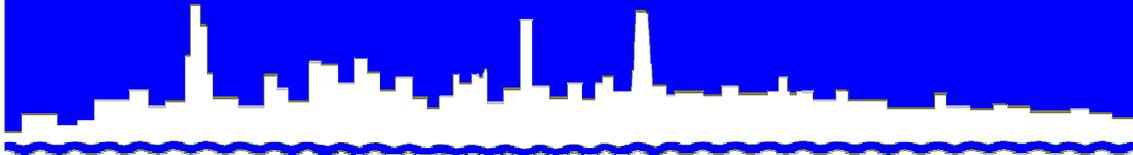


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 10-08

CALUMET EAST SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

FOURTH QUARTER 2009

FEBRUARY 2010

Protecting Our Water Environment

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Louis Kollias, P.E., BCEE

Director of Monitoring and Research

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February 26, 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 - Calumet Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2005-AO-4281-2, Monitoring Report for October, November, and December 2009

The attached five tables contain the monitoring data for the Calumet East Solids Management Area for October, November, and December 2009 as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2005-AO-4281-2.

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 October 14, 2009

Table 2, Analysis of Monthly Compositated Digested Biosolids Placed in the Calumet East Solids Management Drying Area During October 2009

Table 3, Analysis of Monthly Compositated Digested Biosolids Placed in the Calumet East Solids Management Drying Area During November 2009

Table 4, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During October 2009

Subject: Calumet East Solids Management Area - Calumet Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2005-AO-4281-2, Monitoring Report for October, November, and December 2009

Table 5, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area During November 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 have been monitored simultaneously. A request has been submitted to the IEPA to terminate monitoring of the old lysimeters.

A supplemental permit was issued by the IEPA on July 30, 2009, to modify the monitoring schedule for lysimeters at the Calumet East drying site to once per quarter.

Biosolids were placed in and removed from the solids drying area during October and November 2009.

Very truly yours,

Louis Kollias
Director
Monitoring and Research

LK:PL:kq
Attachments
cc w/att: Mr. Sulski, IEPA
Records Unit, IEPA
O'Connor/Cox/Lindo

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-6N AT THE CALUMET EAST SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 14, 2009

Parameter	Unit	Lysimeter No.				
		L-1N	L-2	L-2N	L-3	L-3N
pH ¹		7.5	7.4	7.5	7.7	7.7
EC	mS/m	295	306	267	162	214
Total Dissolved Solids	mg/L	4,168	4,076	3,552	1,452	2,800
Total Diss. Org. Carbon	"	9	3	21	7	7
Cl ⁻	"	181	194	156	32	65
SO ₄ ⁼	"	1,913	2,005	1,584	525	1,149
TKN	"	12	0.6	4	0.3	2
NH ₃ -N	"	4	<0.1	2	<0.1	0.6
NO ₂ +NO ₃ -N	"	0.24	<0.10	<0.10	<0.10	<0.10
Total P	"	<0.25	<0.25	3.8	<0.25	1.0
Alkalinity ²	"	545	500	575	444	498
Al	"	0.108	0.125	0.113	0.060	0.092
Ca	"	461	574	483	184	376
Cd	"	<0.002	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	11	<0.02	31	0.43	10
Hg	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	10	6	12	2	6
Mg	"	260	265	211	110	169
Mn	"	0.274	0.010	0.832	0.056	0.672
Na	"	165	146	103	46	59
Ni	"	<0.002	0.003	<0.002	0.005	0.004
Pb	"	<0.02	<0.02	<0.02	<0.02	<0.02
Zn	"	<0.01	0.03	0.02	0.05	<0.01

TABLE 1 (Continued): ANALYSIS OF WATER FROM LYSIMETERS L-1N THROUGH L-6N AT THE CALUMET EAST SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 14, 2009

Parameter	Unit	Lysimeter No.				
		L-4	L-4N	L-5	L-6	L-6N
pH ¹		7.4	7.2	7.8	7.9	8.0
EC	mS/m	320	480	181	136	130
Total Dissolved Solids	mg/L	4,080	5,920	1,680	1,324	1,288
Total Diss. Org. Carbon	"	4	14	1	1	8
Cl ⁻	"	554	861	247	16	24
SO ₄ ⁼	"	1,625	2,340	566	639	447
TKN	"	0.9	4	0.5	0.3	2
NH ₃ -N	"	0.5	2	0.4	0.3	1
NO ₂ +NO ₃ -N	"	0.26	<0.10	0.21	0.26	0.18
Total P	"	<0.25	<0.25	<0.25	0.28	5.3
Alkalinity ²	"	388	691	242	278	340
Al	"	0.116	0.120	0.065	0.051	0.047
Ca	"	511	557	195	157	164
Cd	"	<0.002	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	13	70	1.1	0.46	2.7
Hg	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	7	13	4	4	5
Mg	"	275	271	93	79	69
Mn	"	0.114	0.597	0.064	0.058	0.268
Na	"	165	597	84	67	65
Ni	"	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	"	<0.02	<0.02	<0.02	<0.02	<0.02
Zn	"	<0.01	0.01	<0.01	<0.01	0.01

¹pH analyzed beyond recommended holding time of 15 minutes.

²As CaCO₃.

TABLE 2: ANALYSIS OF MONTHLY COMPOSITED DIGESTED BIOSOLIDS PLACED
IN THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA
DURING OCTOBER 2009

Parameter	Unit	Concentration ¹
pH		7.7
Total Solids	%	13.0
Total Volatile Solids ²	“	35.8
TKN	mg/kg	27,732
NH ₃ -N	“	5,973

¹Values are the means of four samples.

²Total volatile solids as a percentage of total solids.

TABLE 3: ANALYSIS OF MONTHLY COMPOSITED DIGESTED BIOSOLIDS
 PLACED IN THE CALUMET EAST SOLIDS MANAGEMENT DRYING AREA
 DURING NOVEMBER 2009

Parameter	Unit	Concentration ¹
pH		7.9
Total Solids	%	27.0
Total Volatile Solids ²	“	23.6
TKN	mg/kg	13,962
NH ₃ -N	“	3,128

¹Values are the means of five 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 OCTOBER 2009

Parameter	Unit	Concentration ¹
pH		7.6
Total Solids	%	41.9
Total Volatile Solids ²	"	46.5
TKN	mg/kg	36,760
NH ₃ -N	"	5,919
Total P	"	21,467
Al	"	10,809
As	"	8
Ca	"	48,676
Cd	"	3
Cr	"	84
Cu	"	433
Fe	"	28,366
Hg	"	0.82
K	"	2,295
Mg	"	16,616
Mn	"	1,016
Mo	"	17
Na	"	967
Ni	"	42
Pb	"	103
Se	"	6
Zn	"	1,138

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 NOVEMBER 2009

Parameter	Unit	Concentration ¹
pH		7.1
Total Solids	%	47.5
Total Volatile Solids ²	“	44.2
TKN	mg/kg	26,745
NH ₃ -N	“	3,326
Total P	“	21,611
Al	“	13,743
As	“	9
Ca	“	48,366
Cd	“	4
Cr	“	87
Cu	“	448
Fe	“	29,303
Hg	“	0.96
K	“	3,117
Mg	“	15,945
Mn	“	976
Mo	“	16
Na	“	858
Ni	“	40
Pb	“	109
Se	“	5
Zn	“	1,141

¹Values are the means of six samples.

²Total volatile solids as a percentage of total solids.