RESEARCH AND DEVELOPMENT DEPARTMENT

REPORT NO. 07-74

HARLEM AVENUE SOLIDS MANAGEMENT AREA

MONITORING REPORT FOR

THIRD QUARTER 2007

NOVEMBER 2007

Protecting Our Water Environment

Metropolitan Water Reclamation District of Greater Chicago

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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: Harlem Avenue Solids Management Area - Stickney WRP, Contract No. 84-111-2P, IEPA Permit No. 2004-AO-2591, Monitoring Report for July, August, and September 2007

The attached ten tables contain the monitoring data for the Harlem Avenue Solids Management Area for July, August, and September 2007 as required by IEPA Operating Permit No. 2004-AO-2591. In a letter dated January 19, 2007, the IEPA granted permission to tenmnate the monitoring of lysimeters L-l and L-IN. Therefore, monitoring data for these lysimeters will not be included in this and subsequent reports.

The data reported are as follows:

Table 1, Analysis of Water from Lysimeters L-2 through L-IN-l at the Harlem Avenue Solids Management Area Sampled on July 5, 2007

Table 2, Analysis of Water from Lysimeters L-2 through L-IN-l at the Harlem Avenue Solids Management Area Sampled on July 18,2007

Table 3, Analysis of Water from Lysimeters L-2 through L-IN-l at the Harlem Avenue Solids Management Area Sampled on August 1, 2007

Table 4, Analysis of Water from Lysimeters L-2 through L-IN-l at the Harlem Avenue Solids Management Area Sampled on August 15,2007

Table 5, Analysis of Water from Lysimeters L-2 through L-IN-l at the Harlem Avenue Solids Management Area Sampled on August 29, 2007

Subject: Harlem Avenue Solids Management Area - Stickney WRP, Contract No. 84-111-2P, IEPA Permit No. 2004-AO-2591, Monitoring Report for July, August, and September 2007

Table 6, Analysis of Water from Lysimeters L-2 through L-1N-1 at the Harlem Avenue Solids Management Area Sampled on September 12, 2007

Table 7, Analysis of Water from Lysimeters L-2 through L-1N-1 at the Harlem Avenue Solids Management Area Sampled on September 26, 2007

Table 8, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Harlem Avenue Solids Management Drying Area During July 2007

Table 9, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Harlem Avenue Solids Management Drying Area During August 2007

Table 10, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Harlem Avenue Solids Management Drying Area During September 2007

No biosolids were placed in the solids drying area during July, August, and September 2007. Biosolids were removed from the solids drying area during July, 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-2 THROUGH L-1N-1 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON JULY 5, 2007

Parameter	Unit	Lysimeter No.		
		L-2	L-3	L-1N-1
pH[1]		7.2	7.2	7.4
EC	mS/m	255	226	239
Total Dissolved Solids	mg/L	2,634	2,050	1,812
Total Diss. Org. Carbon	"	4	8	36
Cl^-	"	283	102	107
$SO_4^=$	"	665	253	9
TKN	"	0.87	0.81	7.7
NH_3-N	"	0.26	<0.02	4.8
$NO_2 + NO_3$-N	"	0.13	0.26	0.10
Total P	"	0.10	0.10	0.10
Alkalinity as $CaCO_3$	"	518	1,181	1,575
Al	"	0.071	0.055	0.058
Ca	"	384	330	310
Cd	"	0.0005	<0.0004	<0.0004
Cr	"	0.0024	0.0026	0.0040
Cu	"	<0.002	<0.002	<0.002
Fe	"	0.224	0.012	14.1
Hg	μg/L	<0.05	<0.05	<0.05
K	mg/L	0.4	1	4
Mg	"	103	144	185
Mn	"	0.0572	0.3541	0.3436
Na	"	69	37	46
Ni	"	<0.0004	<0.0004	0.0012
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.009	0.008	0.008

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

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS
L-2 THROUGH L-1N-1 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON JULY 18, 2007

Parameter	Unit	Lysimeter No.		
		L-2	L-3	L-1N-1
pH[1]		7.3	7.3	7.5
EC	mS/m	247	234	243
Total Dissolved Solids	mg/L	2,348	1,776	1,804
Total Diss. Org. Carbon	"	3	7	38
Cl^-	"	298	117	107
$SO_4^=$	"	681	254	9
TKN	"	0.50	0.58	8.0
NH_3-N	"	<0.02	<0.02	4.7
$NO_2 + NO_3$-N	"	0.07	0.27	0.05
Total P	"	<0.05	<0.05	<0.05
Alkalinity as $CaCO_3$	"	468	1,226	1,543
Al	"	0.049	0.037	0.036
Ca	"	387	340	305
Cd	"	<0.0004	<0.0004	<0.0004
Cr	"	0.0015	0.0017	0.0026
Cu	"	<0.002	<0.002	<0.002
Fe	"	0.191	0.054	14.8
Hg	μg/L	<0.05	0.05	<0.05
K	mg/L	0.3	1	4
Mg	"	96.6	144	184
Mn	"	0.1572	0.3822	0.3575
Na	"	76	39	47
Ni	"	0.0012	<0.0004	0.0021
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.019	0.005	0.006

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

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS
L-2 THROUGH L-1N-1 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON AUGUST 1, 2007

Parameter	Unit	Lysimeter No.		
		L-2	L-3	L-1N-1
pH[1]		7.2	7.3	7.6
EC	mS/m	234	229	218
Total Dissolved Solids	mg/L	2,174	1,834	1,758
Total Diss. Org. Carbon	"	3	7	37
Cl^-	"	285	104	107
$SO_4^=$	"	661	268	15
TKN	"	0.53	0.63	7.9
NH_3-N	"	0.04	<0.02	4.9
$NO_2 + NO_3$-N	"	0.09	0.25	0.10
Total P	"	<0.05	1.1	<0.05
Alkalinity as $CaCO_3$	"	473	1,166	1,557
Al	"	0.034	0.035	0.026
Ca	"	377	334	296
Cd	"	0.0012	0.0012	0.0010
Cr	"	0.0007	0.0006	0.0015
Cu	"	<0.002	<0.002	<0.002
Fe	"	0.028	0.034	4.76
Hg	μg/L	<0.05	<0.05	<0.05
K	mg/L	0.3	1	4
Mg	"	92.8	147	181
Mn	"	0.0241	0.2783	0.3350
Na	"	77	37	47
Ni	"	0.0007	<0.0004	0.0023
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.010	0.015	0.009

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

TABLE 4: ANALYSIS OF WATER FROM LYSIMETERS
L-2 THROUGH L-1N-1 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON AUGUST 15, 2007

Parameter	Unit	Lysimeter No.		
		L-2	L-3	L-1N-1
pH[1]		7.1	7.3	7.4
EC	mS/m	244	246	261
Total Dissolved Solids	mg/L	2,264	1,940	1,716
Total Diss. Org. Carbon	"	2	7	36
Cl^-	"	271	108	113
$SO_4^=$	"	612	263	5
TKN	"	0.44	0.56	8.4
NH_3-N	"	0.02	<0.02	5.0
$NO_2 + NO_3$-N	"	0.37	0.64	0.22
Total P	"	<0.05	<0.05	<0.05
Alkalinity as $CaCO_3$	"	463	1,192	1,589
Al	"	0.039	0.035	0.037
Ca	"	353	334	304
Cd	"	0.0005	0.0004	<0.0004
Cr	"	<0.0005	<0.0005	<0.0005
Cu	"	<0.002	<0.002	<0.002
Fe	"	0.019	0.012	15.2
Hg	μg/L	0.10	<0.05	<0.05
K	mg/L	0.3	1	4
Mg	"	87.4	147	185
Mn	"	0.0223	0.2647	0.3496
Na	"	78	37	47
Ni	"	<0.0004	<0.0004	0.0020
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.011	0.006	0.015

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

TABLE 5: ANALYSIS OF WATER FROM LYSIMETERS
L-2 THROUGH L-1N-1 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON AUGUST 29, 2007

Parameter	Unit	Lysimeter No.		
		L-2	L-3	L-1N-1
pH[1]		7.1	7.3	7.4
EC	mS/m	225	221	243
Total Dissolved Solids	mg/L	2,332	2,144	1,824
Total Diss. Org. Carbon	"	3	7	38
Cl^-	"	273	130	104
$SO_4^=$	"	540	286	4
TKN	"	0.42	0.54	8.4
NH_3-N	"	<0.02	<0.02	5.0
$NO_2 + NO_3$-N	"	0.69	0.45	0.50
Total P	"	<0.05	<0.05	0.07
Alkalinity as $CaCO_3$	"	469	1,002	1,471
Al	"	0.061	0.063	0.056
Ca	"	315	318	286
Cd	"	<0.0004	<0.0004	<0.0004
Cr	"	0.0009	0.0010	0.0011
Cu	"	<0.002	<0.002	<0.002
Fe	"	0.032	0.020	15.4
Hg	μg/L	0.07	0.09	<0.05
K	mg/L	0.3	1	4
Mg	"	79.5	133	177
Mn	"	0.0549	0.3656	0.3440
Na	"	79	48	45
Ni	"	<0.0004	<0.0004	0.0015
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.014	0.009	0.277

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

TABLE 6: ANALYSIS OF WATER FROM LYSIMETERS
L-2 THROUGH L-1N-1 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON SEPTEMBER 12, 2007

Parameter	Unit	Lysimeter No.		
		L-2	L-3	L-1N-1
pH[1]		7.3	7.3	7.4
EC	mS/m	208	193	223
Total Dissolved Solids	mg/L	1,844	1,864	1,468
Total Diss. Org. Carbon	"	2	5	36
Cl^-	"	268	189	102
$SO_4^=$	"	462	326	3
TKN	"	0.41	0.50	7.8
NH_3-N	"	<0.02	<0.02	4.7
$NO_2 + NO_3$-N	"	0.29	0.55	0.56
Total P	"	<0.05	<0.05	<0.05
Alkalinity as $CaCO_3$	"	470	726	1,285
Al	"	0.048	0.043	0.051
Ca	"	305	256	281
Cd	"	0.0007	0.0006	0.0005
Cr	"	<0.0005	0.0007	0.0008
Cu	"	<0.002	<0.002	<0.002
Fe	"	0.023	0.021	NRR
Hg	μg/L	<0.05	<0.05	<0.05
K	mg/L	0.3	1	4
Mg	"	74.9	98.1	170
Mn	"	0.3164	0.4959	0.3265
Na	"	86	78	43
Ni	"	<0.0004	<0.0004	0.0014
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.010	0.006	0.008

[1]pH analyzed beyond recommended holding time of 15 minutes.
NRR = No reportable result.

TABLE 7: ANALYSIS OF WATER FROM LYSIMETERS
L-2 THROUGH L-1N-1 AT THE HARLEM AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON SEPTEMBER 26, 2007

Parameter	Unit	Lysimeter No.		
		L-2	L-3	L-1N-1
pH[1]		7.1	7.2	7.3
EC	mS/m	207	227	217
Total Dissolved Solids	mg/L	1,934	1,736	1,876
Total Diss. Org. Carbon	"	2	6	36
Cl^-	"	269	131	105
$SO_4^=$	"	500	281	2
TKN	"	0.47	0.55	8.8
NH_3-N	"	<0.02	<0.02	4.7
$NO_2 + NO_3$-N	"	0.53	0.48	0.71
Total P	"	<0.05	0.07	0.06
Alkalinity as $CaCO_3$	"	462	969	1,325
Al	"	0.055	0.054	0.048
Ca	"	321	314	306
Cd	"	0.0007	0.0006	<0.0004
Cr	"	0.0007	0.0008	0.0007
Cu	"	<0.002	<0.002	<0.002
Fe	"	0.027	0.076	14.6
Hg	μg/L	<0.05	<0.05	<0.05
K	mg/L	0.4	1	4
Mg	"	78.7	127	178
Mn	"	0.0283	0.4957	0.3494
Na	"	82	52	46
Ni	"	0.0004	0.0031	0.0018
Pb	"	<0.004	<0.004	<0.004
Zn	"	0.010	0.007	0.032

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

TABLE 8: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE HARLEM AVENUE SOLIDS MANAGEMENT DRYING AREA DURING JULY 2007

Parameter	Unit	Concentration[1]
pH		7.8
Total Solids	%	33.4
Total Volatile Solids[2]	%	45.2
TKN	mg/kg	30,038
NH_3-N	,,	6,300
Total P	,,	19,949
Al	,,	20,895
As	,,	<5
Ca	,,	39,840
Cd	,,	4
Cr	,,	223
Cu	,,	487
Fe	,,	19,911
Hg	,,	0.89
K	,,	3,239
Mg	,,	17,130
Mn	,,	520
Mo	,,	20
Na	,,	882
Ni	,,	56
Pb	,,	139
Se	,,	<4
Zn	,,	888

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

TABLE 9: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE HARLEM AVENUE SOLIDS MANAGEMENT DRYING AREA DURING AUGUST 2007

Parameter	Unit	Concentration[1]
pH		7.8
Total Solids	%	23.2
Total Volatile Solids[2]	%	43.8
TKN	mg/kg	35,930
NH_3-N	,,	7,069
Total P	,,	21,027
Al	,,	26,243
As	,,	<5
Ca	,,	38,769
Cd	,,	3
Cr	,,	170
Cu	,,	412
Fe	,,	20,274
Hg	,,	0.90
K	,,	5,085
Mg	,,	18,431
Mn	,,	487
Mo	,,	16
Na	,,	813
Ni	,,	44
Pb	,,	152
Se	,,	<4
Zn	,,	962

[1]Values for one sample only.
[2]Total volatile solids as a percentage of total solids.

TABLE 10: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE HARLEM AVENUE SOLIDS MANAGEMENT DRYING AREA DURING SEPTEMBER 2007

Parameter	Unit	Concentration[1]
pH		8.4
Total Solids	%	24.8
Total Volatile Solids[2]	%	42.9
TKN	mg/kg	38,623
NH_3-N	,,	8,709
Total P	,,	19,971
Al	,,	25,692
As	,,	<5
Ca	,,	36,476
Cd	,,	3
Cr	,,	169
Cu	,,	392
Fe	,,	19,515
Hg	,,	1.3
K	,,	5,151
Mg	,,	17,761
Mn	,,	479
Mo	,,	15
Na	,,	732
Ni	,,	42
Pb	,,	148
Se	,,	<4
Zn	,,	909

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