MONITORING AND RESEARCH DEPARTMENT

REPORT NO. 09-33

HARLEM AVENUE SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

FIRST QUARTER 2009

MAY 2009

Protecting Our Water Environment

Metropolitan Water Reclamation District of Greater Chicago

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May 18, 2009

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, Contract No. 84-111-2P, Illinois Environmental Protection Agency Permit No. 2004-AO-2591, Monitoring Report for January, February, and March 2009

The attached eight tables contain the monitoring data for the Harlem Avenue Solids Management Area for January, February, and March 2009, as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2004-AO-2591.

The data reported are as follows:

Table 1, Analysis of Water from Lysimeters L-1N-1 through L-3N at the Harlem Avenue Solids Management Area Sampled on February 10, 2009

Table 2, Analysis of Water from Lysimeters L-1N-1 through L-3N at the Harlem Avenue Solids Management Area Sampled on February 25, 2009

Table 3, Analysis of Water from Lysimeters L-1N-1 through L-3N at the Harlem Avenue Solids Management Area Sampled on March 11, 2009

Table 4, Analysis of Water from Lysimeters L-1N-1 through L-3N at the Harlem Avenue Solids Management Area Sampled on March 16, 2009

Table 5, Analysis of Water from Lysimeters L-1N-1 through L-3N at the Harlem Avenue Solids Management Area Sampled on March 25, 2009

Subject: Harlem Avenue Solids Management Area - Stickney Water Reclamation Plant, Contract No. 84-111-2P, Illinois Environmental Protection Agency Permit No. 2004-AO-2591, Monitoring Report for January, February, and March 2009

Table 6, Analysis of Monthly Composited Digested Biosolids Placed in the Harlem Avenue Solids Management Drying Area during January 2009

Table 7, Analysis of Monthly Composited Digested Biosolids Placed in the Harlem Avenue Solids Management Drying Area during February 2009

Table 8, Analysis of Monthly Composited Digested Biosolids Placed in the Harlem Avenue Solids Management Drying Area during March 2009

Two new lysimeters, L-2N and L-3N, were installed at this site in September 2008 as replacements for L-2 and L-3, respectively. The old and new lysimeters will be monitored simultaneously for one year. A request will then be submitted to the IEPA to terminate monitoring of the old lysimeters.

Biosolids were placed in the solids drying area during January, February, and March 2009. No biosolids were removed from the solids drying area during January, February, and March 2009.

Very truly yours,

Louis Kollias
Director
Monitoring and Research

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

TABLE 1: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3N AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON FEBRUARY 10, 2009

Parameter	Unit	Lysimeter No. L-1N-1	L-2	L-2N	L-3	L-3N
pH[1]		7.5	7.2	7.6	7.3	
EC	mS/m	198	219	229	174	|
Total Dissolved Solids	mg/L	1,692	2,868	3,000	1,620	|
Total Diss. Org. Carbon	"	40	4	6	5	|
Cl^-	"	103	352	52	190	|
$SO_4^=$	"	51	874	1,366	304	
						L
TKN	"	8	0.6	1	0.6	Y
NH_3-N	"	6	<0.1	<0.1	<0.1	S
$NO_2 + NO_3$-N	"	<0.04	0.15	0.09	0.44	I
Total P	"	<0.1	<0.1	<0.1	<0.1	M
Alkalinity as $CaCO_3$	"	1,418	561	569	685	E
						T
Al	"	<1	<1	<1	<1	E
Ca	"	316	492	551	246	R
Cd	"	<0.01	<0.01	<0.01	<0.01	
Cr	"	<0.0025	<0.0025	<0.0025	<0.0025	F
Cu	"	<0.01	<0.01	<0.01	<0.01	R
						O
Fe	"	6	<0.1	1	<0.1	Z
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	E
K	mg/L	4	<1	2	<1	N
Mg	"	177	126	195	93	
Mn	"	0.474	0.025	2.31	1.07	|
						|
Na	"	47	100	24	106	|
Ni	"	<0.01	<0.01	<0.01	<0.01	|
Pb	"	0.051	0.050	0.043	0.055	|
Zn	"	<0.015	<0.015	0.028	<0.015	

[1]pH analyzed beyond recommended holding time of 15 minutes.
[2]Total dissolved solids analyzed beyond recommended holding time of 15 minutes.

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3N AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON FEBRUARY 25, 2009

Parameter	Unit	Lysimeter No.				
		L-1N-1	L-2	L-2N	L-3	L-3N
pH[1]		7.9	7.7	8.0	8.0	8.0
EC	mS/m	122	293	285	274	143
Total Dissolved Solids	mg/L	1,348	2,788	3,308	1,548	1,396
Total Diss. Org. Carbon	"	40	3	5	6	8
Cl^-	"	103	314	45	133	174
$SO_4^=$	"	<2	1,057	1,585	244	278
TKN	"	9	0.7	1	0.6	2
NH_3-N	"	6	<0.1	<0.1	<0.1	0.7
$NO_2 + NO_3$-N	"	0.05	0.13	0.06	2.9	0.07
Total P	"	<0.1	<0.1	<0.1	<0.1	<0.1
Alkalinity as $CaCO_3$	"	1,568	515	704	883	601
Al	"	<1	<1	<1	<1	<1
Ca	"	306	491	587	254	226
Cd	"	<0.01	<0.01	<0.01	<0.01	<0.01
Cr	"	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	7	<0.1	0.3	<0.1	6
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	4	<1	2	<1	2
Mg	"	188	125	226	107	88
Mn	"	0.420	0.123	2.18	1.70	0.669
Na	"	50	97	23	94	80
Ni	"	<0.01	<0.01	<0.01	<0.01	<0.01
Pb	"	0.063	0.053	0.054	0.061	0.054
Zn	"	<0.015	<0.015	0.023	<0.015	0.026

[1]pH analyzed beyond recommended holding time of 15 minutes.

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3N AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 11, 2009

Parameter	Unit	Lysimeter No. L-1N-1	L-2	L-2N	L-3	L-3N
pH[1]				7.6		
EC	mS/m	|	|	289	|	|
Total Dissolved Solids	mg/L			3,316		
Total Diss. Org. Carbon	"	L	L	5	L	L
Cl^-	"	Y	Y	42	Y	Y
$SO_4^=$	"	S	S	1,546	S	S
		I	I		I	I
TKN	"	M	M	0.7	M	M
NH_3-N	"	E	E	<0.1	E	E
$NO_2 + NO_3$-N	"	T	T	0.54	T	T
Total P	"	E	E	<0.1	E	E
Alkalinity as $CaCO_3$	"	R	R	695	R	R
Al	"	I	I	<1	I	I
Ca	"	N	N	567	N	N
Cd	"	A	A	<0.01	A	A
Cr	"	C	C	<0.0025	C	C
Cu	"	C	C	<0.01	C	C
		E	E		E	E
Fe	"	S	S	<0.1	S	S
Hg	μg/L	S	S	<0.20	S	S
K	mg/L	I	I	2	I	I
Mg	"	B	B	190	B	B
Mn	"	L	L	3.00	L	L
		E	E		E	E
Na	"			23		
Ni	"	|	|	<0.01	|	|
Pb	"	|	|	0.049	|	|
Zn	"			0.036		

[1]pH analyzed beyond recommended holding time of 15 minutes.
All lysimeters except L-2N inaccessible due to fallen tree across roadway.

TABLE 4: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3N AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 16, 2009

Parameter	Unit	Lysimeter No.				
		L-1N-1	L-2	L-2N	L-3	L-3N
pH[1]		7.4	7.0	7.4	7.4	7.4
EC	mS/m	278	320	350	220	227
Total Dissolved Solids	mg/L	1,652	2,756	3,440	1,540	1,560
Total Diss. Org. Carbon	"	38	3	5	6	10
Cl^-	"	109	319	45	131	150
$SO_4^=$	"	<2	998	1,657	224	250
TKN	"	9	0.6	0.6	<0.2	2
NH_3-N	"	6	<0.1	<0.1	<0.1	0.9
$NO_2 + NO_3$-N	"	0.10	0.66	15	0.53	0.09
Total P	"	<0.1	<0.1	<0.1	<0.1	<0.1
Alkalinity as $CaCO_3$	"	1,581	522	722	943	847
Al	"	<1	<1	<1	<1	<1
Ca	"	296	472	569	249	274
Cd	"	<0.01	<0.01	<0.01	<0.01	<0.01
Cr	"	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	12	<0.1	<0.1	0.2	18
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	4	<1	2	<1	2
Mg	"	171	115	179	101	96
Mn	"	0.365	0.130	3.29	1.46	0.790
Na	"	45	87	20	78	56
Ni	"	<0.01	<0.01	<0.01	<0.01	<0.01
Pb	"	0.028	0.040	0.036	0.023	<0.02
Zn	"	<0.015	<0.015	0.016	<0.015	<0.015

[1]pH analyzed beyond recommended holding time of 15 minutes.

TABLE 5: ANALYSIS OF WATER FROM LYSIMETERS
L-1N-1 THROUGH L-3N AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON MARCH 25, 2009

Parameter	Unit	Lysimeter No.				
		L-1N-1	L-2	L-2N	L-3	L-3N
pH[1]		7.5	7.0	7.3	7.5	7.4
EC	mS/m	301	379	407	251	214
Total Dissolved Solids	mg/L	894	1,446	1,776	826	770
Total Diss. Org. Carbon	"	46	3	5	5	5
Cl^-	"	102	319	42	170	207
$SO_4^=$	"	7	1,017	1,663	317	329
TKN	"	10	0.5	0.3	0.5	1
NH_3-N	"	6	<0.1	<0.1	<0.1	0.8
$NO_2 + NO_3$-N	"	0.48	1.2	24	0.56	0.24
Total P	"	<0.1	<0.1	<0.1	<0.1	<0.1
Alkalinity as $CaCO_3$	"	1,539	523	671	795	531
Al	"	<1	<1	<1	<1	<1
Ca	"	266	472	681	242	211
Cd	"	<0.01	<0.01	<0.01	<0.01	<0.01
Cr	"	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	11	<0.1	<0.1	0.5	15
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	4	<1	2	<1	2
Mg	"	156	119	191	95	66
Mn	"	0.337	0.187	3.42	1.44	0.669
Na	"	46	86	21	81	88
Ni	"	<0.01	<0.01	<0.01	<0.01	<0.01
Pb	"	<0.02	0.031	<0.02	<0.02	0.037
Zn	"	<0.015	<0.015	<0.015	<0.015	<0.015

[1]pH analyzed beyond recommended holding time of 15 minutes.

TABLE 6: ANALYSIS OF MONTHLY COMPOSITED DIGESTED BIOSOLIDS PLACED IN THE HARLEM AVENUE SOLIDS MANAGEMENT DRYING AREA DURING JANUARY 2009

Parameter	Unit	Concentration[1]
pH		8.2
Total Solids	%	24.8
Total Volatile Solids[2]	%	57.9
TKN	mg/kg	34,804
NH_3-N	,,	5,764

[1]Values are the means of six samples.
[2]Total 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 FEBRUARY 2009

Parameter	Unit	Concentration[1]
pH		8.3
Total Solids	%	23.8
Total Volatile Solids[2]	%	61.0
TKN	mg/kg	24,681
NH_3-N	,,	4,481

[1]Values are the means of five samples.
[2]Total volatile solids as a percentage of total solids.

TABLE 8: ANALYSIS OF MONTHLY COMPOSITED DIGESTED BIOSOLIDS PLACED IN THE HARLEM AVENUE SOLIDS MANAGEMENT DRYING AREA DURING MARCH 2009

Parameter	Unit	Concentration[1]
pH		8.2
Total Solids	%	25.0
Total Volatile Solids[2]	%	60.8
TKN	mg/kg	22,713
NH_3-N	,,	6,360

[1]Values are the means of five samples.
[2]Total volatile solids as a percentage of total solids.