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April 6, 2010

Mr. William S. Bombich
Superior Water, Light & Power Company
2915 Hill Avenue
Superior, Wisconsin 54880

**Subject: Sediment Investigation Results, Former MGP Site, Superior, Wisconsin.
AECOM Project No 60148476**

Dear Mr. Bombich,

AECOM has completed a sediment investigation at the Graymont coal slip located adjacent to the former manufactured gas plant (MGP). The sediment investigation consisted of four Geoprobe borings drilled through the ice, water, and lake sediments, to the depth of the native red clay soil. A total of 10 sediment samples were collected by AECOM and analyzed by Pace Analytical Services, Inc. (Pace). This letter describes the investigation details and summarizes the laboratory analytical data.

A minimum of 28 inches of ice was present in the boat slip, which was more than adequate to support the weight of the Geoprobe drilling rig. Access to the ice was obtained over the rip-rap at the head of the slip. On February 23 and 24, 2010, borings SedB1 through SedB4 were drilled at the locations shown on the attached Figure 1. The boring logs are presented in Attachment 1.

AECOM operated a Geoprobe direct-push drill rig and utilized a four-foot long stainless steel core sampler to obtain the sediment samples. New acetate liners were used for each sample and the drilling equipment was decontaminated with Alconox and water between uses. In some strata, recovery was improved with the use of plastic sediment baskets inserted into the tip of the sampler. A retractable plug was used in the tip of the sampler to ensure that overlying sediment did not enter the core barrel until the desired sampling interval was reached.

The depth from the top of the ice to the top of the sediment was three-feet to 17-feet deep. The native red clay soil was found in each boring at depths ranging from 18 and 30-feet below the ice. The clay was deeper in borings SedB1 and SedB4 closer to the Graymont dock wall (west side of slip).

Sediment samples were placed in sealed plastic bags and a photoionization detector (PID) was used to measure organic vapors. As shown on the boring logs, no elevated PID readings were found. The only odors noted during this sediment investigation were from the samples collected at SedB4, where a slight petroleum odor was noted in the most surficial samples. The surficial sediments from all the borings were dark brown or black in color, whereas deeper samples were light brown to light red in color. The lake sediment consisted mainly of sand and silty sand and also contained wood, sawdust, shells, clay, and a wide variety of sand grain sizes. No oil-like material,

To enhance and sustain the world's built, natural and social environments

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tar-like material, sheen, or obvious waste materials of any kind were observed in any of the samples. MGP wastes were not observed in the samples. Photographs taken during the investigation are provided in Attachment 2.

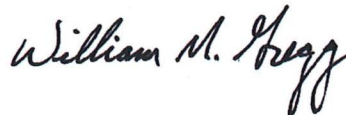
One surficial sediment sample (0 to 1-foot deep) was collected in each boring with one or two deeper samples collected in each boring, depending on recoveries in the core barrel. Laboratory analytical results are provided in Attachment 3. Table 1 summarizes the detected compounds and includes the sum of the PAH compounds detected in each sample. The highest concentrations of PAH and VOC constituents were found in the surficial sediments in the deepest water near the Graymont dock (SedB-4 from 0 to 2 -feet). This sediment sample had a slight petroleum odor.

Based upon the observations and laboratory results, MGP-derived constituents were not detected in the boat slip sediments. The hydrocarbons detected were likely derived from the vessels using the dock, discharge from the wastewater plant, and/or storm sewer discharges. I look forward to discussing these results with you soon.

Sincerely yours,



Christina M Boehm Carlson
Project Manager



William M. Gregg, PG
Senior Program Manager

Attachments

Figure



Sediment Sample Locations


Superior Water, Light & Power
Former MGP Site
Superior, Wisconsin

Legend

- SedB-1 Sediment Sample from Superior Bay Boat Slip (Feb 2010)

Map Projection: UTM NAD83 15N Feet
Image Source: Aerial NAIP 2005 (ArcGIS online I3 imagery)

0 100 200 Feet Scale 1:2,000



AECOM

Figure 1

March 2010

Project: 60148476-100.1

Table

Table 1
Summary of Sediment Laboratory Analytical Results
Superior Water Light and Power Former MGP
Superior, Wisconsin

Parameter	Units	SedB1-0-1	SedB1-5-8	SedB1-22-24	SedB2-0-1	SedB2-1-3	SedB3-0-2	SedB3-2-4	SedB3-10-14	SedB4-0-2	SedB4-6-7	TEC ¹	MEC ²	PEC ³
VOC														
Benzene	ug/kg	72.8	81.0	<24.6	44.0	44.3	62.0	120	<24.5	448	38.0	57	83.5	110
n-Butylbenzene	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	80.2	293	<61.3	306	<76.0	NA	NA	NA
sec-Butylbenzene	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	<64.1	124	<61.3	<84.2	<76.0	NA	NA	NA
Ethylbenzene	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	<64.1	<73.1	<61.3	244	<76.0	NA	NA	NA
Isopropylbenzene (Cumene)	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	<64.1	127	<61.3	176	<76.0	NA	NA	NA
p-Isopropyltoluene	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	<64.1	<73.1	<61.3	178	<76.0	NA	NA	NA
Naphthalene	ug/kg	<274	<266	<246	<272	<284	<256	<292	<245	8,390	699	176	369	561
n-Propylbenzene	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	<64.1	<73.1	<61.3	126	<76.0	NA	NA	NA
Toluene	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	94.7	141	<61.3	360	319	890	1345	1800
1,2,3-Trichloropropane	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	97.1	86	<61.3	<84.2	<76.0	NA	NA	NA
1,2,4-Trimethylbenzene	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	409	1,460	<61.3	1,450	89.0	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	<68.5	<66.6	<61.6	<67.9	<71.1	<64.1	468	<61.3	471	<76.0	NA	NA	NA
Xylene (Total)	ug/kg	<206	<200	<185	<204	<213	<192	615	<184	538	<228	25	37.5	50
PAH														
Acenaphthene	ug/kg	108	77.1	<12.2	520	1,040	1,570	3,410	12.5	42,500	12,300	6.7	48	89
Acenaphthylene	ug/kg	93.1	74.9	<12.2	<138	197	93.4	554	<12.3	1,460	1,230	5.9	67	128
Anthracene	ug/kg	212	142	<12.2	969	1,590	3,500	3,500	<12.3	72,400	14,200	57.2	451	845
Benzo(a)anthracene	ug/kg	518	360	<12.2	2,110	3,400	5,070	8,020	<12.3	91,400	22,700	108	579	1050
Benzo(a)pyrene	ug/kg	458	339	<12.2	1,740	2,680	3,930	6,720	<12.3	55,100	17,100	150	800	1450
Benzo(b)fluoranthene	ug/kg	588	425	<12.2	2,500	3,060	5,090	9,490	<12.3	81,600	22,700	240	6820	13400
Benzo(g,h,i)perylene	ug/kg	149	115	<12.2	575	1,380	1,810	3,070	<12.3	20,900	4,690	170	1685	3200
Benzo(k)fluoranthene	ug/kg	233	130	<12.2	969	1,230	1,790	3,400	<12.3	23,600	8,850	240	6820	13400
Chrysene	ug/kg	446	319	<12.2	1,770	2,510	3,900	7,550	<12.3	66,500	17,800	166	728	1290
Dibenz(a,h)anthracene	ug/kg	<69.8	39	<12.2	207	464	592	1,070	<12.3	9,070	2,260	33	84	135
Fluoranthene	ug/kg	878	621	21.7	4,540	6,370	10,600	19,100	<12.3	179,000	49,000	423	1327	2230
Fluorene	ug/kg	111	77.9	<12.2	549	1,100	1,850	2,920	<12.3	47,200	10,300	77.4	307	536
Indeno(1,2,3-cd)pyrene	ug/kg	145	110	<12.2	605	1,310	1,720	2,870	<12.3	22,000	4,920	200	1700	3200
Naphthalene	ug/kg	150	86.7	<246	315	1,170	430	3,620	<12.3	40,800	11,300	176	369	561
Phenanthrene	ug/kg	752	521	<12.2	4,320	6,880	12,600	21,300	<12.3	253,000	65,100	204	687	1170
Pyrene	ug/kg	931	669	39.0	3,950	6,150	9,600	17,700	<12.3	152,000	45,800	195	858	1520
Total PAH	ug/kg	5,772	4,107	61	25,639	40,531	64,145	114,294	13	1,158,530	310,250	1610	12205	22800
Total PAH @1% TOC ⁴		5,951	9,270	---	21,728	8,090	19,983	17,136	20	212,185	23,504	1610	12205	22800
Other														
Amenable Cyanide	mg/kg	<0.70	<0.67	<0.61	<0.69	<0.69	<0.63	<0.73	0.61	<0.85	<0.78	NA	NA	NA
Cyanide	mg/kg	<0.70	<0.67	<0.60	<0.68	<0.69	<0.63	<0.72	1.2	<0.85	<0.76	NA	NA	NA
Lead	mg/kg	20.9	19.8	1.8	53.8	49.3	39.6	27.4	2.8	72.5	205	36	83	130
Total Organic Carbon	mg/kg	9,700	4,430	1,490	11,800	50,100	32,100	66,700	6,370	54,600	132,000	NA	NA	NA
Percent Moisture	%	28.3	24.8	17.8	27.5	27.9	20.4	31.3	18.5	41.0	35.9	NA	NA	NA

Sediment samples were collected on February 23 and 24, 2010 from the Graymont coal slip. Sample depth, in feet below the sediment-water interface, is indicated following the sample ID. Results are reported in micrograms per kilogram (ug/kg) or milligrams per kilogram (mg/kg). Only detected compounds are listed on this table. See the laboratory analytical report for all results. Bold indicates detected results, < indicates parameter was not detected above the laboratory reporting limit.

1. Wisconsin DNR Sediment Quality Guideline (SQG) Threshold Effect Concentration (Dec 2003).
2. Wisconsin DNR SQG Midpoint Effect Concentration.
3. Wisconsin DNR SQG Probable Effect Concentration.
4. Total PAH Normalized to 1% Total Organic Carbon (total PAH divided by percent TOC in sample).

Attachment A
Sediment Boring Logs

Route To: Watershed/Wastewater Waste Management
Remediation/Revelpment Other

Page 1 of 2

Facility/Project Name Superior, Water, Light & Power		License/Permit/Monitoring Number		Boring Number SedB1	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: Don Last Name: Johnston Firm: AECOM		Date Drilling Started 2/ 2 3/ 2 010 m m d d y y y y	Date Drilling Completed 2/ 2 3/ 2 010 m m d d y y y y	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter 2 inches
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>		State Plane _____ N, _____ E		Local Grid Location	
1/4 of _____ 1/4 of Section _____, T _____ N, R _____		Lat 46° 43 ' 43.04	Long 92° 4 ' 28.77	<input type="checkbox"/> N <input type="checkbox"/> E	<input type="checkbox"/> S <input type="checkbox"/> W
Facility ID	County DOUGLAS	County Code 16	Civil Town/City/ or Village Superior		

Sample Number and Type	Length At. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
CS 24-12			1	0.0 - 2.0 Dark sand with silt. No odors noted.	SW			0.0						Sediment lies beneath 32" of ice and 6" of water
CS 24-0			2	2.0 - 4.0 No recovery.	NA			NA						Lab sample collected from 0-1'
CS 36-6			4	4.0 - 8.0 Dark fine sand and wood fragments.	SP			0.0						Lab sample collected from 5-8'
CS 24-24			8	8.0 - 10.0 Dark poorly sorted fine sand.	SW			NA						
CS 24-24			10	10.0 - 12.0 Dark poorly sorted fine sand.	SW			NA						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm AECOM
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Route To: Watershed/Wastewater Waste Management
Remediation/Revelpment Other

Page 1 of 2

Facility/Project Name Superior, Water, Light & Power		License/Permit/Monitoring Number		Boring Number SedB2	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: Don Last Name: Johnston Firm: AECOM		Date Drilling Started 2/ 2 3/ 2 010 m m d d y y y y	Date Drilling Completed 2/ 2 3/ 2 010 m m d d y y y y	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter 2 inches
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane _____ N, _____ E			Local Grid Location Lat 46° 43 ' 42.72 Long 92° 4 ' 28.41		
1/4 of _____ 1/4 of Section _____, T _____ N, R _____			Feet <input type="checkbox"/> N <input type="checkbox"/> E Feet <input type="checkbox"/> S <input type="checkbox"/> W		
Facility ID	County DOUGLAS	County Code 16	Civil Town/City/ or Village Superior		

Sample Number and Type	Length At. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
CS 12-12			0.0 - 1.0	Black silty sand.	SM			0.8							
CS 24-24			1.0 - 3.0	1-2' Black silty sand. 2-3' Lighter colored sand. Wood particles and fragments.	SM			0.3							Sediment lies beneath 38" of ice Lab sample collected from 0-1'
CS 48-48			3.0 - 7.0	Dark sand with wood.	SP			1.5							Lab sample collected from 1-3'
CS 12-12			7.0 - 8.0	Wood.	NA			NA							
CS 36-30			8.0 - 11.0	Silty sand. Biologic sheen from 8-9.5'.	SM			0.3							
CS 24-24			11.0 - 13.0	Red clay.	CL			0.0							

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Route To: Watershed/Wastewater Waste Management
Remediation/Revelpment Other

Page 1 of 2

Facility/Project Name Superior, Water, Light & Power		License/Permit/Monitoring Number		Boring Number SedB3	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: Don Last Name: Johnston Firm: AECOM		Date Drilling Started 2/ 2 3/ 2 010 m m d d y y y y	Date Drilling Completed 2/ 2 3/ 2 010 m m d d y y y y	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter 2 inches
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane _____ N, _____ E			Lat 46° 43 ' 43.32"	Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of _____ 1/4 of Section _____, T _____ N, R _____			Long 92° 4 ' 27.3"	Feet _____ Feet _____	
Facility ID	County DOUGLAS	County Code 16	Civil Town/City/ or Village Superior		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
CS 24-12			0.0 - 2.0	Dark fine sand.	SP			1.3						Sediment lies beneath 28" of ice and 8' of water
CS 48-24			2.0 - 6.0	Dark fine sand with wood fragments.	SP			0.4						Lab sample collected from 0-2'
CS 48-42			6.0 - 10.0	Dark fine sand with a lot of wood (almost like peat).	SP			0.5						Lab sample collected from 2-4'
CS 60-60			10.0 - 15.0	Dark sand. Some gray clay. Wood.	SP/C			NA						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

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Route To: Watershed/Wastewater Waste Management
Remediation/Revelpment Other

Page 1 of 2



Facility/Project Name Superior, Water, Light & Power		License/Permit/Monitoring Number		Boring Number SedB4	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: Don Last Name: Johnston Firm: AECOM		Date Drilling Started 2/ 24/ 2010 m m d d y y y y	Date Drilling Completed 2/ 24/ 2010 m m d d y y y y	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter 2 inches
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane _____ N, _____ E			Local Grid Location Lat 46° 43 ' 43.73 Long 92° 4 ' 27.87		
1/4 of _____ 1/4 of Section _____, T _____ N, R _____		Facility ID		County DOUGLAS	County Code 16
				Civil Town/City/ or Village Superior	

Sample Number and Type	Length At. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
CS	24-24		0.0 - 2.0	Black sandy sediment, pebbles, and wood. Slight Petroleum odor.	SP			0.0							Sediment lies beneath 28" of ice and 17' of water
CS	48-0		2.0 - 6.0	No recovery.	NA			NA							Lab sample collected from 0-2'
CS	12-12		6.0 - 7.0	Black sand.	SP			0.0							Lab sample collected from 6-7'
CS	66-0		7.0 - 12.5	No recovery.	NA			NA							

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Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
CS	30-30			12.5 - 14.9 Red clay. 14.9 - 15.0 End of Boring = 15'	CH			NA						