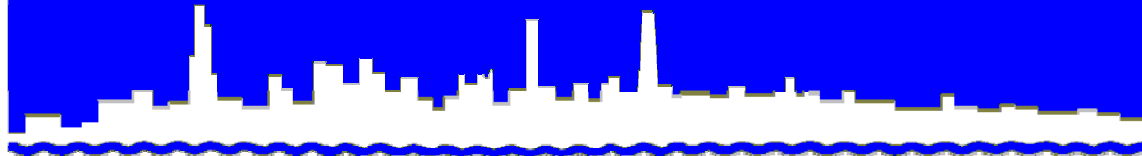


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 08-44

CALUMET WEST SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

SECOND QUARTER 2008

AUGUST 2008

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Louis Kollias, P.E., BCEE

August 29, 2008

Director of Research and Development

312-751-5190

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 WRP, Contract No. 84-270-2P, C175399, IEPA Permit No. 2005-AO-4281-1, Monitoring Report for April, May, and June 2008

The attached seven tables contain the monitoring data for the Calumet West Solids Management Area for April, May, and June 2008 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-1 through L-3 at the Calumet West Solids Management Area Sampled on April 2, 2008

Table 2, Analysis of Water from Lysimeters L-1 through L-3 at the Calumet West Solids Management Area Sampled on May 14, 2008

Table 3, Analysis of Water from Lysimeters L-1 through L-3 at the Calumet West Solids Management Area Sampled on June 11, 2008

Table 4, Analysis of Monthly Compositated Digested Biosolids Placed in the Calumet West Solids Management Drying Area During May 2008

Table 5, Analysis of Monthly Compositated Digested Biosolids Placed in the Calumet West Solids Management Drying Area During June 2008

Table 6, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet West Solids Management Drying Area During May 2008

Subject: Calumet West Solids Management Area - Calumet WRP, Contract No. 84-270-2P, C175399, IEPA Permit No. 2005-AO-4281-1, Monitoring Report for April, May, and June 2008

Table 7, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Calumet West Solids Management Drying Area During June 2008

Biosolids were placed in and removed from the solids drying area during May and June 2008.

Very truly yours,

Louis Kollias
Director
Research and Development

LK:PL:kq

Attachments

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

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-3 AT THE CALUMET WEST
SOLIDS MANAGEMENT AREA SAMPLED ON APRIL 2, 2008

Parameter	Unit	Lysimeter No.		
		L-1	L-2	L-3
pH ¹		7.6	7.8	8.0
EC	mS/m	285	296	306
Total Dissolved Solids	mg/L	2,864	3,160	3,208
Total Diss. Org. Carbon	"	0.9	2	0.8
Cl ⁻	"	126	37	30
SO ₄ ⁼	"	1,536	1,848	1,923
TKN	"	0.18	0.19	0.24
NH ₃ -N	"	0.05	<0.02	<0.04
NO ₂ + NO ₃ -N	"	0.37	0.42	1.7
Total P	"	<0.05	<0.05	<0.10
Alkalinity as CaCO ₃	"	160	176	154
Al	"	0.069	0.060	0.074
Ca	"	329	367	360
Cd	"	<0.0004	<0.0004	<0.0008
Cr	"	<0.0005	<0.0005	<0.0010
Cu	"	<0.002	<0.002	<0.004
Fe	"	0.362	0.043	0.014
Hg	μg/L	<0.25 ^a	<0.25 ^a	<0.25 ^a
K	mg/L	8	8	6
Mg	"	151	189	189
Mn	"	0.0377	0.0368	0.0100
Na	"	206	190	184
Ni	"	<0.0004	0.0057	<0.0008
Pb	"	<0.004	<0.004	<0.008
Zn	"	0.006	0.073	0.018

¹pH analyzed beyond recommended holding time of 15 minutes.

^aLimit of quantitation (LOQ) instead of MDL was used as reporting limit.

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-3 AT THE CALUMET WEST
SOLIDS MANAGEMENT AREA SAMPLED ON MAY 14, 2008

Parameter	Unit	Lysimeter No.		
		L-1	L-2	L-3
pH ¹		7.6	7.7	7.8
EC	mS/m	229	234	257
Total Dissolved Solids	mg/L	2,920	3,398	3,534
Total Diss. Org. Carbon	"	1	2	1
Cl ⁻	"	122	34	29
SO ₄ ⁼	"	1,562	1,860	1,863
TKN	"	0.47	0.32	0.22
NH ₃ -N	"	0.19	0.06	<0.02
NO ₂ + NO ₃ -N	"	0.27	0.49	0.51
Total P	"	0.05	0.06	<0.05
Alkalinity as CaCO ₃	"	170	183	159
Al	"	0.068	0.062	0.056
Ca	"	358	402	403
Cd	"	0.0007	0.0007	0.0005
Cr	"	<0.0005	<0.0005	<0.0005
Cu	"	<0.002	<0.002	<0.002
Fe	"	1.51	0.053	0.009
Hg	μg/L	<0.25 ^a	<0.25 ^a	<0.25 ^a
K	mg/L	8	9	7
Mg	"	165	210	209
Mn	"	0.2584	0.0650	0.0212
Na	"	217	205	205
Ni	"	<0.0004	0.0058	<0.0004
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.006	0.083	0.015

¹pH analyzed beyond recommended holding time of 15 minutes.

^aLimit of quantitation (LOQ) instead of MDL was used as reporting limit.

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-3 AT THE CALUMET WEST
SOLIDS MANAGEMENT AREA SAMPLED ON JUNE 11, 2008

Parameter	Unit	Lysimeter No.		
		L-1	L-2	L-3
pH ¹		7.5	7.4	7.8
EC	mS/m	249	264	258
Total Dissolved Solids	mg/L	3,000	3,272	NA
Total Diss. Org. Carbon	"	1	2	NA
Cl ⁻	"	87	32	NA
SO ₄ ⁼	"	1,680	1,980	NA
TKN	"	0.36	0.26	0.10
NH ₃ -N	"	0.14	<0.02	<0.02
NO ₂ + NO ₃ -N	"	0.33	0.58	0.31
Total P	"	<0.05	<0.05	<0.05
Alkalinity as CaCO ₃	"	157	181	NA
Al	"	0.063	0.063	0.032
Ca	"	335	365	177
Cd	"	0.0005	0.0005	<0.0004
Cr	"	<0.0005	<0.0005	<0.0005
Cu	"	<0.002	<0.002	0.002
Fe	"	0.759	0.008	0.012
Hg	μg/L	<0.25 ^a	<0.25 ^a	<0.25 ^a
K	mg/L	8	8	3
Mg	"	156	191	92.1
Mn	"	0.1571	0.0780	0.0043
Na	"	210	186	89
Ni	"	0.0008	0.0055	0.0294
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.035	0.081	0.028

¹pH analyzed beyond recommended holding time of 15 minutes.

^aLimit of quantitation (LOQ) instead of MDL was used as reporting limit.

NA = No analysis; insufficient sample.

TABLE 4: ANALYSIS OF MONTHLY COMPOSITED DIGESTED
 BIOSOLIDS PLACED IN THE CALUMET WEST
 SOLIDS MANAGEMENT DRYING AREA DURING MAY 2008

Parameter	Unit	Concentration ¹
pH		7.8
Total Solids	%	24.6
Total Volatile Solids ²	%	24.6
TKN	mg/kg	17,089
NH ₃ -N	”	4,189

¹Values are the means of two 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 JUNE 2008

Parameter	Unit	Concentration ¹
pH		7.8
Total Solids	%	34.9
Total Volatile Solids ²	%	16.8
TKN	mg/kg	12,926
NH ₃ -N	”	2,636

¹Values are the means of four 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 MAY 2008

Parameter	Unit	Concentration ¹
pH		6.4
Total Solids	%	62.0
Total Volatile Solids ²	%	29.8
TKN	mg/kg	14,995
NH ₃ -N	”	306
Total P	”	991
Al	”	19,646
As	”	10
Ca	”	54,444
Cd	”	5
Cr	”	96
Cu	”	320
Fe	”	30,245
Hg	”	1.14
K	”	5,512
Mg	”	21,597
Mn	”	843
Mo	”	12
Na	”	346
Ni	”	39
Pb	”	103
Se	”	3.0
Zn	”	793

¹Values are the means of three 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 JUNE 2008

Parameter	Unit	Concentration ¹
pH		6.9
Total Solids	%	68.0
Total Volatile Solids ²	%	21.9
TKN	mg/kg	11,655
NH ₃ -N	”	181
Total P	”	939
Al	”	20,726
As	”	10
Ca	”	57,802
Cd	”	7
Cr	”	115
Cu	”	260
Fe	”	28,506
Hg	”	0.759
K	”	6,161
Mg	”	24,378
Mn	”	774
Mo	”	10
Na	”	<171
Ni	”	38
Pb	”	112
Se	”	2.0
Zn	”	727

¹Values are the means of three samples.

²Total volatile solids as a percentage of total solids.