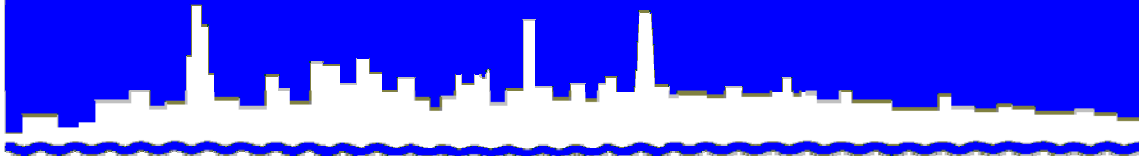


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 07-73

CALUMET WEST SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

THIRD QUARTER 2007

NOVEMBER 2007

Metropolitan Water Reclamation District of Greater Chicago

100 EAST ERIE STREET CHICAGO, ILLINOIS 60611-3154 312-751-5600

Louis Kollias, P.E., BCEE
Director of Research and Development
312-751-5190

November 29, 2007

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 – Stickney WRP, Contract No. 84-270-2P, C175399, IEPA Permit No. 2005-AO-4281-1, Monitoring Report for July, August, and September 2007

The attached eight tables contain the monitoring data for the Calumet West Solids Management Area for July, August, and September 2007 as required by IEPA Operating Permit No. 2005-AO-4281-1.

The data reported are as follows:

Table 1, Analysis of Water from Lysimeters L-I through L-3 at the Calumet West Solids Management Area Sampled on July 11, 2007

Table 2, Analysis of Water from Lysimeters L-I through L-3 at the Calumet West Solids Management Area Sampled on August 8, 2007

Table 3, Analysis of Water from Lysimeters L-I through L-3 at the Calumet West Solids Management Area Sampled on September 5, 2007

Table 4, Analysis of Monthly Compositing Digested Biosolids Placed in the Calumet West Solids Management Drying Area During July 2007

Table 5, Analysis of Monthly Compositing Digested Biosolids Placed in the Calumet West Solids Management Drying Area During August 2007

Table 6, Analysis of Monthly Compositing Digested Biosolids Placed in the Calumet West Solids Management Drying Area During September 2007

Subject: Calumet West Solids Management Area - Stickney WRP, Contract No. 84-270-2P, C175399, IEPA Permit No. 2005-AO-4281-1, Monitoring Report for July, August, and September 2007

Table 7, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Calumet West Solids Management Drying Area During August 2007

Table 8, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Calumet West Solids Management Drying Area During September 2007

Biosolids were placed in the solids drying area during July, August, and September 2007. Biosolids were removed from the solids drying area during August and September 2007.

Very truly yours,

Louis Kollias
Director
Research and Development

LK:PL:spy
Attachments

cc w/att: Mr. Sulski, IEPA
Records Unit, IEPA
Stuba/Granato/Cox/Lindo/M. Patel

cc wo/att: Sharma/Garelli/Jamjun/Conway

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-3 AT THE CALUMET WEST
SOLIDS MANAGEMENT AREA SAMPLED ON JULY 11, 2007

Parameter	Unit	Lysimeter No.		
		L-1	L-2	L-3
pH ¹			7.5	7.7
EC	mS/m		314	316
Total Diss. Org. Carbon	mg/L		3	1
Cl ⁻	"		46	30
SO ₄ ⁼	"		1,810	1,950
TKN	"		0.57	0.35
NH ₃ -N	"		0.17	0.07
NO ₂ + NO ₃ -N	"	L	0.21	0.38
Total P	"	Y	0.05	<0.05
Alkalinity as CaCO ₃	"	S	184	155
		I		
Al	"	M	0.073	0.075
Ca	"	E	362	386
Cd	"	T	<0.0004	0.0007
Cr	"	E	0.0041	0.0034
Cu	"	R	<0.002	<0.002
Fe	"	D	0.367	0.776
Hg	μg/L	R	<0.05	0.05
K	mg/L	Y	8	6
Mg	"		182	196
Mn	"		0.2000	0.0652
Na	"		187	187
Ni	"		0.0044	<0.0004
Pb	"		0.004	<0.004
Zn	"		0.011	0.009

¹pH analyzed beyond recommended holding time of 15 minutes.

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-3 AT THE CALUMET WEST
SOLIDS MANAGEMENT AREA SAMPLED ON AUGUST 8, 2007

Parameter	Unit	Lysimeter No.		
		L-1	L-2	L-3
pH ¹		7.7	7.5	7.7
EC	mS/m	277	298	292
Total Diss. Org. Carbon	mg/L	2	2	1
Cl ⁻	"	134	36	32
SO ₄ ⁼	"	1,510	1,734	1,949
TKN	"	0.38	0.26	0.26
NH ₃ -N	"	<0.04	<0.02	<0.04
NO ₂ + NO ₃ -N	"	1.1	0.54	0.67
Total P	"	<0.10	<0.05	<0.10
Alkalinity as CaCO ₃	"	152	186	152
Al	"	0.056	0.055	0.054
Ca	"	318	359	363
Cd	"	0.0012	0.0009	<0.0008
Cr	"	0.0014	0.0006	0.0016
Cu	"	<0.004	<0.002	<0.004
Fe	"	0.442	0.722	0.186
Hg	μg/L	<0.10	<0.05	<0.10
K	mg/L	7	8	7
Mg	"	142	187	189
Mn	"	0.1596	0.1600	0.0282
Na	"	215	186	186
Ni	"	<0.0008	0.0066	<0.0008
Pb	"	0.008	<0.004	<0.008
Zn	"	0.016	0.026	0.012

¹pH analyzed beyond recommended holding time of 15 minutes.

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-3 AT THE CALUMET WEST
SOLIDS MANAGEMENT AREA SAMPLED ON SEPTEMBER 5, 2007

Parameter	Unit	Lysimeter No.		
		L-1	L-2	L-3
pH ¹		7.8	7.7	7.8
EC	mS/m	307	304	304
Total Diss. Org. Carbon	mg/L	NA	2	NA
Cl ⁻	"	191	39	33
SO ₄ ⁼	"	1,406	1,768	NA
TKN	"	0.36	0.28	0.25
NH ₃ -N	"	0.08	0.02	<0.02
NO ₂ + NO ₃ -N	"	0.39	0.48	0.50
Total P	"	<0.10	<0.05	<0.05
Alkalinity as CaCO ₃	"	194	180	155
Al	"	0.086	0.064	0.072
Ca	"	337	344	357
Cd	"	0.0008	<0.0004	<0.0004
Cr	"	<0.0010	<0.0005	<0.0005
Cu	"	<0.004	<0.002	<0.002
Fe	"	0.588	0.014	0.053
Hg	μg/L	0.12	0.08	0.09
K	mg/L	7	7	6
Mg	"	165	180	186
Mn	"	0.0982	0.0905	0.0164
Na	"	197	182	182
Ni	"	<0.0008	0.0055	<0.0004
Pb	"	<0.008	<0.004	<0.004
Zn	"	0.009	0.010	0.007

¹pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

TABLE 4: ANALYSIS OF MONTHLY COMPOSITED DIGESTED
 BIOSOLIDS PLACED IN THE CALUMET WEST
 SOLIDS MANAGEMENT DRYING AREA DURING JULY 2007

Parameter	Unit	Concentration ¹
pH		8.2
Total Solids	%	41.4
Total Volatile Solids ²	%	25.4
TKN	mg/kg	12,406
NH ₃ -N	”	3,680

¹Values are the means of four samples.

²Total volatile solids as a percentage of total solids.

TABLE 5: ANALYSIS OF MONTHLY COMPOSITED DIGESTED
 BIOSOLIDS PLACED IN THE CALUMET WEST
 SOLIDS MANAGEMENT DRYING AREA DURING AUGUST 2007

Parameter	Unit	Concentration ¹
pH		7.7
Total Solids	%	8.2
Total Volatile Solids ²	%	45.8
TKN	mg/kg	36,111
NH ₃ -N	”	11,333

¹Values are the means of six samples.

²Total volatile solids as a percentage of total solids.

TABLE 6: ANALYSIS OF MONTHLY COMPOSITED DIGESTED
BIOSOLIDS PLACED IN THE CALUMET WEST
SOLIDS MANAGEMENT DRYING AREA DURING SEPTEMBER 2007

Parameter	Unit	Concentration ¹
pH		7.7
Total Solids	%	10.3
Total Volatile Solids ²	%	43.4
TKN	mg/kg	30,923
NH ₃ -N	”	7,584

¹Values are the means of seven 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 AUGUST 2007

Parameter	Unit	Concentration ¹
pH		6.9
Total Solids	%	80.2
Total Volatile Solids ²	%	21.5
TKN	mg/kg	8,304
NH ₃ -N	"	122
Total P	"	13,700
Al	"	29,675
As	"	10
Ca	"	54,211
Cd	"	9.3
Cr	"	137
Cu	"	239
Fe	"	27,726
Hg	"	0.56
K	"	9,459
Mg	"	23,371
Mn	"	644
Mo	"	9
Na	"	665
Ni	"	36
Pb	"	114
Se	"	3.0
Zn	"	775

¹Values are the means of two samples.

²Total volatile solids as a percentage of total solids.

TABLE 8: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED
BIOSOLIDS REMOVED FROM THE CALUMET WEST
SOLIDS MANAGEMENT DRYING AREA DURING SEPTEMBER 2007

Parameter	Unit	Concentration ¹
pH		7.3
Total Solids	%	64.1
Total Volatile Solids ²	%	25.8
TKN	mg/kg	13,781
NH ₃ -N	"	1,451
Total P	"	13,214
Al	"	17,867
As	"	11
Ca	"	53,236
Cd	"	9.0
Cr	"	133
Cu	"	284
Fe	"	26,479
Hg	"	0.79
K	"	4,880
Mg	"	22,065
Mn	"	703
Mo	"	10
Na	"	376
Ni	"	39
Pb	"	127
Se	"	3.0
Zn	"	823

¹Values are the means of eight samples.

²Total volatile solids as a percentage of total solids.