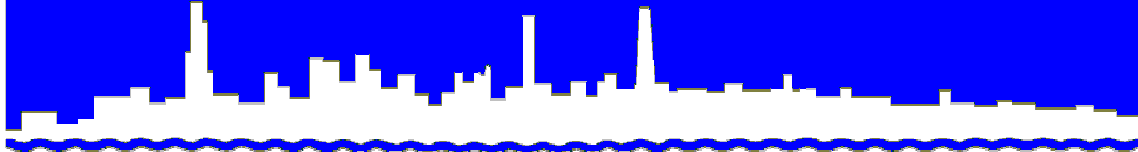


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 11-65

REVISED CALUMET EAST SOLIDS MANAGEMENT

AREA MONITORING REPORT FOR

THIRD QUARTER 2011

DECEMBER 2011

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@mwr.org

December 8, 2011

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: Revised 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 2011

The attached seven tables contain the monitoring data for the Calumet East Solids Management Area for July, August, and September 2011 as required by Illinois Environmental Protection Agency Operating Permit No. 2010-AO-0265. In Table 3 the total solids content of biosolids was corrected from 24.0 percent to 7.3 percent. Please replace the November 30, 2011, report with this revised report.

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 July 13, 2011

Table 2, Analysis of Monthly Compositated Biosolids Placed in the Calumet East Solids Management Drying Area During July 2011

Table 3, Analysis of Monthly Compositated Biosolids Placed in the Calumet East Solids Management Drying Area During August 2011

Table 4, Analysis of Monthly Compositated Biosolids Placed in the Calumet East Solids Management Drying Area During September 2011

Table 5, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During July 2011

Subject: Revised 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 2011

Table 6. Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During August 2011

Table 7. Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During September 2011

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

Very truly yours,

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

TCG:PL:cm
Attachments

cc w/att: R. Sulski, IEPA
Records Unit, IEPA
C. O'Connor

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS L-1N
THROUGH L-6N AT THE CALUMET EAST SOLIDS MANAGEMENT
AREA SAMPLED ON JULY 13, 2011

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ¹		8.0	7.9		7.6
EC	mS/m	404	374		690
Total Dissolved Solids	mg/L	4,252	4,014		6,566
Total Dissolved Organic Carbon	"	9	16		15
Cl ⁻	"	182	140		NRR ²
SO ₄ ⁼	"	1,801	1,630		2,136
TKN	"	12	3	D	3
NH ₃ -N	"	5	2	E	2
NO ₂ + NO ₃ -N	"	0.11	0.08	F	15
Total P	"	< 0.10	2.9	E	0.44
Alkalinity as CaCO ₃	"	552	596	C	651
				T	
Al	"	< 1.0	< 1.0	I	< 1.0
Ca	"	471	532	V	596
Cd	"	< 0.001	< 0.001	E	< 0.001
Cr	"	< 0.003	< 0.003		< 0.003
Cu	"	< 0.005	< 0.005	V	< 0.005
				A	
Fe	"	6	22	L	79
Hg	μg/L	< 0.20	< 0.20	V	< 0.20
K	mg/L	11	9	E	13
Mg	"	272	242		321
Mn	"	0.229	0.733		0.584
Na	"	184	107		704
Ni	"	0.012	< 0.008		< 0.008
Pb	"	< 0.03	< 0.03		< 0.03
Zn	"	< 0.02	< 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 JULY 13, 2011

Parameter	Unit	Lysimeter No.	
		L-5	L-6N
pH ¹		8.0	8.2
EC	mS/m	195	176
Total Dissolved Solids	mg/L	1,776	1,654
Total Dissolved Organic Carbon	"	< 1	8
Cl ⁻	"	217	25
SO ₄ ⁼	"	505	614
TKN	"	< 0.5	1
NH ₃ -N	"	< 0.1	1
NO ₂ + NO ₃ -N	"	0.57	0.20
Total P	"	0.16	4.4
Alkalinity as CaCO ₃	"	239	364
Al	"	< 1.0	< 1.0
Ca	"	193	202
Cd	"	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005
Fe	"	< 0.2	3
Hg	μg/L	< 0.20	< 0.20
K	mg/L	4	5
Mg	"	91.4	89.9
Mn	"	0.039	0.244
Na	"	86	79
Ni	"	< 0.008	< 0.008
Pb	"	< 0.03	< 0.03
Zn	"	< 0.02	< 0.02

¹pH analyzed beyond recommended holding time of 15 minutes.

²No reportable result.

TABLE 2: ANALYSIS OF MONTHLY COMPOSITED BIOSOLIDS
 PLACED IN THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA
 DURING JULY 2011

Parameter	Unit	Concentration ¹
pH		7.7
Total Solids	%	9.1
Total Volatile Solids ²	"	45.9

¹Values are the means of four samples.

²Total 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 2011

Parameter	Unit	Concentration ¹
pH		7.7
Total Solids	%	7.3
Total Volatile Solids ²	"	47.3

¹Values are the means of three samples.

²Total 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 2011

Parameter	Unit	Concentration ¹
pH		7.9
Total Solids	%	5.4
Total Volatile Solids ²	"	49.4

¹Values are the means of three samples.

²Total 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 2011

Parameter	Unit	Concentration ¹
pH		7.3
Total Solids	%	43.7
Total Volatile Solids ²	"	42.4
TKN	mg/kg	24,100
NH ₃ -N	"	4,291
Total P	"	20,161
Al	"	10,922
Ca	"	51,551
Cd	"	2
Cr	"	74
Cu	"	428
Fe	"	24,660
Hg	"	0.96
K	"	3,445
Mg	"	18,195
Mn	"	1,039
Na	"	1,398
Ni	"	37
Pb	"	90
Zn	"	1,189

¹Values are the means of six samples.

²Total 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 AUGUST 2011

Parameter	Unit	Concentration ¹
pH		7.3
Total Solids	%	54.5
Total Volatile Solids ²	"	33.0
TKN	mg/kg	16,338
NH ₃ -N	"	3,347
Total P	"	13,705
Al	"	8,484
Ca	"	43,453
Cd	"	2
Cr	"	70
Cu	"	370
Fe	"	21,105
Hg	"	0.80
K	"	2,036
Mg	"	16,682
Mn	"	892
Na	"	NA ³
Ni	"	36
Pb	"	85
Zn	"	995

¹Values are the means of four samples.

²Total volatile solids as a percentage of total solids.

³No analysis.

TABLE 7: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA DURING SEPTEMBER 2011

Parameter	Unit	Concentration ¹
pH		7.3
Total Solids	%	57.8
Total Volatile Solids ²	"	40.8
TKN	mg/kg	25,150
NH ₃ -N	"	4,249
Total P	"	20,930
Al	"	11,391
Ca	"	43,037
Cd	"	2
Cr	"	64
Cu	"	374
Fe	"	21,519
Hg	"	0.94
K	"	3,107
Mg	"	16,681
Mn	"	898
Na	"	NA ³
Ni	"	32
Pb	"	84
Zn	"	985

¹Values are the means of seven samples.

²Total volatile solids as a percentage of total solids.

³No analysis.