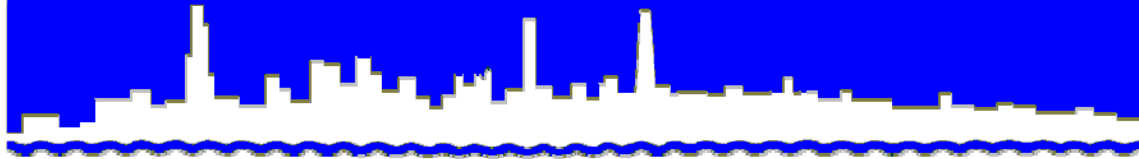


*Protecting Our Water Environment*



**Metropolitan Water Reclamation District of Greater Chicago**

*MONITORING AND RESEARCH  
DEPARTMENT*

**REPORT NO. 12-49**

**CALUMET EAST SOLIDS MANAGEMENT AREA**

**MONITORING REPORT FOR**

**THIRD QUARTER 2012**

**December 2012**

**Metropolitan Water Reclamation District of Greater Chicago**

100 East Erie Street

Chicago, Illinois 60611-3154

312.751.5190

**Thomas C. Granato, Ph.D.**

Director of Monitoring and Research Department  
thomas.granato@mwrdd.org

December 21, 2012

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: Calumet East Solids Management Area - Calumet Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2010-AO-0265, Monitoring Report for July, August, and September 2012

The attached six tables contain the monitoring data for the Calumet East Solids Management Area for July, August, and September 2012 as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2010-AO-0265.

The data reported are as follows:

- Table 1, Analysis of Water from Lysimeters L-1N Through L-6N at the Calumet East Solids Management Area Sampled on August 1, 2012
- Table 2, Analysis of Monthly Compositated Biosolids Placed in the Calumet East Solids Management Drying Area During July 2012
- Table 3, Analysis of Monthly Compositated Biosolids Placed in the Calumet East Solids Management Drying Area During August 2012
- Table 4, Analysis of Monthly Compositated Biosolids Placed in the Calumet East Solids Management Drying Area During September 2012
- Table 5, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During July 2012

Subject: Calumet East Solids Management Area - Calumet Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2010-AO-0265, Monitoring Report for July, August, and September 2012

Table 6, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During September 2012

Biosolids were placed in the solids drying area during July, August, and September and removed from the site during July and September 2012.

Very truly yours,

Thomas C. Granato, Ph.D.  
Director  
Monitoring and Research

TCG:PL:cm

Attachments

cc w/att: Mr. J. Patel, IEPA  
Region 2 – Des Plaines  
Records Unit, IEPA

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS L-1N  
THROUGH L-6N AT THE CALUMET EAST SOLIDS MANAGEMENT  
AREA SAMPLED ON AUGUST 1, 2012

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH <sup>1</sup>		8.0	8.0	8.0	7.8
EC	mS/m	398	365	291	729
Total Dissolved Solids	mg/L	4,726	4,344	3,388	7,032
Total Dissolved Organic Carbon	"	8	13	6	11
Cl <sup>-</sup>	"	187	137	51	858
SO <sub>4</sub> <sup>=</sup>	"	2,066	1,971	1,551	2,667
TKN	"	10	3	< 1	3
NH <sub>3</sub> -N	"	4	2	0.3	1
NO <sub>2</sub> + NO <sub>3</sub> -N	"	3.1	< 0.15	< 0.15	< 0.15
Total P	"	< 0.10	3.4	0.48	0.26
Alkalinity as CaCO <sub>3</sub>	"	565	569	447	675
Al	"	< 1.0	< 1.0	< 1.0	< 1.0
Ca	"	491	514	420	599
Cd	"	< 0.001	< 0.001	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005	< 0.005	< 0.005
Fe	"	12	21	5	72
Hg	μg/L	< 0.20	< 0.20	< 0.20	< 0.20
K	mg/L	10	8	6	12
Mg	"	285	242	202	324
Mn	"	0.174	0.632	0.673	0.545
Na	"	185	105	58	690
Ni	"	0.008	< 0.005	< 0.005	< 0.005
Pb	"	< 0.02	< 0.02	< 0.02	< 0.02
Zn	"	0.02	0.05	0.02	0.02

TABLE 1 (Continued): ANALYSIS OF WATER FROM LYSIMETERS L-1N  
THROUGH L-6N AT THE CALUMET EAST SOLIDS MANAGEMENT  
AREA SAMPLED ON AUGUST 1, 2012

Parameter	Unit	Lysimeter No.	
		L-5	L-6N
pH <sup>1</sup>		8.2	8.3
EC	mS/m	192	167
Total Dissolved Solids	mg/L	2,074	1,984
Total Dissolved Organic Carbon	"	< 1	7
Cl <sup>-</sup>	"	226	18
SO <sub>4</sub> <sup>=</sup>	"	544	662
TKN	"	< 1	< 1
NH <sub>3</sub> -N	"	< 0.1	0.9
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.46	0.82
Total P	"	< 0.10	4.2
Alkalinity as CaCO <sub>3</sub>	"	246	367
Al	"	< 1.0	< 1.0
Ca	"	193	192
Cd	"	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005
Fe	"	0.6	4
Hg	μg/L	< 0.20	< 0.20
K	mg/L	4	4
Mg	"	94	92
Mn	"	0.034	0.204
Na	"	90	83
Ni	"	< 0.005	< 0.005
Pb	"	< 0.02	< 0.02
Zn	"	< 0.01	< 0.01

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

TABLE 2: ANALYSIS OF MONTHLY COMPOSITED BIOSOLIDS  
PLACED IN THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA  
DURING JULY 2012

Parameter	Unit	Concentration <sup>1</sup>
pH		7.9
Total Solids	%	8.2
Total Volatile Solids <sup>2</sup>	"	37.9

<sup>1</sup> Values are the means of three samples.

<sup>2</sup> Total volatile solids as a percentage of total solids.

TABLE 3: ANALYSIS OF MONTHLY COMPOSITED BIOSOLIDS  
PLACED IN THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA  
DURING AUGUST 2012

Parameter	Unit	Concentration <sup>1</sup>
pH		7.6
Total Solids	%	9.6
Total Volatile Solids <sup>2</sup>	"	45.0

<sup>1</sup>Values are the means of three samples.

<sup>2</sup>Total volatile solids as a percentage of total solids.

TABLE 4: ANALYSIS OF MONTHLY COMPOSITED BIOSOLIDS  
 PLACED IN THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA  
 DURING SEPTEMBER 2012

Parameter	Unit	Concentration <sup>1</sup>
pH		7.8
Total Solids	%	5.8
Total Volatile Solids <sup>2</sup>	"	51.2

<sup>1</sup>Values are the means of two samples.

<sup>2</sup>Total volatile solids as a percentage of total solids.



TABLE 5: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA DURING JULY 2012

Parameter	Unit	Concentration <sup>1</sup>
pH		7.5
Total Solids	%	81.4
Total Volatile Solids <sup>2</sup>	"	43.5
TKN	mg/kg	26,261
NH <sub>3</sub> -N	"	5,137
Total P	"	27,507
Al	"	12,336
Ca	"	47,209
Cd	"	2
Cr	"	53
Cu	"	412
Fe	"	22,760
Hg	"	0.76
K	"	3,841
Mg	"	17,555
Mn	"	934
Na	"	1,564
Ni	"	27
Pb	"	77
Zn	"	1,081

<sup>1</sup>Values are the means of four samples.

<sup>2</sup>Total volatile solids as a percentage of total solids.

TABLE 6: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA DURING SEPTEMBER 2012

Parameter	Unit	Concentration <sup>1</sup>
pH		7.5
Total Solids	%	46.3
Total Volatile Solids <sup>2</sup>	"	42.5
TKN	mg/kg	26,553
NH <sub>3</sub> -N	"	4,437
Total P	"	23,426
Al	"	11,234
Ca	"	46,213
Cd	"	2
Cr	"	51
Cu	"	368
Fe	"	21,729
Hg	"	0.78
K	"	3,038
Mg	"	16,145
Mn	"	897
Na	"	1,261
Ni	"	25
Pb	"	84
Zn	"	1,033

<sup>1</sup>Values are the means of two samples.

<sup>2</sup>Total volatile solids as a percentage of total solids.