

October 31, 2016

Brynn Bemis
City of Madison - Department of Engineering
1602 Emil Street
Madison, WI 53713


RE: Project: MKC RAIN GARDEN 2016
Pace Project No.: 40140554

Dear Brynn Bemis:

Enclosed are the analytical results for sample(s) received by the laboratory on October 21, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Dan Milewsky
dan.milewsky@pacelabs.com
Project Manager

Enclosures

cc: George Parrino, City of Madison - Department of Health
Sally Swenson, City of Madison - Department of
Engineering



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: MKC RAIN GARDEN 2016

Pace Project No.: 40140554

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

Virginia VELAP ID: 460263

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

US Dept of Agriculture #: S-76505

Virginia VELAP Certification ID: 460263

Virginia VELAP ID: 460263

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

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SAMPLE SUMMARY

Project: MKC RAIN GARDEN 2016
Pace Project No.: 40140554

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40140554001	S1	Solid	10/19/16 14:50	10/21/16 08:55
40140554002	S2	Solid	10/19/16 14:55	10/21/16 08:55
40140554003	S3	Solid	10/19/16 15:00	10/21/16 08:55

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SAMPLE ANALYTE COUNT

Project: MKC RAIN GARDEN 2016

Pace Project No.: 40140554

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40140554001	S1	EPA 8082	BLM	10
		ASTM D2974-87	AH	1
40140554002	S2	EPA 8082	BLM	10
		ASTM D2974-87	AH	1
40140554003	S3	EPA 8082	BLM	10
		ASTM D2974-87	AH	1

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ANALYTICAL RESULTS

Project: MKC RAIN GARDEN 2016

Pace Project No.: 40140554

Sample: S1 **Lab ID: 40140554001** Collected: 10/19/16 14:50 Received: 10/21/16 08:55 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB									
Analytical Method: EPA 8082 Preparation Method: EPA 3541									
PCB-1016 (Aroclor 1016)	<591	ug/kg	1180	591	20	10/24/16 15:06	10/26/16 03:36	12674-11-2	
PCB-1221 (Aroclor 1221)	<591	ug/kg	1180	591	20	10/24/16 15:06	10/26/16 03:36	11104-28-2	
PCB-1232 (Aroclor 1232)	<591	ug/kg	1180	591	20	10/24/16 15:06	10/26/16 03:36	11141-16-5	
PCB-1242 (Aroclor 1242)	7030	ug/kg	1180	591	20	10/24/16 15:06	10/26/16 03:36	53469-21-9	
PCB-1248 (Aroclor 1248)	<591	ug/kg	1180	591	20	10/24/16 15:06	10/26/16 03:36	12672-29-6	
PCB-1254 (Aroclor 1254)	<591	ug/kg	1180	591	20	10/24/16 15:06	10/26/16 03:36	11097-69-1	
PCB-1260 (Aroclor 1260)	<591	ug/kg	1180	591	20	10/24/16 15:06	10/26/16 03:36	11096-82-5	
PCB, Total	7030	ug/kg	1180	591	20	10/24/16 15:06	10/26/16 03:36	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	0	%	63-130		20	10/24/16 15:06	10/26/16 03:36	877-09-8	S4
Decachlorobiphenyl (S)	0	%	48-130		20	10/24/16 15:06	10/26/16 03:36	2051-24-3	S4
Percent Moisture									
Analytical Method: ASTM D2974-87									
Percent Moisture	15.4	%	0.10	0.10	1		10/28/16 14:27		

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ANALYTICAL RESULTS

Project: MKC RAIN GARDEN 2016

Pace Project No.: 40140554

Sample: S2 **Lab ID: 40140554002** Collected: 10/19/16 14:55 Received: 10/21/16 08:55 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB									
Analytical Method: EPA 8082 Preparation Method: EPA 3541									
PCB-1016 (Aroclor 1016)	<32.3	ug/kg	64.6	32.3	1	10/24/16 15:06	10/26/16 03:53	12674-11-2	
PCB-1221 (Aroclor 1221)	<32.3	ug/kg	64.6	32.3	1	10/24/16 15:06	10/26/16 03:53	11104-28-2	
PCB-1232 (Aroclor 1232)	<32.3	ug/kg	64.6	32.3	1	10/24/16 15:06	10/26/16 03:53	11141-16-5	
PCB-1242 (Aroclor 1242)	120	ug/kg	64.6	32.3	1	10/24/16 15:06	10/26/16 03:53	53469-21-9	
PCB-1248 (Aroclor 1248)	<32.3	ug/kg	64.6	32.3	1	10/24/16 15:06	10/26/16 03:53	12672-29-6	
PCB-1254 (Aroclor 1254)	128	ug/kg	64.6	32.3	1	10/24/16 15:06	10/26/16 03:53	11097-69-1	
PCB-1260 (Aroclor 1260)	43.5J	ug/kg	64.6	32.3	1	10/24/16 15:06	10/26/16 03:53	11096-82-5	
PCB, Total	292	ug/kg	64.6	32.3	1	10/24/16 15:06	10/26/16 03:53	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	75	%	63-130		1	10/24/16 15:06	10/26/16 03:53	877-09-8	
Decachlorobiphenyl (S)	72	%	48-130		1	10/24/16 15:06	10/26/16 03:53	2051-24-3	
Percent Moisture									
Analytical Method: ASTM D2974-87									
Percent Moisture	22.6	%	0.10	0.10	1		10/28/16 14:27		

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ANALYTICAL RESULTS

Project: MKC RAIN GARDEN 2016

Pace Project No.: 40140554

Sample: S3 **Lab ID: 40140554003** Collected: 10/19/16 15:00 Received: 10/21/16 08:55 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB									
Analytical Method: EPA 8082 Preparation Method: EPA 3541									
PCB-1016 (Aroclor 1016)	<29.2	ug/kg	58.4	29.2	1	10/24/16 15:06	10/26/16 04:11	12674-11-2	
PCB-1221 (Aroclor 1221)	<29.2	ug/kg	58.4	29.2	1	10/24/16 15:06	10/26/16 04:11	11104-28-2	
PCB-1232 (Aroclor 1232)	<29.2	ug/kg	58.4	29.2	1	10/24/16 15:06	10/26/16 04:11	11141-16-5	
PCB-1242 (Aroclor 1242)	54.3J	ug/kg	58.4	29.2	1	10/24/16 15:06	10/26/16 04:11	53469-21-9	
PCB-1248 (Aroclor 1248)	<29.2	ug/kg	58.4	29.2	1	10/24/16 15:06	10/26/16 04:11	12672-29-6	
PCB-1254 (Aroclor 1254)	77.9	ug/kg	58.4	29.2	1	10/24/16 15:06	10/26/16 04:11	11097-69-1	
PCB-1260 (Aroclor 1260)	<29.2	ug/kg	58.4	29.2	1	10/24/16 15:06	10/26/16 04:11	11096-82-5	
PCB, Total	132	ug/kg	58.4	29.2	1	10/24/16 15:06	10/26/16 04:11	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	78	%	63-130		1	10/24/16 15:06	10/26/16 04:11	877-09-8	
Decachlorobiphenyl (S)	76	%	48-130		1	10/24/16 15:06	10/26/16 04:11	2051-24-3	
Percent Moisture									
Analytical Method: ASTM D2974-87									
Percent Moisture	14.3	%	0.10	0.10	1		10/28/16 14:27		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MKC RAIN GARDEN 2016
Pace Project No.: 40140554

QC Batch: 239115 Analysis Method: EPA 8082
QC Batch Method: EPA 3541 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 40140554001, 40140554002, 40140554003

METHOD BLANK: 1416762 Matrix: Solid
Associated Lab Samples: 40140554001, 40140554002, 40140554003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<25.0	50.0	10/25/16 22:23	
PCB-1221 (Aroclor 1221)	ug/kg	<25.0	50.0	10/25/16 22:23	
PCB-1232 (Aroclor 1232)	ug/kg	<25.0	50.0	10/25/16 22:23	
PCB-1242 (Aroclor 1242)	ug/kg	<25.0	50.0	10/25/16 22:23	
PCB-1248 (Aroclor 1248)	ug/kg	<25.0	50.0	10/25/16 22:23	
PCB-1254 (Aroclor 1254)	ug/kg	<25.0	50.0	10/25/16 22:23	
PCB-1260 (Aroclor 1260)	ug/kg	<25.0	50.0	10/25/16 22:23	
Decachlorobiphenyl (S)	%	100	48-130	10/25/16 22:23	
Tetrachloro-m-xylene (S)	%	89	63-130	10/25/16 22:23	

LABORATORY CONTROL SAMPLE: 1416763

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg		<25.0			
PCB-1221 (Aroclor 1221)	ug/kg		<25.0			
PCB-1232 (Aroclor 1232)	ug/kg		<25.0			
PCB-1242 (Aroclor 1242)	ug/kg		<25.0			
PCB-1248 (Aroclor 1248)	ug/kg		<25.0			
PCB-1254 (Aroclor 1254)	ug/kg		<25.0			
PCB-1260 (Aroclor 1260)	ug/kg	500	477	95	55-130	
Decachlorobiphenyl (S)	%			99	48-130	
Tetrachloro-m-xylene (S)	%			90	63-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1416764 1416765

Parameter	Units	40140399001		40140399002		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
PCB-1016 (Aroclor 1016)	ug/kg	<30.5			<30.5	<30.5					20
PCB-1221 (Aroclor 1221)	ug/kg	<30.5			<30.5	<30.5					20
PCB-1232 (Aroclor 1232)	ug/kg	<30.5			<30.5	<30.5					20
PCB-1242 (Aroclor 1242)	ug/kg	<30.5			<30.5	<30.5					20
PCB-1248 (Aroclor 1248)	ug/kg	<30.5			<30.5	<30.5					20
PCB-1254 (Aroclor 1254)	ug/kg	<30.5			<30.5	<30.5					20
PCB-1260 (Aroclor 1260)	ug/kg	<30.5	610	610	574	540	94	89	40-130	6	20
Decachlorobiphenyl (S)	%						96	92	48-130		
Tetrachloro-m-xylene (S)	%						89	85	63-130		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: MKC RAIN GARDEN 2016

Pace Project No.: 40140554

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

S4 Surrogate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MKC RAIN GARDEN 2016

Pace Project No.: 40140554

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40140554001	S1	EPA 3541	239115	EPA 8082	239118
40140554002	S2	EPA 3541	239115	EPA 8082	239118
40140554003	S3	EPA 3541	239115	EPA 8082	239118
40140554001	S1	ASTM D2974-87	239678		
40140554002	S2	ASTM D2974-87	239678		
40140554003	S3	ASTM D2974-87	239678		

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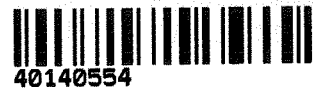
Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Client Name: City of Madison

Project #: WO#: 40140554

Courier: Fed Ex UPS Client Pace Other: Walco
Tracking #: 1192425-1



Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR-NA Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROT /Corr: Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 10/21/16
Initials: BH

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Table with 15 rows of inspection criteria and checkboxes. Includes items like Chain of Custody Present, Short Hold Time Analysis, Containers Intact, etc.

Client Notification/ Resolution:
Person Contacted: Date/Time:
Comments/ Resolution:

Project Manager Review: AMH-R DM Date: 10/21/16