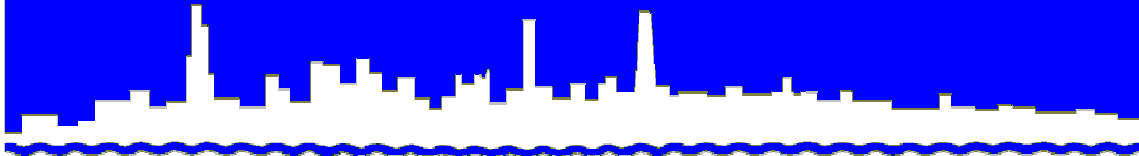


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 10-60

CALUMET EAST SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

THIRD QUARTER 2010

DECEMBER 2010

Protecting Our Water Environment

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Louis Kollias, P.E., BCEE

Director of Monitoring and Research

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December 3, 2010

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 - Stickney Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2010-AO-0265, Monitoring Report for July, August, and September 2010

The attached six tables contain the monitoring data for the Calumet East Solids Management Area for July, August, and September 2010 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 14, 2010
- Table 2, Analysis of Monthly Composited Biosolids Placed in the Calumet East Solids Management Drying Area During July 2010
- Table 3, Analysis of Monthly Composited Biosolids Placed in the Calumet East Solids Management Drying Area During September 2010
- Table 4, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During July 2010
- Table 5, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During August 2010

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

Table 6, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During September 2010

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. In June 2010, the IEPA terminated monitoring of the old lysimeters. Data for these lysimeters will no longer be included in the quarterly report.

Biosolids were placed in the solids drying area during July and September, and removed from the site during July, August, and September 2010.

Very truly yours,

Louis Kollias
Director
Monitoring and Research

LK:PL:kq

Attachments

cc w/att: Mr. Sulski, IEPA
Records Unit, IEPA
Granato/O'Connor

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS L-1N
THROUGH L-6N AT THE CALUMET EAST SOLIDS MANAGEMENT
AREA SAMPLED ON JULY 14, 2010

Parameter	Unit	Lysimeter No.			
		L-1N	L-2N	L-3N	L-4N
pH ¹		7.8	7.6	7.8	7.5
EC	mS/m	419	377	288	714
Total Dissolved Solids	mg/L	4,152	3,922	2,950	6,316
Total Dissolved Organic Carbon	"	9	21	7	12
Cl ⁻	"	165	139	50	865
SO ₄ ⁼	"	2,081	1,423	1,257	2,343
TKN	"	13	5	0.6	4
NH ₃ -N	"	6	2	0.4	2
NO ₂ + NO ₃ -N	"	0.05	3.5	0.31	0.56
Total P	"	< 0.10	0.21	< 0.10	< 0.10
Alkalinity as CaCO ₃	"	495	577	439	664
Al	"	0.092	0.095	0.081	0.100
Ca	"	503	557	391	646
Cd	"	< 0.003	< 0.003	< 0.003	< 0.003
Cr	"	< 0.003	< 0.003	< 0.003	< 0.003
Cu	"	< 0.008	< 0.008	< 0.008	< 0.008
Fe	"	7.01	30.1	6.67	75.9
Hg	μg/L	< 0.20	< 0.20	< 0.20	< 0.20
K	mg/L	11	12	5	15
Mg	"	279	244	175	320
Mn	"	0.196	0.905	0.604	0.664
Na	"	183	113	52	685
Ni	"	0.027	< 0.004	< 0.004	< 0.004
Pb	"	< 0.020	< 0.020	< 0.020	< 0.020
Zn	"	< 0.015	< 0.015	< 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 JULY 14, 2010

Parameter	Unit	Lysimeter No.	
		L-5	L-6N
pH ¹		7.8	8.1
EC	mS/m	198	164
Total Dissolved Solids	mg/L	1,600	1,506
Total Dissolved Organic Carbon	"	1	8
Cl ⁻	"	213	21
SO ₄ ⁼	"	564	576
TKN	"	< 0.5	1
NH ₃ -N	"	< 0.1	1
NO ₂ + NO ₃ -N	"	0.13	5.3
Total P	"	0.44	0.41
Alkalinity as CaCO ₃	"	236	338
Al	"	0.049	0.049
Ca	"	195	185
Cd	"	< 0.003	< 0.003
Cr	"	< 0.003	< 0.003
Cu	"	< 0.008	< 0.008
Fe	"	0.121	2.92
Hg	μg/L	< 0.20	< 0.20
K	mg/L	4	4
Mg	"	88.7	78.0
Mn	"	0.040	0.263
Na	"	82	70
Ni	"	< 0.004	< 0.004
Pb	"	< 0.020	< 0.020
Zn	"	< 0.015	< 0.015

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 2010

Parameter	Unit	Concentration ¹
pH		7.9
Total Solids	%	10.2
Total Volatile Solids ²	"	44.1

¹Values are the means of six 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 SEPTEMBER 2010

Parameter	Unit	Concentration ¹
pH		8.1
Total Solids	%	8.7
Total Volatile Solids ²	"	46.7

¹Values are the means of six samples.

²Total volatile solids as a percentage of total solids.

TABLE 4: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA DURING JULY 2010

Parameter	Unit	Concentration ¹
pH		7.2
Total Solids	%	74.4
Total Volatile Solids ²	"	38.5
TKN	mg/kg	18,060
NH ₃ -N	"	820
Total P	"	18,739
Al	"	12,411
Ca	"	53,571
Cd	"	4
Cr	"	98
Cu	"	490
Fe	"	28,234
Hg	"	1.1
K	"	2,183
Mg	"	16,992
Mn	"	1,057
Na	"	332
Ni	"	44
Pb	"	124
Zn	"	1,183

¹Values are the means of two 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 AUGUST 2010

Parameter	Unit	Concentration ¹
pH		7.3
Total Solids	%	50.8
Total Volatile Solids ²	"	41.6
TKN	mg/kg	21,731
NH ₃ -N	"	2,825
Total P	"	18,745
Al	"	13,634
Ca	"	56,545
Cd	"	3
Cr	"	94
Cu	"	487
Fe	"	27,578
Hg	"	1.1
K	"	2,899
Mg	"	19,577
Mn	"	1,078
Na	"	1,201
Ni	"	46
Pb	"	114
Zn	"	1,213

¹Values are the means of three 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 SEPTEMBER 2010

Parameter	Unit	Concentration ¹
pH		7.3
Total Solids	%	51.9
Total Volatile Solids ²	"	39.5
TKN	mg/kg	21,310
NH ₃ -N	"	2,838
Total P	"	17,140
Al	"	13,736
Ca	"	53,505
Cd	"	3
Cr	"	91
Cu	"	431
Fe	"	25,752
Hg	"	1.2
K	"	3,125
Mg	"	18,912
Mn	"	980
Na	"	895
Ni	"	43
Pb	"	106
Zn	"	1,130

¹Values are the means of eight samples.

²Total volatile solids as a percentage of total solids.