

Protecting Our Water Environment



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 08-29

HARLEM AVENUE SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

FIRST QUARTER 2008

JUNE 2008

Metropolitan Water Reclamation District of Greater Chicago

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

Louis Kollias, P.E., BCEE
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312-751-5190

June 5, 2008

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 WRP, Contract No. 84-111-2P, TEPA Permit No. 2004-AO-2591, Monitoring Report for January, February, and March 2008

The attached seven tables contain the monitoring data for the Harlem Avenue Solids Management Area for January, February, and March 2008 as required by JEPA Operating Permit No. 2004-AO-259 1. In a letter dated January 19, 2007, the IEPA granted permission to terminate the monitoring of lysimeters L-1 and L-1N. Therefore, monitoring data for these lysimeters will not be included in this and subsequent reports. Due to extremely cold weather during the last week of January and throughout February, all lysimeters were frozen. As a result, no samples were available on January 30 and on February 13 and 27.

The data reported are as follows:

Table 1, Analysis of Water from Lysimeters L-1N-1 through L-3 at the Harlem Avenue Solids Management Area Sampled on January 2, 2008

Table 2, Analysis of Water from Lysimeters L-1N-1 through L-3 at the Harlem Avenue Solids Management Area Sampled on January 16, 2008

Table 3, Analysis of Water from Lysimeters L-1N-1 through L-3 at the Harlem Avenue Solids Management Area Sampled on March 13, 2008

Table 4, Analysis of Water from Lysimeters L-1N-1 through L-3 at the Harlem Avenue Solids Management Area Sampled on March 26, 2008

Subject: Harlem Avenue Solids Management Area - Stickney WRP, Contract No. 84-111-2P, IEPA Permit No. 2004-AO-2591, Monitoring Report for January, February, and March 2008

Table 5, Analysis of Monthly Compositated Digested Biosolids Placed in the Harlem Avenue Solids Management Drying Area During January 2008

Table 6, Analysis of Monthly Compositated Digested Biosolids Placed in the Harlem Avenue Solids Management Drying Area During February 2008

Table 7, Analysis of Monthly Compositated Digested Biosolids Placed in the Harlem Avenue Solids Management Drying Area During March 2008

Biosolids were placed in the solids drying area during January, February, and March 2008. No biosolids were removed from the solids drying area during January, February, and March 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/Garelli

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON JANUARY 2, 2008

Parameter	Unit	Lysimeter No.		
		L-1N-1	L-2	L-3
pH ¹		7.7		
EC	mS/m	172		
Total Dissolved Solids	mg/L	1,624		
Total Diss. Org. Carbon	"	38		L
Cl ⁻	"	106		Y
SO ₄ ⁼	"	4		S
			L	I
TKN	"	8.1	Y	M
NH ₃ -N	"	5.6	S	E
NO ₂ + NO ₃ -N	"	0.80	I	T
Total P	"	<0.10	M	E
Alkalinity as CaCO ₃	"	1,240	E	R
			T	
Al	"	0.052	E	I
Ca	"	291	R	N
Cd	"	<0.0008		A
Cr	"	<0.0010	F	C
Cu	"	<0.004	R	C
			O	E
Fe	"	0.298	Z	S
Hg	μg/L	<0.10	E	S
K	mg/L	4	N	I
Mg	"	179		B
Mn	"	0.3464		L
				E
Na	"	45		
Ni	"	<0.0008		
Pb	"	<0.008		
Zn	"	0.007		

¹pH analyzed beyond recommended holding time of 15 minutes.

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON JANUARY 16, 2008

Parameter	Unit	Lysimeter No.		
		L-1N-1	L-2	L-3
pH ¹		7.6	7.5	7.5
EC	mS/m	236	218	229
Total Dissolved Solids	mg/L	1,624	1,740	1,652
Total Diss. Org. Carbon	"	35	2	7
Cl ⁻	"	130	275	100
SO ₄ ⁼	"	28	516	263
TKN	"	7.8	0.48	0.53
NH ₃ -N	"	4.6	<0.02	<0.02
NO ₂ + NO ₃ -N	"	0.14	0.23	0.30
Total P	"	<0.05	<0.05	<0.05
Alkalinity as CaCO ₃	"	1,442	451	1,098
Al	"	0.045	0.048	0.049
Ca	"	286	347	335
Cd	"	<0.0004	0.0004	0.0005
Cr	"	0.0014	0.0009	<0.0005
Cu	"	<0.002	<0.002	<0.002
Fe	"	4.85	0.015	0.012
Hg	μg/L	<0.05	<0.05	<0.05
K	mg/L	4	0.3	1
Mg	"	169	84.3	148
Mn	"	0.3574	0.0254	0.1817
Na	"	58	87	38
Ni	"	0.0014	<0.0004	<0.0004
Pb	"	<0.004	0.004	<0.004
Zn	"	0.008	0.017	0.046

¹pH analyzed beyond recommended holding time of 15 minutes.

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 13, 2008

Parameter	Unit	Lysimeter No.		
		L-1N-1	L-2	L-3
pH ¹		7.6	7.1	7.2
EC	mS/m	187	233	232
Total Dissolved Solids	mg/L	1,398	2,030	1,972
Total Diss. Org. Carbon	"	37	3	7
Cl ⁻	"	96	269	122
SO ₄ ⁼	"	4	498	295
TKN	"	7.2	0.38	0.56
NH ₃ -N	"	4.6	<0.02	<0.02
NO ₂ + NO ₃ -N	"	0.38	0.27	0.56
Total P	"	0.05	<0.05	<0.05
Alkalinity as CaCO ₃	"	1,138	470	1,125
Al	"	0.053	0.065	0.061
Ca	"	291	353	350
Cd	"	<0.0004	<0.0004	<0.0004
Cr	"	0.0006	0.0005	<0.0005
Cu	"	<0.002	<0.002	<0.002
Fe	"	1.58	0.093	0.013
Hg	μg/L	<0.05	<0.05	<0.05
K	mg/L	4	0.4	1
Mg	"	171	85.6	146
Mn	"	0.3586	0.0458	0.3777
Na	"	44	90	42
Ni	"	0.0010	<0.0004	<0.0004
Pb	"	0.005	<0.004	<0.004
Zn	"	0.009	0.007	0.006

¹pH analyzed beyond recommended holding time of 15 minutes.

TABLE 4: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 26, 2008

Parameter	Unit	Lysimeter No.		
		L-1N-1	L-2	L-3
pH ¹		7.6	7.2	7.4
EC	mS/m	117	146	153
Total Dissolved Solids	mg/L	1,516	1,964	1,764
Total Diss. Org. Carbon	"	NR	NR	NR
Cl ⁻	"	108	281	118
SO ₄ ⁼	"	NR	NR	NR
TKN	"	8.0	0.36	0.50
NH ₃ -N	"	4.7	<0.02	<0.02
NO ₂ + NO ₃ -N	"	0.13	0.11	0.51
Total P	"	<0.05	<0.05	<0.05
Alkalinity as CaCO ₃	"	1,294	495	1,078
Al	"	0.088	0.086	0.087
Ca	"	317	354	319
Cd	"	<0.0004	<0.0004	<0.0004
Cr	"	0.0005	<0.0005	<0.0005
Cu	"	<0.002	<0.002	<0.002
Fe	"	13.4	0.013	0.013
Hg	μg/L	<0.25	<0.25	<0.25
K	mg/L	4	0.4	1
Mg	"	186	86.5	132
Mn	"	0.4248	0.0108	0.8325
Na	"	48	86	43
Ni	"	0.0020	<0.0004	<0.0004
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.015	0.010	0.009

¹pH analyzed beyond recommended holding time of 15 minutes.

NR = No result.

TABLE 5: ANALYSIS OF MONTHLY COMPOSITED DIGESTED
BIOSOLIDS PLACED IN THE HARLEM AVENUE
SOLIDS MANAGEMENT DRYING AREA DURING JANUARY 2008

Parameter	Unit	Concentration ¹
pH		8.2
Total Solids	%	23.3
Total Volatile Solids ²	%	60.8
TKN	mg/kg	49,863
NH ₃ -N	”	7,138

¹Values for one sample only.

²Total volatile solids as a percentage of total solids.

TABLE 6: ANALYSIS OF MONTHLY COMPOSITED DIGESTED
BIOSOLIDS PLACED IN THE HARLEM AVENUE
SOLIDS MANAGEMENT DRYING AREA DURING FEBRUARY 2008

Parameter	Unit	Concentration ¹
pH		8.3
Total Solids	%	25.8
Total Volatile Solids ²	%	62.2
TKN	mg/kg	40,283
NH ₃ -N	”	6,163

¹Values for one sample only.

²Total volatile solids as a percentage of total solids.

TABLE 7: ANALYSIS OF MONTHLY COMPOSITED DIGESTED
 BIOSOLIDS PLACED IN THE HARLEM AVENUE
 SOLIDS MANAGEMENT DRYING AREA DURING MARCH 2008

Parameter	Unit	Concentration ¹
pH		7.9
Total Solids	%	22.5
Total Volatile Solids ²	%	57.4
TKN	mg/kg	47,419
NH ₃ -N	”	8,160

¹Values for one sample only.

²Total volatile solids as a percentage of total solids.