

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 11-66

CALUMET WEST SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

THIRD QUARTER 2011

NOVEMBER 2011

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

CECIL LUE-HING RESEARCH AND DEVELOPMENT COMPLEX
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Director of Monitoring and Research

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November 30, 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: Calumet West 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 West Solids Management Area for July, August, and September 2011 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-3N at the Calumet West Solids Management Area Sampled on July 13, 2011
- Table 2, Analysis of Monthly Compositied Biosolids Placed in the Calumet West Solids Management Drying Area During July 2011
- Table 3, Analysis of Monthly Compositied Biosolids Placed in the Calumet West Solids Management Drying Area During August 2011
- Table 4, Analysis of Monthly Compositied Biosolids Placed in the Calumet West Solids Management Drying Area During September 2011
- Table 5, Analysis of Monthly Compositied Processed Digested Biosolids Removed from the Calumet West Solids Management Drying Area During July 2011

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

Table 7, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet West 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: Mr. Sulski, IEPA
Records Unit, IEPA

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS L-1N
THROUGH L-3N AT THE CALUMET WEST SOLIDS MANAGEMENT
AREA SAMPLED ON JULY 13, 2011

Parameter	Unit	Lysimeter No.		
		L-1N	L-2N	L-3N
pH ¹		8.1	8.7	8.1
EC	mS/m	319	277	372
Total Dissolved Solids	mg/L	3,252	2,680	3,970
Total Dissolved Organic Carbon	"	3	5	2
Cl ⁻	"	67	25	57
SO ₄ ⁼	"	1,539	1,439	1,892
TKN	"	0.8	2	1
NH ₃ -N	"	0.7	2	1
NO ₂ + NO ₃ -N	"	< 0.04	< 0.04	< 0.04
Total P	"	< 0.10	0.15	< 0.10
Alkalinity as CaCO ₃	"	281	44	255
Al	"	< 1.0	< 1.0	< 1.0
Ca	"	316	488	400
Cd	"	< 0.001	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005	< 0.005
Fe	"	0.7	< 0.2	2
Hg	μg/L	< 0.20	< 0.20	< 0.20
K	mg/L	12	26	9
Mg	"	210	10.9	254
Mn	"	0.092	0.006	0.270
Na	"	173	195	196
Ni	"	< 0.008	< 0.008	< 0.008
Pb	"	< 0.03	< 0.03	< 0.03
Zn	"	< 0.02	< 0.02	< 0.02

¹pH analyzed beyond recommended holding time of 15 minutes.

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

Parameter	Unit	Concentration ¹
pH		7.9
Total Solids	%	8.5
Total Volatile Solids ²	”	46.6

¹Values are the means of five samples.

²Total volatile solids as a percentage of total solids.

TABLE 3: ANALYSIS OF MONTHLY COMPOSITED BIOSOLIDS
PLACED IN THE CALUMET WEST SOLIDS MANAGEMENT DRYING AREA
DURING AUGUST 2011

Parameter	Unit	Concentration ¹
pH		7.8
Total Solids	%	9.6
Total Volatile Solids ²	”	44.3

¹Values are the means of six samples.

²Total volatile solids as a percentage of total solids.

TABLE 4: ANALYSIS OF MONTHLY COMPOSITED BIOSOLIDS
 PLACED IN THE CALUMET WEST SOLIDS MANAGEMENT DRYING AREA
 DURING SEPTEMBER 2011

Parameter	Unit	Concentration ¹
pH		7.8
Total Solids	%	5.8
Total Volatile Solids ²	”	49.0

¹Values are the means of five samples.

²Total volatile solids as a percentage of total solids.

TABLE 5: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED
BIOSOLIDS REMOVED FROM THE CALUMET WEST SOLIDS
MANAGEMENT DRYING AREA DURING JULY 2011

Parameter	Unit	Concentration ¹
pH		7.6
Total Solids	%	58.9
Total Volatile Solids ²	"	42.9
TKN	mg/kg	24,939
NH ₃ -N	"	3,929
Total P	"	17,372
Al	"	11,675
Ca	"	48,759
Cd	"	2
Cr	"	72
Cu	"	417
Fe	"	24,373
Hg	"	0.98
K	"	3,258
Mg	"	17,616
Mn	"	1,092
Na	"	1,036
Ni	"	36
Pb	"	91
Zn	"	1,150

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 WEST SOLIDS MANAGEMENT DRYING AREA DURING AUGUST 2011

Parameter	Unit	Concentration ¹
pH		7.1
Total Solids	%	72.8
Total Volatile Solids ²	"	38.0
TKN	mg/kg	18,766
NH ₃ -N	"	2,288
Total P	"	17,850
Al	"	11,870
Ca	"	46,495
Cd	"	2
Cr	"	64
Cu	"	377
Fe	"	23,031
Hg	"	0.93
K	"	2,802
Mg	"	18,256
Mn	"	954
Na	"	659
Ni	"	33
Pb	"	88
Zn	"	1,048

¹Values are the means of eight samples.

²Total volatile solids as a percentage of total solids.

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

Parameter	Unit	Concentration ¹
pH		7.4
Total Solids	%	49.2
Total Volatile Solids ²	"	44.3
TKN	mg/kg	22,904
NH ₃ -N	"	4,346
Total P	"	17,570
Al	"	9,904
Ca	"	41,941
Cd	"	2
Cr	"	69
Cu	"	368
Fe	"	21,128
Hg	"	0.93
K	"	2,929
Mg	"	16,550
Mn	"	880
Na	"	NA ³
Ni	"	36
Pb	"	81
Zn	"	954

¹Values are the means of five samples.

²Total volatile solids as a percentage of total solids.

³No analysis.