

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 09-18

RIDGELAND AVENUE SOLIDS MANAGEMENT AREA

MONITORING REPORT

FOURTH QUARTER 2008

MARCH 2009

Protecting Our Water Environment

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Director of Research and Development
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March 12, 2009

Mr. S. Allan 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 Water Reclamation Plant, Contract No. 89-202-2P, Illinois Environmental Protection Agency Permit No. 2005-AO-4283, Monitoring Report for October, November, and December 2008

The attached seven tables contain the monitoring data for the Ridgeland Avenue Solids Management Area (SMA) for October, November, and December 2008 as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2005-AO-4283.

The data are as follows:

Table 1, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue SMA Sampled on October 13, 2008

Table 2, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue SMA Sampled on October 22, 2008

Table 3, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue SMA Sampled on November 5, 2008

Table 4, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue SMA Sampled on November 19, 2008

Table 5, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue SMA Sampled on December 3, 2008

Subject: Ridgeland Avenue Solids Management Area – Stickney Water Reclamation Plant, Contract No. 89-202-2P, Illinois Environmental Protection Agency Permit No. 2005-AO-4283, Monitoring Report for October, November, and December 2008

Table 6, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue SMA Sampled on December 17, 2008

Table 7, Analysis of Water from Lysimeters L-1N through L-4N at the Ridgeland Avenue SMA Sampled on December 29, 2008

No biosolids were placed in or removed from the solids drying area during October, November, and December 2008.

Very truly yours,

Louis Kollias
Director
Monitoring and Research

LK:PL:kq
Attachments
cc: Mr. R. Sulski, IEPA
Records Unit, IEPA
Stuba/Granato/Cox/Lindo/M. Patel

TABLE 1: ANALYSIS¹ OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 13, 2008

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ²		7.1	7.3	7.4	7.4
EC	mS/m	483	264	195	248
Total Dissolved Solids	mg/L	4,084	2,240	1,632	NA
Total Diss. Org. Carbon	"	3	6	<1	3
Cl ⁻	"	556	298	389	567
SO ₄ ⁼	"	951	280	284	125
TKN	"	2	35	2	0.9
NH ₃ -N	"	0.8	36	2	0.5
NO ₂ + NO ₃ -N	"	<0.1	<0.1	<0.1	0.3
Total P	"	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO ₃	"	498	883	390	333
Al	"	0.088	0.054	0.042	0.037
As	"	<0.025	<0.025	<0.025	<0.025
Ca	"	529	233	186	176
Cd	"	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01
Fe	"	3.5	5.0	1.1	4.1
Hg	μg/L	<0.20	<0.20	<0.20	<0.20
K	mg/L	8	11	4	4
Mg	"	272	139	63	42
Mn	"	0.072	0.133	0.255	0.773
Na	"	174	94	214	283
Ni	"	<0.002	<0.002	<0.002	<0.002
Pb	"	<0.02	<0.02	<0.02	<0.02
Se	"	<0.1	<0.1	<0.1	<0.1
Zn	"	0.05	0.02	<0.01	<0.01

¹Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

²pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

TABLE 2: ANALYSIS¹ OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 22, 2008

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ²		7.1	7.3	7.4	7.5
EC	mS/m	429	230	195	201
Total Dissolved Solids	mg/L	4,572	1,568	1,468	NA
Total Diss. Org. Carbon	"	3	7	2	3
Cl ⁻	"	802	292	388	506
SO ₄ ⁼	"	962	264	254	117
TKN	"	2	40	2	1
NH ₃ -N	"	1	36	0.5	0.9
NO ₂ + NO ₃ -N	"	<0.1	<0.1	0.2	<0.1
Total P	"	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO ₃	"	592	797	349	303
Al	"	0.084	0.044	0.041	<0.035
As	"	<0.025	<0.025	<0.025	<0.025
Ca	"	568	243	182	160
Cd	"	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01
Fe	"	3.6	1.9	0.07	1.9
Hg	μg/L	<0.20	<0.20	<0.20	<0.20
K	mg/L	8	12	4	3
Mg	"	287	142	60	37
Mn	"	0.078	0.144	0.258	0.758
Na	"	180	98	209	278
Ni	"	<0.002	<0.002	<0.002	<0.002
Pb	"	<0.02	<0.02	<0.02	<0.02
Se	"	<0.1	<0.1	<0.1	<0.1
Zn	"	<0.01	<0.01	<0.01	<0.01

¹Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

²pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

TABLE 3: ANALYSIS¹ OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 5, 2008

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ²		7.4	7.6	7.8	7.9
EC	mS/m	366	202	184	175
Total Dissolved Solids	mg/L	4,368	1,528	1,548	1,333
Total Diss. Org. Carbon	"	3	6	2	4
Cl ⁻	"	1,064	306	429	457
SO ₄ ⁼	"	818	229	224	106
TKN	"	5	38	0.8	1
NH ₃ -N	"	3	35	0.2	0.5
NO ₂ + NO ₃ -N	"	<0.1	<0.1	0.2	0.2
Total P	"	<0.25	<0.25	<0.25	0.66
Alkalinity as CaCO ₃	"	677	716	371	310
Al	"	0.062	<0.035	<0.035	<0.035
As	"	<0.025	<0.025	<0.025	<0.025
Ca	"	514	222	176	135
Cd	"	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01
Fe	"	5.1	5.4	0.32	4.1
Hg	μg/L	<0.20	<0.20	<0.20	<0.20
K	mg/L	9	11	4	3
Mg	"	263	129	56	32
Mn	"	0.076	0.155	0.271	0.654
Na	"	170	102	217	274
Ni	"	<0.002	<0.002	<0.002	<0.002
Pb	"	0.04	0.04	0.04	0.04
Se	"	<0.1	<0.1	<0.1	<0.1
Zn	"	0.02	0.02	<0.01	0.03

¹Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

²pH analyzed beyond recommended holding time of 15 minutes.

TABLE 4: ANALYSIS¹ OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 19, 2008

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ²		7.2	7.4	7.5	7.6
EC	mS/m	454	237	209	200
Total Dissolved Solids	mg/L	4,416	1,648	1,484	1,332
Total Diss. Org. Carbon	"	3	6	<1	4
Cl ⁻	"	1,008	310	435	439
SO ₄ ⁼	"	892	236	251	122
TKN	"	3	42	0.6	1
NH ₃ -N	"	2	36	<0.1	0.5
NO ₂ + NO ₃ -N	"	<0.1	<0.1	<0.1	0.2
Total P	"	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO ₃	"	573	825	379	363
Al	"	0.063	<0.035	<0.035	<0.035
As	"	<0.025	<0.025	<0.025	<0.025
Ca	"	531	223	174	128
Cd	"	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01
Fe	"	4.7	2.0	0.45	1.8
Hg	μg/L	<0.20	<0.20	<0.20	<0.20
K	mg/L	9	11	4	3
Mg	"	264	129	56	30
Mn	"	0.075	0.153	0.251	0.628
Na	"	171	98	210	269
Ni	"	<0.002	<0.002	<0.002	<0.002
Pb	"	0.04	0.04	0.04	0.04
Se	"	<0.1	<0.1	<0.1	<0.1
Zn	"	<0.01	<0.01	<0.01	<0.01

¹Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

²pH analyzed beyond recommended holding time of 15 minutes.

TABLE 5: ANALYSIS¹ OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 3, 2008

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ²		7.3	7.4		7.7
EC	mS/m	420	240		182
Total Dissolved Solids	mg/L	4,660	1,712		1,328
Total Diss. Org. Carbon	"	3	6		4
Cl ⁻	"	880	262		270
SO ₄ ⁼	"	928	246		156
TKN	"	4	43		1
NH ₃ -N	"	3	36	L	0.4
NO ₂ + NO ₃ -N	"	0.3	0.3	Y	0.6
Total P	"	<0.25	<0.25	S	0.67
Alkalinity as CaCO ₃	"	556	732	I	284
				M	
Al	"	0.057	<0.035	E	<0.035
As	"	<0.025	<0.025	T	<0.025
Ca	"	542	224	E	124
Cd	"	<0.002	<0.002	R	<0.002
Cr	"	<0.003	<0.003		<0.003
				F	
Cu	"	<0.01	<0.01	R	<0.01
Fe	"	4.7	2.5	O	3.1
Hg	µg/L	<0.20	<0.20	Z	<0.20
K	mg/L	9	12	E	3
Mg	"	272	136	N	29
Mn	"	0.074	0.141		0.565
Na	"	177	108		287
Ni	"	<0.002	<0.002		<0.002
Pb	"	0.05	0.05		0.05
Se	"	<0.1	<0.1		<0.1
Zn	"	<0.01	<0.01		<0.01

¹Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

²pH analyzed beyond recommended holding time of 15 minutes.

TABLE 6: ANALYSIS¹ OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 17, 2008

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ²		7.3		7.7	
EC	mS/m	400		210	
Total Dissolved Solids	mg/L	4,580		1,604	
Total Diss. Org. Carbon	"	4		2	
Cl ⁻	"	954		375	
SO ₄ ⁼	"	908		270	
TKN	"	2		0.5	
NH ₃ -N	"	1	L	0.2	L
NO ₂ + NO ₃ -N	"	<0.1	Y	0.2	Y
Total P	"	<0.25	S	<0.25	S
Alkalinity as CaCO ₃	"	600	I	324	I
			M		M
Al	"	0.057	E	0.037	E
As	"	<0.025	T	<0.025	T
Ca	"	567	E	194	E
Cd	"	<0.002	R	<0.002	R
Cr	"	<0.003		<0.003	
			F		F
Cu	"	<0.01	R	<0.01	R
Fe	"	5.2	O	0.12	O
Hg	µg/L	<0.20	Z	<0.20	Z
K	mg/L	9	E	5	E
Mg	"	283	N	68	N
Mn	"	0.084		0.234	
Na	"	185		224	
Ni	"	<0.002		<0.002	
Pb	"	0.04		0.05	
Se	"	<0.1		<0.1	
Zn	"	<0.01		<0.01	

¹Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

²pH analyzed beyond recommended holding time of 15 minutes.

TABLE 7: ANALYSIS¹ OF WATER FROM LYSIMETERS
L-1N THROUGH L-4N AT THE RIDGELAND AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 29, 2008

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ²		7.4	7.5	7.6	7.8
EC	mS/m	501	280	261	206
Total Dissolved Solids	mg/L	3,824	1,708	1,664	1,272
Total Diss. Org. Carbon	"	4	8	2	5
Cl ⁻	"	1,118	311	465	360
SO ₄ ⁼	"	926	238	287	162
TKN	"	4	38	0.9	1
NH ₃ -N	"	2	36	0.2	0.3
NO ₂ + NO ₃ -N	"	<0.1	<0.1	<0.1	0.3
Total P	"	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO ₃	"	700	905	410	388
Al	"	0.058	<0.035	<0.035	<0.035
As	"	<0.025	<0.025	<0.025	<0.025
Ca	"	569	223	206	117
Cd	"	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01
Fe	"	4.7	1.7	0.28	0.76
Hg	μg/L	<0.20	<0.20	<0.20	<0.20
K	mg/L	9	12	5	3
Mg	"	282	142	72	28
Mn	"	0.076	0.127	0.262	0.464
Na	"	187	101	221	292
Ni	"	<0.002	<0.002	<0.002	<0.002
Pb	"	0.05	<0.02	0.05	0.05
Se	"	<0.1	<0.1	<0.1	<0.1
Zn	"	<0.01	<0.01	0.03	<0.01

¹Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

²pH analyzed beyond recommended holding time of 15 minutes.