METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

RESEARCH AND DEVELOPMENT DEPARTMENT

REPORT NO. 08-10

RIDGELAND AVENUE SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

FOURTH QUARTER 2007

MARCH 2008

Protecting Our Water Environment

Metropolitan Water Reclamation District of Greater Chicago

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Louis Kollias, P.E., BCEE
Director of Research and Development

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March 5, 2008

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: Ridgeland Avenue Solids Management Area - Stickney WRP, Contract No. 89-202-2P, IEPA Permit No. 2005-AO-4283, Monitoring Report for October, November, and December 2007

The attached six tables contain the monitoring data for the Ridgeland Avenue Solids Management Area for October, November, and December 2007 as required by IEPA Operating Permit No. 2005-AO-4283. In a letter dated January 19, 2007, the IEPA granted permission to terminate the monitoring of lysimeters L-l, L-2, and L-3. Beginning October 2007, permission has also been granted for the abandonment of lysimeter L-4. 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 Lysimeters L-IN through L-4N at the Ridgeland Avenue Solids Management Area Sampled on October 10, 2007

Table 2, Analysis of Water from Lysimeters L-IN through L-4N at the Ridgeland Avenue Solids Management Area Sampled on October 24, 2007

Table 3, Analysis of Water from Lysimeters L-IN through L-4N at the Ridgeland Avenue Solids Management Area Sampled on November 7, 2007

Table 4, Analysis of Water from Lysimeters L-IN through L-4N at the Ridgeland Avenue Solids Management Area Sampled on November 20, 2007

Table 5, Analysis of Water from Lysimeters L-IN through LAN at the Ridgeland Avenue Solids Management Area Sampled on December 5, 2007

Subject: Ridgeland Avenue Solids Management Area - Stickney WRP, Contract No. 89-202-2P, IEPA Permit No. 2005-AO-4283, Monitoring Report for October, November, and December 2007

Table 6, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on December 19, 2007

No biosolids were placed in or removed from the solids drying area during October, November, and December 2007.

Very truly yours,

Louis Kollias
Director
Research and Development

LK:PL:spy
Attachments
cc w/att: Mr. Sulski, IEPA
Records Unit, IEPA
Stuba/Granato/Cox/Lindo/M. Patel

cc wo/att: Jamjun/Sharma/Garelli/Conway

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 10, 2007

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH[1]		7.5	7.7	7.7	7.8
EC	mS/m	434	246	232	194
Total Dissolved Solids	mg/L	3,900	1,820	1,686	1,334
Total Diss. Org. Carbon	”	3	7	2	4
Cl^-	”	955	276	458	394
$SO_4^=$	”	897	244	279	158
TKN	”	3.2	38	0.70	1.2
NH_3-N	”	2.1	35	0.30	0.65
$NO_2 + NO_3$-N	”	0.04	0.47	0.46	0.26
Total P	”	0.05	<0.05	0.18	0.26
Alkalinity as $CaCO_3$	”	669	849	380	336
Al	”	0.051	0.024	0.022	0.019
As	”	<0.01	<0.01	<0.01	<0.01
Ca	”	563	205	190	171
Cd	”	<0.0004	<0.0004	<0.0004	<0.0004
Cr	”	<0.0005	<0.0005	<0.0005	0.0007
Cu	”	<0.002	<0.002	<0.002	<0.002
Fe	”	5.06	2.02	0.133	4.08
Hg	μg/L	<0.05	<0.05	<0.05	<0.05
K	mg/L	8	12	4	3
Mg	”	266	127	62.4	40.2
Mn	”	0.0870	0.1479	0.3023	0.7821
Na	”	146	90	221	176
Ni	”	<0.0004	<0.0004	<0.0004	<0.0004
Pb	”	<0.004	<0.004	<0.004	0.005
Se	”	<0.02	<0.02	<0.02	<0.02
Zn	”	0.003	0.006	0.004	0.003

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

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 24, 2007

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH[1]		7.3	7.4	7.6	7.6
EC	mS/m	448	243	248	191
Total Dissolved Solids	mg/L	4,368	1,788	1,692	1,352
Total Diss. Org. Carbon	”	3	6	2	6
Cl^-	”	953	295	446	366
$SO_4^=$	”	876	221	253	131
TKN	”	4.9	43	1.0	2.2
NH_3-N	”	2.4	35	0.34	0.87
$NO_2 + NO_3$-N	”	0.31	0.46	0.59	0.74
Total P	”	<0.05	<0.05	<0.05	0.22
Alkalinity as $CaCO_3$	”	671	861	370	413
Al	”	0.054	0.030	0.026	0.022
As	”	<0.01	<0.01	<0.01	<0.01
Ca	”	495	207	191	175
Cd	”	<0.0004	<0.0004	<0.0004	<0.0004
Cr	”	<0.0005	<0.0005	<0.0005	0.0008
Cu	”	<0.002	<0.002	<0.002	<0.002
Fe	”	5.10	4.73	0.480	4.24
Hg	μg/L	<0.05	<0.05	<0.05	<0.05
K	mg/L	8	11	4	3
Mg	”	257	126	62.7	47.0
Mn	”	0.0813	0.1445	0.2989	0.7158
Na	”	141	92	219	170
Ni	”	<0.0004	<0.0004	<0.0004	<0.0004
Pb	”	<0.004	<0.004	<0.004	0.006
Se	”	<0.02	<0.02	<0.02	<0.02
Zn	”	0.010	0.010	0.013	0.012

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

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 7, 2007

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH[1]		7.6	7.7	7.9	7.9
EC	mS/m	460	251	226	235
Total Dissolved Solids	mg/L	4,276	1,776	NA	1,220
Total Diss. Org. Carbon	"	3	6	NA	5
Cl^-	"	948	298	428	344
$SO_4^=$	"	966	265	318	169
TKN	"	5.1	34	1.2	1.5
NH_3-N	"	3.1	30	0.44	0.68
$NO_2 + NO_3$-N	"	0.07	0.03	0.20	0.07
Total P	"	<0.05	0.08	<0.10	1.1
Alkalinity as $CaCO_3$	"	683	801	366	336
Al	"	0.059	0.031	0.042	0.032
As	"	<0.01	<0.01	<0.02	<0.01
Ca	"	540	214	185	152
Cd	"	0.0008	0.0009	0.0010	0.0006
Cr	"	<0.0005	<0.0005	0.0014	0.0009
Cu	"	<0.002	<0.002	<0.004	<0.002
Fe	"	5.26	4.84	0.490	5.98
Hg	μg/L	<0.05	<0.05	<0.10	<0.05
K	mg/L	9	11	4	3
Mg	"	288	129	62.1	36.3
Mn	"	0.0892	0.1574	0.3102	0.7132
Na	"	150	109	216	172
Ni	"	<0.0004	<0.0004	<0.0008	<0.0004
Pb	"	<0.004	<0.004	<0.008	<0.004
Se	"	<0.02	<0.02	<0.04	<0.02
Zn	"	0.009	0.009	0.012	0.007

[1]pH analyzed beyond recommended holding time of 15 minutes.
NA = No analysis; insufficient sample.

TABLE 4: ANALYSIS OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 20, 2007

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH[1]		7.3	7.4	7.6	7.7
EC	mS/m	422	244	229	165
Total Dissolved Solids	mg/L	4,404	1,848	1,680	1,184
Total Diss. Org. Carbon	”	3	7	2	5
Cl^-	”	973	290	444	322
$SO_4^=$	”	831	244	290	151
TKN	”	3.5	37	0.85	1.4
NH_3-N	”	2.1	33	0.28	0.61
$NO_2 + NO_3$-N	”	0.07	4.0	0.09	0.43
Total P	”	<0.05	0.05	<0.05	0.34
Alkalinity as $CaCO_3$	”	681	823	373	321
Al	”	0.072	0.043	0.052	0.026
As	”	<0.01	<0.01	<0.01	<0.01
Ca	”	519	226	195	147
Cd	”	<0.0004	<0.0004	<0.0004	<0.0004
Cr	”	0.0015	0.0013	0.0012	0.0014
Cu	”	<0.002	<0.002	<0.002	<0.002
Fe	”	5.60	6.30	0.641	6.60
Hg	μg/L	<0.05	<0.05	<0.05	<0.05
K	mg/L	8	12	4	3
Mg	”	284	136	63.5	33.8
Mn	”	0.0825	0.1514	0.2741	0.6714
Na	”	148	99	220	170
Ni	”	<0.0004	<0.0004	<0.0004	0.0074
Pb	”	<0.004	<0.004	<0.004	0.005
Se	”	<0.02	<0.02	<0.02	<0.02
Zn	”	0.006	0.007	0.010	0.014

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

TABLE 5: ANALYSIS OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 5, 2007

Parameter	Unit	Lysimeter No. L-1N	L-2N	L-3N	L-4N
pH[1]		7.6	7.7	7.8	
EC	mS/m	470	246	236	|
Total Dissolved Solids	mg/L	4,276	1,660	1,744	|
Total Diss. Org. Carbon	"	3	7	2	|
Cl^-	"	563	252	412	|
$SO_4^=$	"	887	249	319	|
					|
TKN	"	1.7	40	0.83	|
NH_3-N	"	0.91	36	0.32	|
$NO_2 + NO_3$-N	"	0.27	0.36	0.41	
Total P	"	<0.05	<0.05	<0.05	L
Alkalinity as $CaCO_3$	"	544	735	348	Y
					S
Al	"	0.058	0.030	0.030	I
As	"	<0.01	<0.01	<0.01	M
Ca	"	508	215	211	E
Cd	"	<0.0004	<0.0004	0.0004	T
Cr	"	0.0006	0.0014	0.0013	E
					R
Cu	"	<0.002	<0.002	<0.002	
Fe	"	4.21	2.81	0.430	D
Hg	μg/L	<0.05	<0.05	<0.05	R
K	mg/L	8	12	4	Y
Mg	"	265	133	69.9	
					|
Mn	"	0.0823	0.1381	0.2478	|
Na	"	149	91	222	|
Ni	"	<0.0004	<0.0004	<0.0004	|
Pb	"	0.009	<0.004	<0.004	|
Se	"	<0.02	<0.02	<0.02	|
					|
Zn	"	0.011	0.008	0.005	

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

TABLE 6: ANALYSIS OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 19, 2007

Parameter	Unit	Lysimeter No. L-1N	L-2N	L-3N	L-4N
pH[1]		7.7	7.8		8.0
EC	mS/m	440	254		162
Total Dissolved Solids	mg/L	4,368	1,660		1,076
Total Diss. Org. Carbon	”	3	6		4
Cl^-	”	947	287		300
$SO_4^=$	”	896	266		152
TKN	”	2.0	39		1.5
NH_3-N	”	1.0	34		0.87
$NO_2 + NO_3$-N	”	<0.02	<0.02		0.13
Total P	”	<0.05	<0.05	L	0.05
Alkalinity as $CaCO_3$	”	665	857	Y	313
				S	
Al	”	0.071	0.041	I	0.030
As	”	<0.01	<0.01	M	<0.01
Ca	”	516	223	E	134
Cd	”	<0.0004	<0.0004	T	<0.0004
Cr	”	0.0014	0.0014	E	0.0016
				R	
Cu	”	<0.002	<0.002		<0.002
Fe	”	4.82	3.74	D	1.02
Hg	μg/L	<0.05	<0.05	R	<0.05
K	mg/L	8	12	Y	3
Mg	”	262	134		32.2
Mn	”	0.0898	0.1463		0.5330
Na	”	146	90		163
Ni	”	<0.0004	<0.0004		<0.0004
Pb	”	<0.004	<0.004		0.005
Se	”	<0.02	<0.02		<0.02
Zn	”	0.007	0.005		0.004

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