

# K P R G

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

## SOIL FILE SAMPLING SUMMARY

July 22, 2004

WASTE-NS

Ms. Maria L. Race  
Senior Environmental Engineer  
Midwest Generation EME, LLC  
One Financial Place  
440 South LaSalle Street, Suite 3500  
Chicago, Illinois 60605

Re: Sampling - Waukegan Station

VIA U.S. MAIL

Dear Ms. Race:

*Redacted*



MWG13-15\_12809

K P R G

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

SOIL PILE SAMPLING SUMMARY

July 22, 2004

Ms. Maria L. Race  
Senior Environmental Engineer  
Midwest Generation EMB, LLC  
One Financial Place  
440 South LaSalle Street, Suite 3500  
Chicago, Illinois 60605

Re: 'Sampling - Waukegan Station

VIA U.S. MAIL

Dear Ms. Race:

*Redacted*

MWG13-15\_12810

*Redacted*

**BOTTOM ASH**

Midwest Generation is in the process of cleaning out bottom ash from a settling pond for eventual reconstruction of a new pond in the same location. Two individual composite samples were collected from the bottom ash. The first sample (labeled Bottom Ash -1) was from ash that was already excavated and staged just north of the pond for dewatering. The second composite sample (labeled Bottom Ash - 2) was collected from the ash still within the impoundment. Each composite was a thorough mixture of five separate grab samples using the same procedures as defined above for test pit sampling. Each of these composite samples were analyzed for ASTM neutral leach parameters to assist in determining whether these materials may be suitable for use as part of the liner base reconstruction. In addition, Midwest Generation requested that the two composite

ash samples be further composited into a third sample (labeled Bottom Ash 1/2) for analysis of Wisconsin Protocol B disposal parameters to assist in potential materials handling requirements if, in fact, the material could not be used as anticipated in the liner base reconstruction.

A review of the analytical data in Attachment 3 indicates that the neutral leach test results did not display significant metals leachability. In addition, no parameters of concern were noted in the Wisconsin Protocol B analyses. Therefore, these materials, from a chemical perspective, could qualify for beneficial reuse in the liner reconstruction.

KPRG appreciates the continued opportunity for providing our technical services to Midwest Generation. If there are any questions, please contact me at 262-781-0475.

Sincerely,  
KPRG and Associates, Inc.



Richard R. Gnat, P.G.  
Principal

Cc: Mary Connor, Midwest Generation Waukegan Station

SEVERN TRENT LABORATORIES  
ANALYTICAL REPORT

JOB NUMBER: 228269

Prepared For:

Midwest Generation EME, LLC  
401 E. Greenwood Avenue  
Waukegan, IL 60087

Project: Waukegan Sampling

Attention: Mary Connor

Date: 07/20/2004

\_\_\_\_\_  
Signature

Name: Linda S. Mackley

Title: Project Manager

E-Mail: [lmackley@stl-inc.com](mailto:lmackley@stl-inc.com)

\_\_\_\_\_  
Date

STL Chicago  
2417 Bond Street  
University Park, IL 60466

PHONE: (708) 534-5200  
FAX...: (708) 534-5211

This Report Contains (\_\_\_\_) Pages

**MWG13-15\_12813**

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LABORATORY TEST RESULTS												
Job Number: 228269				Date: 07/20/2004								
CUSTOMER: Midwest Generation SPC, LLC				PROJECT: SOIL PILE SAMPLING				ATTN: Mary Corcoran				
Customer Sample ID: BOTTOM ASH-1 Date Sampled.....: 07/06/2004 Time Sampled.....: 09:30 Sample Matrix.....: Soil				Laboratory Sample ID: 228269-6 Date Received.....: 07/07/2004 Time Received.....: 14:30								
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
7041	Leachable, Antimony (GFRA) Antimony, Neutral Leach	ND		U	0.0030	0.0060	1	mg/L	123343		07/14/04 2032	dej
7861	Leachable, Thallium (GFRA) Thallium, Neutral Leach	ND		U	0.0020	0.0020	1	mg/L	123326		07/14/04 1727	dej
7470A	Leachable, Mercury (CVAA) Mercury, Neutral Leach	ND		U	0.0002	0.0020	1	mg/L	123378		07/15/04 1412	gok
6010B	Leachable, Metals Analysis (ICAP)											
	Arsenic, Neutral Leach	ND		U	0.010	0.050	1	mg/L	123314		07/14/04 1450	tds
	Barium, Neutral Leach	0.19		B	0.010	1.0	1	mg/L	123314		07/14/04 1450	tds
	Beryllium, Neutral Leach	ND		U	0.004	0.004	1	mg/L	123314		07/14/04 1450	tds
	Boron, Neutral Leach	1.1		U	0.050	0.10	1	mg/L	123314		07/14/04 1450	tds
	Cadmium, Neutral Leach	ND		U	0.002	0.005	1	mg/L	123314		07/14/04 1450	tds
	Chromium, Neutral Leach	ND		U	0.010	0.050	1	mg/L	123314		07/14/04 1450	tds
	Cobalt, Neutral Leach	ND		U	0.005	0.050	1	mg/L	123314		07/14/04 1450	tds
	Copper, Neutral Leach	ND		U	0.010	0.050	1	mg/L	123314		07/14/04 1450	tds
	Iron, Neutral Leach	ND		U	0.050	0.10	1	mg/L	123314		07/14/04 1450	tds
	Lead, Neutral Leach	ND		U	0.0050	0.0075	1	mg/L	123314		07/14/04 1450	tds
	Nickel, Neutral Leach	ND		U	0.010	0.050	1	mg/L	123314		07/14/04 1450	tds
	Silver, Neutral Leach	ND		U	0.005	0.050	1	mg/L	123314		07/14/04 1450	tds
	Zinc, Neutral Leach	ND		U	0.020	0.10	1	mg/L	123314		07/14/04 1450	tds
	Manganese, Neutral Leach	ND		U	0.010	0.050	1	mg/L	123314		07/14/04 1450	tds

\* In Description - Dry Wgt.

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LABORATORY TEST RESULTS												
Job Number: 228269				Date: 07/20/2004								
CUSTOMER: Midwest Generation EMS, LLC				PROJECT: SOIL FILL SPILLING				ATTN: Mary Connor				
Customer Sample ID: BOTTOM ASH-2 Date Sampled.....: 07/06/2004 Time Sampled.....: 10:15 Sample Matrix.....: Soil						Laboratory Sample ID: 228269-7 Date Received.....: 07/07/2004 Time Received.....: 14:30						
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	O	FLAGS	MCL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
7041	Leachable, Antimony (GFAA) Antimony, Neutral Leach	ND		U	0.0030	0.0060	1	ng/L	123343		07/14/04 2056	dmj
7041	Leachable, Thallium (GFAA) Thallium, Neutral Leach	ND		U	0.0020	0.0020	1	ng/L	123326		07/14/04 1739	dmj
7470A	Leachable, Mercury (CVAA) Mercury, Neutral Leach	ND		U	0.0002	0.0020	1	ng/L	123378		07/15/04 1414	gsk
6010B	Leachable, Metals Analysis (ICAP)			U								
	Arsenic, Neutral Leach	ND		U	0.030	0.050	1	ng/L	123314		07/14/04 1504	tds
	Barium, Neutral Leach	0.12		B	0.030	1.0	1	ng/L	123314		07/14/04 1504	tds
	Beryllium, Neutral Leach	ND		U	0.004	0.004	1	ng/L	123314		07/14/04 1504	tds
	Boron, Neutral Leach	2.0		U	0.050	0.10	1	ng/L	123314		07/14/04 1504	tds
	Cadmium, Neutral Leach	ND		U	0.002	0.005	1	ng/L	123314		07/14/04 1504	tds
	Chromium, Neutral Leach	ND		U	0.010	0.050	1	ng/L	123314		07/14/04 1504	tds
	Cobalt, Neutral Leach	ND		U	0.005	0.050	1	ng/L	123314		07/14/04 1504	tds
	Copper, Neutral Leach	ND		U	0.010	0.050	1	ng/L	123314		07/14/04 1504	tds
	Iron, Neutral Leach	ND		U	0.050	0.10	1	ng/L	123314		07/14/04 1504	tds
	Lead, Neutral Leach	ND		U	0.0050	0.0075	1	ng/L	123314		07/14/04 1504	tds
	Nickel, Neutral Leach	ND		U	0.010	0.050	1	ng/L	123314		07/14/04 1504	tds
	Silver, Neutral Leach	ND		U	0.005	0.050	1	ng/L	123314		07/14/04 1504	tds
	Zinc, Neutral Leach	ND		U	0.020	0.10	1	ng/L	123314		07/14/04 1504	tds
	Manganese, Neutral Leach	ND		U	0.010	0.050	1	ng/L	123314		07/14/04 1504	tds

\* In Description = Dry Wgt.

MWG13-15\_12815

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LABORATORY TEST RESULTS												
Job Number: 228269				Date: 07/20/2004								
CUSTOMER: Midwest Generation ENG, LLC				PROJECT: SOIL FILE SAMPLING				ATTN: Mary Connor				
Customer Sample ID: BOTTOM ASH 1/2 Date Sampled: 07/06/2004 Time Sampled: 10:20 Sample Matrix: Soil				Laboratory Sample ID: 228269-8 Date Received: 07/07/2004 Time Received: 14:30								
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	REL.	REL.	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8082	PCB Analysis											
	Aroclor 1016, 3541 Solid*	ND		U	3.5	22	1.00000	ug/kg	123528		07/17/04 0838	bjt
	Aroclor 1221, 3541 Solid*	ND		U	2.7	22	1.00000	ug/kg	123528		07/17/04 0838	bjt
	Aroclor 1232, 3541 Solid*	ND		U	2.7	22	1.00000	ug/kg	123528		07/17/04 0838	bjt
	Aroclor 1242, 3541 Solid*	ND		U	2.7	22	1.00000	ug/kg	123528		07/17/04 0838	bjt
	Aroclor 1248, 3541 Solid*	ND		U	2.7	22	1.00000	ug/kg	123528		07/17/04 0838	bjt
	Aroclor 1254, 3541 Solid*	ND		U	2.7	22	1.00000	ug/kg	123528		07/17/04 0838	bjt
	Aroclor 1260, 3541 Solid*	ND		U	1.9	22	1.00000	ug/kg	123528		07/17/04 0838	bjt
8015M MICRO	TPH - Gasoline Range Organics (MI-GRO) Gasoline Range Organics (GRO), High/Med Level	ND		D	2000	2200	1.00000	ug/kg	123617		07/18/04 0640	dk
Method	% Solids Determination											
	% Solids, Solid	73.9			0.10	0.10	1	%	122945		07/10/04 1434	clb
	% Moisture, Solid	26.1			0.10	0.10	1	%	122945		07/10/04 1434	clb
8015M MICRO	TPH - Diesel Range Organics (MI-DRO) Diesel Range Organics (DRO), Solid*	15		J	2.9	26	1.00000	mg/kg	123580		07/19/04 1132	pjg
7.3.3.2/9014	Reactivity, Cyanide Reactivity, Cyanide, Solid	ND		U	2.5	2.5	1	mg/kg	123032		07/12/04 1314	mtb
D5057	Density/Specific Gravity Specific Gravity, Solid	1.3056					1		123643		07/20/04 1106	cls
1010	Ignitability (Pensky-Martens Closed-Cup) Ignitability (Flashpoint), Solid	>200					1	degrees F	123652		07/20/04 1017	jek
9095A	Paint Filter Test Paint Filter Test, Solid	0					1	mL/100g	122735		07/08/04 0900	jek

\* In Description = Dry Wgt.

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LABORATORY TEST RESULTS												
Job Number: 228269				Date: 07/20/2004								
CUSTOMER: Midwest Generation EWE, LLC				PROJECT: SOIL FILE SAMPLING				ATTN: Mary Connor				
Customer Sample ID: BOTTOM ASH 1\2 Date Sampled.....: 07/06/2004 Time Sampled.....: 10:20 Sample Matrix.....: Soil				Laboratory Sample ID: 228269-8 Date Received.....: 07/07/2004 Time Received.....: 14:30								
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAG	ML	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TRCH
3050	Total Chlorine Chlorine, Solid	ND		U	0.62	124	1	ng/Kg	123311		07/14/04 1528	td
9045C	pH (Soil) pH, Solid	10.5			0.2	0.2	1	pH Units	123821		07/08/04 1538	pmf
7.3.4.2/9014	Reactivity, Sulfide Reactivity, Sulfide, Solid	ND		U	64	240	1	ng/Kg	122784		07/08/04 1155	ncb
7470A	Leachable, Mercury (CVAA) Mercury, TCLP Leach	ND		U	2.0	2.0	1	ug/L	123378		07/15/04 1451	gsk
6010B	Leachable, Metals Analysis (ICAP)			U								
	Arsenic, TCLP Leach	ND		U	0.010	0.10	1	ng/L	123309		07/14/04 1557	tds
	Barium, TCLP Leach	0.51		B	0.010	1.0	1	ng/L	123309		07/14/04 1557	tds
	Cadmium, TCLP Leach	ND		U	0.002	0.050	1	ng/L	123309		07/14/04 1557	tds
	Chromium, TCLP Leach	0.011		B	0.010	0.050	1	ng/L	123309		07/14/04 1557	tds
	Copper, TCLP Leach	ND		U	0.015	0.050	1	ng/L	123309		07/14/04 1557	tds
	Lead, TCLP Leach	ND		U	0.0050	0.050	1	ng/L	123309		07/14/04 1557	tds
	Nickel, TCLP Leach	ND		U	0.010	0.050	1	ng/L	123309		07/14/04 1557	tds
	Selenium, TCLP Leach	0.025		B	0.010	0.10	1	ng/L	123309		07/14/04 1557	tds
	Silver, TCLP Leach	ND		U	0.005	0.050	1	ng/L	123309		07/14/04 1557	tds
	Zinc, TCLP Leach	ND		U	0.020	0.20	1	ng/L	123309		07/14/04 1557	tds
8270C	Semivolatile Organics			U								
	Pyridine, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	dpk
	1,4-Dichlorobenzene, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	dpk
	2-Methylphenol (o-cresol), TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	dpk
	Hexachloroethane, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	dpk

\* In Description - Dry Wgt.

MWG13-15\_12817

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LABORATORY TEST RESULTS													
Job Number: 228269				Date: 07/20/2004									
CUSTOMER: Midwest Generation E&E, LLC				PROJECT: SOIL FILE SAMPLING				ATTN: Mary Connor					
Customer Sample ID: BOTTOM ASH 1\2 Date Sampled: 07/06/2004 Time Sampled: 10:20 Sample Matrix: Soil				Laboratory Sample ID: 228269-8 Date Received: 07/07/2004 Time Received: 14:30									
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MCL	KL	DILUTION	UNITS	BAGCH	DT	DATE/TIME	TECH	
82608	4-Methylphenol (m/p-cresol), TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	qpk	
	Nitrobenzene, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	qpk	
	Hexachlorobutadiene, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	qpk	
	2,4,6-Trichlorophenol, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	qpk	
	2,4,5-Trichlorophenol, TCLP Leach	ND		U	500	500	1.00000	ug/L	123542		07/16/04 2248	qpk	
	2,4-Dinitrotoluene, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	qpk	
	Hexachlorobenzene, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	qpk	
	Pentachlorophenol, TCLP Leach	ND		U	500	500	1.00000	ug/L	123542		07/16/04 2248	qpk	
	Phenol, TCLP Leach	ND		U	100	100	1.00000	ug/L	123542		07/16/04 2248	qpk	
	Volatile Organics												
	Vinyl chloride, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	1,1-Dichloroethane, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	2-Butanone (MEK), TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	Chloroform, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	Carbon tetrachloride, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	Benzene, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	1,2-Dichloroethane, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	Trichloroethane, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	Tetrachloroethane, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	
	Chlorobenzene, TCLP Leach	ND		U	25	100	1.0000	ug/L	123232		07/13/04 2230	ana	

\* In Description = Dry Wgt.

MWG13-15\_12818

**LABORATORY CHRONICLE**

Job Number: 228269 Date: 07/20/2004

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CUSTOMER: Highest Generation BME, LLC PROJECT: SOIL FILE SAMPLING ATTN: Mary Connor

Lab ID: 228269-6 Client ID: BOTTOM ASH-1 Date Recvd: 07/07/2004 Sample Date: 07/06/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT # (S)	DATE/TIME ANALYZED	DILUTION
3010A	Acid Dig. Leachates (ICAP)	1	123164	123038	07/13/2004	1900
3020A (M)	Acid Dig. +H2O2 Leachates (GFAA)	1	123163	123038	07/13/2004	1900
7041	Leachable, Antimony (GFAA)	1	123343	123163-123038	07/14/2004	2032
7470A	Leachable, Mercury (CVAA)	1	123378	123365-123038	07/15/2004	1412
6010B	Leachable, Metals Analysis (ICAP)	1	123314	123164-123038	07/14/2004	1458
7841	Leachable, Thallium (GFAA)	1	123326	123163-123038	07/14/2004	1727
D3987	Neutral Leachate Extraction	1	123038		07/12/2004	1325
7470	SW846 Dig. Leachates (Hg)	1	123365		07/15/2004	1020

Lab ID: 228269-7 Client ID: BOTTOM ASH-2 Date Recvd: 07/07/2004 Sample Date: 07/06/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT # (S)	DATE/TIME ANALYZED	DILUTION
3010A	Acid Dig. Leachates (ICAP)	1	123164	123038	07/13/2004	1900
3020A (M)	Acid Dig. +H2O2 Leachates (GFAA)	1	123163	123038	07/13/2004	1900
7041	Leachable, Antimony (GFAA)	1	123343	123163-123038	07/14/2004	2056
7470A	Leachable, Mercury (CVAA)	1	123378	123365-123038	07/15/2004	1414
6010B	Leachable, Metals Analysis (ICAP)	1	123314	123164-123038	07/14/2004	1504
7841	Leachable, Thallium (GFAA)	1	123326	123163-123038	07/14/2004	1739
D3987	Neutral Leachate Extraction	1	123038		07/12/2004	1325
7470	SW846 Dig. Leachates (Hg)	1	123365		07/15/2004	1020

Lab ID: 228269-8 Client ID: BOTTOM ASH 1/2 Date Recvd: 07/07/2004 Sample Date: 07/06/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT # (S)	DATE/TIME ANALYZED	DILUTION
Method	† Solids Determination	1	122945		07/10/2004	1434
5030A	5030 GC VOA (High Level Methanol)	1	123620		07/16/2004	0640
5030B	5030CP TCLP/SPLP Prep	1	123231		07/13/2004	2230
5035	5035 Preservation High (Methanol)	1	122713		07/06/2004	1020
3010A	Acid Dig. Leachates (ICAP)	1	123162	123040	07/13/2004	1900
D5057	Density/Specific Gravity	1	123663	123663	07/20/2004	1106
WI DR0	Extraction Sonication (Diesel)	1	122810		07/08/2004	1645
3541	Extraction Soxhlet (PCBs)	1	123283		07/15/2004	0800
3520C	Extraction for TCLP (SVOC)	1	123294	123040	07/15/2004	0945
1010	Ignitability (Pensky-Martens Closed-Cup)	1	123652	123652	07/20/2004	1017
7470A	Leachable, Mercury (CVAA)	1	123378	123366-123040	07/15/2004	1451
6010B	Leachable, Metals Analysis (ICAP)	1	123309	123162-123040	07/14/2004	1557
8082	PCB Analysis	1	123528	123283	07/17/2004	0538
9095A	Paint Filter Test	1	122735	122735	07/08/2004	0800
7.3.3.2/9014	Reactivity, Cyanide	1	123032	123021	07/12/2004	1314
7.3.4.2/9034	Reactivity, Sulfide	1	122784	122784	07/08/2004	1155
7470	SW846 Dig. Leachates (Hg)	1	123366		07/15/2004	1020
8270C	Semi-volatile Organics	1	123542	123294-123040	07/16/2004	2248

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Job Number: 228269		LABORATORY CHRONICLE			Date: 07/20/2004		
CUSTOMER: Mibest Generation EMS, LLC		PROJECT: SOIL FILE SAMPLING			ATTN: Mary Connor		
Lab ID: 228269-8	Client ID: BOTTOM ASH 1\2	Date Recvd: 07/07/2004	Sample Date: 07/06/2004				
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
1311	TCLP Extraction	1	123040		07/12/2004	1445	
1311	TCLP Zero Headspace Extraction	1	122807		07/08/2004	1505	
8015M WIGRO	TPH - Diesel Range Organics (WI-DRO)	1	123580	122810	07/19/2004	1132	1.00000
8015M WIGRO	TPH - Gasoline Range Organics (WI-GRO)	1	123617	122713	07/18/2004	0640	1.00000
5050	Total Chlorine	1	123311	123311	07/14/2004	1528	1
8260B	Volatile Organics	1	123232	123231-122807	07/13/2004	2230	1.0000
9045C	pH (Soil)	1	122821	122821	07/08/2004	1538	