

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 12-23

LAWNDALE AVENUE SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

FIRST QUARTER 2012

JUNE 2012

Protecting Our Water Environment

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June 1, 2012

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 2012

The attached four tables contain the monitoring data for the Lawndale Avenue Solids Management Area for January, February, and March 2012 as required by Illinois Environmental Protection Agency 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 11, 2012
- 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 2012
- Table 3, Analysis of Water from Lysimeters L-1N Through L-9N at the Lawndale Avenue Solids Management Area Sampled on March 7, 2012
- Table 4, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Lawndale Avenue Solids Management Drying Area During March 2012

Mr. S. Alan Keller

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June 1, 2012

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 2012

No biosolids were placed in the solids drying area during the first quarter of 2012. Biosolids were removed from the site during March 2012.

Very truly yours,

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

TCG:PL:cm

Attachments

cc w/att: R. Sulski, IEPA
Records Unit, IEPA

TABLE 1: ANALYSIS OF WATER FROM MONITORING WELLS M-11 THROUGH M-15 AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED ON JANUARY 11, 2012

Parameter	Unit	Monitoring Well No.		
		M-11	M-12	M-13
pH ¹		7.6	7.9	7.9
EC	mS/m	45	41	79
Total Dissolved Solids	mg/L	666	872	1,318
Total Dissolved Organic Carbon	"	2	< 1	2
Cl ⁻	"	11	14	< 10
SO ₄ ⁼	"	186	341	610
TKN	"	2	< 1	< 1
NH ₃ -N	"	1	0.4	0.5
NO ₂ + NO ₃ -N	"	< 0.15	< 0.15	< 0.15
Total P	"	< 0.10	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	349	303	329
Al	"	< 1.0	< 1.0	< 1.0
Ca	"	93	80	170
Cd	"	< 0.001	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005	< 0.005
Fe	"	< 0.1	< 0.1	< 0.1
Hg	μg/L	< 0.20	< 0.20	< 0.20
K	mg/L	9	10	10
Mg	"	45	37	79
Mn	"	0.037	0.004	0.008
Na	"	57	136	92
Ni	"	< 0.005	< 0.005	< 0.005
Pb	"	< 0.02	< 0.02	< 0.02
Zn	"	0.49	1.0	1.1
Fecal coliform	MPN ²	< 1	< 1	< 1
Static H ₂ O Elev.	ft	627	631	629

TABLE 1 (Continued): ANALYSIS OF WATER FROM MONITORING WELLS M-11 THROUGH M-15 AT THE LAWDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED ON JANUARY 11, 2012

Parameter	Unit	Monitoring Well No.	
		M-14	M-15
pH ¹		8.0	7.5
EC	mS/m	58	85
Total Dissolved Solids	mg/L	536	1,626
Total Dissolved Organic Carbon	"	< 1	2
Cl ⁻	"	< 10	< 10
SO ₄ ⁼	"	123	804
TKN	"	< 1	< 1
NH ₃ -N	"	0.3	0.6
NO ₂ + NO ₃ -N	"	< 0.15	< 0.15
Total P	"	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	322	353
Al	"	< 1.0	< 1.0
Ca	"	75	246
Cd	"	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005
Fe	"	< 0.1	1
Hg	µg/L	< 0.20	< 0.20
K	mg/L	8	11
Mg	"	41	109
Mn	"	0.003	0.015
Na	"	42	65
Ni	"	< 0.005	< 0.005
Pb	"	< 0.02	< 0.02
Zn	"	0.40	1.6
Fecal coliform	MPN ²	< 1	< 1
Static H ₂ O Elev.	ft	624	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 LAWDALE AVENUE SOLIDS MANAGEMENT
AREA SAMPLED DURING JANUARY, FEBRUARY, AND MARCH 2012

Parameter	Unit	Date Sampled			
		01/09/12 L-4N	01/04/12 L-6N	02/02/12	
		L-4N	L-6N	L-4N	L-6N
pH ¹		7.9	7.8	7.9	8.0
EC	mS/m	276	353	276	332
Total Dissolved Solids	mg/L	2,680	3,530	NA ²	NA ²
Total Dissolved Organic Carbon	"	6	68	5	60
Cl ⁻	"	12	72	254	64
SO ₄ ⁼	"	1,276	1,438	1,292	1,401
TKN	"	6	16	4	16
NH ₃ -N	"	3	12	4	11
NO ₂ + NO ₃ -N	"	0.81	< 0.15	1.4	< 0.15
Total P	"	< 0.10	0.11	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	599	1,032	590	975
Al	"	< 1.0	< 1.0	< 1.0	< 1.0
Ca	"	588	752	576	744
Cd	"	< 0.001	< 0.001	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005	< 0.005	< 0.005
Fe	"	0.4	39	4	38
Hg	μg/L	< 0.20	< 0.20	< 0.20	< 0.20
K	mg/L	5	5	5	5
Mg	"	107	149	108	149
Mn	"	0.516	0.837	0.542	0.793
Na	"	62	79	61	78
Ni	"	< 0.005	0.008	< 0.005	0.007
Pb	"	< 0.02	< 0.02	< 0.02	< 0.02
Zn	"	< 0.01	0.02	< 0.01	< 0.01

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 2012

Parameter	Unit	Date Sampled	
		L-4N	L-6N
		03/07/12	
pH ¹		7.8	7.9
EC	mS/m	288	348
Total Dissolved Solids	mg/L	2,740	NA ²
Total Dissolved Organic Carbon	"	5	64
Cl ⁻	"	19	86
SO ₄ ⁼	"	1,216	1,285
TKN	"	4	16
NH ₃ -N	"	4	12
NO ₂ + NO ₃ -N	"	0.85	0.18
Total P	"	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	653	958
Al	"	< 1.0	< 1.0
Ca	"	563	700
Cd	"	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005
Fe	"	6	34
Hg	μg/L	< 0.20	< 0.20
K	mg/L	5	5
Mg	"	110	145
Mn	"	0.585	0.750
Na	"	58	82
Ni	"	< 0.005	0.008
Pb	"	< 0.02	< 0.02
Zn	"	< 0.01	< 0.01

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 LAWDALE AVENUE SOLIDS MANAGEMENT
AREA SAMPLED ON MARCH 7, 2012

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-5N
pH ¹		8.0	8.0	7.9	7.8
EC	mS/m	177	187	251	525
Total Dissolved Solids	mg/L	1,468	1,238	1,898	4,514
Total Dissolved Organic Carbon	"	5	4	26	3
Cl ⁻	"	34	261	137	784
SO ₄ ⁼	"	612	227	233	1,623
TKN	"	3	< 1	3	2
NH ₃ -N	"	3	< 0.1	1	2
NO ₂ + NO ₃ -N	"	0.17	< 0.15	0.43	0.36
Total P	"	< 0.10	< 0.10	0.36	< 0.10
Alkalinity as CaCO ₃	"	417	405	1,162	532
Al	"	< 1.0	< 1.0	< 1.0	< 1.0
Ca	"	190	141	351	547
Cd	"	< 0.001	< 0.001	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005	< 0.005	< 0.005
Fe	"	0.4	0.2	10	12
Hg	μg/L	< 0.20	< 0.20	< 0.20	< 0.20
K	mg/L	9	2	< 1	16
Mg	"	110	64	138	238
Mn	"	0.073	0.129	0.642	0.274
Na	"	59	169	80	410
Ni	"	< 0.005	0.006	< 0.005	0.006
Pb	"	< 0.02	< 0.02	< 0.02	< 0.02
Zn	"	< 0.01	< 0.01	< 0.01	0.03

TABLE 3 (Continued): ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-9N AT THE LAWNDALE AVENUE SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 7, 2012

Parameter	Unit	Lysimeter No.		
		L-7N-1	L-8N	L-9N
pH ¹		8.4	8.2	8.1
EC	mS/m	126	253	262
Total Dissolved Solids	mg/L	NA ²	1,576	1,938
Total Dissolved Organic Carbon	"	8	5	26
Cl ⁻	"	136	501	258
SO ₄ ⁼	"	17	184	216
TKN	"	< 1	< 1	2
NH ₃ -N	"	0.9	1	1
NO ₂ + NO ₃ -N	"	0.33	0.27	0.20
Total P	"	0.14	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	467	402	939
Al	"	< 1.0	< 1.0	< 1.0
Ca	"	67	160	273
Cd	"	< 0.001	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005	< 0.005
Fe	"	< 0.1	0.4	11
Hg	μg/L	< 0.20	< 0.20	< 0.20
K	mg/L	9	6	4
Mg	"	92	69	161
Mn	"	0.039	0.254	0.665
Na	"	59	262	112
Ni	"	< 0.005	< 0.005	< 0.005
Pb	"	< 0.02	< 0.02	< 0.02
Zn	"	0.02	< 0.01	0.02

¹pH analyzed beyond recommended holding time of 15 minutes.

²No analysis; insufficient sample.

TABLE 4: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE LAWNSDALE AVENUE SOLIDS MANAGEMENT DRYING AREA DURING MARCH 2012

Parameter	Unit	Concentration ¹
pH		8.0
Total Solids	%	25.3
Total Volatile Solids ²	"	43.3
TKN	mg/kg	33,424
NH ₃ -N	"	7,750
Total P	"	17,802
Al	"	18,870
Ca	"	34,528
Cd	"	4
Cr	"	149
Cu	"	381
Fe	"	16,231
Hg	"	1.0
K	"	3,421
Mg	"	18,826
Mn	"	394
Na	"	768
Ni	"	39
Pb	"	119
Zn	"	781

¹Values are the means of three samples.

²Total volatile solids as a percentage of total solids.