato  
Dr. A. Cox  
Dr. P. Lindo  
Ms. M. Patel

cc wo/att: Ms. M. Sharma  
Mr. S. Levy  
Mr. O. Jamjun  
Mr. A. Quintanilla  
Mr. A. Ryzak

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1

ANALYSIS OF WATER FROM MONITORING WELLS M-11 THROUGH M-15  
AT THE LAWDALE AVENUE SOLIDS MANAGEMENT AREA  
SAMPLED ON OCTOBER 11, 2006

Parameter	Unit	Monitoring Well No.				
		M-11	M-12	M-13	M-14	M-15
pH <sup>1</sup>		8.0	7.8	7.9	7.9	7.9
EC	mS/m	80	109	134	153	76
Total Dissolved Solids	mg/L	686	894	1,330	570	1,656
Total Diss. Org. Carbon	"	1	1	1	1	2
Cl <sup>-</sup>	"	0.8	15	10	10	9
SO <sub>4</sub> <sup>=</sup>	"	195	617	608	130	773
TKN	"	1.1	0.58	0.54	0.40	0.67
NH <sub>3</sub> -N	"	0.74	0.26	0.26	0.14	0.38
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.10	<0.02	<0.02	<0.02	<0.02
Total P	"	0.04	0.04	<0.04	0.06	0.08
Alkalinity as CaCO <sub>3</sub>	"	357	294	316	316	343
Al	"	0.023	0.018	0.028	0.015	0.042
As	"	<0.01	<0.01	<0.01	<0.01	<0.01
B	"	1.30	1.79	1.53	1.34	1.20
Ca	"	90	79	164	73	230
Cd	"	0.0005	<0.0004	<0.0004	<0.0004	<0.0004
Cr	"	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cu	"	<0.002	<0.002	<0.002	<0.002	<0.002
Fe	"	0.568	0.104	0.020	0.020	1.29
Hg	μg/L	0.07	0.06	0.07	0.06	0.06
K	mg/L	8	10	10	8	10
Mg	"	41.5	37.0	77.5	39.8	103
Mn	"	0.0528	0.0101	0.0132	0.0034	0.0178
Na	"	53	133	90	42	62
Ni	"	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Pb	"	0.004	0.004	<0.004	<0.004	<0.004
Se	"	<0.02	<0.02	<0.02	<0.02	<0.02
Zn	"	0.416	0.591	0.672	0.512	4.58
FC	MPN*	<1	<1	<1	<1	<1

<sup>1</sup>pH analyzed beyond recommended holding time of 15 minutes.

\*MPN = Most probable number per 100 mL.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 11, 2006

Parameter	Unit	Lysimeter No.				
		L-1	L-2	L-3	L-3N	L-4
pH <sup>1</sup>		8.0	8.2	8.2	7.7	7.5
EC	mS/m	177	330	147	250	375
Total Dissolved Solids	mg/L	1,406	NA	1,050	2,154	4,048
Total Diss. Org. Carbon	"	8	NA	6	20	16
Cl <sup>-</sup>	"	43	NA	193	122	53
SO <sub>4</sub> <sup>=</sup>	"	532	NA	156	390	2,061
TKN	"	4.7	NA	4.6	4.5	17
NH <sub>3</sub> -N	"	3.7	NA	3.4	2.1	11
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.39	NA	<0.02	0.30	<0.02
Total P	"	0.06	NA	1.1	0.10	0.88
Alkalinity as CaCO <sub>3</sub>	"	437	NA	335	1,136	919
Al	"	0.039	NA	0.023	0.055	0.068
As	"	<0.01	NA	<0.01	<0.01	<0.01
B	"	0.498	NA	0.237	0.177	0.199
Ca	"	212	NA	122	373	602
Cd	"	<0.0004	NA	<0.0004	0.0006	<0.0004
Cr	"	<0.0005	NA	<0.0005	<0.0005	<0.0005
Cu	"	<0.002	NA	<0.002	0.002	<0.002
Fe	"	4.49	NA	2.56	11.5	21.7
Hg	μg/L	0.07	NA	0.07	0.07	0.07
K	mg/L	6	NA	3	2	9
Mg	"	90.6	NA	53.1	149	276
Mn	"	0.0688	NA	0.1306	1.015	0.9086
Na	"	40	NA	92	71	24
Ni	"	<0.0004	NA	<0.0004	0.0013	<0.0004
Pb	"	<0.004	NA	<0.004	<0.004	<0.004
Se	"	<0.02	NA	<0.02	<0.02	<0.02
Zn	"	0.017	NA	0.007	3.75	0.013

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 11, 2006

Parameter	Unit	Lysimeter No.				
		L-4N	L-5	L-5N	L-6N	L-7N
pH <sup>1</sup>		7.7	8.1	7.9	8.0	8.2
EC	mS/m	332	160	481	298	148
Total Dissolved Solids	mg/L	3,568	1,388	4,882	2,856	1,008
Total Diss. Org. Carbon	"	12	0.6	4	44	9
Cl <sup>-</sup>	"	61	52	692	101	123
SO <sub>4</sub> <sup>=</sup>	"	1,707	634	1,897	1,283	176
TKN	"	15	0.19	3.1	42	5.7
NH <sub>3</sub> -N	"	11	<0.02	1.6	35	3.6
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.04	0.04	0.09	0.07	0.13
Total P	"	0.09	<0.05	<0.05	0.11	<0.10
Alkalinity as CaCO <sub>3</sub>	"	845	285	507	556	418
Al	"	0.065	0.025	0.074	0.054	0.030
As	"	<0.01	<0.01	<0.01	<0.01	<0.02
B	"	0.170	0.773	0.367	0.297	0.322
Ca	"	565	167	500	403	125
Cd	"	0.0012	<0.0004	0.0006	0.0004	<0.0008
Cr	"	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010
Cu	"	<0.002	<0.002	<0.002	<0.002	<0.004
Fe	"	10.8	0.006	1.05	2.54	0.402
Hg	μg/L	0.07	0.08	0.08	0.07	0.14
K	mg/L	8	3	27	18	8
Mg	"	210	106	313	163	76.8
Mn	"	1.345	<0.0002	0.2591	0.1068	0.0708
Na	"	89	42	317	77	52
Ni	"	<0.0004	<0.0004	0.0012	0.0045	0.0018
Pb	"	<0.004	<0.004	<0.004	<0.004	<0.008
Se	"	<0.02	<0.02	<0.02	<0.02	<0.04
Zn	"	0.303	0.006	0.015	0.020	0.072

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 11, 2006

Parameter	Unit	Lysimeter No.	
		L-8N	L-9N
pH <sup>1</sup>		8.0	7.9
EC	mS/m	242	270
Total Dissolved Solids	mg/L	1,858	1,926
Total Diss. Org. Carbon	"	9	26
Cl <sup>-</sup>	"	422	153
SO <sub>4</sub> <sup>=</sup>	"	208	292
TKN	"	3.5	3.1
NH <sub>3</sub> -N	"	2.2	0.88
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.33	0.21
Total P	"	0.21	<0.05
Alkalinity as CaCO <sub>3</sub>	"	603	1,057
Al	"	0.032	0.034
As	"	<0.01	<0.01
B	"	0.214	0.234
Ca	"	195	187
Cd	"	0.0009	0.0015
Cr	"	<0.0005	<0.0005
Cu	"	<0.002	0.003
Fe	"	0.124	1.75
Hg	μg/L	0.07	0.07
K	mg/L	6	6
Mg	"	94.0	96.6
Mn	"	0.2871	0.2025
Na	"	198	308
Ni	"	0.0021	0.0013
Pb	"	<0.004	<0.004
Se	"	<0.02	<0.02
Zn	"	0.306	1.14

<sup>1</sup>pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 8, 2006

Parameter	Unit	Lysimeter No.				
		L-1	L-2	L-3	L-3N	L-4
pH <sup>1</sup>		7.6	7.9	7.7	7.4	7.0
EC	mS/m	160	281	124	175	359
Total Dissolved Solids	mg/L	1,422	NA	856	1,866	4,138
Total Diss. Org. Carbon	"	6	3	6	20	16
Cl <sup>-</sup>	"	54	514	190	130	60
SO <sub>4</sub> <sup>=</sup>	"	562	452	269	256	1,880
TKN	"	4.0	0.44	3.8	2.5	13
NH <sub>3</sub> -N	"	3.5	<0.04	3.2	0.85	10
NO <sub>2</sub> + NO <sub>3</sub> -N	"	<0.02	0.20	0.35	0.09	0.05
Total P	"	0.07	0.10	1.8	0.30	0.63
Alkalinity as CaCO <sub>3</sub>	"	449	404	303	1,149	934
Al	"	0.044	0.062	0.025	0.061	0.092
As	"	<0.01	<0.02	<0.01	<0.01	<0.01
B	"	0.518	0.264	0.236	0.120	0.212
Ca	"	210	252	102	336	590
Cd	"	0.0004	0.0008	0.0004	0.0005	0.0004
Cr	"	<0.0005	<0.0010	<0.0005	0.0005	<0.0005
Cu	"	<0.002	0.020	<0.002	<0.002	<0.002
Fe	"	2.71	0.178	1.55	14.8	17.9
Hg	μg/L	<0.05	<0.10	<0.05	<0.05	<0.05
K	mg/L	5	4	3	2	8
Mg	"	90.8	116	43.8	133	296
Mn	"	0.0673	0.0482	0.0899	0.9307	0.8821
Na	"	46	259	95	74	29
Ni	"	0.0004	0.0038	<0.0004	0.0023	<0.0004
Pb	"	<0.004	0.010	<0.004	<0.004	<0.004
Se	"	<0.02	<0.04	<0.02	<0.02	<0.02
Zn	"	0.007	0.052	0.004	0.019	0.018



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 8, 2006

Parameter	Unit	Lysimeter No.				
		L-4N	L-5	L-5N	L-6	L-6N
pH <sup>1</sup>		7.4	7.8	7.7	8.1	7.4
EC	mS/m	370	151	267	193	316
Total Dissolved Solids	mg/L	3,680	1,472	4,866	NA	3,150
Total Diss. Org. Carbon	"	14	1	4	NA	52
Cl <sup>-</sup>	"	48	50	720	NA	100
SO <sub>4</sub> <sup>=</sup>	"	1,691	674	1,832	NA	1,344
TKN	"	14	0.44	3.2	NA	31
NH <sub>3</sub> -N	"	11	0.28	2.1	NA	26
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.07	0.02	0.05	NA	0.07
Total P	"	0.07	0.09	0.07	NA	0.09
Alkalinity as CaCO <sub>3</sub>	"	822	289	530	NA	793
Al	"	0.091	0.040	0.091	NA	0.091
As	"	<0.01	<0.01	<0.01	NA	<0.01
B	"	0.167	0.790	0.379	NA	0.240
Ca	"	583	178	558	NA	585
Cd	"	0.0006	0.0005	0.0008	NA	0.0008
Cr	"	<0.0005	<0.0005	<0.0005	NA	<0.0005
Cu	"	<0.002	<0.002	<0.002	NA	<0.002
Fe	"	20.8	0.060	2.96	NA	20.7
Hg	μg/L	<0.05	<0.05	<0.05	NA	<0.05
K	mg/L	8	3	28	NA	13
Mg	"	210	112	332	NA	160
Mn	"	1.336	0.0377	0.3814	NA	0.4032
Na	"	122	41	340	NA	82
Ni	"	<0.0004	0.0005	0.0023	NA	0.0096
Pb	"	<0.004	<0.004	<0.004	NA	<0.004
Se	"	<0.02	<0.02	<0.02	NA	<0.02
Zn	"	0.024	0.007	0.015	NA	0.047

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 8, 2006

Parameter	Unit	Lysimeter No.		
		L-7N	L-8N	L-9N
pH <sup>1</sup>		8.1	7.8	7.5
EC	mS/m	155	231	251
Total Dissolved Solids	mg/L	1,264	1,818	1,944
Total Diss. Org. Carbon	"	9	10	27
Cl <sup>-</sup>	"	171	412	155
SO <sub>4</sub> <sup>=</sup>	"	322	237	312
TKN	"	1.3	3.4	3.8
NH <sub>3</sub> -N	"	0.30	2.2	0.71
NO <sub>2</sub> + NO <sub>3</sub> -N	"	<0.04	0.32	0.05
Total P	"	0.12	0.07	0.08
Alkalinity as CaCO <sub>3</sub>	"	396	672	1,100
Al	"	0.042	0.048	0.041
As	"	<0.02	<0.01	<0.01
B	"	0.320	0.317	0.231
Ca	"	149	212	193
Cd	"	<0.0008	<0.0004	0.0008
Cr	"	<0.0010	<0.0005	0.0011
Cu	"	<0.004	<0.002	<0.002
Fe	"	0.346	1.42	8.15
Hg	μg/L	<0.10	<0.05	<0.05
K	mg/L	10	6	6
Mg	"	90.8	104	102
Mn	"	0.0886	0.2683	0.1800
Na	"	73	200	311
Ni	"	0.0032	0.0012	0.0019
Pb	"	<0.008	<0.004	<0.004
Se	"	<0.04	<0.02	<0.02
Zn	"	0.012	0.010	0.017

<sup>1</sup>pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 6, 2006

Parameter	Unit	Lysimeter No.				
		L-1	L-2	L-3	L-3N	L-4
pH <sup>1</sup>		7.7	7.8	7.6	7.3	6.9
EC	mS/m	144	298	129	123	347
Total Dissolved Solids	mg/L	1,340	2,372	870	1,604	4,124
Total Diss. Org. Carbon	"	7	3	6	20	15
Cl <sup>-</sup>	"	45	535	193	132	56
SO <sub>4</sub> <sup>=</sup>	"	520	617	91	244	1,925
TKN	"	5.5	1.4	4.6	3.6	17
NH <sub>3</sub> -N	"	4.2	<0.04	3.0	1.0	10
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.14	0.41	<0.02	0.20	0.17
Total P	"	0.20	<0.10	2.2	0.11	0.78
Alkalinity as CaCO <sub>3</sub>	"	448	422	316	1,055	903
Al	"	0.082	0.052	0.025	0.064	0.098
As	"	<0.02	<0.02	<0.01	<0.01	<0.01
B	"	0.544	0.230	0.233	0.097	0.218
Ca	"	207	268	102	345	612
Cd	"	<0.0008	<0.0008	0.0005	0.0006	0.0008
Cr	"	<0.0010	<0.0010	<0.0005	<0.0005	<0.0005
Cu	"	<0.004	0.004	<0.002	<0.002	<0.002
Fe	"	0.408	0.026	1.34	9.15	15.8
Hg	μg/L	<0.10	<0.10	<0.05	<0.05	<0.05
K	mg/L	6	3	3	2	9
Mg	"	89.8	117	45.0	143	324
Mn	"	0.0616	0.0072	0.0795	0.9276	0.8416
Na	"	39	282	98	82	28
Ni	"	0.0026	<0.0008	<0.0004	0.0015	<0.0004
Pb	"	<0.008	<0.008	<0.004	<0.004	<0.004
Se	"	<0.04	<0.04	<0.02	<0.02	<0.02
Zn	"	0.022	0.014	0.083	0.014	0.008

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 6, 2006

Parameter	Unit	Lysimeter No.				
		L-4N	L-5	L-5N	L-6N	L-7N
pH <sup>1</sup>		7.3	7.6	7.7	7.2	8.0
EC	mS/m	370	157	288	233	126
Total Dissolved Solids	mg/L	3,702	1,382	4,726	2,725	1,040
Total Diss. Org. Carbon	"	11	1	3	54	10
Cl <sup>-</sup>	"	39	51	759	77	116
SO <sub>4</sub> <sup>=</sup>	"	1,841	634	1,808	1,412	158
TKN	"	16	0.46	3.5	35	1.7
NH <sub>3</sub> -N	"	11	<0.02	1.7	24	0.12
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.26	0.07	0.25	0.18	0.39
Total P	"	<0.05	<0.05	<0.05	0.10	0.28
Alkalinity as CaCO <sub>3</sub>	"	797	281	486	634	374
Al	"	0.093	0.029	0.091	0.091	0.034
As	"	<0.01	<0.01	<0.01	<0.01	<0.02
B	"	0.175	0.812	0.376	0.238	0.308
Ca	"	569	171	517	625	112
Cd	"	0.0008	0.0004	0.0005	0.0005	<0.0008
Cr	"	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010
Cu	"	<0.002	<0.002	<0.002	<0.002	0.004
Fe	"	14.3	0.004	1.06	16.8	0.016
Hg	μg/L	<0.05	<0.05	<0.05	<0.05	<0.10
K	mg/L	9	3	29	12	8
Mg	"	210	110	302	162	69.8
Mn	"	1.290	0.0028	0.2729	0.4220	0.0730
Na	"	243	43	365	76	50
Ni	"	<0.0004	0.0007	0.0019	0.0095	0.0022
Pb	"	<0.004	<0.004	<0.004	<0.004	<0.008
Se	"	<0.02	<0.02	<0.02	<0.02	<0.04
Zn	"	0.023	0.008	0.136	0.013	0.008

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 6, 2006

Parameter	Unit	Lysimeter No.	
		L-8N	L-9N
pH <sup>1</sup>		7.7	7.5
EC	mS/m	119	246
Total Dissolved Solids	mg/L	1,686	1,860
Total Diss. Org. Carbon	"	8	26
Cl <sup>-</sup>	"	392	159
SO <sub>4</sub> <sup>=</sup>	"	218	299
TKN	"	4.2	3.3
NH <sub>3</sub> -N	"	2.3	0.90
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.28	0.13
Total P	"	0.07	0.12
Alkalinity as CaCO <sub>3</sub>	"	599	1,084
Al	"	0.043	0.037
As	"	<0.01	<0.01
B	"	0.215	0.256
Ca	"	196	189
Cd	"	0.0006	0.0008
Cr	"	<0.0005	<0.0005
Cu	"	<0.002	<0.002
Fe	"	0.071	7.84
Hg	μg/L	<0.05	<0.05
K	mg/L	5	7
Mg	"	98.2	103
Mn	"	0.2692	0.1620
Na	"	198	326
Ni	"	0.0008	0.0010
Pb	"	<0.004	<0.004
Se	"	<0.02	<0.02
Zn	"	0.009	0.009

<sup>1</sup>pH analyzed beyond recommended holding time of 15 minutes.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5

ANALYSIS OF MONTHLY COMPOSITED DIGESTED  
 BIOSOLIDS PLACED IN THE LAWNSDALE AVENUE  
 SOLIDS MANAGEMENT DRYING AREA DURING OCTOBER 2006

Parameter	Unit	Concentration*
pH		7.7
Total Solids	%	21.8
Total Volatile Solids	%	27.2
TKN	mg/kg	23,508
NH <sub>3</sub> -N	"	5,189

\*Values are the means of six samples.

\*\*Total volatile solids as a percentage of total solids.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6

ANALYSIS OF MONTHLY COMPOSITED DIGESTED  
 BIOSOLIDS PLACED IN THE LAWNSDALE AVENUE  
 SOLIDS MANAGEMENT DRYING AREA DURING NOVEMBER 2006

Parameter	Unit	Concentration*
pH		8.0
Total Solids	%	22.7
Total Volatile Solids	%	31.9
TKN	mg/kg	26,620
NH <sub>3</sub> -N	"	6,535

\*Values are the means of ten samples.

\*\*Total volatile solids as a percentage of total solids.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7

ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED  
BIOSOLIDS REMOVED FROM THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT DRYING AREA DURING OCTOBER 2006

Parameter	Unit	Concentration*
pH		7.5
Total Solids	%	47.0
Total Volatile Solids	%	23.5
TKN	mg/kg	16,830
NH <sub>3</sub> -N	"	3,463
Total P	"	14,446
Al	"	22,579
As	"	<0.9
Ca	"	54,673
Cd	"	7
Cr	"	189
Cu	"	257
Fe	"	20,063
Hg	"	1.4
K	"	5,590
Mg	"	27,642
Mn	"	452
Mo	"	12
Na	"	713
Ni	"	44
Pb	"	101
Se	"	<0.7
Zn	"	634

\*Values are the means of twelve samples.

\*\*Total volatile solids as a percentage of total solids.



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8

ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED  
BIOSOLIDS REMOVED FROM THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT DRYING AREA DURING NOVEMBER 2006

Parameter	Unit	Concentration*
pH		7.7
Total Solids	%	28.8
Total Volatile Solids	%	33.0
TKN	mg/kg	27,428
NH <sub>3</sub> -N	"	6,292
Total P	"	14,297
Al	"	21,315
As	"	3
Ca	"	44,105
Cd	"	8
Cr	"	173
Cu	"	272
Fe	"	20,008
Hg	"	0.83
K	"	4,564
Mg	"	22,934
Mn	"	456
Mo	"	11
Na	"	819
Ni	"	43
Pb	"	112
Se	"	<0.7
Zn	"	667

\*Values are the means of fourteen samples.

\*\*Total volatile solids as a percentage of total solids.