

*Protecting Our Water Environment*



*Metropolitan Water Reclamation District of Greater Chicago*

***MONITORING AND RESEARCH  
DEPARTMENT***

*REPORT NO. 09-17*

*LAWNDALE AVENUE SOLIDS MANAGEMENT AREA*

*MONITORING REPORT*

*FOURTH QUARTER 2008*

*MARCH 2009*

# Protecting Our Water Environment

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March 12, 2009

Mr. S. Allan 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: Lawndale Avenue Solids Management Area – Stickney Water Reclamation Plant, Contract No. 80-159-2P, Illinois Environmental Protection Agency Permit No. 2005-AO-4283, Monitoring Report for October, November, and December 2008

The attached nine tables contain the monitoring data for the Lawndale Avenue Solids Management Area (SMA) for October, November, and December 2008 as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2005-AO-4283.

The data are as follows:

- Table 1, Analysis of Water from Monitoring Wells M-11 through M-15 at the Lawndale SMA Sampled on October 10, 2008
- Table 2, Analysis of Water from Lysimeters L-1 through L-9N at the Lawndale SMA Sampled on October 8, 2008
- Table 3, Analysis of Water from Lysimeters L-1 through L-9N at the Lawndale SMA Sampled on November 5, 2008
- Table 4, Analysis of Water from Lysimeters L-1 through L-9N at the Lawndale SMA Sampled on December 3, 2008
- Table 5, Analysis of Monthly Compositing Digested Biosolids Placed in the Lawndale Solids Management Drying Area During October 2008

Subject: Lawndale Avenue Solids Management Area – Stickney Water Reclamation Plant, Contract No. 80-159-2P, Illinois Environmental Protection Agency Permit No. 2005-AO-4283, Monitoring Report for October, November, and December 2008

Table 6, Analysis of Monthly Composited Digested Biosolids Placed in the Lawndale Solids Management Drying Area During November 2008

Table 7, Analysis of Monthly Composited Digested Biosolids Placed in the Lawndale Solids Management Drying Area During December 2008

Table 8, Analysis of Monthly Composited Digested Biosolids Removed from the Lawndale Solids Management Drying Area During October 2008

Table 9, Analysis of Monthly Composited Digested Biosolids Removed from the Lawndale Solids Management Drying Area During November 2008

Two new lysimeters, L-1N and L-2N, were installed at this site in September 2008 as replacements for L-1 and L-2, respectively. The new and old 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 October, November, and December 2008. Biosolids were removed from the solids drying area during October and November 2008.

Very truly yours,

Louis Kollias  
Director  
Monitoring and Research

LK:PL:kq  
Attachments

cc: Mr. R. Sulski, IEPA  
Records Unit, IEPA  
Stuba/Granato/Cox/Lindo/M. Patel

TABLE 1: ANALYSIS<sup>1</sup> OF WATER FROM MONITORING WELLS  
M-11 THROUGH M-15 AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 10, 2008

Parameter	Unit	Monitoring Well No.				
		M-11	M-12	M-13	M-14	M-15
pH <sup>2</sup>		7.1	6.8	7.6	7.9	7.3
EC	mS/m	85	112	122	75	141
Total Dissolved Solids	mg/L	700	888	1,348	572	1,816
Total Diss. Org. Carbon	"	<1	<1	<1	<1	<1
Cl <sup>-</sup>	"	<10	14	<10	<10	<10
SO <sub>4</sub> <sup>=</sup>	"	197	353	652	136	839
TKN	"	1	0.4	0.4	<0.2	0.5
NH <sub>3</sub> -N	"	1	0.3	0.4	0.2	0.5
NO <sub>2</sub> + NO <sub>3</sub> -N	"	<0.1	<0.1	<0.1	<0.1	<0.1
Total P	"	<0.25	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO <sub>3</sub>	"	325	274	307	290	330
Al	"	<0.035	<0.035	0.041	<0.035	0.049
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	1.2	1.6	1.4	1.2	1.1
Ca	"	90	78	160	74	237
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	"	<0.02	<0.02	<0.02	<0.02	1.3
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	8	9	10	8	11
Mg	"	42	36	75	40	105
Mn	"	0.019	0.005	0.007	0.003	0.021
Na	"	54	131	87	40	63
Ni	"	<0.002	<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	"	0.62	0.59	0.84	0.43	2.5
FC	MPN*	<1	<1	<1	<1	<1
Static H <sub>2</sub> O Elev.	ft	23	26	22	20	27

<sup>1</sup>Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

<sup>2</sup>pH analyzed beyond recommended holding time of 15 minutes.

\*MPN = Most probable number per 100 mL.

TABLE 2: ANALYSIS<sup>1</sup> OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 8, 2008

Parameter	Unit	Lysimeter No.				
		L-1	L-2	L-3N	L-4N	L-5N
pH <sup>2</sup>		7.5	7.8	7.3	7.3	7.3
EC	mS/m	116	262	229	290	460
Total Dissolved Solids	mg/L	1,296	1,016	1,848	3,104	4,800
Total Diss. Org. Carbon	"	6	<1	22	5	2
Cl <sup>-</sup>	"	41	200	138	44	572
SO <sub>4</sub> <sup>=</sup>	"	497	245	209	1,510	1,828
TKN	"	4	<0.2	2	4	3
NH <sub>3</sub> -N	"	4	<0.1	0.4	3	2
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.2	0.4	0.6	2	0.2
Total P	"	<0.25	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO <sub>3</sub>	"	383	174	845	436	463
Al	"	0.044	<0.035	0.060	0.074	0.068
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	0.43	0.09	0.09	0.13	0.27
Ca	"	196	107	335	560	527
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	"	0.82	<0.02	1.3	2.6	5.0
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	5	<1	<1	6	20
Mg	"	87	47	134	124	244
Mn	"	0.067	0.004	0.678	0.842	0.247
Na	"	39	114	84	122	462
Ni	"	<0.002	<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 2 (Continued): ANALYSIS<sup>1</sup> OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON OCTOBER 8, 2008

Parameter	Unit	Lysimeter No.				
		L-6	L-6N	L-7N	L-8N	L-9N
pH <sup>2</sup>		7.6	7.2	7.7	7.6	7.5
EC	mS/m	207	315	116	236	230
Total Dissolved Solids	mg/L	1,636	3,268	800	1,668	1,868
Total Diss. Org. Carbon	"	4	20	8	5	26
Cl <sup>-</sup>	"	94	70	122	405	198
SO <sub>4</sub> <sup>=</sup>	"	596	1,437	65	194	277
TKN	"	0.3	15	0.4	3	2
NH <sub>3</sub> -N	"	<0.1	11	<0.1	2	0.5
NO <sub>2</sub> + NO <sub>3</sub> -N	"	<0.1	<0.1	<0.1	<0.1	0.2
Total P	"	<0.25	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO <sub>3</sub>	"	218	516	355	444	670
Al	"	0.051	0.084	<0.035	<0.035	0.048
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	0.23	0.20	0.24	0.19	0.15
Ca	"	249	625	105	162	234
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	"	0.26	7.9	0.16	0.15	0.16
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	7	6	5	5	5
Mg	"	112	147	57	75	132
Mn	"	0.017	0.577	0.070	0.256	0.402
Na	"	56	71	47	219	192
Ni	"	<0.002	0.006	<0.002	<0.002	<0.002
Pb	"	<0.02	<0.02	<0.02	0.03	<0.02
Se	"	<0.1	<0.1	<0.1	<0.1	<0.1
Zn	"	<0.01	<0.01	<0.01	<0.01	<0.01

<sup>1</sup>Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

<sup>2</sup>pH analyzed beyond recommended holding time of 15 minutes.

TABLE 3: ANALYSIS<sup>1</sup> OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 5, 2008

Parameter	Unit	Lysimeter No.				
		L-1	L-2	L-3N	L-4N	L-5N
pH <sup>2</sup>		7.9	7.9	7.6	7.6	7.6
EC	mS/m	182	199	193	236	394
Total Dissolved Solids	mg/L	1,508	2,092	1,864	3,092	4,628
Total Diss. Org. Carbon	"	14	4	23	9	2
Cl <sup>-</sup>	"	73	488	136	45	907
SO <sub>4</sub> <sup>=</sup>	"	512	520	232	1,453	1,586
TKN	"	5	2	3	6	3
NH <sub>3</sub> -N	"	3	0.5	0.8	5	2
NO <sub>2</sub> + NO <sub>3</sub> -N	"	<0.1	<0.1	0.2	0.8	<0.1
Total P	"	<0.25	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO <sub>3</sub>	"	465	346	1,187	632	510
Al	"	<0.035	<0.035	0.051	0.064	0.061
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	0.47	0.27	0.06	0.13	0.26
Ca	"	191	172	342	564	513
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	"	<0.02	0.53	8.7	4.7	8.1
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	19	8	2	6	20
Mg	"	110	107	129	124	234
Mn	"	0.025	0.036	0.733	0.812	0.217
Na	"	39	265	78	122	454
Ni	"	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	"	0.04	0.04	0.04	0.04	0.04
Se	"	<0.1	<0.1	<0.1	<0.1	<0.1
Zn	"	0.02	<0.01	<0.01	<0.01	<0.01

TABLE 3 (Continued): ANALYSIS<sup>1</sup> OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON NOVEMBER 5, 2008

Parameter	Unit	Lysimeter No.				
		L-6	L-6N	L-7N	L-8N	L-9N
pH <sup>2</sup>			7.7	8.0	7.9	7.6
EC	mS/m		253	95	175	195
Total Dissolved Solids	mg/L		2,895	920	1,696	1,788
Total Diss. Org. Carbon	"		50	8	10	29
Cl <sup>-</sup>	"		76	154	389	202
SO <sub>4</sub> <sup>=</sup>	"		1,249	69	158	252
TKN	"		18	1	5	3
NH <sub>3</sub> -N	"		10	0.4	3	0.7
NO <sub>2</sub> + NO <sub>3</sub> -N	"		<0.1	<0.1	<0.1	<0.1
Total P	"	L	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO <sub>3</sub>	"	Y	510	429	687	1,045
		S				
Al	"	I	0.074	<0.035	<0.035	<0.035
As	"	M	<0.025	<0.025	<0.025	<0.025
B	"	E	0.20	0.24	0.17	0.12
Ca	"	T	588	112	204	239
Cd	"	E	<0.002	<0.002	<0.002	<0.002
		R				
Cr	"		<0.003	<0.003	<0.003	<0.003
Cu	"	D	<0.01	<0.01	<0.01	<0.01
Fe	"	R	0.21	1.9	5.2	6.3
Hg	μg/L	Y	<0.20	<0.20	<0.20	<0.20
K	mg/L		6	6	5	5
Mg	"		136	61	94	136
Mn	"		0.653	0.091	0.375	0.480
Na	"		69	58	193	180
Ni	"		0.004	<0.002	<0.002	<0.002
Pb	"		0.04	0.04	0.04	0.04
Se	"		<0.1	<0.1	<0.1	<0.1
Zn	"		<0.01	<0.01	<0.01	<0.01

<sup>1</sup>Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

<sup>2</sup>pH analyzed beyond recommended holding time of 15 minutes.



TABLE 4: ANALYSIS<sup>1</sup> OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 3, 2008

Parameter	Unit	Lysimeter No.				
		L-1	L-1N	L-2	L-2N	L-3N
pH <sup>2</sup>		7.6	7.8	7.9	7.9	7.3
EC	mS/m	162	153	221	236	211
Total Dissolved Solids	mg/L	1,504	1,692	1,976	2,148	1,896
Total Diss. Org. Carbon	"	7	13	NA	4	23
Cl <sup>-</sup>	"	58	77	333	417	123
SO <sub>4</sub> <sup>=</sup>	"	530	628	NA	553	263
TKN	"	5	5	0.5	1	3
NH <sub>3</sub> -N	"	4	3	<0.1	0.5	0.9
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.3	0.3	1	0.3	<0.1
Total P	"	<0.25	<0.25	<0.25	<0.25	0.44
Alkalinity as CaCO <sub>3</sub>	"	433	450	248	322	1,037
Al	"	<0.035	0.038	0.038	<0.035	<0.035
As	"	<0.025	<0.025	<0.025	<0.025	<0.025
B	"	0.41	0.47	0.17	0.17	0.24
Ca	"	228	219	231	234	188
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	0.11	0.06	0.06	0.84
Hg	μg/L	<0.20	<0.20	<0.20	<0.20	<0.20
K	mg/L	6	20	3	4	8
Mg	"	96	125	102	104	116
Mn	"	0.105	0.028	0.005	0.005	0.043
Na	"	50	46	256	259	276
Ni	"	<0.002	<0.002	<0.002	<0.002	<0.002
Pb	"	0.05	<0.02	0.05	<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<sup>1</sup> OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 3, 2008

Parameter	Unit	Lysimeter No.				
		L-4N	L-5N	L-6	L-6N	L-7N
pH <sup>2</sup>		7.3	7.5	8.0	7.4	7.9
EC	mS/m	242	452	179	265	95
Total Dissolved Solids	mg/L	3,148	4,820	NA	3,408	836
Total Diss. Org. Carbon	"	5	2	NA	NA	7
Cl <sup>-</sup>	"	42	742	NA	65	133
SO <sub>4</sub> <sup>=</sup>	"	1,498	1,744	NA	NA	77
TKN	"	6	3	2	19	1
NH <sub>3</sub> -N	"	5	2	1	11	0.3
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.8	0.5	<0.1	<0.1	0.3
Total P	"	<0.25	<0.25	<0.25	<0.25	<0.25
Alkalinity as CaCO <sub>3</sub>	"	638	428	NA	815	368
Al	"	0.062	0.050	NA	0.052	<0.035
As	"	<0.025	<0.025	NA	<0.025	<0.025
B	"	0.14	0.26	NA	0.12	0.24
Ca	"	571	541	NA	674	118
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	"	8.5	9.7	NA	34	1.4
Hg	μg/L	<0.20	<0.20	NA	<0.20	<0.20
K	mg/L	7	21	NA	6	6
Mg	"	130	242	NA	143	63
Mn	"	0.841	0.220	NA	0.720	0.088
Na	"	122	476	NA	77	60
Ni	"	<0.002	<0.002	NA	0.004	<0.002
Pb	"	0.05	0.05	NA	0.05	0.05
Se	"	<0.1	<0.1	NA	<0.1	<0.1
Zn	"	0.02	<0.01	NA	<0.01	<0.01

TABLE 4 (Continued): ANALYSIS<sup>1</sup> OF WATER FROM LYSIMETERS  
L-1 THROUGH L-9N AT THE LAWNSDALE AVENUE  
SOLIDS MANAGEMENT AREA SAMPLED ON DECEMBER 3, 2008

Parameter	Unit	Lysimeter No.	
		L-8N	L-9N
pH <sup>2</sup>		7.9	7.7
EC	mS/m	215	215
Total Dissolved Solids	mg/L	1,652	1,848
Total Diss. Org. Carbon	"	7	30
Cl <sup>-</sup>	"	384	190
SO <sub>4</sub> <sup>=</sup>	"	183	269
TKN	"	4	3
NH <sub>3</sub> -N	"	3	0.5
NO <sub>2</sub> + NO <sub>3</sub> -N	"	0.3	1
Total P	"	<0.25	<0.25
Alkalinity as CaCO <sub>3</sub>	"	527	918
Al	"	<0.035	0.037
As	"	<0.025	<0.025
B	"	0.17	0.13
Ca	"	201	239
Cd	"	<0.002	<0.002
Cr	"	<0.003	<0.003
Cu	"	<0.01	<0.01
Fe	"	2.3	6.7
Hg	µg/L	<0.20	<0.20
K	mg/L	5	6
Mg	"	90	137
Mn	"	0.345	0.417
Na	"	223	184
Ni	"	<0.002	<0.002
Pb	"	<0.02	<0.02
Se	"	<0.1	<0.1
Zn	"	<0.01	0.06

<sup>1</sup>Limit of quantitation (LOQ) instead of MDL was used as reporting limit.

<sup>2</sup>pH analyzed beyond recommended holding time of 15 minutes.

NA = No analysis; insufficient sample.

TABLE 5: ANALYSIS<sup>1</sup> OF MONTHLY COMPOSITED DIGESTED  
 BIOSOLIDS PLACED IN THE LAWNSDALE AVENUE  
 SOLIDS MANAGEMENT DRYING AREA DURING OCTOBER 2008

Parameter	Unit	Concentration
pH		7.6
Total Solids	%	15.3
Total Volatile Solids <sup>2</sup>	%	41.8
TKN	mg/kg	39,213
NH <sub>3</sub> -N	„	10,322

<sup>1</sup>Values are the means of seven samples.

<sup>2</sup>Total volatile solids as a percentage of total solids.

TABLE 6: ANALYSIS<sup>1</sup> OF MONTHLY COMPOSITED DIGESTED  
 BIOSOLIDS PLACED IN THE LAWNSDALE AVENUE  
 SOLIDS MANAGEMENT DRYING AREA DURING NOVEMBER 2008

Parameter	Unit	Concentration
pH		7.9
Total Solids	%	34.2
Total Volatile Solids <sup>2</sup>	%	39.2
TKN	mg/kg	31,277
NH <sub>3</sub> -N	"	8,418

<sup>1</sup>Values are the means of three samples.

<sup>2</sup>Total volatile solids as a percentage of total solids.

TABLE 7: ANALYSIS<sup>1</sup> OF MONTHLY COMPOSITED DIGESTED  
 BIOSOLIDS PLACED IN THE LAWNSDALE AVENUE  
 SOLIDS MANAGEMENT DRYING AREA DURING DECEMBER 2008

Parameter	Unit	Concentration
pH		8.3
Total Solids	%	26.5
Total Volatile Solids <sup>2</sup>	%	53.8
TKN	mg/kg	44,515
NH <sub>3</sub> -N	„	4,032

<sup>1</sup>Values for one samples only.

<sup>2</sup>Total volatile solids as a percentage of total solids.

TABLE 8: ANALYSIS<sup>1</sup> OF MONTHLY COMPOSITED PROCESSED DIGESTED BIOSOLIDS REMOVED FROM THE LAWNSDALE AVENUE SOLIDS MANAGEMENT DRYING AREA DURING OCTOBER 2008

Parameter	Unit	Concentration
pH		6.9
Total Solids	%	52.7
Total Volatile Solids <sup>2</sup>	%	40.5
TKN	mg/kg	28,148
NH <sub>3</sub> -N	"	5,013
Total P	"	20,332
Al	"	19,118
As	"	<10
Ca	"	40,201
Cd	"	4
Cr	"	170
Cu	"	419
Fe	"	17,786
Hg	"	1.1
K	"	2,478
Mg	"	18,071
Mn	"	556
Mo	"	15
Na	"	<800
Ni	"	45
Pb	"	153
Se	"	12
Zn	"	933

<sup>1</sup>Values are the means of nineteen samples.

<sup>2</sup>Total volatile solids as a percentage of total solids.

TABLE 9: ANALYSIS<sup>1</sup> OF MONTHLY COMPOSITED PROCESSED DIGESTED  
 BIOSOLIDS REMOVED FROM THE LAWNSDALE AVENUE  
 SOLIDS MANAGEMENT DRYING AREA DURING NOVEMBER 2008

Parameter	Unit	Concentration
pH		7.3
Total Solids	%	44.5
Total Volatile Solids <sup>2</sup>	%	38.9
TKN	mg/kg	31,372
NH <sub>3</sub> -N	"	7,045
Total P	"	18,646
Al	"	18,286
As	"	<10
Ca	"	45,628
Cd	"	<2
Cr	"	165
Cu	"	395
Fe	"	17,484
Hg	"	<0.60
K	"	2,599
Mg	"	21,785
Mn	"	527
Mo	"	15
Na	"	<800
Ni	"	44
Pb	"	146
Se	"	14
Zn	"	890

<sup>1</sup>Values are the means of thirteen samples.

<sup>2</sup>Total volatile solids as a percentage of total solids.