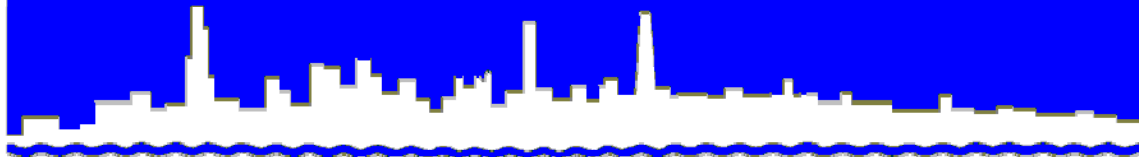


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

*MONITORING AND RESEARCH
DEPARTMENT*

REPORT NO. 13-42

CALUMET EAST SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

THIRD QUARTER 2013

NOVEMBER 2013

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

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November 18, 2013

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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 2013

The attached six tables contain the monitoring data for the Calumet East Solids Management Area for July, August, and September 2013 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 July 17, 2013

Table 2, Analysis of Monthly Compositated Biosolids Placed in the Calumet East Solids Management Drying Area During July 2013

Table 3, Analysis of Monthly Compositated Biosolids Placed in the Calumet East Solids Management Drying Area During August 2013

Table 4, Analysis of Monthly Compositated Processed Biosolids Removed from the Calumet East Solids Management Drying Area During July 2013

Table 5, Analysis of Monthly Compositated Processed Biosolids Removed from the Calumet East Solids Management Drying Area During August 2013

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 2013

Table 6, Analysis of Monthly Composited Processed Biosolids Removed from the Calumet East Solids Management Drying Area During September 2013

Biosolids were placed in the solids drying area during July and August and removed from the site during July, August, and September 2013.

Very truly yours,

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

TCG:PL:cm

Attachments

cc w/att: Mr. J. Patel, IEPA
Records Unit, IEPA

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS L-1N
THROUGH L-6N AT THE CALUMET EAST SOLIDS MANAGEMENT
AREA SAMPLED ON JULY 17, 2013

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ¹		8.0	8.0	7.8	7.5
EC	mS/m	396	347	279	628
Total Dissolved Solids	mg/L	2,206	3,980	3,138	6,818
Total Dissolved Organic Carbon	"	8	10	6	10
Cl ⁻	"	180	141	47	913
SO ₄ ⁼	"	2,110	1,782	1,471	2,527
Alkalinity as CaCO ₃	"	467	491	408	655
TKN	"	14	2	< 1	3
NH ₃ -N	"	5	2	0.3	2
NO ₂ + NO ₃ -N	"	< 0.15	< 0.15	< 0.15	< 0.15
Total P	"	0.22	3.2	0.81	0.30
Al	"	< 1.0	< 1.0	< 1.0	< 1.0
Ca	"	432	446	371	502
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	"	9	20	7	74
Hg	μg/L	< 0.20	< 0.20	< 0.20	< 0.20
K	mg/L	12	8	6	17
Mg	"	301	261	211	351
Mn	"	0.139	0.512	0.393	0.458
Na	"	167	108	60	488
Ni	"	0.006	< 0.005	< 0.005	< 0.005
Pb	"	< 0.02	< 0.02	< 0.02	< 0.02
Zn	"	< 0.01	< 0.01	< 0.01	< 0.01

TABLE 1 (Continued): ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-6N AT THE CALUMET EAST SOLIDS MANAGEMENT AREA SAMPLED ON JULY 17, 2013

Parameter	Unit	Lysimeter No.	
		L-5	L-6N
pH ¹		7.8	8.0
EC	mS/m	183	167
Total Dissolved Solids	mg/L	1,712	1,706
Total Dissolved Organic Carbon	"	< 1	7
Cl ⁻	"	225	19
SO ₄ ⁼	"	533	707
Alkalinity as CaCO ₃	"	248	367
TKN	"	< 1	< 1
NH ₃ -N	"	< 0.1	0.9
NO ₂ + NO ₃ -N	"	0.55	0.19
Total P	"	< 0.20	3.1
Al	"	< 1.0	< 1.0
Ca	"	194	199
Cd	"	< 0.001	< 0.001
Cr	"	< 0.005	< 0.005
Cu	"	< 0.005	< 0.005
Fe	"	< 0.1	3
Hg	μg/L	< 0.20	< 0.20
K	mg/L	5	6
Mg	"	101	102
Mn	"	0.036	0.179
Na	"	90	82
Ni	"	< 0.005	< 0.005
Pb	"	< 0.02	< 0.02
Zn	"	< 0.01	< 0.01

¹pH 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 2013

Parameter	Unit	Concentration ¹
pH		7.8
Total Solids	%	7.5
Total Volatile Solids ²	"	48.4

¹Values are the means of two 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 2013

Parameter	Unit	Concentration ¹
pH		7.8
Total Solids	%	8.6
Total Volatile Solids ²	"	48.3

¹Values are the means of four samples.

²Total volatile solids as a percentage of total solids.

TABLE 4: ANALYSIS OF MONTHLY COMPOSITED PROCESSED
 BIOSOLIDS REMOVED FROM THE CALUMET EAST SOLIDS
 MANAGEMENT DRYING AREA DURING JULY 2013

Parameter	Unit	Concentration ¹
pH		7.6
Total Solids	%	69.2
Total Volatile Solids ²	"	36.5
TKN	mg/kg	23,363
NH ₃ -N	"	2,970
Total P	"	25,139
Al	"	13,596
Ca	"	46,539
Cd	"	2
Cr	"	77
Cu	"	410
Fe	"	22,852
Hg	"	1.1
K	"	3,077
Mg	"	17,354
Mn	"	909
Na	"	1,201
Ni	"	31
Pb	"	101
Zn	"	1,032

¹Values are the means of five samples.

²Total volatile solids as a percentage of total solids.

TABLE 5: ANALYSIS OF MONTHLY COMPOSITED PROCESSED
 BIOSOLIDS REMOVED FROM THE CALUMET EAST SOLIDS
 MANAGEMENT DRYING AREA DURING AUGUST 2013

Parameter	Unit	Concentration ¹
pH		7.4
Total Solids	%	68.2
Total Volatile Solids ²	"	39.7
TKN	mg/kg	24,843
NH ₃ -N	"	4,925
Total P	"	25,485
Al	"	13,772
Ca	"	46,286
Cd	"	2
Cr	"	84
Cu	"	397
Fe	"	21,823
Hg	"	0.94
K	"	2,970
Mg	"	17,079
Mn	"	823
Na	"	1,226
Ni	"	33
Pb	"	100
Zn	"	1,034

¹ Values are the means of three samples.

² Total volatile solids as a percentage of total solids.

TABLE 6: ANALYSIS OF MONTHLY COMPOSITED PROCESSED
 BIOSOLIDS REMOVED FROM THE CALUMET EAST SOLIDS
 MANAGEMENT DRYING AREA DURING SEPTEMBER 2013

Parameter	Unit	Concentration ¹
pH		7.5
Total Solids	%	39.1
Total Volatile Solids ²	"	44.2
TKN	mg/kg	31,375
NH ₃ -N	"	5,616
Total P	"	27,147
Al	"	8,252
Ca	"	44,297
Cd	"	2
Cr	"	43
Cu	"	355
Fe	"	20,454
Hg	"	0.82
K	"	2,590
Mg	"	17,667
Mn	"	921
Na	"	1,691
Ni	"	24
Pb	"	77
Zn	"	958

¹Values are for one sample only.

²Total volatile solids as a percentage of total solids.