Metropolitan Water Reclamation District of Greater Chicago

RESEARCH AND DEVELOPMENT DEPARTMENT

REPORT NO. 06-30

RIDGELAND AVENUE SOLIDS MANAGEMENT AREA

MONITORING DATA FOR

FIRST QUARTER 2006

May 2006

May 31, 2006

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 Data for January, February, and March 2006

The attached seven tables contain the monitoring data for the Ridgeland Avenue Solids Management Area for January, February, and March 2006 as required by IEPA Operating Permit No. 2005-AO-4283. During the quarter, Lysimeters L-1 through L-4 and L-1N yielded no sample despite several attempts to sample them. Lysimeter L-1N experienced a temporary problem due to freezing weather. A new lysimeter, L-4N, was installed in December 2005 and initiated during the first week of January. The District will shortly be submitting a request to the IEPA to terminate monitoring of the old lysimeters which rarely yield samples.

The data reported are as follows:

Table 1, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on January 4, 2006

Table 2, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on January 18, 2006

Table 3, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on February 2, 2006

Table 4, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on February 16, 2006

Subject: Ridgeland Avenue Solids Management Area - Stickney WRP, Contract No. 89-202-2P, IEPA Permit No. 2005-AO-4283, Monitoring Data for January, February, and March 2006

Table 5, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on March 1, 2006

Table 6, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on March 15, 2006

Table 7, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on March 29, 2006

No biosolids were placed in or removed from the solids drying area during the period of January to March.

Very truly yours,

Richard Lanyon
Director
Research and Development

RL:PL:spy
Enclosure
cc w/enc: Records Unit (IEPA)
Sulski (IEPA)

cc via MWRDGC Web Site:
Levy/Sharma
Kollias/Granato
O'Connor/Cox
Lindo/Patel, M.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1

ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-4N
AT THE RIDGELAND AVENUE SOLIDS MANAGEMENT AREA
SAMPLED ON JANUARY 4, 2006

		Lysimeter No.			
Parameter	Unit	L-1N[2]	L-2N[2]	L-3N[2]	L-4N[3]
pH[1]			7.8	7.9	
EC	mS/m		230	204	
Total Dissolved Solids	mg/L		840	1,328	
Total Dissolved Organic Carbon	”		8	3	
Cl^-	”		220	335	
$SO_4^=$	”		196	237	
TKN	”		34	1.2	
NH_3-N	”	L	32	<0.04	
$NO_2 + NO_3$-N	”	Y	<0.02	0.11	
Total P	”	S	<0.05	<0.10	
Alkalinity as $CaCO_3$	”	I	853	348	
		M			
Al	”	E	<0.06	<0.12	
As	”	T	<0.002	<0.004	
Ca	”	E	199	137	
Cd	”	R	0.0005	0.0006	
Cr	”		<0.0007	<0.0014	
		F			
Cu	”	R	<0.002	0.004	
Fe	”	O	0.964	0.102	
Hg	μg/L	Z	<0.05	<0.10	
K	mg/L	E	16	4.3	
Mg	”	N	135	70.4	
Mn	”		0.2008	0.0562	
Na	”		59	171	
Ni	”		<0.002	<0.004	
Pb	”		<0.0009	<0.0018	
Se	”		<0.002	<0.004	
Zn	”		0.016	0.022	

[1]pH analyzed beyond recommended holding time of 15 minutes.
[2]Lysimeter installed in May 2005.
[3]Lysimeter installed in December 2005; final testing pending.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2

ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-4N
AT THE RIDGELAND AVENUE SOLIDS MANAGEMENT AREA
SAMPLED ON JANUARY 18, 2006

		Lysimeter No.			
Parameter	Unit	L-1N[2]	L-2N[2]	L-3N[2]	L-4N[3]
pH[1]			7.5	7.6	8.0
EC	mS/m		221	182	100
Total Dissolved Solids	mg/L		1,366	996	680
Total Dissolved Organic Carbon	”		8	2	8
Cl^-	”		208	287	45
$SO_4^=$	”		183	231	170
TKN	”		37	1.2	2.0
NH_3-N	”		31	<0.04	0.90
$NO_2 + NO_3$-N	”		0.07	0.20	0.05
Total P	”		0.09	0.26	0.51
Alkalinity as $CaCO_3$	”		794	300	360
Al	”		<0.06	<0.12	<0.06
As	”		<0.002	<0.004	<0.002
Ca	”		199	106	104
Cd	”		<0.0003	<0.0006	<0.0003
Cr	”		<0.0007	<0.0014	0.0010
Cu	”		<0.002	0.006	0.003
Fe	”		1.30	0.084	0.140
Hg	μg/L		<0.05	<0.10	<0.05
K	mg/L		15	3.9	4.8
Mg	”		132	61.6	42.0
Mn	”		0.2356	0.0774	0.1222
Na	”		60	157	62
Ni	”		<0.002	<0.004	<0.002
Pb	”		0.0010	0.0060	0.0020
Se	”		<0.002	<0.004	<0.002
Zn	”		0.014	0.022	0.014

LYSIMETER

[1]pH analyzed beyond recommended holding time of 15 minutes.
[2]Lysimeter installed in May 2005.
[3]Lysimeter installed in December 2005.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3

ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-4N
AT THE RIDGELAND AVENUE SOLIDS MANAGEMENT AREA
SAMPLED ON FEBRUARY 2, 2006

Parameter	Unit	Lysimeter No. L-1N[2]	L-2N[2]	L-3N[2]	L-4N[3]
pH[1]			8.1	8.2	8.3
EC	mS/m		221	170	107
Total Dissolved Solids	mg/L		1,276	1,114	770
Total Dissolved Organic Carbon	”		7	3	8
Cl^-	”		225	286	93
$SO_4^=$	”		241	268	224
TKN	”		29	0.62	2.7
NH_3-N	”		31	0.19	1.6
$NO_2 + NO_3$-N	”		0.07	0.27	0.06
Total P	”		<0.05	0.05	0.58
Alkalinity as $CaCO_3$	”		859	309	344
Al	”		0.37	0.34	0.53
As	”		<0.002	<0.002	<0.002
Ca	”		207	121	113
Cd	”		0.0022	0.0016	0.0014
Cr	”		<0.0007	<0.0007	0.0010
Cu	”		<0.002	<0.002	<0.002
Fe	”		0.053	0.044	0.070
Hg	μg/L		<0.05	0.05	<0.05
K	mg/L		14	4.0	4.6
Mg	”		127	57.8	51.7
Mn	”		0.2056	0.0721	0.1404
Na	”		66	153	53
Ni	”		<0.002	<0.002	<0.002
Pb	”		<0.0009	<0.0009	<0.0009
Se	”		<0.002	<0.002	<0.002
Zn	”		0.014	0.012	0.015

LYSIMETER

[1]pH analyzed beyond recommended holding time of 15 minutes.
[2]Lysimeter installed in May 2005.
[3]Lysimeter installed in December 2005.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4

ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-4N
AT THE RIDGELAND AVENUE SOLIDS MANAGEMENT AREA
SAMPLED ON FEBRUARY 16, 2006

Parameter	Unit	Lysimeter No. L-1N[2]	L-2N[2]	L-3N[2]	L-4N[3]
pH[1]			7.7	7.9	8.0
EC	mS/m		233	164	166
Total Dissolved Solids	mg/L		1,590	1,366	1,382
Total Dissolved Organic Carbon	”		9	3	6
Cl^-	”		221	331	375
$SO_4^=$	”		245	314	154
TKN	”		41	2.9	2.6
NH_3-N	”		33	1.7	1.3
$NO_2 + NO_3$-N	”		0.23	0.21	0.07
Total P	”		<0.05	<0.05	0.14
Alkalinity as $CaCO_3$	”		871	363	275
Al	”		<0.06	<0.06	<0.06
As	”		<0.002	<0.002	<0.002
Ca	”		204	147	165
Cd	”		0.0004	0.0003	0.0004
Cr	”		0.0010	0.0010	0.0010
Cu	”		<0.002	<0.002	<0.002
Fe	”		2.50	0.505	0.255
Hg	μg/L		<0.05	<0.05	<0.05
K	mg/L		14	4.9	5.7
Mg	”		130	67.2	61.6
Mn	”		0.1877	0.1050	0.2929
Na	”		63	165	89
Ni	”		<0.002	<0.002	<0.002
Pb	”		0.0020	0.0040	0.0020
Se	”		<0.002	<0.002	<0.002
Zn	”		0.013	0.011	0.012

[1]pH analyzed beyond recommended holding time of 15 minutes.
[2]Lysimeter installed in May 2005.
[3]Lysimeter installed in December 2005.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5

ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-4N
AT THE RIDGELAND AVENUE SOLIDS MANAGEMENT AREA
SAMPLED ON MARCH 1, 2006

Parameter	Unit	Lysimeter No. L-1N[2]	L-2N[2]	L-3N[2]	L-4N[3]
pH[1]			7.9	8.0	8.1
EC	mS/m		223	198	165
Total Dissolved Solids	mg/L		1,582	1,498	1,356
Total Dissolved Organic Carbon	”		7	4	6
Cl^-	”		246	370	376
$SO_4^=$	”		347	313	171
TKN	”		39	1.4	3.3
NH_3-N	”		32	0.42	1.9
$NO_2 + NO_3$-N	”		0.16	0.23	0.07
Total P	”		<0.05	<0.05	0.70
Alkalinity as $CaCO_3$	”		867	424	303
Al	”		<0.06	<0.06	<0.06
As	”		<0.002	<0.002	<0.002
Ca	”		239	174	174
Cd	”		0.0005	<0.0003	0.0006
Cr	”		0.0020	0.0020	0.0030
Cu	”		<0.002	<0.002	<0.002
Fe	”		0.041	0.234	0.082
Hg	μg/L		<0.05	<0.05	<0.05
K	mg/L		16	4.7	6.0
Mg	”		152	82.9	68.0
Mn	”		0.1927	0.1272	0.3508
Na	”		83	195	126
Ni	”		<0.002	<0.002	<0.002
Pb	”		0.0100	0.0080	0.0120
Se	”		<0.002	<0.002	<0.002
Zn	”		0.009	0.009	0.010

[1]pH analyzed beyond recommended holding time of 15 minutes.
[2]Lysimeter installed in May 2005.
[3]Lysimeter installed in December 2005.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6

ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-4N
AT THE RIDGELAND AVENUE SOLIDS MANAGEMENT AREA
SAMPLED ON MARCH 15, 2006

Parameter	Unit	Lysimeter No. L-1N[2]	L-2N[2]	L-3N[2]	L-4N[3]
pH[1]			7.5	7.7	7.9
EC	mS/m		208	213	158
Total Dissolved Solids	mg/L		1,504	1,544	1,172
Total Dissolved Organic Carbon	”		7	NA	5
Cl^-	”		218	390	376
$SO_4^=$	”		190	NA	82
TKN[4]	”		37	0.93	2.6
NH_3-N	”		31	0.20	1.2
$NO_2 + NO_3$-N	”		<0.02	0.08	0.03
Total P	”		<0.05	<0.05	0.38
Alkalinity as $CaCO_3$	”		846	361	252
Al	”		<0.06	<0.06	<0.06
As	”		<0.002	<0.002	<0.002
Ca	”		205	157	133
Cd	”		<0.0003	<0.0003	<0.0003
Cr	”		<0.0007	<0.0007	<0.0007
Cu	”		<0.002	<0.002	<0.002
Fe	”		1.38	0.045	0.039
Hg	μg/L		0.06	<0.05	0.05
K	mg/L		14	4.6	5.4
Mg	”		130	78.0	47.6
Mn	”		0.2118	0.0990	0.1579
Na	”		66	196	146
Ni	”		<0.002	<0.002	<0.002
Pb	”		0.0047	0.0059	0.0058
Se	”		<0.002	<0.002	<0.002
Zn	”		0.006	0.007	0.011

LYSIMETER

[1]pH analyzed beyond recommended holding time of 15 minutes.
[2]Lysimeter installed in May 2005.
[3]Lysimeter installed in December 2005.
[4]Less than 10x method blank failure for TKN in L-3N.
NA = No analysis; insufficient sample.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7

ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-4N
AT THE RIDGELAND AVENUE SOLIDS MANAGEMENT AREA
SAMPLED ON MARCH 29, 2006

Parameter	Unit	Lysimeter No. L-1N[2]	L-2N[2]	L-3N[2]	L-4N[3]
pH[1]			7.4	7.8	7.8
EC	mS/m		221	219	164
Total Dissolved Solids	mg/L		1,460	724	1,182
Total Dissolved Organic Carbon	”		9	1	5
Cl^-	”		229	191	388
$SO_4^=$	”		197	126	84
TKN	”		37	1.7	2.2
NH_3-N	”		32	1.2	1.2
$NO_2 + NO_3$-N	”		<0.02	0.06	<0.02
Total P	”		<0.05	<0.05	0.68
Alkalinity as $CaCO_3$	”		922	202	274
Al	”		<0.06	<0.06	<0.06
As	”		<0.002	<0.002	<0.002
Ca	”		216	80	127
Cd	”		<0.0003	0.0003	<0.0003
Cr	”		<0.0007	<0.0007	0.0008
Cu	”		<0.002	0.008	<0.002
Fe	”		4.96	0.670	0.231
Hg	μg/L		<0.05	0.05	<0.05
K	mg/L		14	2.8	5.4
Mg	”		136	41.4	42.2
Mn	”		0.2265	0.0533	0.1790
Na	”		69	94	171
Ni	”		<0.002	0.002	<0.002
Pb	”		0.0019	0.0067	0.0045
Se	”		<0.002	<0.002	<0.002
Zn	”		0.014	0.021	0.011

LYSIMETER

[1]pH analyzed beyond recommended holding time of 15 minutes.
[2]Lysimeter installed in May 2005.
[3]Lysimeter installed in December 2005.