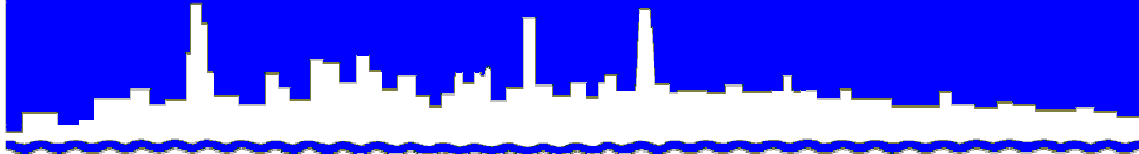


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 06-59

MONTHLY REPORT OF THE FULTON COUNTY

ENVIRONMENTAL PROTECTION SYSTEM

JUNE 2006

SEPTEMBER 2006

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President

Kathleen Therese Meany
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Metropolitan Water Reclamation District of Greater Chicago

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

Louis Kollias, P.E., BCEE
Director of Research and Development

312-751-5190

September 15, 2006

Mr. S. Alan Keller, P.E.
Manager, Permit Section
Illinois Environmental
Protection Agency
P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Keller:

Attached for your information and use is the June 2006 monthly report of the Fulton County Environmental Protection System.

Very truly yours,

Louis Kollias
Director
Research and Development

LK:GT:spy
Attachment
cc w/enc.:

Mr. Valdis Aistars, USEPA Region V
Mr. Ash Sajjad, USEPA Region V
Mr. Matthew Williams, USEPA Region V
IEPA Permit Section, Springfield
IEPA Surveillance Section, Peoria
Chairman of the Fulton County Board
Fulton County Board of Health
Fulton County Zoning Office

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**ENVIRONMENTAL PROTECTION SYSTEM
REPORT FOR FULTON COUNTY, ILLINOIS**

June 2006

**Research and Development Department
G. Tian
A. Cox**

September 2006

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FOREWORD

The data and information in this report fulfill the frequency of monitoring and the reporting requirements for the Land Application of Biosolids at the Fulton County Land Reclamation Project as specified in the Illinois Environmental Protection Agency Permit No. 2005-SC-5073 for June 2006.

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ACKNOWLEDGMENT

Thanks are due to the staff of the Analytical Laboratories Division for assistance in conducting analyses and Ms. Sabina Yarn for typing this report.

DISCLAIMER

Mention of proprietary equipment and chemicals in this report does not constitute endorsement by the Metropolitan Water Reclamation District of Greater Chicago.

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FULTON COUNTY
DEWATERED BIOSOLIDS REPORT
June 2006

DEWATERED BIOSOLIDS REPORT

No dewatered biosolids were applied to fields during the month of June 2006. In addition, no supernatant was available for application to fields during this month. The last supernatant application was made in 1995, and the last biosolids application was made in 2004.

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FULTON COUNTY
WATER ANALYSIS REPORT
June 2006

WATER ANALYSIS REPORT

Water monitoring in June 2006 was conducted at the runoff basins. A site plan of farm field and runoff basin locations is attached in Figure 1. During the month, discharges from runoff basins totaled 5.97 million gallons. Analytical data of water samples are presented in Table 1. A log of runoff basin discharge information is presented in Table 2.

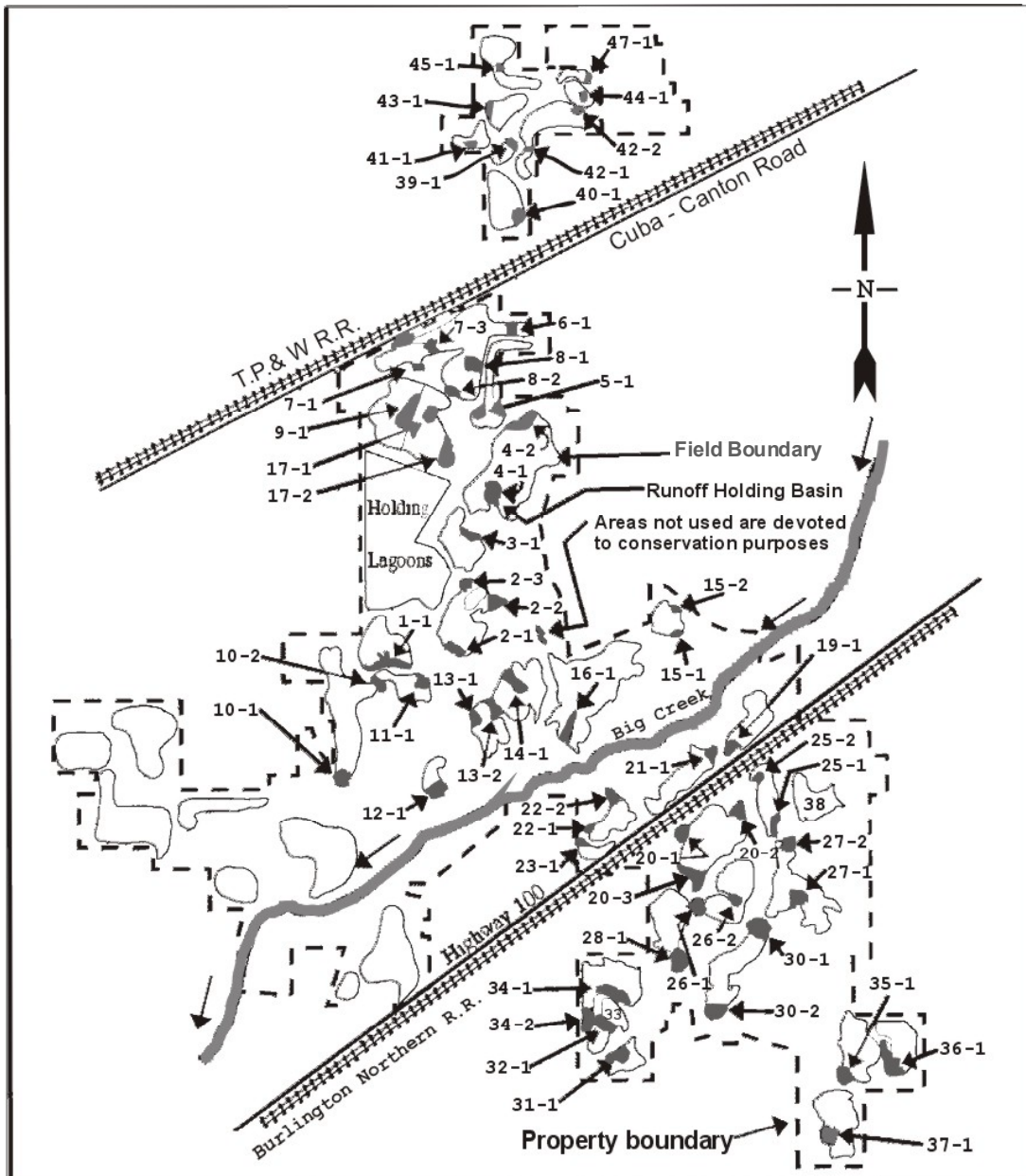
The surface water sites (streams, reservoirs, and SP sites) were not sampled during the month. A site plan of water monitoring locations is attached in Figure 2.

The wells were sampled during the month. Analytical data of water samples are presented in Table 3.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

FIGURE 1

FARM FIELDS AND RUNOFF BASINS AT THE LAND RECLAMATION PROJECT AT FULTON COUNTY, ILLINOIS



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1

FULTON COUNTY LAND RECLAMATION PROJECT FIELD RUNOFF BASIN
DISCHARGE DATA JUNE 2006

Basin No.	Sample Date	pH	TSS (mg/L)	BOD ₅ (mg/L)	F. coli. per 100 mL	Discharge Date	Discharge Amount (MG)
3-1	6/12	8.2	4.8	4	30	6/14	3.12
3-1	6/29	8.3	10.0	3	20	6/30	2.85

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2

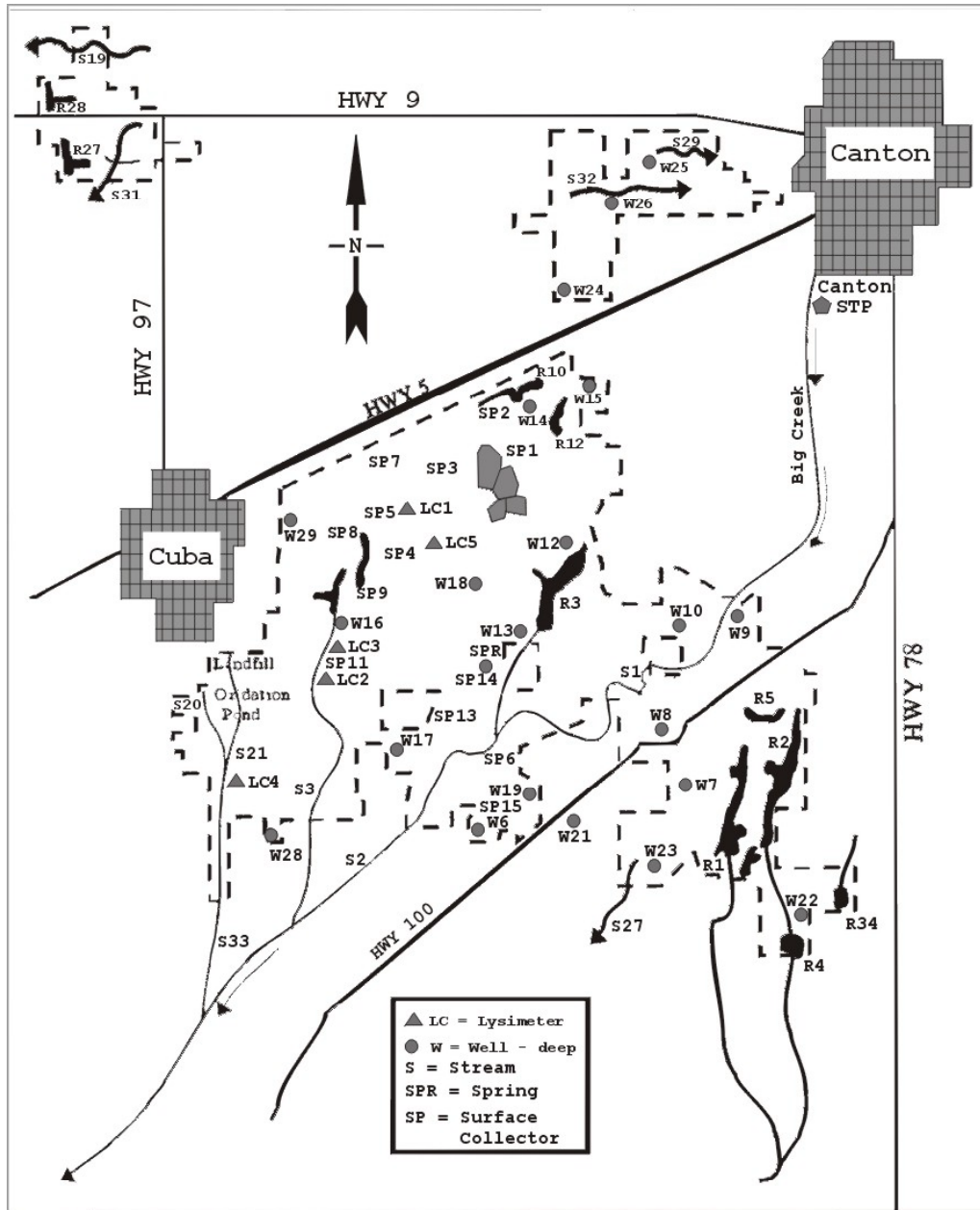
FIELD RUNOFF BASIN LOG AT THE FULTON COUNTY LAND RECLAMATION PROJECT FOR JUNE 2006

Basin No.	Date Opened	Time Opened	Date Closed	Time Closed	Opening Stage		Time Open (Hours)	Volume Released		Reason Closed		R & D Dept. Sample
					(Feet)	(Feet)		(MG)	Type	Closed	Ok	
3 - 1	6/14/06	13:45	6/16/06	14:30	4.25	0.50	48.75	3.12	Regular	Regular	YES	YES
3 - 1	6/30/06	14:15	7/4/06	07:30	4.00	0.50	89.25	2.85	Regular	Rain	YES	YES

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

FIGURE 2

WATER MONITORING LOCATIONS AT THE LAND RECLAMATION PROJECT AT FULTON COUNTY, ILLINOIS



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3

FULTON COUNTY LAND RECLAMATION PROJECT WELL DATA JUNE 2006

Well Number	Sample Date	NH ₃ -N	NO ₂ -N	NO ₃ -N	Cd	Cu	Hg	
		----- mg/L -----					μg/L	
W 6	6/12	0.47	0.000	0.000	0.0000	0.004	0.00	
W 7	6/12	1.43	0.000	0.220	0.0000	0.000	0.00	
W 8	6/12	0.52	0.000	0.192	0.0000	0.004	0.00	
W 9	6/12	0.93	0.000	0.211	0.0013	0.000	0.00	
W10	6/12	1.18	0.000	0.080	0.0000	0.000	0.00	
W12	6/12	0.38	0.000	0.214	0.0000	0.000	0.00	
W14	6/12	0.41	18.000	0.000	0.0000	0.000	0.00	
W15	6/12	0.59	0.000	0.117	0.0000	0.000	0.00	
W16	6/12	0.06	0.000	0.126	0.0000	0.000	0.00	
W17	6/12	0.00	0.000	4.52	0.0000	0.000	0.00	
W18	6/12	0.45	0.000	0.073	0.0000	0.000	0.00	
W19	6/12	1.00	0.000	0.183	0.0000	0.000	0.00	
W21	6/12	1.51	0.000	0.055	0.0000	0.000	0.00	
W22	6/12	2.09	0.000	0.126	0.0000	0.000	0.00	
W23	6/12	0.08	0.000	0.690	0.0000	0.000	0.00	
W24	6/12	1.02	0.000	0.595	0.0000	0.337	0.00	
W25	6/12	0.02	0.000	0.137	0.0000	0.004	0.00	
W26	6/12	1.29	0.000	0.222	0.0000	0.000	0.00	
W28	6/12	0.26	0.000	0.085	0.0000	0.000	0.00	
W29	6/12	1.46	0.000	0.437	0.0000	0.006	0.00	
MDL*		0.02	0.150	0.004	0.0004	0.003	0.05	

*MDL = Method detection limit of laboratory; values less than these are reported as zeros.

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FULTON COUNTY
CLIMATOLOGICAL OBSERVATIONS
June 2006

CLIMATOLOGICAL OBSERVATIONS

The daily climatological observations for June 2006 are summarized in Table 4. The total precipitation recorded for the month was 2.44 inches.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4

RECORD OF CLIMATOLOGICAL OBSERVATIONS FOR JUNE 2006,
 FULTON COUNTY, ILLINOIS, STATION SEQ, SEC.10, R3E, T6N

Date	Temperature °C			Precipitation		Wind		
	Max	Min	Avg	rain, melted snow	snow, sleet, hail	m/S	m/S	Dir
				(inches & hundredths)	(inches & tenths)	Avg	Max	
1	19.7	16.4	18.2	0.45		1.2	4.5	NE
2	30.0	15.6	22.8	0.00		5.8	2.6	N
3	29.4	15.6	22.8	0.00		8.0	2.6	N
4	29.4	13.3	21.5	0.00		1.2	6.7	NE
5	29.7	14.2	21.4	0.00		1.5	6.7	SE
6	23.6	14.3	19.2	0.47		1.9	8.9	SE
7	31.2	16.9	23.9	0.00		1.6	8.9	NW
8	34.6	15.9	24.8	0.00		0.8	4.9	SW
9	28.6	16.1	21.6	0.00		2.4	10.3	NE
10	20.5	10.7	15.1	0.13		4.1	11.2	NE
11	20.2	11.6	15.2	0.13		2.6	8.9	NE
12	25.9	9.5	18.0	0.00		1.4	7.6	N
13	31.4	11.3	21.1	0.00		0.5	4.5	N
14	32.3	14.9	23.3	0.00		0.9	4.9	SE
15	32.8	18.3	25.0	0.00		1.7	9.4	SE
16	33.8	19.9	26.9	0.00		2.9	10.7	SE
17	33.3	21.0	26.5	0.00		4.0	13.0	SE
18	28.2	19.1	22.4	0.19		1.7	7.6	S
19	32.5	17.4	24.9	0.01		2.4	13.9	SW
20	30.4	16.3	24.3	0.00		1.5	8.0	E
21	34.6	22.8	28.0	0.01		3.9	14.3	S
22	30.7	18.2	23.4	0.44		1.3	15.2	NW
23	29.4	18.0	23.1	0.00		1.5	6.3	N
24	32.5	14.3	23.4	0.00		1.1	7.6	N
25	30.2	15.5	22.0	0.00		1.5	11.2	W
26	26.7	14.4	18.1	0.49		1.5	7.6	NW
27	29.9	14.7	20.1	0.03		1.6	7.2	SW
28	29.4	15.1	21.5	0.05		1.6	11.6	W
29	32.0	14.1	23.4	0.00		0.5	3.6	W
30	27.4	18.1	21.7	0.04		2.1	9.8	SW
Sum				2.44	0.0	Observer: Josh DeWees Station: R&D Lab		
Avg	29.3	15.8	22.1					
Extreme	34.6	9.5		0.49	0.0			

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FULTON COUNTY
RECLAMATION OF COAL REFUSE PILES WITH BIOSOLIDS
June 2006

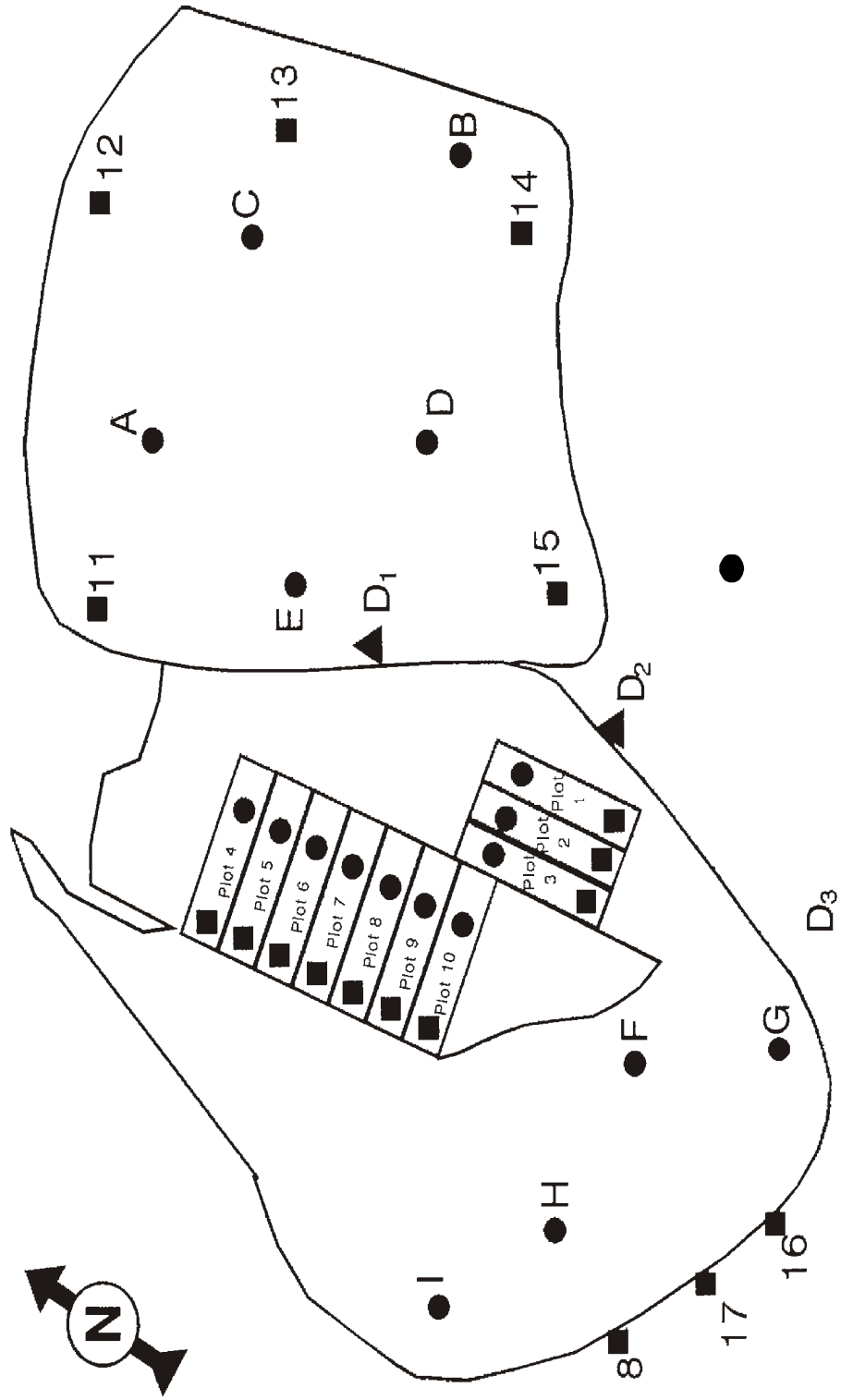
RECLAMATION OF COAL REFUSE PILES WITH BIOSOLIDS

Lysimeters and drainage tiles at the St. David coal refuse pile reclamation site were sampled during the month. Locations for all lysimeters and drainage tile sampling sites are shown in Figure 3. The analytical data for lysimeter samples are presented in Table 5. There was no flow in the tile drains D1 and D2 at the time of sampling in June. The analytical results for drainage tile samples are reported in Table 6.

Lysimeters at the Big Ten (Morgan Mine) and the United Electric coal refuse pile sites were also sampled during the month. The analytical data for the Morgan Mine and United Electric coal refuse pile sites are listed in Tables 7 and 8, respectively.

FIGURE 3

ST. DAVID COAL REFUSE PILE RECLAMATION SITE



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5

ANALYSIS OF WATER FROM LYSIMETERS ON THE RECLAIMED ST. DAVID
COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Lysimeter Designation			
		1	2	3	4
pH					
E.C.	mS/m				
Acidity*	mg/L				
Alkalinity*	"				
Total P	"	L	L	L	L
		Y	Y	Y	Y
Cl ⁻	"	S	S	S	S
SO ₄ ⁼	"	I	I	I	I
NH ₃ -N	"	M	M	M	M
NO ₂ +NO ₃ -N	"	E	E	E	E
Al	"	T	T	T	T
		E	E	E	E
		R	R	R	R
Cd	"				
Cr	"	D	D	D	D
Cu	"	R	R	R	R
Fe	"	Y	Y	Y	Y
Mn	"				
Ni	"				
Pb	"				
Zn	"				

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS ON THE RECLAIMED ST. DAVID
COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Lysimeter Designation			
		5	6	7	8
pH					
E.C.	mS/m				
Acidity*	mg/L				
Alkalinity*	"				
Total P	"				
		L	L	L	L
		Y	Y	Y	Y
Cl ⁻	"	S	S	S	S
SO ₄ ⁼	"	I	I	I	I
NH ₃ -N	"	M	M	M	M
NO ₂ +NO ₃ -N	"	E	E	E	E
Al	"	T	T	T	T
		E	E	E	E
		R	R	R	R
Cd	"				
Cr	"	D	D	D	D
Cu	"	R	R	R	R
Fe	"	Y	Y	Y	Y
Mn	"				
Ni	"				
Pb	"				
Zn	"				

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS ON THE RECLAIMED ST. DAVID
COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Lysimeter Designation			
		9	10	A	B
pH				6.3	7.6
E.C.	mS/m			240	420
Acidity*	mg/L			18	25
Alkalinity*	"			22	290
Total P	"			0.11	0.13
		L	L		
		Y	Y		
Cl ⁻	"	S	S	12.8	0.8
SO ₄ ⁼	"	I	I	1,532	3,096
NH ₃ -N	"	M	M	1.61	0.14
NO ₂ +NO ₃ -N	"	E	E	5.01	1.76
Al	"	T	T	0.10	0.04
		E	E		
		R	R		
Cd	"			<0.0004	<0.0004
Cr	"	D	D	0.0030	0.0031
Cu	"	R	R	0.005	0.009
Fe	"	Y	Y	2.19	0.132
Mn	"			1.94	0.035
Ni	"			0.022	0.008
Pb	"			<0.004	<0.004
Zn	"			0.408	0.068

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS ON THE RECLAIMED ST. DAVID
COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Lysimeter Designation			
		C	D	E	F
pH			2.2		
E.C.	mS/m		960		
Acidity*	mg/L		44,000		
Alkalinity*	"		<1		
Total P	"		6.03		
		L		L	L
		Y		Y	Y
Cl ⁻	"	S	<0.3	S	S
SO ₄ ⁼	"	I	23,962	I	I
NH ₃ -N	"	M	0.79	M	M
NO ₂ +NO ₃ -N	"	E	1.18	E	E
Al	"	T	354	T	T
		E		E	E
		R		R	R
Cd	"		2.58		
Cr	"	D	2.58	D	D
Cu	"	R	2.28	R	R
Fe	"	Y	7,144	Y	Y
Mn	"		32.5		
Ni	"		2.90		
Pb	"		<0.004		
Zn	"		312		

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS ON THE RECLAIMED ST. DAVID
COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Lysimeter Designation		
		G	H	I
pH			7.4	7.1
E.C.	mS/m		250	320
Acidity*	mg/L		41	60
Alkalinity*	"		271	182
Total P	"		0.20	0.19
		L		
		Y		
Cl ⁻	"	S	1.2	11.9
SO ₄ ⁼	"	I	1,439	2,200
NH ₃ -N	"	M	0.10	0.30
NO ₂ +NO ₃ -N	"	E	3.51	4.06
Al	"	T	1.03	0.15
		E		
		R		
Cd	"		0.0066	0.0043
Cr	"	D	0.010	0.007
Cu	"	R	0.019	0.009
Fe	"	Y	17.5	7.38
Mn	"		0.314	8.17
Ni	"		0.013	0.106
Pb	"		<0.004	<0.004
Zn	"		0.716	1.46

*As calcium carbonate.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6

ANALYSIS OF WATER SAMPLES FROM DRAINAGE TILE ON THE RECLAIMED ST. DAVID COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Tile Drain		
		D1	D2	D
pH		N O	N O	6.7
Total Suspended Solids	mg/L	F L O	F L O	24.0
Total Fe	mg/L	W	W	58.7

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7

ANALYSIS OF WATER FROM LYSIMETERS ON THE RECLAIMED MORGAN MINE
COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Lysimeter Designation		
		1	2	3
pH		6.6	7.3	
E.C.	mS/m	320	340	
Acidity*	mg/L	110	38	
Alkalinity*	"	164	321	
Total P	"	0.07	<0.05	
				L
				Y
Cl ⁻	"	23.9	28.9	S
SO ₄ ⁼	"	2,045	2,103	I
NH ₃ -N	"	0.65	2.09	M
NO ₂ +NO ₃ -N	"	1.61	1.37	E
Al	"	0.97	0.08	T
				E
				R
Cd	"	0.0097	<0.0004	
Cr	"	0.006	0.004	D
Cu	"	0.008	0.009	R
Fe	"	5.05	0.797	Y
Mn	"	7.79	3.73	
Ni	"	0.253	0.070	
Pb	"	<0.004	<0.004	
Zn	"	1.02	0.195	

*As calcium carbonate.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8

ANALYSIS OF WATER FROM LYSIMETERS ON THE RECLAIMED UNITED
ELECTRIC COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Lysimeter Designation				
		1	2	3	4	5
pH			7.0	7.4	7.6	7.7
E.C.	mS/m		360	270	380	320
Acidity*	mg/L		52	21	30	25
Alkalinity*	"		252	157	263	220
Total P	"		0.22	0.15	0.12	0.18
		L				
		Y				
Cl ⁻	"	S	22.4	22.6	31.6	24.9
SO ₄ ⁼	"	I	1,749	1,670	2,236	2,039
NH ₃ -N	"	M	<0.02	0.13	0.12	0.14
NO ₂ +NO ₃ -N	"	E	139	9.02	80.2	2.88
Al	"	T	0.54	0.16	0.06	0.08
		E				
		R				
Cd	"		0.0132	0.0201	0.0008	<0.0004
Cr	"	D	0.004	0.005	0.003	0.003
Cu	"	R	0.038	0.094	0.033	0.030
Fe	"	Y	1.42	0.231	0.124	0.130
Mn	"		0.169	0.277	0.084	0.108
Ni	"		0.037	0.142	0.036	0.023
Pb	"		<0.004	<0.004	<0.004	<0.004
Zn	"		0.426	1.94	0.388	0.192

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8 (Continued)

ANALYSIS OF WATER FROM LYSIMETERS ON THE RECLAIMED UNITED
ELECTRIC COAL REFUSE PILE SITE SAMPLED ON JUNE 22, 2006

Constituent	Units	Lysimeter Designation				
		6	7	8	9	10
pH			7.4		7.6	
E.C.	mS/m		300		480	
Acidity*	mg/L		33.0		52.0	
Alkalinity*	"		276		405	
Total P	"		0.15		0.07	
		L		L		L
		Y		Y		Y
Cl ⁻	"	S	1.0	S	84.8	S
SO ₄ ⁼	"	I	1,818	I	3,451	I
NH ₃ -N	"	M	0.26	M	0.05	M
NO ₂ +NO ₃ -N	"	E	2.98	E	4.95	E
Al	"	T	0.15	T	0.15	T
		E		E		E
		R		R		R
Cd	"		0.0013		<0.0004	
Cr	"	D	0.004	D	0.002	D
Cu	"	R	0.032	R	0.009	R
Fe	"	Y	0.178	Y	0.227	Y
Mn	"		3.04		0.373	
Ni	"		0.037		0.036	
Pb	"		<0.004		<0.004	
Zn	"		0.426		0.388	

*As calcium carbonate.