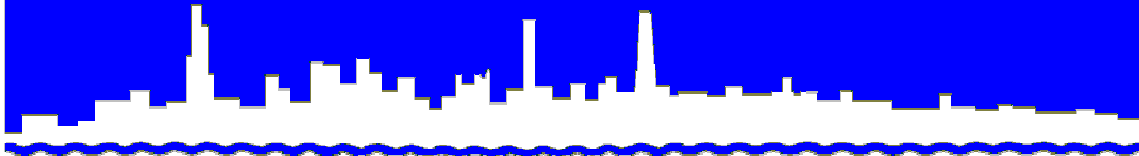


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 11-36

LAWNDALE AVENUE SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

FIRST QUARTER 2011

JUNE 2011

Metropolitan Water Reclamation District of Greater Chicago

100 East Erie Street Chicago, Illinois 60611-3154 f: 312.751.5194 312.751.5190

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June 6, 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 January, February, and March 2011

The attached four tables contain the monitoring data for the Lawndale Avenue Solids Management Area for January, February, and March 2011 as required by 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 January 12, 2011
- Table 2, Analysis of Water from Lysimeters L-4N and L-6N at the Lawndale Avenue Solids Management Area Sampled During January, February, and March 2011
- Table 3, Analysis of Water from Lysimeters L-1N Through L-9N at the Lawndale Avenue Solids Management Area Sampled on March 2, 2011
- Table 4, Analysis of Monthly Compositated Biosolids Placed in the Lawndale Avenue Solids Management Drying Area During March 2011

Mr. S. Alan Keller

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June 6, 2011

Subject: Lawndale Avenue Solids Management Area - Stickney Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2010-AO-0267, Monitoring Report for January, February, and March 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 March 2011. No biosolids were removed from the site during the first quarter of 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
Granato/O'Connor

TABLE 1: ANALYSIS OF WATER FROM MONITORING WELLS M-11
THROUGH M-15 AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT
AREA SAMPLED ON JANUARY 12, 2011

Parameter	Unit	Monitoring Well No.		
		M-11	M-12	M-13
pH ¹		7.2	7.3	7.4
EC	mS/m	44	59	71
Total Dissolved Solids	mg/L	686	868	1,292
Total Dissolved Organic Carbon	"	2	1	2
Cl ⁻	"	< 15	15	< 15
SO ₄ ⁼	"	200	367	656
TKN	"	1	< 0.5	< 0.5
NH ₃ -N	"	1	0.5	0.7
NO ₂ + NO ₃ -N	"	< 0.04	< 0.04	< 0.04
Total P	"	0.11	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	354	302	330
Al	"	< 1.0	< 1.0	< 1.0
As	"	< 0.02	< 0.02	< 0.02
B	"	1.4	1.9	1.6
Ca	"	95	81	167
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	10	10
Mg	"	44.3	36.9	77.0
Mn	"	0.013	< 0.003	0.007
Na	"	58	138	91
Ni	"	< 0.008	< 0.008	< 0.008
Pb	"	< 0.03	< 0.03	< 0.03
Se	"	< 0.03	< 0.03	< 0.03
Zn	"	0.77	0.41	0.79
Fecal coliform	MPN ²	< 1	< 1	< 1
Static H ₂ O Elev.	ft	628	633	627

TABLE 1 (Continued): ANALYSIS OF WATER FROM MONITORING WELLS M-11 THROUGH M-15 AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED ON JANUARY 12, 2011

Parameter	Unit	Monitoring Well No.	
		M-14	M-15
pH ¹		7.8	7.2
EC	mS/m	53	83
Total Dissolved Solids	mg/L	558	1,636
Total Dissolved Organic Carbon	"	1	2
Cl ⁻	"	< 15	< 15
SO ₄ ⁼	"	135	837
TKN	"	< 0.5	< 0.5
NH ₃ -N	"	0.3	0.6
NO ₂ + NO ₃ -N	"	< 0.04	< 0.04
Total P	"	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	325	356
Al	"	< 1.0	< 1.0
As	"	< 0.02	< 0.02
B	"	1.4	1.2
Ca	"	73	237
Cd	"	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005
Fe	"	< 0.2	0.8
Hg	μg/L	< 0.20	< 0.20
K	mg/L	8	11
Mg	"	40.2	104
Mn	"	< 0.003	0.018
Na	"	42	63
Ni	"	< 0.008	< 0.008
Pb	"	< 0.03	< 0.03
Se	"	< 0.03	< 0.03
Zn	"	0.49	1.9
Fecal coliform	MPN ²	< 1	< 1
Static H ₂ O Elev.	ft	623	NR ³

¹pH analyzed beyond recommended holding time of 15 minutes.

²Most probable number per 100 mL.

³No reading.

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

Parameter	Unit	Date Sampled			
		01/26/11		02/16/11	
		L-4N	L-6N	L-4N	L-6N
pH ¹				8.0	8.0
EC	mS/m			306	341
Total Dissolved Solids	mg/L			2,978	3,510
Total Dissolved Organic Carbon	"			6	66
Cl ⁻	"			45	90
SO ₄ ⁼	"			1,621	1,425
TKN	"			4	16
NH ₃ -N	"	L	L	4	12
NO ₂ + NO ₃ -N	"	Y	Y	1.1	0.17
Total P	"	S	S	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	I	I	553	NA ²
		M	M		
Al	"	E	E	< 1.0	< 1.0
As	"	T	T	< 0.02	< 0.02
B	"	E	E	0.16	0.19
Ca	"	R	R	588	705
Cd	"			< 0.001	< 0.001
		F	F		
Cr	"	R	R	< 0.003	< 0.003
Cu	"	O	O	< 0.005	< 0.005
Fe	"	Z	Z	3	20
Hg	µg/L	E	E	< 0.20	< 0.20
K	mg/L	N	N	6	5
Mg	"			128	146
Mn	"			0.582	0.704
Na	"			68	78
Ni	"			0.009	0.009
Pb	"			< 0.03	< 0.03
Se	"			< 0.03	< 0.03
Zn	"			< 0.02	< 0.02

TABLE 2 (Continued): ANALYSIS OF WATER FROM LYSIMETERS L-4N
AND L-6N AT THE LAWNSDALE AVENUE SOLIDS MANAGEMENT
AREA SAMPLED DURING JANUARY, FEBRUARY, AND MARCH 2011

Parameter	Unit	Date Sampled	
		03/02/11	
		L-4N	L-6N
pH ¹		7.8	7.7
EC	mS/m	290	329
Total Dissolved Solids	mg/L	2,972	3,482
Total Dissolved Organic Carbon	"	6	69
Cl ⁻	"	22	50
SO ₄ ⁼	"	1,397	1,353
TKN	"	5	16
NH ₃ -N	"	5	12
NO ₂ + NO ₃ -N	"	0.98	< 0.04
Total P	"	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	710	993
Al	"	< 1.0	< 1.0
As	"	< 0.02	< 0.02
B	"	0.13	0.22
Ca	"	580	688
Cd	"	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005
Fe	"	5	36
Hg	μg/L	< 0.20	< 0.20
K	mg/L	6	5
Mg	"	125	142
Mn	"	0.712	0.733
Na	"	84	84
Ni	"	< 0.008	0.009
Pb	"	< 0.03	< 0.03
Se	"	< 0.03	< 0.03
Zn	"	< 0.02	< 0.02

¹pH analyzed beyond recommended holding time of 15 minutes.

²No analysis; insufficient sample.

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS L-1N
THROUGH L-9N AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT
AREA SAMPLED ON MARCH 2, 2011

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-5N
pH ¹		7.9	8.0	7.7	7.8
EC	mS/m	167	216	240	527
Total Dissolved Solids	mg/L	1,430	1,534	1,860	4,628
Total Dissolved Organic Carbon	"	7	4	26	4
Cl ⁻	"	< 15	112	55	599
SO ₄ ⁼	"	636	340	244	1,742
TKN	"	4	0.6	3	2
NH ₃ -N	"	4	0.2	1	2
NO ₂ + NO ₃ -N	"	< 0.04	0.10	0.08	0.29
Total P	"	< 0.10	< 0.10	0.29	< 0.10
Alkalinity as CaCO ₃	"	415	416	1,140	487
Al	"	< 1.0	< 1.0	< 1.0	< 1.0
As	"	< 0.02	< 0.02	< 0.02	< 0.02
B	"	0.58	0.19	0.10	0.29
Ca	"	191	147	320	528
Cd	"	< 0.001	< 0.001	< 0.001	0.004
Cr	"	< 0.003	< 0.003	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005	< 0.005	< 0.005
Fe	"	0.7	< 0.2	6	6
Hg	μg/L	< 0.20	< 0.20	< 0.20	< 0.20
K	mg/L	11	2	2	16
Mg	"	107	81.9	136	236
Mn	"	0.063	0.091	0.569	0.276
Na	"	54	224	79	434
Ni	"	0.016	< 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	"	0.03	< 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 MARCH 2, 2011

Parameter	Unit	Lysimeter No.		
		L-7N-1	L-8N	L-9N
pH ¹			8.2	8.1
EC	mS/m		225	226
Total Dissolved Solids	mg/L		1,540	1,764
Total Dissolved Organic Carbon	"		3	25
Cl ⁻	"		118	53
SO ₄ ⁻	"	L	198	226
		Y		
TKN	"	S	3	2
NH ₃ -N	"	I	2	0.6
NO ₂ + NO ₃ -N	"	M	0.28	0.18
Total P	"	E	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	T	344	931
		E		
Al	"	R	< 1.0	< 1.0
As	"		< 0.02	< 0.02
B	"	I	0.19	0.14
Ca	"	N	145	225
Cd	"	A	< 0.001	< 0.001
		C		
Cr	"	C	< 0.003	< 0.003
Cu	"	E	< 0.005	0.008
Fe	"	S	0.3	3
Hg	μg/L	S	< 0.20	< 0.20
K	mg/L	I	6	4
		B		
Mg	"	L	60.3	147
Mn	"	E	0.209	0.482
Na	"		254	120
Ni	"		< 0.008	0.083
Pb	"		< 0.03	< 0.03
Se	"		< 0.03	< 0.03
Zn	"		< 0.02	0.13

¹pH analyzed beyond recommended holding time of 15 minutes.

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

Parameter	Unit	Concentration ¹
pH		7.7
Total Solids	%	30.5
Total Volatile Solids ²	"	45.7

¹Values are the means of three samples.

²Total volatile solids as a percentage of total solids.