

*Protecting Our Water Environment*



*Metropolitan Water Reclamation District of Greater Chicago*

***MONITORING AND RESEARCH  
DEPARTMENT***

*REPORT NO. 09-34*

*CALUMET EAST SOLIDS MANAGEMENT AREA*

*MONITORING REPORT*

*FIRST QUARTER 2009*

*MAY 2009*

**Metropolitan Water Reclamation District of Greater Chicago**

100 EAST ERIE STREET CHICAGO, ILLINOIS 60611-3154 312.751.5190

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May 18, 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: Calumet East Solids Management Area – Calumet Water Reclamation Plant, Contract No. 85-273-2P, L170401, Illinois Environmental Protection Agency Permit No. 2005-AO-4281-1, Monitoring Report for January, February, and March 2009

The attached three tables contain monitoring data for the Calumet East Solids Management Area for January, February, and March 2009, as required by the Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2005-AO-4281-1.

The data are as follows:

- Table 1, Analysis of Water from Lysimeters L-1N through L-6N at the Calumet East Solids Management Area Sampled on January 7, 2009
- Table 2, Analysis of Water from Lysimeters L-1N through L-6N at the Calumet East Solids Management Area Sampled on February 9, 2009
- Table 3, Analysis of Water from Lysimeters L-1N through L-6N at the Calumet East Solids Management Area Sampled on March 4, 2009

Four new lysimeters, L-2N, L-3N, L-4N, and L-6N, were installed at this site in September 2008 as replacements for L-2, L-3, L-4 and L-6, respectively. The new and old lysimeters will be monitored simultaneously for one year. A request will then be submitted to the IEPA to terminate monitoring of the old lysimeters.

Mr. S. Alan Keller

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May 18, 2009

Subject: Calumet East Solids Management Area – Calumet Water Reclamation Plant, Contract No. 85-273-2P, L170401, Illinois Environmental Protection Agency Permit No. 2005-AO-4281-1, Monitoring Report for January, February, and March 2009

No biosolids were placed in or removed from the solids drying area during January, February, and March 2009.

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: ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-6N AT THE CALUMET EAST  
SOLIDS MANAGEMENT AREA SAMPLED ON JANUARY 7, 2009

Parameter	Unit	Lysimeter No.				
		L-1N	L-2	L-2N	L-3	L-3N
pH <sup>1</sup>			7.3		7.4	
EC	mS/m		443		180	
Total Dissolved Solids	mg/L		2,064		1,476	
Total Diss. Org. Carbon	"		2		7	
Cl <sup>-</sup>	"		98		36	
SO <sub>4</sub> <sup>=</sup>	"		1,038		548	
		L		L		L
TKN	"	Y	0.4	Y	0.4	Y
NH <sub>3</sub> -N	"	S	<0.1	S	<0.1	S
NO <sub>2</sub> + NO <sub>3</sub> -N	"	I	0.22	I	0.15	I
Total P	"	M	<0.1	M	<0.1	M
Alkalinity as CaCO <sub>3</sub>	"	E	243	E	501	E
		T		T		T
Al	"	E	<1	E	<1	E
Ca	"	R	294	R	197	R
Cd	"		<0.01		<0.01	
Cr	"	F	<0.0025	F	<0.0025	F
Cu	"	R	<0.01	R	<0.01	R
		O		O		O
Fe	"	Z	<0.1	Z	<0.1	Z
Hg	μg/L	E	<0.20	E	<0.20	E
K	mg/L	N	3	N	2	N
Mg	"		140		119	
Mn	"		0.004		<0.003	
Na	"		77		52	
Ni	"		<0.01		<0.01	
Pb	"		0.048		0.049	
Zn	"		<0.015		<0.015	

TABLE 1 (Continued): ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-6N AT THE CALUMET EAST  
SOLIDS MANAGEMENT AREA SAMPLED ON JANUARY 7, 2009

Parameter	Unit	Lysimeter No.				
		L-4	L-4N	L-5	L-6	L-6N
pH <sup>1</sup>				7.4		7.9
EC	mS/m			217		106
Total Dissolved Solids	mg/L			1,584		860
Total Diss. Org. Carbon	"			<1		10
Cl <sup>-</sup>	"			232		27
SO <sub>4</sub> <sup>=</sup>	"			536		226
		L	L		L	
TKN	"	Y	Y	0.5	Y	2
NH <sub>3</sub> -N	"	S	S	0.3	S	1
NO <sub>2</sub> + NO <sub>3</sub> -N	"	I	I	0.20	I	0.07
Total P	"	M	M	0.2	M	NRR
Alkalinity as CaCO <sub>3</sub>	"	E	E	246	E	332
		T	T		T	
Al	"	E	E	<1	E	<1
Ca	"	R	R	211	R	121
Cd	"			<0.01		<0.01
Cr	"	F	F	<0.0025	F	<0.0025
Cu	"	R	R	<0.01	R	<0.01
		O	O		O	
Fe	"	Z	Z	2	Z	0.4
Hg	μg/L	E	E	<0.20	E	<0.20
K	mg/L	N	N	4	N	7
Mg	"			98		48
Mn	"			0.053		0.095
Na	"			90		53
Ni	"			<0.01		<0.01
Pb	"			0.047		0.046
Zn	"			<0.015		<0.015

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

NRR = No reportable result.

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-6N AT THE CALUMET EAST  
SOLIDS MANAGEMENT AREA SAMPLED ON FEBRUARY 9, 2009

Parameter	Unit	Lysimeter No.				
		L-1N	L-2	L-2N	L-3	L-3N
pH <sup>1</sup>		7.3	7.4	7.6	7.5	7.7
EC	mS/m	354	275	285	128	126
Total Dissolved Solids	mg/L	3,960	1,912	3,376	1,400	1,640
Total Diss. Org. Carbon	"	10	2	38	8	10
Cl <sup>-</sup>	"	201	86	197	50	51
SO <sub>4</sub> <sup>=</sup>	"	1,734	870	1,311	471	644
TKN	"	12	<0.2	8	0.4	2
NH <sub>3</sub> -N	"	5	<0.1	4	<0.1	0.7
NO <sub>2</sub> + NO <sub>3</sub> -N	"	<0.04	<0.04	<0.04	<0.04	0.29
Total P	"	<0.1	<0.1	<0.1	0.6	<0.1
Alkalinity as CaCO <sub>3</sub>	"	591	255	627	517	395
Al	"	<1	<1	<1	<1	<1
Ca	"	383	451	254	484	181
Cd	"	<0.01	<0.01	<0.01	<0.01	<0.01
Cr	"	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	<0.1	7	<0.1	6	<0.1
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	6	11	3	20	2
Mg	"	192	262	121	207	109
Mn	"	0.044	0.254	0.016	1.52	0.005
Na	"	180	178	64	115	50
Ni	"	<0.01	<0.01	<0.01	<0.01	<0.01
Pb	"	0.036	0.048	0.046	0.039	0.052
Zn	"	<0.015	<0.015	0.020	<0.015	<0.015

TABLE 2 (Continued): ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-6N AT THE CALUMET EAST  
SOLIDS MANAGEMENT AREA SAMPLED ON FEBRUARY 9, 2009

Parameter	Unit	Lysimeter No.				
		L-4	L-4N	L-5	L-6	L-6N
pH <sup>1</sup>		7.2	7.4	7.6		7.9
EC	mS/m	346	428	150		93
Total Dissolved Solids	mg/L	4,492	4,732	1,980		1,060
Total Diss. Org. Carbon	"	3	22	<1		9
Cl <sup>-</sup>	"	533	581	221		54
SO <sub>4</sub> <sup>=</sup>	"	1,560	1,793	575		316
TKN	"	0.9	10	0.6	L	3
NH <sub>3</sub> -N	"	0.4	6	0.4	Y	2
NO <sub>2</sub> + NO <sub>3</sub> -N	"	<0.04	0.05	<0.04	S	5.3
Total P	"	0.2	<0.1	0.2	I	<0.1
Alkalinity as CaCO <sub>3</sub>	"	385	597	250	M	346
Al	"	<1	<1	<1	E	<1
Ca	"	243	483	581	R	213
Cd	"	<0.01	<0.01	<0.01		<0.01
Cr	"	<0.0025	<0.0025	<0.0025	F	<0.0025
Cu	"	<0.01	<0.01	<0.01	R	<0.01
Fe	"	2	11	10	O	2
Hg	μg/L	<0.20	<0.20	<0.20	Z	<0.20
K	mg/L	7	7	20	E	4
Mg	"	87	256	213	N	97
Mn	"	0.860	0.117	0.644		0.051
Na	"	41	147	NRR		91
Ni	"	<0.01	<0.01	<0.01		<0.01
Pb	"	0.051	0.049	0.043		0.046
Zn	"	<0.015	<0.015	0.025		<0.015

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

<sup>2</sup>Total dissolved solids for L-4N and L-5 analyzed beyond recommended holding time of 7 days.

NRR = No reportable result.

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-6N AT THE CALUMET EAST  
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 4, 2009

Parameter	Unit	Lysimeter No.				
		L-1N	L-2	L-2N	L-3	L-3N
pH <sup>1</sup>		7.6	7.5		7.5	
EC	mS/m	406	404		156	
Total Dissolved Solids	mg/L	4,232	4,080		1,560	
Total Diss. Org. Carbon	"	9	3		7	
Cl <sup>-</sup>	"	180	174		36	
SO <sub>4</sub> <sup>=</sup>	"	1,968	1,951		536	
TKN	"	11	0.6	L		L
NH <sub>3</sub> -N	"	3	<0.1	Y	0.9	Y
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.07	0.11	S	<0.1	S
Total P	"	<0.1	<0.1	I	0.10	I
Alkalinity as CaCO <sub>3</sub>	"	569	481	M	<0.1	M
Al	"	<1	<1	E	494	E
Ca	"	491	540	T	<1	T
Cd	"	<0.01	<0.01	E	195	E
Cr	"	<0.0025	<0.0025	R	<0.01	R
Cu	"	<0.01	<0.01	F	<0.0025	F
Fe	"	12	<0.1	R	<0.01	R
Hg	μg/L	<0.20	<0.20	O	0.3	O
K	mg/L	10	6	Z	<0.20	Z
Mg	"	283	255	E	2	E
Mn	"	0.268	0.009	N	123	N
Na	"	179	139		0.013	
Ni	"	<0.01	<0.01		51	
Pb	"	0.056	0.053		<0.01	
Zn	"	<0.015	0.031		0.058	



TABLE 3 (Continued): ANALYSIS OF WATER FROM LYSIMETERS  
L-1N THROUGH L-6N AT THE CALUMET EAST  
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 4, 2009

Parameter	Unit	Lysimeter No.				
		L-4	L-4N	L-5	L-6	L-6N
pH <sup>1</sup>		7.3	7.5	7.8	7.9	8.1
EC	mS/m	417	603	186	141	107
Total Dissolved Solids	mg/L	4,476	5,768	1,836	1,476	988
Total Diss. Org. Carbon	"	3	16	<1	<1	7
Cl <sup>-</sup>	"	477	745	215	20	25
SO <sub>4</sub> <sup>=</sup>	"	1,559	2,131	514	636	278
TKN	"	1	4	0.7	<0.2	2
NH <sub>3</sub> -N	"	0.7	4	0.5	<0.1	1
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.17	0.14	0.17	0.42	0.09
Total P	"	<0.1	0.2	0.2	<0.1	NRR
Alkalinity as CaCO <sub>3</sub>	"	399	711	241	273	311
Al	"	<1	<1	<1	<1	<1
Ca	"	469	616	197	171	128
Cd	"	<0.01	<0.01	<0.01	<0.01	<0.01
Cr	"	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	12	39	3	0.4	0.5
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	7	16	4	3	5
Mg	"	259	264	93	86	48
Mn	"	0.119	0.471	0.055	0.035	0.143
Na	"	160	NA	87	70	57
Ni	"	<0.01	<0.01	<0.01	<0.01	<0.01
Pb	"	0.048	0.055	0.057	0.061	0.057
Zn	"	<0.015	0.017	<0.015	<0.015	<0.015

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

NA = No analysis; insufficient sample.

NRR = No reportable result.