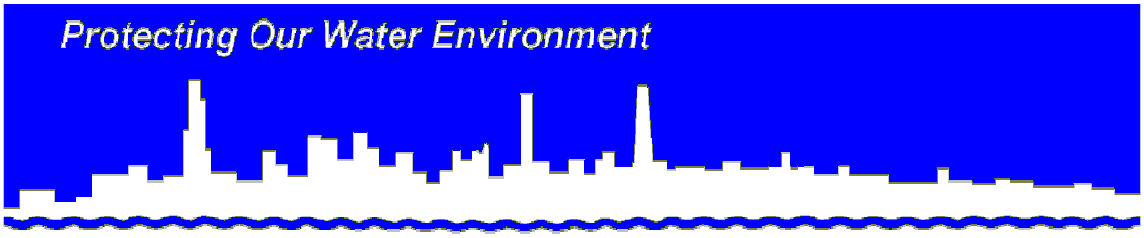

Metropolitan Water Reclamation District of Greater Chicago

MONITORING AND RESEARCH DEPARTMENT

REPORT NO. 11-50

LAWNDALE AVENUE SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

SECOND QUARTER 2011

AUGUST 2011

Protecting Our Water Environment

Metropolitan Water Reclamation District of Greater Chicago

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August 29, 2011

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 Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2010-AO-0267, Monitoring Report for April, May, and June 2011

The attached six tables contain the monitoring data for the Lawndale Avenue Solids Management Area for April, May, and June 2011 as required by the Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2010-AO-0267.

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 April 6, 2011

Table 2, Analysis of Water from Lysimeters L-4N and L-6N at the Lawndale Avenue Solids Management Area Sampled During April, May, and June 2011

Table 3, Analysis of Water from Lysimeters L-1N Through L-9N at the Lawndale Avenue Solids Management Area Sampled on May 4, 2011

Table 4, Analysis of Monthly Composited Biosolids Placed in the Lawndale Avenue Solids Management Drying Area During June 2011

Table 5, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Lawndale Avenue Solids Management Drying Area During May 2011

Subject: Lawndale Avenue Solids Management Area - Stickney Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2010-AO-0267, Monitoring Report for April, May, and June 2011

Table 6, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Lawndale Avenue Solids Management Drying Area During June 2011

A new lysimeter L-7N-1 was installed in June 2010 as a replacement for L-7N.

Biosolids were placed in the solids drying area during June and removed from the site during May and June 2011.

Very truly yours,

Thomas C. Granato, Ph.D.
Acting Director
Monitoring and Research

TCG:PL:cm
Attachments
cc w/att: Mr. Sulski, IEPA
Records Unit, IEPA
C. O'Connor

TABLE 1: ANALYSIS OF WATER FROM MONITORING WELLS M-11 THROUGH M-15 AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED ON APRIL 6, 2011

Parameter	Unit	Monitoring Well No. M-11	M-12	M-13
pH[1]		7.2	7.7	7.5
EC	mS/m	75	100	119
Total Dissolved Solids	mg/L	654	866	1,298
Total Dissolved Organic Carbon	"	2	1	1
Cl^-	"	< 10	11	< 10
$SO_4^=$	"	198	353	614
TKN	"	0.7	< 0.5	< 0.5
NH_3-N	"	0.6	0.3	0.3
$NO_2 + NO_3$-N	"	< 0.04	0.05	< 0.04
Total P	"	< 0.10	< 0.10	< 0.10
Alkalinity as $CaCO_3$	"	339	293	319
Al	"	< 1.0	< 1.0	< 1.0
As	"	< 0.02	< 0.02	< 0.02
B	"	1.3	1.8	1.6
Ca	"	83	79	163
Cd	"	< 0.001	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005	< 0.005
Fe	"	< 0.2	< 0.2	< 0.2
Hg	µg/L	< 0.20	< 0.20	< 0.20
K	mg/L	8	10	10
Mg	"	41.1	36.9	77.5
Mn	"	0.032	< 0.003	0.007
Na	"	54	137	91
Ni	"	< 0.008	< 0.008	< 0.008
Pb	"	< 0.03	< 0.03	< 0.03
Se	"	< 0.03	< 0.03	< 0.03
Zn	"	1.0	0.30	1.2
Fecal coliform	MPN[2]	< 1	< 1	< 1
Static H_2O Elev.	ft	628	632	632

TABLE 1 (Continued): ANALYSIS OF WATER FROM MONITORING WELLS M-11 THROUGH M-15 AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED ON APRIL 6, 2011

Parameter	Unit	Monitoring Well No. M-14	Monitoring Well No. M-15
pH[1]		7.6	7.3
EC	mS/m	81	93
Total Dissolved Solids	mg/L	534	1,658
Total Dissolved Organic Carbon	"	< 1	2
Cl^-	"	< 10	< 10
$SO_4^=$	"	133	822
TKN	"	< 0.5	< 0.5
NH_3-N	"	0.2	0.3
$NO_2 + NO_3$-N	"	< 0.04	0.05
Total P	"	< 0.10	< 0.10
Alkalinity as $CaCO_3$	"	316	350
Al	"	< 1.0	< 1.0
As	"	< 0.02	< 0.02
B	"	1.4	1.2
Ca	"	73	236
Cd	"	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005
Fe	"	< 0.2	0.3
Hg	μg/L	< 0.20	< 0.20
K	mg/L	8	11
Mg	"	40.5	106
Mn	"	0.004	0.019
Na	"	43	64
Ni	"	< 0.008	< 0.008
Pb	"	< 0.03	< 0.03
Se	"	< 0.03	< 0.03
Zn	"	0.96	4.1
Fecal coliform	MPN[2]	< 1	< 1
Static H_2O Elev.	ft	622	NR[3]

[1]pH analyzed beyond recommended holding time of 15 minutes.

[2]Most probable number per 100 mL.

[3]No reading.

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS L-4N AND L-6N AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED DURING APRIL, MAY, AND JUNE 2011

Parameter	Unit	Date Sampled			
		04/06/11		05/04/11	
		L-4N	L-6N	L-4N	L-6N
pH[1]		8.0	8.0	7.9	7.9
EC	mS/m	261	290	296	330
Total Dissolved Solids	mg/L	3,122	3,764	3,012	3,548
Total Dissolved Organic Carbon	"	6	66	6	64
Cl^-	"	30	95	29	96
$SO_4^=$	"	1,374	1,344	1,313	1,234
TKN	"	7	18	5	17
NH_3-N	"	6	13	5	13
$NO_2 + NO_3$-N	"	1.2	0.29	1.1	0.20
Total P	"	< 0.10	< 0.10	< 0.10	< 0.10
Alkalinity as $CaCO_3$	"	300	497	665	895
Al	"	< 1.0	< 1.0	< 1.0	< 1.0
As	"	< 0.02	< 0.02	< 0.02	< 0.02
B	"	0.15	0.23	0.12	0.22
Ca	"	521	641	570	676
Cd	"	< 0.001	< 0.001	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005	< 0.005	< 0.005
Fe	"	6	35	5	36
Hg	μg/L	< 0.20	< 0.20	< 0.20	< 0.20
K	mg/L	6	5	5	5
Mg	"	117	137	124	141
Mn	"	0.624	0.628	0.672	0.708
Na	"	75	76	93	83
Ni	"	< 0.008	< 0.008	< 0.008	0.009
Pb	"	< 0.03	< 0.03	< 0.03	< 0.03
Se	"	< 0.03	< 0.03	< 0.03	< 0.03
Zn	"	< 0.02	< 0.02	< 0.02	< 0.02

TABLE 2 (Continued): ANALYSIS OF WATER FROM LYSIMETERS L-4N AND L-6N AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED DURING APRIL, MAY, AND JUNE 2011

Parameter	Unit	Date Sampled 06/01/11 L-4N	L-6N
pH[1]		7.8	7.7
EC	mS/m	276	342
Total Dissolved Solids	mg/L	3,130	3,854
Total Dissolved Organic Carbon	"	5	62
Cl^-	"	19	92
$SO_4^=$	"	1,320	1,275
TKN	"	7	16
NH_3-N	"	6	12
$NO_2 + NO_3$-N	"	0.83	0.31
Total P	"	< 0.10	< 0.10
Alkalinity as $CaCO_3$	"	660	945
Al	"	< 1.0	< 1.0
As	"	< 0.02	0.03
B	"	0.19	0.26
Ca	"	566	685
Cd	"	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005
Fe	"	5	33
Hg	µg/L	< 0.20	< 0.20
K	mg/L	6	5
Mg	"	125	146
Mn	"	0.654	0.706
Na	"	95	82
Ni	"	< 0.008	0.009
Pb	"	< 0.03	< 0.03
Se	"	< 0.03	< 0.03
Zn	"	< 0.02	< 0.02

[1]pH analyzed beyond recommended holding time of 15 minutes.

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-9N AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED ON MAY 4, 2011

Parameter	Unit	Lysimeter No. L-1N	L-2N	L-3N	L-5N
pH[1]		8.1	8.0	7.9	8.0
EC	mS/m	176	202	84	538
Total Dissolved Solids	mg/L	1,554	1,370	1,966	5,062
Total Dissolved Organic Carbon	"	6	3	24	4
Cl^-	"	18	307	134	779
$SO_4^=$	"	618	244	252	1,574
TKN	"	4	0.6	2	3
NH_3-N	"	4	0.2	0.7	2
$NO_2 + NO_3$-N	"	0.17	2.4	1.0	0.34
Total P	"	< 0.10	< 0.10	< 0.10	< 0.10
Alkalinity as $CaCO_3$	"	419	840	1,126	541
Al	"	< 1.0	< 1.0	< 1.0	< 1.0
As	"	< 0.02	< 0.02	< 0.02	< 0.02
B	"	0.60	0.16	0.09	0.29
Ca	"	212	147	356	546
Cd	"	< 0.001	< 0.001	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005	< 0.005	< 0.005
Fe	"	0.7	0.3	0.4	10
Hg	μg/L	< 0.20	< 0.20	< 0.20	< 0.20
K	mg/L	11	2	1	15
Mg	"	108	70.4	137	240
Mn	"	0.063	0.107	0.348	0.274
Na	"	53	183	80	421
Ni	"	< 0.008	< 0.008	< 0.008	< 0.008
Pb	"	< 0.03	< 0.03	< 0.03	< 0.03
Se	"	< 0.03	< 0.03	< 0.03	< 0.03
Zn	"	< 0.02	< 0.02	< 0.02	< 0.02

TABLE 3 (Continued): ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-9N AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED ON MAY 4, 2011

Parameter	Unit	Lysimeter No. L-7N	L-8N	L-9N
pH[1]		8.4	8.3	8.0
EC	mS/m	116	236	233
Total Dissolved Solids	mg/L	802	1,570	2,104
Total Dissolved Organic Carbon	"	7	3	25
Cl^-	"	91	478	262
$SO_4^=$	"	28	169	214
TKN	"	3	0.8	1
NH_3-N	"	3	0.6	< 0.1
$NO_2 + NO_3$-N	"	< 0.04	0.15	0.73
Total P	"	0.22	< 0.10	< 0.10
Alkalinity as $CaCO_3$	"	430	302	900
Al	"	< 1.0	< 1.0	< 1.0
As	"	< 0.02	< 0.02	< 0.02
B	"	0.29	0.19	0.17
Ca	"	64	130	261
Cd	"	< 0.001	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005	< 0.005
Fe	"	< 0.2	< 0.2	< 0.2
Hg	µg/L	< 0.20	< 0.20	< 0.20
K	mg/L	9	6	4
Mg	"	78.5	53.7	153
Mn	"	0.027	0.182	0.068
Na	"	47	261	120
Ni	"	< 0.008	< 0.008	< 0.008
Pb	"	< 0.03	< 0.03	< 0.03
Se	"	< 0.03	< 0.03	< 0.03
Zn	"	< 0.02	< 0.02	< 0.02

[1]pH analyzed beyond recommended holding time of 15 minutes.

TABLE 4: ANALYSIS OF MONTHLY COMPOSITED BIOSOLIDS PLACED IN THE LAWNDALE AVENUE SOLIDS MANAGEMENT DRYING AREA DURING JUNE 2011

Parameter	Unit	Concentration[1]
pH		8.0
Total Solids	%	17.6
Total Volatile Solids[2]	"	47.5

[1]Values are the means of 15 samples.

[2]Total volatile solids as a percentage of total solids.

TABLE 5: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE LAWNDALE AVENUE SOLIDS MANAGEMENT DRYING AREA DURING MAY 2011

Parameter	Unit	Concentration[1]
pH		7.2
Total Solids	%	46.7
Total Volatile Solids[2]	"	43.9
TKN	mg/kg	32,236
NH_3-N	"	4,337
Total P	"	21,104
Al	"	19,180
Ca	"	36,169
Cd	"	3
Cr	"	144
Cu	"	424
Fe	"	16,883
Hg	"	0.86
K	"	2,942
Mg	"	17,861
Mn	"	544
Na	"	738
Ni	"	40
Pb	"	111
Zn	"	777

[1]Values are the means of 9 samples.

[2]Total volatile solids as a percentage of total solids.

TABLE 6: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE LAWNDALE AVENUE SOLIDS MANAGEMENT DRYING AREA DURING JUNE 2011

Parameter	Unit	Concentration[1]
pH		7.0
Total Solids	%	41.9
Total Volatile Solids[2]	"	42.6
TKN	mg/kg	33,846
NH_3-N	"	5,338
Total P	"	21,266
Al	"	18,113
Ca	"	36,612
Cd	"	3
Cr	"	146
Cu	"	415
Fe	"	16,971
Hg	"	1.1
K	"	2,854
Mg	"	17,484
Mn	"	563
Na	"	840
Ni	"	40
Pb	"	109
Zn	"	789

[1]Values are the means of 11 samples.

[2]Total volatile solids as a percentage of total solids.