

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 11-67

HARLEM AVENUE 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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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: Harlem Avenue Solids Management Area - Stickney Water Reclamation Plant, Illinois Environmental Protection Agency Permit No. 2009-AO-2715-1, Monitoring Report for July, August, and September 2011

The attached six tables contain the monitoring data for the Harlem Avenue Solids Management Area for July, August, and September 2011 as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2009-AO-2715-1.

The data reported are as follows:

- Table 1, Analysis of Water from Lysimeters L-1N1 Through L-3N at the Harlem Avenue Solids Management Area Sampled on July 20, 2011
- Table 2, Analysis of Monthly Compositated Biosolids Placed in the Harlem Avenue Solids Management Drying Area During July 2011
- Table 3, Analysis of Monthly Compositated Biosolids Placed in the Harlem Avenue Solids Management Drying Area During August 2011
- Table 4, Analysis of Monthly Compositated Biosolids Placed in the Harlem Avenue Solids Management Drying Area During September 2011
- Table 5, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Harlem Avenue Solids Management Drying Area During August 2011

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Table 6, Analysis of Monthly Compositated Processed Digested Biosolids Removed from the Harlem Avenue Solids Management Drying Area During September 2011

Biosolids were placed in the solids drying area during July, August, and September and removed from the site during August and September 2011.

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-1N1
THROUGH L-3N AT THE HARLEM AVENUE SOLIDS MANAGEMENT
AREA SAMPLED ON JULY 20, 2011

Parameter	Unit	Lysimeter No.		
		L-1N1	L-2N	L-3N
pH ¹		7.8	7.9	8.0
EC	mS/m	239	356	191
Total Dissolved Solids	mg/L	1,768	4,434	1,742
Total Dissolved Organic Carbon	"	34	6	8
Cl ⁻	"	107	44	140
SO ₄ ⁼	"	30	1,549	183
TKN	"	8	0.8	1
NH ₃ -N	"	6	< 0.1	0.9
NO ₂ + NO ₃ -N	"	0.17	45	2.5
Total P	"	< 0.10	< 0.10	0.26
Alkalinity as CaCO ₃	"	901	581	778
Al	"	< 1.0	< 1.0	< 1.0
Ca	"	313	699	245
Cd	"	< 0.001	< 0.001	< 0.001
Cr	"	< 0.003	< 0.003	< 0.003
Cu	"	< 0.005	< 0.005	< 0.005
Fe	"	< 0.2	< 0.2	16
Hg	μg/L	< 0.20	< 0.20	< 0.20
K	mg/L	4	< 1	< 1
Mg	"	185	190	91.9
Mn	"	0.328	2.59	0.755
Na	"	46	24	60
Ni	"	0.011	0.014	< 0.008
Pb	"	< 0.03	< 0.03	< 0.03
Zn	"	< 0.02	0.04	< 0.02

¹pH analyzed beyond recommended holding time of 15 minutes.

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

Parameter	Unit	Concentration ¹
pH		8.2
Total Solids	%	18.8
Total Volatile Solids ²	”	46.8

¹Values are the means of 17 samples.

²Total volatile solids as a percentage of total solids.

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

Parameter	Unit	Concentration ¹
pH		8.0
Total Solids	%	16.8
Total Volatile Solids ²	”	47.1

¹Values are the means of four samples.

²Total volatile solids as a percentage of total solids.

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

Parameter	Unit	Concentration ¹
pH		8.2
Total Solids	%	18.2
Total Volatile Solids ²	”	46.6

¹Values are the means of nine samples.

²Total volatile solids as a percentage of total solids.

TABLE 5: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE HARLEM AVENUE SOLIDS MANAGEMENT DRYING AREA DURING AUGUST 2011

Parameter	Unit	Concentration ¹
pH		7.1
Total Solids	%	64.7
Total Volatile Solids ²	"	39.9
TKN	mg/kg	20,544
NH ₃ -N	"	3,116
Total P	"	20,500
Al	"	20,653
As	"	< 10
Ca	"	38,533
Cd	"	3
Cr	"	150
Cu	"	451
Fe	"	17,485
Hg	"	1.1
K	"	2,447
Mg	"	18,120
Mn	"	599
Mo	"	11
Na	"	997
Ni	"	41
Pb	"	118
Se	"	< 5
Zn	"	853

¹Values are the means of eight samples.

²Total volatile solids as a percentage of total solids.

TABLE 6: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE HARLEM AVENUE SOLIDS MANAGEMENT DRYING AREA DURING SEPTEMBER 2011

Parameter	Unit	Concentration ¹
pH		7.0
Total Solids	%	62.4
Total Volatile Solids ²	"	44.6
TKN	mg/kg	22,215
NH ₃ -N	"	3,872
Total P	"	18,574
Al	"	19,825
As	"	< 10
Ca	"	39,001
Cd	"	3
Cr	"	151
Cu	"	452
Fe	"	19,235
Hg	"	0.73
K	"	3,258
Mg	"	17,870
Mn	"	608
Mo	"	10
Na	"	1,403
Ni	"	42
Pb	"	108
Se	"	< 5
Zn	"	846

¹Values are the means of 12 samples.

²Total volatile solids as a percentage of total solids.