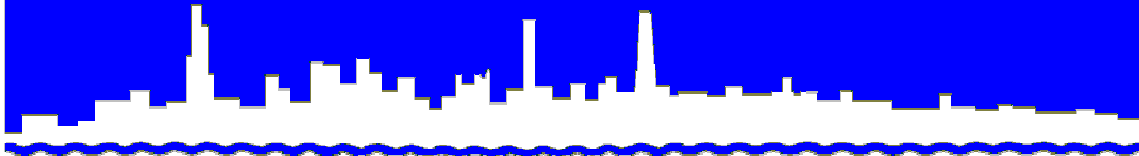


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 09-55

CALUMET EAST SOLIDS MANAGEMENT AREA

MONITORING REPORT

SECOND QUARTER 2009

SEPTEMBER 2009

Metropolitan Water Reclamation District of Greater Chicago

100 EAST ERIE STREET CHICAGO, ILLINOIS 60611-3154 312.751.5190

Louis Kollias, P.E., BCEE
Director of Monitoring and Research
louis.kollias@mwr.org

September 4, 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: Calumet East Solids Management Area - Calumet Water Reclamation Plant, Contract No. 85-273-2P, L170401, Illinois Environmental Protection Agency Permit No. 2005-AO-4281-1, Monitoring Report for April, May, and June 2009

The attached four tables contain the monitoring data for the Calumet East Solids Management Area for April, May, and June 2009 as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2005-AO-4281-1.

The data reported are as follows:

Table 1, Analysis of Water from Lysimeters L-1N through L-6N at the Calumet East Solids Management Area Sampled on April 1, 2009

Table 2, Analysis of Water from Lysimeters L-1N through L-6N at the Calumet East Solids Management Area Sampled on May 13, 2009

Table 3, Analysis of Water from Lysimeters L-1N through L-6N at the Calumet East Solids Management Area Sampled on June 10, 2009

Table 4, Analysis of Monthly Composited Processed Digested Biosolids Removed from the Calumet East Solids Management Drying Area during June 2009

Four new lysimeters, L-2N, L-3N, L-4N, and L-6N, were installed at this site in September 2008 as replacements for L-2, L-3, L-4, and L-6, respectively. The new and old

Mr. S. Alan Keller

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September 4, 2009

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lysimeters will be monitored simultaneously for one year. A request will then be submitted to the IEPA to terminate monitoring of the old lysimeters.

No biosolids were placed in the solids drying area during April, May, and June 2009. Biosolids were removed from the solids drying area during June 2009.

Very truly yours,

Louis Kollias
Director
Monitoring and Research

LK:PL:kq
Attachments
cc w/att: Mr. Sulski, IEPA
Records Unit, IEPA

TABLE 1: ANALYSIS OF WATER FROM MONITORING WELLS
M-11 THROUGH M-15 AT THE LAWNSDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON APRIL 14, 2009

Parameter	Unit	Monitoring Well No.				
		M-11	M-12	M-13	M-14	M-15
pH ¹			7.4	7.3	7.6	7.4
EC	mS/m		87	82	51	89
Total Dissolved Solids	mg/L		892	1,314	562	1,626
Total Diss. Org. Carbon	"		<1	2	<1	2
Cl ⁻	"		22	14	13	12
SO ₄ ⁼	"		335	595	146	799
TKN	"		<0.2	0.3	<0.2	0.3
NH ₃ -N	"		0.4	0.4	0.2	0.4
NO ₂ + NO ₃ -N	"		0.12	<0.04	0.07	<0.04
Total P	"	W	<0.1	<0.1	<0.1	<0.1
Alkalinity as CaCO ₃	"	E	319	344	345	368
		L				
Al	"	L	<1	<1	<1	<1
As	"		<0.05	<0.05	<0.05	<0.05
B	"	I	1.79	1.54	1.32	1.21
Ca	"	N	74	154	69	214
Cd	"	A	<0.01	<0.01	<0.01	<0.01
		C				
Cr	"	C	<0.003	<0.003	<0.003	<0.003
Cu	"	E	<0.01	<0.01	<0.01	<0.01
Fe	"	S	<0.1	<0.1	<0.1	0.5
Hg	μg/L	S	<0.20	<0.20	<0.20	<0.20
K	mg/L	I	10	10	8	10
		B				
Mg	"	L	34	71	37	92
Mn	"	E	0.005	0.007	0.005	0.019
Na	"		134	91	41	64
Ni	"		<0.01	<0.01	<0.01	<0.01
Pb	"		<0.02	<0.02	<0.02	<0.02
Se	"		<0.1	<0.1	<0.1	<0.1
Zn	"		0.624	2.30	1.61	3.69
FC	MPN*		<1	<1	<1	<1
Static H ₂ O Elev.	ft		27	23	19	NA

¹pH analyzed beyond recommended holding time of 15 minutes.

*MPN = Most probable number per 100 mL.

NA = No analysis; insufficient sample.

TABLE 2: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON APRIL 8, 2009

Parameter	Unit	Lysimeter No.				
		L-1	L-1N	L-2	L-2N	L-3N
pH ¹		7.4	7.9	8.0	8.0	7.3
EC	mS/m	154	232	363	225	282
Total Dissolved Solids	mg/L	1,516	1,888	1,348	1,508	1,940
Total Diss. Org. Carbon	"	8	14	NA	4	24
Cl ⁻	"	66	77	281	374	140
SO ₄ ⁼	"	536	694	NA	240	268
TKN	"	5	6	0.8	0.9	4
NH ₃ -N	"	4	4	0.2	<0.1	1
NO ₂ + NO ₃ -N	"	<0.1	<0.1	0.2	2	0.3
Total P	"	<0.25	<0.25	<0.25	<0.25	0.32
Alkalinity as CaCO ₃	"	502	585	231	409	1,267
Al	"	0.254	0.076	0.056	0.057	0.100
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	0.50	0.56	0.11	0.16	0.06
Ca	"	228	262	147	149	363
Cd	"	<0.002	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	1.1	0.77	0.74	<0.02	9.5
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	6	17	3	3	2
Mg	"	93	130	64	75	133
Mn	"	0.171	0.032	0.022	0.037	0.739
Na	"	44	45	146	193	80
Ni	"	0.004	<0.002	<0.002	<0.002	<0.002
Pb	"	<0.02	<0.02	<0.02	<0.02	<0.02
Se	"	<0.1	<0.1	<0.1	<0.1	<0.1
Zn	"	<0.01	<0.01	<0.01	0.02	<0.01

TABLE 2 (Continued): ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON APRIL 8, 2009

Parameter	Unit	Lysimeter No.				
		L-4N	L-5N	L-6	L-6N	L-7N
pH ¹		7.5	7.5	7.8	7.2	7.9
EC	mS/m	345	604	200	364	116
Total Dissolved Solids	mg/L	3,120	4,804	1,544	3,416	1,044
Total Diss. Org. Carbon	"	6	4	NA	68	7
Cl ⁻	"	39	916	105	79	169
SO ₄ ⁼	"	1,423	1,584	NA	1,269	187
TKN	"	7	3	0.9	20	1
NH ₃ -N	"	6	2	0.3	13	0.3
NO ₂ + NO ₃ -N	"	0.9	0.2	0.3	0.3	0.5
Total P	"	<0.25	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO ₃	"	764	552	461	928	354
Al	"	0.127	0.124	0.075	0.129	0.048
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	0.14	0.27	0.28	0.13	0.22
Ca	"	549	514	230	589	124
Cd	"	<0.002	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	8.0	11	0.03	38	0.16
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	7	19	8	6	5
Mg	"	129	220	105	131	68
Mn	"	0.857	0.233	0.004	0.597	0.076
Na	"	124	450	39	72	70
Ni	"	<0.002	<0.002	<0.002	0.006	<0.002
Pb	"	<0.02	<0.02	<0.02	<0.02	<0.02
Se	"	<0.1	<0.1	<0.1	<0.1	<0.1
Zn	"	<0.01	<0.01	<0.01	0.02	<0.01

TABLE 2 (Continued): ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON APRIL 8, 2009

Parameter	Unit	Lysimeter No.	
		L-8N	L-9N
pH ¹		8.0	7.8
EC	mS/m	280	285
Total Dissolved Solids	mg/L	1,688	1,824
Total Diss. Org. Carbon	"	4	NA
Cl ⁻	"	588	217
SO ₄ ⁼	"	183	NA
TKN	"	2	2
NH ₃ -N	"	1	<0.1
NO ₂ + NO ₃ -N	"	0.6	1
Total P	"	<0.25	<0.25
Alkalinity as CaCO ₃	"	338	1,059
Al	"	0.055	0.077
As	"	<0.025	<0.025
B	"	0.20	0.17
Ca	"	147	246
Cd	"	<0.002	<0.002
Cr	"	<0.003	<0.003
Cu	"	<0.01	<0.01
Fe	"	0.16	0.13
Hg	μg/L	<0.20	<0.20
K	mg/L	6	5
Mg	"	59	139
Mn	"	0.202	0.041
Na	"	295	171
Ni	"	<0.002	<0.002
Pb	"	<0.02	<0.02
Se	"	<0.1	<0.1
Zn	"	0.02	<0.01

¹pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

TABLE 3: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON MAY 6, 2009

Parameter	Unit	Lysimeter No.				
		L-1	L-1N	L-2	L-2N	L-3N
pH ¹		7.5	7.8	7.9	7.9	7.4
EC	mS/m	166	184	250	216	250
Total Dissolved Solids	mg/L	1,476	1,872	NA	1,456	1,968
Total Diss. Org. Carbon	"	8	13	4	4	24
Cl ⁻	"	69	76	NA	397	144
SO ₄ ⁼	"	510	645	437	199	261
TKN	"	4	4	0.5	0.6	3
NH ₃ -N	"	4	<0.1	<0.1	<0.1	1
NO ₂ + NO ₃ -N	"	<0.1	0.2	0.2	0.7	0.5
Total P	"	<0.25	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO ₃	"	505	621	NA	422	1,285
Al	"	0.063	0.061	0.056	0.039	0.080
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	0.48	0.55	0.15	0.15	0.06
Ca	"	217	251	214	135	363
Cd	"	<0.002	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	1.0	0.30	0.11	<0.02	11
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	6	17	2	3	2
Mg	"	88	123	94	71	138
Mn	"	0.156	0.038	0.039	0.047	0.716
Na	"	44	45	201	191	79
Ni	"	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	"	<0.02	<0.02	0.03	<0.02	<0.02
Se	"	<0.1	<0.1	<0.1	<0.1	<0.1
Zn	"	<0.01	<0.01	<0.01	0.02	<0.01

TABLE 3 (Continued): ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON MAY 6, 2009

Parameter	Unit	Lysimeter No.				
		L-4N	L-5N	L-6	L-6N	L-7N
pH ¹		7.4	7.5		7.3	7.9
EC	mS/m	299	527		323	139
Total Dissolved Solids	mg/L	3,164	4,928		3,344	992
Total Diss. Org. Carbon	"	6	5		56	6
Cl ⁻	"	37	937		80	147
SO ₄ ⁼	"	1,536	1,678		1,379	193
TKN	"	6	4		17	1
NH ₃ -N	"	6	3		12	0.5
NO ₂ + NO ₃ -N	"	1	0.3		<0.1	<0.1
Total P	"	<0.25	<0.25	L	<0.25	<0.25
Alkalinity as CaCO ₃	"	718	593	Y	928	379
Al	"	0.099	0.105	S	0.111	0.037
As	"	<0.025	<0.025	I	<0.025	<0.025
B	"	3.0	0.27	M	NA	0.23
Ca	"	501	555	E	576	117
Cd	"	<0.002	<0.002	T	<0.002	<0.002
Cr	"	<0.003	<0.003	E	<0.003	<0.003
Cu	"	<0.01	<0.01	R	<0.01	<0.01
Fe	"	9.1	10	D	25	0.05
Hg	μg/L	<0.20	<0.20	R	<0.20	<0.20
K	mg/L	6	18	Y	6	6
Mg	"	133	246		144	71
Mn	"	0.838	0.270		0.635	0.055
Na	"	129	475		72	59
Ni	"	<0.002	<0.002		0.003	<0.002
Pb	"	<0.02	<0.02		<0.02	<0.02
Se	"	<0.1	<0.1		<0.1	<0.1
Zn	"	<0.01	<0.01		<0.01	<0.01

TABLE 3 (Continued): ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON MAY 6, 2009

Parameter	Unit	Lysimeter No.	
		L-8N	L-9N
pH ¹		7.9	7.7
EC	mS/m	220	241
Total Dissolved Solids	mg/L	1,836	NA
Total Diss. Org. Carbon	"	4	28
Cl ⁻	"	528	232
SO ₄ ⁼	"	256	264
TKN	"	2	2
NH ₃ -N	"	1	<0.1
NO ₂ + NO ₃ -N	"	0.2	0.8
Total P	"	<0.25	<0.25
Alkalinity as CaCO ₃	"	390	1,121
Al	"	0.049	0.067
As	"	<0.025	<0.025
B	"	0.20	0.17
Ca	"	161	236
Cd	"	<0.002	<0.002
Cr	"	<0.003	<0.003
Cu	"	<0.01	<0.01
Fe	"	0.88	0.15
Hg	µg/L	<0.20	<0.20
K	mg/L	6	5
Mg	"	72	144
Mn	"	0.246	0.747
Na	"	277	166
Ni	"	<0.002	<0.002
Pb	"	0.03	<0.02
Se	"	<0.1	<0.1
Zn	"	<0.01	<0.01

¹pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

TABLE 4: ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON JUNE 3, 2009

Parameter	Unit	Lysimeter No.				
		L-1	L-1N	L-2	L-2N	L-3N
pH ¹		7.5	7.8	8.0	8.0	7.4
EC	mS/m	165	201	271	231	262
Total Dissolved Solids	mg/L	1,568	1,808	964	1,604	2,168
Total Diss. Org. Carbon	"	9	11	2	3	21
Cl ⁻	"	69	74	231	375	128
SO ₄ ⁼	"	504	629	231	224	350
TKN	"	5	5	0.4	0.8	4
NH ₃ -N	"	4	4	<0.1	0.2	2
NO ₂ + NO ₃ -N	"	<0.1	<0.1	0.2	0.9	0.2
Total P	"	<0.25	<0.25	<0.25	<0.25	0.27
Alkalinity as CaCO ₃	"	521	576	202	389	1,187
Al	"	0.205	0.055	<0.035	0.039	0.083
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	0.53	0.57	0.10	0.14	0.08
Ca	"	226	248	107	140	365
Cd	"	<0.002	<0.002	<0.002	<0.002	<0.002
Cr	"	<0.003	<0.003	<0.003	<0.003	<0.003
Cu	"	<0.01	<0.01	<0.01	<0.01	<0.01
Fe	"	1.9	0.99	<0.02	0.32	10
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	6	16	<1	3	2
Mg	"	94	119	47	67	128
Mn	"	0.158	0.037	0.003	0.053	0.743
Na	"	43	49	120	195	82
Ni	"	0.005	<0.002	<0.002	<0.002	<0.002
Pb	"	<0.02	<0.02	<0.02	<0.02	<0.02
Se	"	<0.1	<0.1	<0.1	<0.1	<0.1
Zn	"	<0.01	<0.01	<0.01	<0.01	<0.01

TABLE 4 (Continued): ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON JUNE 3, 2009

Parameter	Unit	Lysimeter No.				
		L-4N	L-5N	L-6	L-6N	L-7N
pH ¹		7.5	7.7	NA	7.4	8.0
EC	mS/m	304	542	NA	339	149
Total Dissolved Solids	mg/L	3,132	5,416	1,792	3,604	1,084
Total Diss. Org. Carbon	"	5	4	NA	58	6
Cl ⁻	"	38	924	104	83	165
SO ₄ ⁼	"	1,382	1,644	NA	1,299	135
TKN	"	6	3	1	17	1
NH ₃ -N	"	5	2	0.5	12	0.3
NO ₂ + NO ₃ -N	"	0.9	0.3	<0.1	<0.1	<0.1
Total P	"	<0.25	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO ₃	"	707	543	478	953	367
Al	"	0.106	0.090	NA	0.097	<0.035
As	"	<0.025	<0.025	NA	<0.025	<0.025
B	"	0.12	0.27	NA	0.16	0.21
Ca	"	483	448	NA	545	103
Cd	"	<0.002	<0.002	NA	<0.002	<0.002
Cr	"	<0.003	<0.003	NA	<0.003	<0.003
Cu	"	<0.01	<0.01	NA	<0.01	<0.01
Fe	"	8.9	10	NA	34	0.10
Hg	μg/L	<0.20	<0.20	NA	<0.20	<0.20
K	mg/L	6	19	NA	6	5
Mg	"	127	231	NA	138	60
Mn	"	0.816	0.248	NA	0.652	0.070
Na	"	115	468	NA	73	71
Ni	"	<0.002	<0.002	NA	0.006	<0.002
Pb	"	<0.02	<0.02	NA	<0.02	<0.02
Se	"	<0.1	<0.1	NA	<0.1	<0.1
Zn	"	<0.01	<0.01	NA	<0.01	<0.01

TABLE 4 (Continued): ANALYSIS OF WATER FROM LYSIMETERS
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE
SOLIDS MANAGEMENT AREA SAMPLED ON JUNE 3, 2009

Parameter	Unit	Lysimeter No.	
		L-8N	L-9N
pH ¹		8.0	7.7
EC	mS/m	231	253
Total Dissolved Solids	mg/L	1,676	NA
Total Diss. Org. Carbon	"	5	29
Cl ⁻	"	503	230
SO ₄ ⁼	"	172	248
TKN	"	2	3
NH ₃ -N	"	1	0.5
NO ₂ + NO ₃ -N	"	0.3	0.3
Total P	"	<0.25	<0.25
Alkalinity as CaCO ₃	"	381	1,069
Al	"	<0.035	0.053
As	"	<0.025	<0.025
B	"	0.20	0.17
Ca	"	137	240
Cd	"	<0.002	<0.002
Cr	"	<0.003	<0.003
Cu	"	<0.01	<0.01
Fe	"	1.2	2.0
Hg	μg/L	<0.20	<0.20
K	mg/L	6	5
Mg	"	58	138
Mn	"	0.264	0.666
Na	"	268	162
Ni	"	<0.002	<0.002
Pb	"	<0.02	<0.02
Se	"	<0.1	<0.1
Zn	"	<0.01	<0.01

¹pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

TABLE 5: ANALYSIS OF MONTHLY COMPOSITED DIGESTED
BIOSOLIDS PLACED IN THE LAWNSDALE AVENUE
SOLIDS MANAGEMENT DRYING AREA DURING MAY 2009

Parameter	Unit	Concentration ¹
pH		8.1
Total Solids	%	24.9
Total Volatile Solids ²	%	41.9
TKN	mg/kg	38,166
NH ₃ -N	”	10,902

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 LAWNSDALE AVENUE
SOLIDS MANAGEMENT DRYING AREA DURING JUNE 2009

Parameter	Unit	Concentration ¹
pH		8.0
Total Solids	%	15.6
Total Volatile Solids ²	%	47.0
TKN	mg/kg	53,814
NH ₃ -N	”	16,395

¹Values are the means of six samples.

²Total volatile solids as a percentage of total solids.

TABLE 7: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED
 BIOSOLIDS REMOVED FROM THE LAWNSDALE AVENUE
 SOLIDS MANAGEMENT DRYING AREA DURING APRIL 2009

Parameter	Unit	Concentration ¹
pH		7.9
Total Solids	%	19.7
Total Volatile Solids ²	%	52.9
TKN	mg/kg	56,084
NH ₃ -N	”	12,310
Total P	”	21,248
Al	”	15,895
As	”	<10
Ca	”	33,550
Cd	”	<2
Cr	”	179
Cu	”	377
Fe	”	14,976
Hg	”	0.8
K	”	2,803
Mg	”	14,787
Mn	”	603
Mo	”	14
Na	”	1,429
Ni	”	42
Pb	”	100
Se	”	<8
Zn	”	753

¹Values are the means of six samples.

²Total volatile solids as a percentage of total solids.

TABLE 8: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED
 BIOSOLIDS REMOVED FROM THE LAWNSDALE AVENUE
 SOLIDS MANAGEMENT DRYING AREA DURING MAY 2009

Parameter	Unit	Concentration ¹
pH		7.1
Total Solids	%	38.2
Total Volatile Solids ²	%	43.4
TKN	mg/kg	36,603
NH ₃ -N	”	7,581
Total P	”	23,132
Al	”	15,945
As	”	<10
Ca	”	44,854
Cd	”	7
Cr	”	243
Cu	”	397
Fe	”	16,432
Hg	”	<0.60
K	”	2,546
Mg	”	19,266
Mn	”	573
Mo	”	11
Na	”	<800
Ni	”	47
Pb	”	136
Se	”	<8
Zn	”	900

¹Values are the means of eight samples.

²Total volatile solids as a percentage of total solids.

TABLE 9: ANALYSIS OF MONTHLY COMPOSITED PROCESSED DIGESTED
 BIOSOLIDS REMOVED FROM THE LAWNSDALE AVENUE
 SOLIDS MANAGEMENT DRYING AREA DURING JUNE 2009

Parameter	Unit	Concentration ¹
pH		6.3
Total Solids	%	52.7
Total Volatile Solids ²	%	39.8
TKN	mg/kg	28,774
NH ₃ -N	”	2,507
Total P	”	23,052
Al	”	18,707
As	”	<10
Ca	”	40,186
Cd	”	<2
Cr	”	181
Cu	”	434
Fe	”	18,620
Hg	”	1.1
K	”	2,592
Mg	”	18,066
Mn	”	589
Mo	”	11
Na	”	<800
Ni	”	44
Pb	”	143
Se	”	<8
Zn	”	965

¹Values are the means of thirteen samples.

²Total volatile solids as a percentage of total solids.