

*Protecting Our Water Environment*



**METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO**

***RESEARCH AND DEVELOPMENT  
DEPARTMENT***

***REPORT NO. 08-28***

***RIDGELAND AVENUE SOLIDS MANAGEMENT AREA***

***MONITORING REPORT FOR***

***FIRST QUARTER 2008***

***JUNE 2008***

**Metropolitan Water Reclamation District of Greater Chicago**

100 EAST ERIE STREET CHICAGO, ILLINOIS 60611-3154 312-751-5600

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

June 5, 2007

312-751-5190

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 January, February, and March 2008

The attached five tables contain the monitoring data for the Ridgeland Avenue Solids Management Area for January, February, and March 2008 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-1, L-2, and L-3. Beginning October 2007, the IEPA granted permission to abandon the monitoring 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-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on January 2, 2008

Table 2, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on January 16, 2008

Table 3, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on February 13, 2008

Table 4, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on March 13, 2008

Subject: Ridgeland Avenue Solids Management Area - Stickney WRP, Contract No. 89-202-2P, IEPA Permit No. 2005-AO-4283, Monitoring Report for January, February, and March 2008

Table 5, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue Solids Management Area Sampled on March 26, 2008

No biosolids were placed in or removed from the solids drying area during January, February, and March 2008.

Very truly yours,

Louis Kollias  
Director  
Research and Development

LK:PL:kq

Attachments

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

cc wo/att: Jamjun/Sharma/Garelli

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON JANUARY 2, 2008

Parameter	Unit	Lysimeter No.				
		L-1N	L-2N	L-3N	L-4	L-4N
pH <sup>1</sup>		7.7	7.9			
EC	mS/m	394	213			
Total Dissolved Solids	mg/L	5,248	2,200			
Total Diss. Org. Carbon	"	3	7			
Cl <sup>-</sup>	"	945	284			
SO <sub>4</sub> <sup>=</sup>	"	917	264	L		L
				Y		Y
TKN	"	1.7	38	S		S
NH <sub>3</sub> -N	"	0.89	34	I	L	I
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.11	0.06	M	Y	M
Total P	"	<0.05	<0.05	E	S	E
Alkalinity as CaCO <sub>3</sub>	"	551	787	T	I	T
				E	M	E
Al	"	0.043	0.025	R	E	R
As	"	<0.01	<0.01		T	
Ca	"	508	231	I	E	I
Cd	"	<0.0004	<0.0004	N	R	N
Cr	"	<0.0005	<0.0005	A		A
				C	F	C
Cu	"	<0.002	<0.002	C	R	C
Fe	"	4.04	2.76	E	O	E
Hg	μg/L	<0.05	<0.05	S	Z	S
K	mg/L	8	12	S	E	S
Mg	"	265	135	I	N	I
				B		B
Mn	"	0.0796	0.1445	L		L
Na	"	148	90	E		E
Ni	"	<0.0004	<0.0004			
Pb	"	<0.004	<0.004			
Se	"	<0.02	<0.02			
Zn	"	0.003	<0.002			

<sup>1</sup>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 JANUARY 16, 2008

Parameter	Unit	Lysimeter No.				
		L-1N	L-2N	L-3N	L-4	L-4N
pH <sup>1</sup>		7.5	8.4	7.8		
EC	mS/m	457	272	231		
Total Dissolved Solids	mg/L	4,172	1,820	1,772		
Total Diss. Org. Carbon	"	4	7	3		
Cl <sup>-</sup>	"	946	308	428		
SO <sub>4</sub> <sup>=</sup>	"	913	292	322	L Y	
TKN	"	1.7	37	2.4	S	
NH <sub>3</sub> -N	"	0.91	33	1.9	I	L
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.10	0.06	0.07	M	Y
Total P	"	<0.05	<0.05	<0.05	E	S
Alkalinity as CaCO <sub>3</sub>	"	653	858	400	T E	I M
Al	"	0.070	0.038	0.071	R	E
As	"	<0.01	<0.01	<0.01		T
Ca	"	532	227	195	I	E
Cd	"	<0.0004	0.0004	<0.0004	N	R
Cr	"	<0.0005	<0.0005	0.0007	A C	F
Cu	"	<0.002	<0.002	<0.002	C	R
Fe	"	4.82	3.23	0.498	E	O
Hg	μg/L	<0.05	<0.05	<0.05	S	Z
K	mg/L	8	12	4	S	E
Mg	"	274	141	68.7	I B	N
Mn	"	0.0802	0.1270	0.2400	L	
Na	"	157	95	215	E	
Ni	"	<0.0004	<0.0004	<0.0004		
Pb	"	<0.004	<0.004	<0.004		
Se	"	0.03	0.03	0.02		
Zn	"	0.011	0.007	0.008		

<sup>1</sup>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 FEBRUARY 13, 2008

Parameter	Unit	Lysimeter No.				
		L-1N	L-2N	L-3N	L-4	L-4N
pH <sup>1</sup>			7.6			
EC	mS/m		208			
Total Dissolved Solids	mg/L		1,490			
Total Diss. Org. Carbon	"		7			
Cl <sup>-</sup>	"		284			
SO <sub>4</sub> <sup>=</sup>	"		247			
TKN	"		35			
NH <sub>3</sub> -N	"	L	33	L	L	L
NO <sub>2</sub> + NO <sub>3</sub> -N	"	Y	0.09	Y	Y	Y
Total P	"	S	<0.05	S	S	S
Alkalinity as CaCO <sub>3</sub>	"	I	795	I	I	I
		M		M	M	M
Al	"	E	0.034	E	E	E
As	"	T	<0.01	T	T	T
Ca	"	E	198	E	E	E
Cd	"	R	<0.0004	R	R	R
Cr	"		<0.0005			
		F		F	F	F
Cu	"	R	<0.002	R	R	R
Fe	"	O	1.57	O	O	O
Hg	μg/L	Z	<0.05	Z	Z	Z
K	mg/L	E	12	E	E	E
Mg	"	N	130	N	N	N
Mn	"		0.1199			
Na	"		88			
Ni	"		<0.0004			
Pb	"		<0.004			
Se	"		<0.02			
Zn	"		0.006			

<sup>1</sup>pH analyzed beyond recommended holding time of 15 minutes.

TABLE 4: ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 13, 2008

Parameter	Unit	Lysimeter No.				
		L-1N	L-2N	L-3N	L-4	L-4N
pH <sup>1</sup>		7.5	7.6			8.1
EC	mS/m	462	254			167
Total Dissolved Solids	mg/L	5,016	2,146			NA
Total Diss. Org. Carbon	"	3	7			NA
Cl <sup>-</sup>	"	970	323			280
SO <sub>4</sub> <sup>=</sup>	"	908	289			NA
TKN	"	1.7	36			10
NH <sub>3</sub> -N	"	0.99	34	L	L	9.3
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.20	0.24	Y	Y	0.65
Total P	"	<0.05	<0.05	S	S	<0.10
Alkalinity as CaCO <sub>3</sub>	"	595	818	I	I	436
Al	"	0.084	0.049	M	M	0.048
As	"	<0.01	<0.01	E	E	<0.02
Ca	"	505	243	T	T	145
Cd	"	<0.0004	<0.0004	E	E	<0.0008
Cr	"	<0.0005	<0.0005	R	R	0.0018
Cu	"	<0.002	<0.002	F	F	<0.004
Fe	"	4.68	1.59	R	R	0.434
Hg	µg/L	<0.05	<0.05	O	O	<0.10
K	mg/L	8	13	Z	Z	5
Mg	"	278	153	E	E	60.8
Mn	"	0.0853	0.1129	N	N	0.2184
Na	"	163	101			156
Ni	"	<0.0004	<0.0004			<0.0008
Pb	"	<0.004	0.004			0.013
Se	"	<0.02	<0.02			<0.04
Zn	"	0.007	0.007			0.009

<sup>1</sup>pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

TABLE 5: ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 26, 2008

Parameter	Unit	Lysimeter No.				
		L-1N	L-2N	L-3N	L-4	L-4N
pH <sup>1</sup>		7.4	7.6	7.7		7.9
EC	mS/m	415	208	172		151
Total Dissolved Solids	mg/L	4,852	2,024	1,696		1,072
Total Diss. Org. Carbon	"	NRR	NRR	NRR		NRR
Cl <sup>-</sup>	"	1,135	362	429		217
SO <sub>4</sub> <sup>=</sup>	"	NRR	NRR	NRR		NRR
TKN	"	2.1	34	3.7		0.51
NH <sub>3</sub> -N	"	1.0	33	3.1	L	0.06
NO <sub>2</sub> + NO <sub>3</sub> -N	"	1.0	0.23	0.05	Y	0.56
Total P	"	0.05	<0.05	<0.05	S	0.32
Alkalinity as CaCO <sub>3</sub>	"	710	885	432	I	416
					M	
Al	"	0.082	0.078	0.066	E	0.041
As	"	<0.01	<0.01	<0.01	T	<0.01
Ca	"	567	251	200	E	125
Cd	"	<0.0004	<0.0004	<0.0004	R	<0.0004
Cr	"	<0.0005	<0.0005	0.0005		0.0011
					F	
Cu	"	<0.002	<0.002	<0.002	R	<0.002
Fe	"	6.63	5.34	0.876	O	0.072
Hg	µg/L	<0.25	<0.25	<0.25	Z	<0.25
K	mg/L	9	12	5	E	3
Mg	"	300	149	72.7	N	30.9
Mn	"	0.0930	0.1313	0.2139		0.3802
Na	"	168	96	213		164
Ni	"	<0.0004	<0.0004	<0.0004		0.0004
Pb	"	<0.004	<0.004	<0.004		<0.004
Se	"	<0.02	<0.02	<0.02		<0.02
Zn	"	0.007	0.004	0.006		0.004

<sup>1</sup>pH analyzed beyond recommended holding time of 15 minutes.

NRR = No reportable result.