

Appendix A

Sediment Sampling Memo – Bassett Creek Park Pond

Technical Memorandum

To: Bassett Creek Watershed Management Commission
From: Kevin Menken and Candice Kantor
Subject: Bassett Creek Park Pond Sediment Characterization
Date: February 27, 2017
Project: 23/27-0051

Introduction

This memorandum summarizes sediment characterization for sediment samples collected from the Bassett Creek Park Pond in the City of Crystal (City). Sediment samples were collected by Barr Engineering Co. (Barr) on September 28, 2016 on behalf of Bassett Creek Watershed Management Organization.

The purpose of sediment characterization is to determine whether the sediment in the pond, when excavated or dredged, could potentially be reused as fill, or if other management methods such as landfill disposal would be required. The use and/or disposal of excavated or dredged material is determined based on concentrations of potential contaminants in the sediments, including metals and polycyclic aromatic hydrocarbons (PAHs). Excavated sediment and soils that do not exhibit field screening impacts and do not exceed the Minnesota Pollution Control Agency's (MPCA) Soil Reference Values (SRV) or applicable Screening Soil Leaching Values (SLVs) may be considered Unregulated Fill that is suitable for off-site reuse according to the MPCA document *Best Management Practices for the Off-Site Reuse of Unregulated Fill* (MPCA, 2012). Sediment or soil excavated from stormwater ponds with constituents that exceed SRVs or applicable Screening SLVs are often disposed at a solid waste landfill, but other options involving specific land uses (e.g. non-residential) could be explored if there are suitable locations elsewhere at City-owned property.

Sediment Sample Collection

Sediment sampling was conducted in accordance with the MPCA's *Managing Stormwater Sediment, Best Management Practice Guidance* (MPCA, 2015). This document provides technical guidance for characterizing sediment in stormwater ponds, including the number of samples that should be collected and potential contaminants to be analyzed. Barr staff collected four sediment samples, which each sample being the composite of five coring locations, consistent with MPCA guidance recommendations for ponds 4 acres in size or larger. Barr staff used a plastic coring tube for collecting sediment cores where it was possible to push the coring tube in by hand, and used a stainless steel auger where sediment was too firm to push the coring tube. Collected sediment was then composited in a clean plastic 5-gallon bucket. A GPS unit was used to record the locations of the sampling locations, which are shown on Figure 1. Sediment sample BCPP-1 is the composite of coring locations BCPP-1A, BCPP-1B, BCPP-1C, BCPP-1D, and

BCPP-1E; sediment sample BCPP-2 is the composite of coring locations BCPP-2A, BCPP-2B, etc. Samples were placed in containers provided by the laboratory, and sent to Pace Analytical laboratory in Minneapolis for analyses of potential contaminants. In addition, a composite of all sampling locations was created (BCPP 1-4 Comp) for waste characterization sampling in the event that material is disposed in a landfill (landfills often require Toxicity Characteristic Leaching Procedure, or TCLP, testing for metals).

The MPCA guidance for stormwater pond sediment management lists the baseline parameters that should be tested for in order to determine whether excavated sediment is contaminated or could be considered Unregulated Fill (MPCA, 2015). The baseline parameters listed in the MPCA guidance are arsenic, copper, and polycyclic aromatic hydrocarbons (PAHs). PAHs are organic compounds that are formed by the incomplete combustion of organic materials, such as wood, oil, and coal. They are also naturally occurring in crude oil and coal. The MPCA determined that coal tar-based sealants are the largest source of PAHs to stormwater ponds, and a state-wide ban of coal tar-based sealants took effect January 1, 2014.

In addition to the baseline parameters, additional parameters may be appropriate with consideration of potential sources of other contaminants in the watershed. A query of MPCA's *What's in My Neighborhood* (WIMN) website was performed for the Bassett Creek Park Pond watershed. *WIMN* is a database maintained by the MPCA that includes potentially contaminated sites (e.g. documented tank leaks), and environmental permits and registrations (e.g. small quantity hazardous waste generator). Based on the WIMN query results and the land uses in the watershed, the sediment samples were analyzed for the MPCA's baseline parameters for stormwater ponds – arsenic, copper, and PAHs. In addition, samples were field screened for potential impacts from chemical impacts, including examination for visual staining, oil sheen, and odors. If field screening indicated possible impacts, additional analytical testing would have been considered.

Laboratory Methodologies and Determination of BaP Equivalents

The parameters analyzed and their laboratory analytical methods are listed below:

- Metals: arsenic, copper (method EPA 6010C)
- Polycyclic aromatic hydrocarbons (PAHs) (method EPA 8270D by SIM)

The PAHs that were analyzed can be grouped into two categories: carcinogenic (i.e. cancer causing) and non-carcinogenic. In order to assess the contamination level of the carcinogenic PAHs in stormwater pond sediment, the MPCA requires the calculation of a "BaP equivalents value". The BaP equivalents value is a single value representing the combined potency of 17 individual carcinogenic PAH compounds with BaP (benzo[a]pyrene) acting as the reference compound. The list of compounds and their respective potency equivalents factors used to calculate the BaP equivalents value can be found in the MPCA guidance

document, along with methods for addressing constituents at concentrations below the detection limit (MPCA 2015).

Laboratory analytical results for the sediment samples are summarized in Table 1. The detailed laboratory report is included in Attachment C, and includes the TCLP metals testing results.

Results of Sediment Characterization

Results of laboratory analytical testing on the sediment samples were compared to the MPCA's current SRVs and Screening SLVs on Table 1. Results of field screening for staining, sheen, or odor, were negative for all four sediment samples. Therefore, no additional analytical testing was conducted beyond the baseline parameter list for stormwater pond sediment characterization.

One of the four sediment samples collected in the pond had a BaP equivalents value exceeding the Screening SLV. Sediment sample BCPP-1 (composite of sampling locations BCPP-1A through BCPP-1E) had a BaP equivalents value of 1.7 mg/kg, exceeding the Screening SLV of 1.4 mg/kg. Results in the other three sediment samples collected from Bassett Creek Park Pond were below Minnesota's SRVs and Screening SLV. The sediment sampling results indicate that the sediment to be removed from the northwest portion of the Bassett Creek Park Pond, as indicated in Figure 1, may need to be taken to a landfill for disposal, and that the rest of the sediment to be removed from the pond is suitable for off-site reuse under MPCA's Unregulated Fill Best Practice (MPCA, 2012).

Screening SLVs represent very conservative criteria. If desired, Barr could assist the City in evaluating other potential re-use sites for the sediment from the northwest portion of the pond, taking into account site-specific factors for the receiving site (e.g., property ownership, depth to groundwater, soil type, etc.). If successful, additional evaluation might reduce the transportation and disposal costs associated with landfilling the sediment.

The MPCA has proposed changes to SRVs that could impact the interpretations in this memo. MPCA had originally intended that the SRV changes would be implemented later this year (2017), but recent conversations with MPCA staff indicated that the timing of these potential changes may not occur in 2017. The proposed changes to the SRVs are included on Table 1 for reference. The status of MPCA's SRV revisions should be reassessed prior to proceeding with the sediment excavation and management.

References

Minnesota Pollution Control Agency (MPCA), 2012. Best Management Practices for the Off-Site Reuse of Unregulated Fill. February 2012.

MPCA, 2015. Managing Stormwater Sediment, Best Management Practice Guidance, document wq-strm4-16, June 2015.

Tables

Table 1 – Bassett Creek Park Pond Sediment Analytical Data Summary

Figures

Figure 1 – Bassett Creek Park Pond Sediment Sampling Locations

Attachments

Attachment A – Sediment Core Field Logs

Attachment B – Photographs

Attachment C – Laboratory Analytical Data Report

Tables

Table 1
Bassett Creek Park Pond Sediment Analytical Data Summary
Bassett Creek Watershed Management Commission

Sample ID:							BCPP-1	BCPP-2	BCPP-3	BCPP-4
Sample Date:							9/28/2016	9/28/2016	9/28/2016	9/28/2016
Parameter	Units	Minnesota Screening Soil Leaching Values	Minnesota Residential Soil Reference Values	Proposed Minnesota Residential/ Recreational SRVs	Minnesota Industrial Soil Reference Values	Proposed Minnesota Commercial/ Industrial SRVs				
Effective Date		06/01/2013	06/22/2009	08/01/2016	06/22/2009	08/01/2016				
Exceedance Key		Bold	No Exceed	Underline	No Exceed	No Exceed				
General Parameters										
Moisture	%						41.6	47.3	65.6	62.5
Metals										
Arsenic	mg/kg	5.8	9	9	20	9	2.4	3.3	4.9	5.7
Copper	mg/kg	700	100	2200	9000	33000	13.3	17.2	21.9	30.0
Carcinogenic PAHs										
3-Methylcholanthrene	mg/kg	T	T	T	T	T	0.0235	0.0118 j	< 0.0043	< 0.0040
5-Methylchrysene	mg/kg	T	T	T	T	T	0.101	0.0139 j	< 0.0035	0.0043 j
7,12-Dimethylbenz(a)anthracene	mg/kg	T	T	T	T	T	< 0.0048	< 0.0053	< 0.0081	< 0.0075
7h-Dibenzo(c,g)carbazole	mg/kg	T	T	T	T	T	< 0.0029	< 0.0032	< 0.0049	< 0.0045
Benz(a)anthracene	mg/kg	T	T	T	T	T	0.634	0.325	0.0859	0.0643
Benzo(a)pyrene	mg/kg	T	T	T	T	T	0.748	0.43	0.13	0.0980
Chrysene	mg/kg	T	T	T	T	T	0.95	0.45	0.15	0.112
Dibenz(a,h)acridine	mg/kg	T	T	T	T	T	0.0204	0.0104 j	< 0.0110	< 0.0101
Dibenz(a,h)anthracene	mg/kg	T	T	T	T	T	0.0752	0.0381	0.0150 j	0.0112 j
Dibenzo(a,e)pyrene	mg/kg	T	T	T	T	T	0.0551	0.0283	0.0144 j	0.0101 j
Dibenzo(a,h)pyrene	mg/kg	T	T	T	T	T	0.0214	0.0118 j	< 0.0081	< 0.0075
Dibenzo(a,i)pyrene	mg/kg	T	T	T	T	T	0.0062 j	0.0043 j	0.0032 j	0.0026 j
Dibenzo(a,l)pyrene	mg/kg	T	T	T	T	T	0.0039 j	0.0035 j	0.0038 j	0.0034 j
Indeno(1,2,3-cd)pyrene	mg/kg	T	T	T	T	T	0.273 *	0.148	0.0496	0.0367
BaP Equivalents, calculated using Kaplan-Meier method	mg/kg	1.4 T	2 T	1 T	3 T	14 T	1.7 a	0.92 a	0.31 a	0.25 a
% Non-detects	%						13.3 a	13.3 a	40.0 a	33.3 a
PAHs										
2-Methylnaphthalene	mg/kg		100	39	369	370	0.0047 j	0.0018 j	< 0.0019	< 0.0017
Acenaphthene	mg/kg	81	1200	1300	5260	19000	0.0624	0.0249	0.0050 j	0.0055 j
Acenaphthylene	mg/kg	NA					0.0385	0.0154 j	0.0054 j	0.0055 j
Anthracene	mg/kg	1300	7880	6500	45400	97000	0.168 *	0.0639	0.0139 j	0.0133 j
Benzo(g,h,i)perylene	mg/kg	NA					0.28 *	0.149	0.0527	0.0385
Benzofluoranthenes	mg/kg						1.89	1.04	0.351	0.268
Fluoranthene	mg/kg	670	1080	510	6800	6700	2.15	0.887	0.274	0.199
Fluorene	mg/kg	110	850	860	4120	13000	0.0724	0.0276	0.0060 j	0.0060 j
Naphthalene	mg/kg	4.5	10	81	28	120	0.0056 j	0.0028 j	< 0.0018	< 0.0016
Phenanthrene	mg/kg	NA					1.05	0.321	0.0830	0.0610
Pyrene	mg/kg	440	890	44	5800	44	1.55	0.658	0.198	0.152

Table 1 Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

*	Estimated value, QA/QC criteria not met.
a	Estimated value, calculated using some or all values that are estimates.
j	Estimated detected value. The reported value is less than the stated laboratory quantitation limit but greater than the laboratory method detection limit.

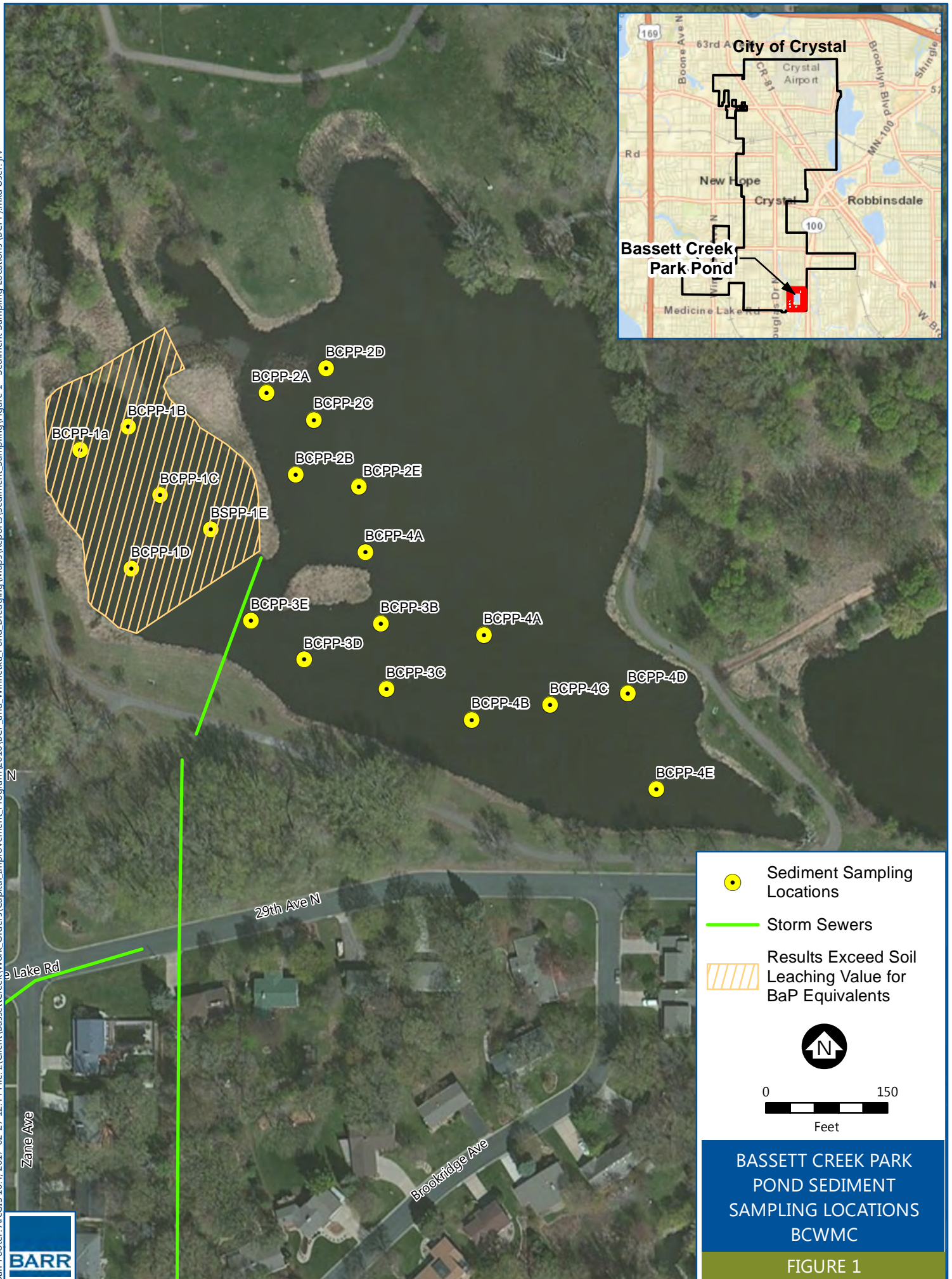
Minnesota Screening Soil Leaching Values

NA	Criterion value is not available for this analyte.
T	Value represents a criteria for the total carcinogenic PAHs as BaP.

Minnesota Soil Reference Values

T	Value represents a criteria for the total carcinogenic PAHs as BaP.
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Figures



Attachment A

Sediment/Soil Coring Logs



Sediment Core/Boring Log

page 1 of 1

Proj#: 23270057

Project: Bassett Creek Park Pond

Collection Date(s): 9/28/16

GPS X: G-93

Length of Push (feet): 500

Driller: RACR

Ice Thickness (feet): NA

GPS Y: G-88

Recovery (feet): 18

Crew: 15 PM/PT-2

Water Depth (feet): Variable

GPS Z: GPS

% Recovery: 15

Observer: _____

VC: vibracore

PC push core

Core/Boring#: Quadrat 1

Drilling Method: *Push core*

Logged by: psm2

Checked by: K. Dm

Depth (ft.)		Sample Interval and number	Properties										Description	Water depth
			Moisture	Density or Consistency	Plasticity	Cohesiveness	Particles	Odor	Staining	Sheen	ASTM / USCS Classification	Graphic Log		
0	1.9	1	S		High	Low	Low organic		N	N	OL/ML		Dark brown organic silt	1.2 ft
0	1.5	2	S		Low	Low	organic		N	N	SP		cohesiveness increases w/ depth (Photo 1)	0.3 ft
0	2.1	3	S		Low	Low	N		N	N	SP		Medium grey sand w/ layers of organic silt and organics (Photo 2)	4"
0	1.5	4	S		High	Low	wood		N	N	OL/ML		Grey medium sand (SP) w/ small amounts of coarse grained sand (Photo 3)	3.0' (SP)
0	1.5	5	S		Med	Med	some sand		N	N	OL/ML		Dark brown organic silt w/ organic material.	2.0'
0	1.5	5	S		Med	Med	some sand		N	N	OL/ML		Dark brown organic silt w/ some med sand + organics.	1.2'

BCPP-1 composited and sampled @ 1210

RBCPP-1 Comp
@ 1216



Sediment Core/Boring Log

page 1 of 1

Proj#: 23270051

Project: Burrett Creek Park Pond

Collection Date(s): 9/28/16

GPS X: GPS

Length of Push (feet): see below

Driller: BARR

Ice Thickness (feet): NA

GPS Y: GPS

Recovery (feet): "

Crew: KOM/PTM-2

Water Depth (feet): Varied

GPS Z: GPS

% Recovery: "

Observer: -

VC: vibracore

PC: push core

Core/Boring#: Quadrant 2

Drilling Method: Push Core

Logged by: PSM3

Checked by: KDM

NAME	Depth (ft.)		Sample Interval and number	Properties										Description	Water Level
				Moisture	Density or Consistency	Plasticity	Cohesiveness	Particles	Odor	Staining	Sheen	ASTM / USCS Classification	Graphic Log		
BCPP-2A	0	1	1	S		Low	Low	N	N	N	N	SP		Gray med-coarse sand	0.5'
BCPP-2B	0	1	2	S		High	High	N	N	N	N	CL		Thin layer of olive @ 0.5' This layer was plastic and cohesive	0.9'
	1	1.3		S		Low	Low	organics	N	N	N	Peaty Soil		Dark gray clay w/ some organics	
BCPP-2C	0	1	3	S		High	High	organics	N	N	N	CL/SC		Dark brown peaty soil/wetland deposit.	1.0'
														Dark brown silty clay w/ organics. Some coarse sand also observed (small amount)	
BCPP-2D	0	1	4	S		Low	Low	organics	N	N	N	SP		Med gray sand w/ organics and some peaty soil.	0.8'
BCPP-2E	0	1	5	S		Low	Low	organics	N	N	N	ML/Peat		Dark brown organic silt. At 1' transitions to brown organic soil/wetland deposit w/ shells.	1.4'

BCPP-2 Comp sampled @ 1300



Sediment Core/Boring Log

page 1 of 1

Proj#: 23270051

Project: Barrett Creek Park Pond

Collection Date(s): 9/28/16

GPS X: GPS

Length of Push (feet): See Below

Driller: BARR

Ice Thickness (feet): —

GPS Y: GPS

Recovery (feet): —

Crew: KDM/PTM2

Water Depth (feet): Varied

GPS Z: GPS

% Recovery: —

Observer: —

VC: vibracore

PC: push core

Core/Boring#: Quadrant 3

Drilling Method: Push core

Logged by: PTM2

Checked by: KDM

	Depth (ft.)		Sample Interval and number	Properties										Description	Water depth
				Moisture	Density or Consistency	Plasticity	Cohesiveness	Particles	Odor	Staining	Sheen	ASTM / USCS Classification	Graphic Log		
BCPP-3A	0	1	1	S		Low	Low	Organics	N	N	N	ML		Dark brown organic silt w/ organics	1.2'
	1	1.3				Med	Med	"	"	"	"	ML		Brownish organic silt (wetland deposit) w/ shells	
BCPP-3B	0	0.8	2	S		Low	Low	Organics	N	N	N	ML		Dr brown organic silt w/ organics & shells	2.8'
	0.8	1.3				Med	Med	"	"	"	"	ML		Brown/Grey organic silt (wetland deposit) w/ shells	
BCPP-3C	0	1.4	3	S		High	Two depth	Organics	N	N	N	ML		Dark brown organic silt	4.0'
BCPP-3D	0	1	4	S		High	Two depth	Organics	N	N	N	ML		Dark brown organic silt (very sandy consistency)	3.1'
BCPP-3E	0	0.6	5	S		Med	Med high	—	N	Brown	N	SC		Grey sandy clay w/ lt brown staining, some gravel included (small amounts) (Photo Taken)	0.6'

BCPP-3Comp sampled @1340



Sediment Core/Boring Log

page 1 of 1

Proj#: 23270051

Project: Bassett Creek Park Pond

Collection Date(s): 9/23/16

GPS X: GPS

Length of Push (feet): See below

Driller: BARR

Ice Thickness (feet): —

GPS Y: GPS

Recovery (feet): —

Crew: KDM/PSM

Water Depth (feet): Varied

GPS Z: GPS

% Recovery: —

Observer: —

VC: vibracore

PC: ☒ push core

Core/Boring#: Quadrant 4

Drilling Method: Push Core

Logged by: PSM

Checked by: KDM

Depth (ft.)	Sample Interval and number	Properties										Description	Water depth
		Moisture	Density or Consistency	Plasticity	Cohesiveness	Particles	Odor	Staining	Sheen	ASTM / USCS Classification	Graphic Log		
BCPP-4A	0 - .5'	1	S	Dense	Low	med	org	N	N	N	OL	Organic clay (some silt). Thin med sand seams also observed. Firm, high organic (fibrous) content and lower water content. (Dark grey)	3.3'
BCPP-4B	0 - 1.6'	2	S	Sandy	high	Med	org	N	N	N	ML	Dark brown organic silt. Organics decrease w/ depth. Little to no organics at bottom of core.	4.7'
BCPP-4C	0 - 1.5'	3	S	Sandy	high	Med	org	N	N	N	ML	Dark brown organic silt. Organics ↓ w/ depth. Little to no organics at bottom of core. Increased density w/ depth.	5.0'
BCPP-4D	0 - 1'	4	S	Sandy	high	Med	—	N	N	N	ML	Dark brown organic silt. Some ^{woody} organics in first 6" @ 1', med brown grey sand.	3.0'
BCPP-4E	0 - 1.5'	5	S	Sandy	high	Med	—	N	N	N	ML	Dark brown organic silt. No fibrous organics observed.	5.1'

BCPP-4C comp sampled @ 1420

BCPP-4D - comp sampled @ 1430

Attachment B

Photographs



Photograph #1: Sediment core collected with push core sampling device.



Photograph #2: Sediment core collected with push core sampling device.

Attachment C

Laboratory Analytical Data

November 11, 2016

Terri Olson
Barr Engineering
4300 MarketPointe Drive
Suite 200
Minneapolis, MN 55435

RE: Project: 23270051.37 PND BassettCrk RE2
Pace Project No.: 10364126

Dear Terri Olson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 28, 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.

This report was revised on October 14, 2016 to report some results for Pace samples #001 and 002 for 8270D at a lower dilution, per client request.

This report was further revised on November 11, 2016 to include TCLP RCRA8 metals results for Pace sample # 005, per client request.

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

Sincerely,



Amanda Albrecht
amanda.albrecht@pacelabs.com
Project Manager

Enclosures

cc: BarrDM, Barr Engineering

Kevin Menken, Barr Engineering



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

525 N 8th Street, Salina, KS 67401

Alaska Certification UST-107

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Alabama Certification #40770

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #:14-008r

Georgia Certification #: 959

Georgia EPD #: Pace

Idaho Certification #: MN00064

Hawaii Certification #MN00064

Illinois Certification #: 200011

Indiana Certification#C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062

Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086

Louisiana DHH #: LA140001

Maine Certification #: 2013011

Maryland Certification #: 322

Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Carolina State Public Health #: 27700

North Dakota Certification #: R-036

Ohio EPA #: 4150

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Saipan (CNMI) #:MP0003

South Carolina #:74003001

Texas Certification #: T104704192

Tennessee Certification #: 02818

Utah Certification #: MN000642013-4

Virginia DGS Certification #: 251

Virginia/VELAP Certification #: Pace

Washington Certification #: C486

West Virginia Certification #: 382

West Virginia DHHR #:9952C

Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10364126001	BCPP-1 Comp	Solid	09/28/16 12:10	09/28/16 16:20
10364126002	BCPP-2 Comp	Solid	09/28/16 13:00	09/28/16 16:20
10364126003	BCPP-3 Comp	Solid	09/28/16 13:40	09/28/16 16:20
10364126004	BCPP-4 Comp	Solid	09/28/16 14:20	09/28/16 16:20
10364126005	BCPP-1-4 Comp	Solid	09/28/16 14:30	09/28/16 16:20

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SAMPLE ANALYTE COUNT

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10364126001	BCPP-1 Comp	EPA 6010C	DM	2	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270D by SIM	JLR	27	PASI-M
10364126002	BCPP-2 Comp	EPA 6010C	DM	2	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270D by SIM	JLR	27	PASI-M
10364126003	BCPP-3 Comp	EPA 6010C	DM	2	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270D by SIM	JLR	27	PASI-M
10364126004	BCPP-4 Comp	EPA 6010C	DM	2	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270D by SIM	JLR	27	PASI-M
10364126005	BCPP-1-4 Comp	EPA 6010C	IP	7	PASI-M
		EPA 7470A	LMW	1	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Date: November 11, 2016

Case Narrative

Semi-Volatile Organics Analysis

8270D CPAH

Referring to data qualifiers that appear later in the report:

SS - The 7,12 dimethylbenz(a)anthracene result associated with batch QC did not meet secondary source verification criteria. It was recovered at 175% (recovery limits are 50-150%). The high recovery leads to a high bias in the QC but does not impact sample results.

IS - One internal standard (perylene) failed low for both Pace samples #001 and #002 with recoveries of 42% and 33%, respectively. The recovery limits are 50-200%. The low recovery leads to a high bias for the associated analytes and are flagged accordingly.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Sample: BCPP-1 Comp **Lab ID: 10364126001** Collected: 09/28/16 12:10 Received: 09/28/16 16:20 Matrix: Solid

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

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP Analytical Method: EPA 6010C Preparation Method: EPA 3050									
Arsenic	2.4	mg/kg	1.4	0.29	1	10/04/16 09:12	10/06/16 17:20	7440-38-2	
Copper	13.3	mg/kg	0.71	0.057	1	10/04/16 09:12	10/06/16 17:20	7440-50-8	
Dry Weight Analytical Method: ASTM D2974									
Percent Moisture	41.6	%	0.10	0.10	1		10/05/16 14:00		
8270D MSSV CPAH by SIM Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550									
Acenaphthene	62.4	ug/kg	17.1	1.0	1	09/29/16 06:44	10/04/16 17:07	83-32-9	
Acenaphthylene	38.5	ug/kg	17.1	0.97	1	09/29/16 06:44	10/04/16 17:07	208-96-8	
Anthracene	168	ug/kg	17.1	0.99	1	09/29/16 06:44	10/04/16 17:07	120-12-7	M6,R1
Benzo(a)anthracene	634	ug/kg	171	25.6	10	09/29/16 06:44	10/05/16 15:25	56-55-3	M6,R1
Benzo(a)pyrene	748	ug/kg	171	22.2	10	09/29/16 06:44	10/05/16 15:25	50-32-8	M6,R1
Benzo(g,h,i)perylene	280	ug/kg	171	49.5	10	09/29/16 06:44	10/05/16 15:25	191-24-2	M6,R1
Benzofluoranthenes (Total)	1890	ug/kg	512	188	10	09/29/16 06:44	10/05/16 15:25		M6,R1
Chrysene	950	ug/kg	171	9.0	10	09/29/16 06:44	10/05/16 15:25	218-01-9	M6,R1
Dibenz(a,h)acridine	20.4	ug/kg	17.1	6.5	1	09/29/16 06:44	10/04/16 17:07	226-36-8	IS
Dibenz(a,h)anthracene	75.2	ug/kg	17.1	5.8	1	09/29/16 06:44	10/04/16 17:07	53-70-3	IS
Dibenzo(a,e)pyrene	55.1	ug/kg	17.1	1.6	1	09/29/16 06:44	10/04/16 17:07	192-65-4	IS,M6
Dibenzo(a,h)pyrene	21.4	ug/kg	17.1	4.8	1	09/29/16 06:44	10/04/16 17:07	189-64-0	IS,M6
Dibenzo(a,i)pyrene	6.2J	ug/kg	17.1	1.7	1	09/29/16 06:44	10/04/16 17:07	189-55-9	IS,M6
Dibenzo(a,l)pyrene	3.9J	ug/kg	17.1	0.97	1	09/29/16 06:44	10/04/16 17:07	191-30-0	IS,M6
7H-Dibenzo(c,g)carbazole	<2.9	ug/kg	17.1	2.9	1	09/29/16 06:44	10/04/16 17:07	194-59-2	IS
7,12-Dimethylbenz(a)anthracene	<4.8	ug/kg	17.1	4.8	1	09/29/16 06:44	10/04/16 17:07	57-97-6	
Fluoranthene	2150	ug/kg	171	12.6	10	09/29/16 06:44	10/05/16 15:25	206-44-0	M6,R1
Fluorene	72.4	ug/kg	17.1	0.97	1	09/29/16 06:44	10/04/16 17:07	86-73-7	
Indeno(1,2,3-cd)pyrene	273	ug/kg	171	51.2	10	09/29/16 06:44	10/05/16 15:25	193-39-5	M6,R1
3-Methylcholanthrene	23.5	ug/kg	17.1	2.6	1	09/29/16 06:44	10/04/16 17:07	56-49-5	IS,M6
5-Methylchrysene	101	ug/kg	17.1	2.0	1	09/29/16 06:44	10/04/16 17:07	3697-24-3	
2-Methylnaphthalene	4.7J	ug/kg	17.1	1.1	1	09/29/16 06:44	10/04/16 17:07	91-57-6	M6
Naphthalene	5.6J	ug/kg	17.1	1.0	1	09/29/16 06:44	10/04/16 17:07	91-20-3	
Phenanthrene	1050	ug/kg	171	10.4	10	09/29/16 06:44	10/05/16 15:25	85-01-8	M6,R1
Pyrene	1550	ug/kg	171	12.8	10	09/29/16 06:44	10/05/16 15:25	129-00-0	M6,R1
Surrogates									
2-Fluorobiphenyl (S)	69	%	46-125		1	09/29/16 06:44	10/04/16 17:07	321-60-8	
p-Terphenyl-d14 (S)	98	%	46-125		1	09/29/16 06:44	10/04/16 17:07	1718-51-0	

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ANALYTICAL RESULTS

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Sample: BCPP-2 Comp **Lab ID: 10364126002** Collected: 09/28/16 13:00 Received: 09/28/16 16:20 Matrix: Solid

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

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP Analytical Method: EPA 6010C Preparation Method: EPA 3050									
Arsenic	3.3	mg/kg	1.7	0.35	1	10/04/16 09:12	10/06/16 17:33	7440-38-2	
Copper	17.2	mg/kg	0.86	0.069	1	10/04/16 09:12	10/06/16 17:33	7440-50-8	
Dry Weight Analytical Method: ASTM D2974									
Percent Moisture	47.3	%	0.10	0.10	1		10/05/16 15:05		
8270D MSSV CPAH by SIM Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550									
Acenaphthene	24.9	ug/kg	18.9	1.2	1	09/29/16 06:44	10/04/16 18:34	83-32-9	
Acenaphthylene	15.4J	ug/kg	18.9	1.1	1	09/29/16 06:44	10/04/16 18:34	208-96-8	
Anthracene	63.9	ug/kg	18.9	1.1	1	09/29/16 06:44	10/04/16 18:34	120-12-7	
Benzo(a)anthracene	325	ug/kg	94.6	14.2	5	09/29/16 06:44	10/05/16 16:52	56-55-3	
Benzo(a)pyrene	430	ug/kg	94.6	12.3	5	09/29/16 06:44	10/05/16 16:52	50-32-8	
Benzo(g,h,i)perylene	149	ug/kg	94.6	27.4	5	09/29/16 06:44	10/05/16 16:52	191-24-2	
Benzofluoranthenes (Total)	1040	ug/kg	284	104	5	09/29/16 06:44	10/05/16 16:52		
Chrysene	450	ug/kg	94.6	5.0	5	09/29/16 06:44	10/05/16 16:52	218-01-9	
Dibenz(a,h)acridine	10.4J	ug/kg	18.9	7.2	1	09/29/16 06:44	10/04/16 18:34	226-36-8	IS
Dibenz(a,h)anthracene	38.1	ug/kg	18.9	6.4	1	09/29/16 06:44	10/04/16 18:34	53-70-3	IS
Dibenzo(a,e)pyrene	28.3	ug/kg	18.9	1.7	1	09/29/16 06:44	10/04/16 18:34	192-65-4	IS
Dibenzo(a,h)pyrene	11.8J	ug/kg	18.9	5.3	1	09/29/16 06:44	10/04/16 18:34	189-64-0	IS
Dibenzo(a,i)pyrene	4.3J	ug/kg	18.9	1.8	1	09/29/16 06:44	10/04/16 18:34	189-55-9	IS
Dibenzo(a,l)pyrene	3.5J	ug/kg	18.9	1.1	1	09/29/16 06:44	10/04/16 18:34	191-30-0	IS
7H-Dibenzo(c,g)carbazole	<3.2	ug/kg	18.9	3.2	1	09/29/16 06:44	10/04/16 18:34	194-59-2	
7,12-Dimethylbenz(a)anthracene	<5.3	ug/kg	18.9	5.3	1	09/29/16 06:44	10/04/16 18:34	57-97-6	
Fluoranthene	887	ug/kg	94.6	7.0	5	09/29/16 06:44	10/05/16 16:52	206-44-0	
Fluorene	27.6	ug/kg	18.9	1.1	1	09/29/16 06:44	10/04/16 18:34	86-73-7	
Indeno(1,2,3-cd)pyrene	148	ug/kg	94.6	28.4	5	09/29/16 06:44	10/05/16 16:52	193-39-5	
3-Methylcholanthrene	11.8J	ug/kg	18.9	2.8	1	09/29/16 06:44	10/04/16 18:34	56-49-5	IS
5-Methylchrysene	13.9J	ug/kg	18.9	2.3	1	09/29/16 06:44	10/04/16 18:34	3697-24-3	
2-Methylnaphthalene	1.8J	ug/kg	18.9	1.2	1	09/29/16 06:44	10/04/16 18:34	91-57-6	
Naphthalene	2.8J	ug/kg	18.9	1.2	1	09/29/16 06:44	10/04/16 18:34	91-20-3	
Phenanthrene	321	ug/kg	94.6	5.8	5	09/29/16 06:44	10/05/16 16:52	85-01-8	
Pyrene	658	ug/kg	94.6	7.1	5	09/29/16 06:44	10/05/16 16:52	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	66	%	46-125		1	09/29/16 06:44	10/04/16 18:34	321-60-8	
p-Terphenyl-d14 (S)	109	%	46-125		1	09/29/16 06:44	10/04/16 18:34	1718-51-0	

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ANALYTICAL RESULTS

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Sample: BCPP-3 Comp **Lab ID: 10364126003** Collected: 09/28/16 13:40 Received: 09/28/16 16:20 Matrix: Solid

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

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050									
Arsenic	4.9	mg/kg	2.5	0.51	1	10/04/16 09:12	10/06/16 17:36	7440-38-2	
Copper	21.9	mg/kg	1.3	0.10	1	10/04/16 09:12	10/06/16 17:36	7440-50-8	
Dry Weight									
Analytical Method: ASTM D2974									
Percent Moisture	65.6	%	0.10	0.10	1		10/05/16 15:05		
8270D MSSV CPAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550									
Acenaphthene	5.0J	ug/kg	29.0	1.8	1	09/29/16 06:44	10/05/16 17:20	83-32-9	
Acenaphthylene	5.4J	ug/kg	29.0	1.7	1	09/29/16 06:44	10/05/16 17:20	208-96-8	
Anthracene	13.9J	ug/kg	29.0	1.7	1	09/29/16 06:44	10/05/16 17:20	120-12-7	
Benzo(a)anthracene	85.9	ug/kg	29.0	4.3	1	09/29/16 06:44	10/05/16 17:20	56-55-3	
Benzo(a)pyrene	130	ug/kg	29.0	3.8	1	09/29/16 06:44	10/05/16 17:20	50-32-8	
Benzo(g,h,i)perylene	52.7	ug/kg	29.0	8.4	1	09/29/16 06:44	10/05/16 17:20	191-24-2	
Benzofluoranthenes (Total)	351	ug/kg	86.9	31.9	1	09/29/16 06:44	10/05/16 17:20		
Chrysene	150	ug/kg	29.0	1.5	1	09/29/16 06:44	10/05/16 17:20	218-01-9	
Dibenz(a,h)acridine	<11.0	ug/kg	29.0	11.0	1	09/29/16 06:44	10/05/16 17:20	226-36-8	
Dibenz(a,h)anthracene	15.0J	ug/kg	29.0	9.9	1	09/29/16 06:44	10/05/16 17:20	53-70-3	
Dibenzo(a,e)pyrene	14.4J	ug/kg	29.0	2.7	1	09/29/16 06:44	10/05/16 17:20	192-65-4	
Dibenzo(a,h)pyrene	<8.1	ug/kg	29.0	8.1	1	09/29/16 06:44	10/05/16 17:20	189-64-0	
Dibenzo(a,i)pyrene	3.2J	ug/kg	29.0	2.8	1	09/29/16 06:44	10/05/16 17:20	189-55-9	
Dibenzo(a,l)pyrene	3.8J	ug/kg	29.0	1.7	1	09/29/16 06:44	10/05/16 17:20	191-30-0	
7H-Dibenzo(c,g)carbazole	<4.9	ug/kg	29.0	4.9	1	09/29/16 06:44	10/05/16 17:20	194-59-2	
7,12-Dimethylbenz(a)anthracene	<8.1	ug/kg	29.0	8.1	1	09/29/16 06:44	10/05/16 17:20	57-97-6	
Fluoranthene	274	ug/kg	29.0	2.1	1	09/29/16 06:44	10/05/16 17:20	206-44-0	
Fluorene	6.0J	ug/kg	29.0	1.7	1	09/29/16 06:44	10/05/16 17:20	86-73-7	
Indeno(1,2,3-cd)pyrene	49.6	ug/kg	29.0	8.7	1	09/29/16 06:44	10/05/16 17:20	193-39-5	
3-Methylcholanthrene	<4.3	ug/kg	29.0	4.3	1	09/29/16 06:44	10/05/16 17:20	56-49-5	
5-Methylchrysene	<3.5	ug/kg	29.0	3.5	1	09/29/16 06:44	10/05/16 17:20	3697-24-3	
2-Methylnaphthalene	<1.9	ug/kg	29.0	1.9	1	09/29/16 06:44	10/05/16 17:20	91-57-6	
Naphthalene	<1.8	ug/kg	29.0	1.8	1	09/29/16 06:44	10/05/16 17:20	91-20-3	
Phenanthrene	83.0	ug/kg	29.0	1.8	1	09/29/16 06:44	10/05/16 17:20	85-01-8	
Pyrene	198	ug/kg	29.0	2.2	1	09/29/16 06:44	10/05/16 17:20	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	72	%	46-125		1	09/29/16 06:44	10/05/16 17:20	321-60-8	
p-Terphenyl-d14 (S)	75	%	46-125		1	09/29/16 06:44	10/05/16 17:20	1718-51-0	

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ANALYTICAL RESULTS

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Sample: BCPP-4 Comp **Lab ID: 10364126004** Collected: 09/28/16 14:20 Received: 09/28/16 16:20 Matrix: Solid

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

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP Analytical Method: EPA 6010C Preparation Method: EPA 3050									
Arsenic	5.7	mg/kg	2.3	0.46	1	10/04/16 09:12	10/06/16 17:39	7440-38-2	
Copper	30.0	mg/kg	1.1	0.092	1	10/04/16 09:12	10/06/16 17:39	7440-50-8	
Dry Weight Analytical Method: ASTM D2974									
Percent Moisture	62.5	%	0.10	0.10	1		10/05/16 15:05		
8270D MSSV CPAH by SIM Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550									
Acenaphthene	5.5J	ug/kg	26.7	1.6	1	09/29/16 06:44	10/05/16 17:49	83-32-9	
Acenaphthylene	5.5J	ug/kg	26.7	1.5	1	09/29/16 06:44	10/05/16 17:49	208-96-8	
Anthracene	13.3J	ug/kg	26.7	1.5	1	09/29/16 06:44	10/05/16 17:49	120-12-7	
Benzo(a)anthracene	64.3	ug/kg	26.7	4.0	1	09/29/16 06:44	10/05/16 17:49	56-55-3	
Benzo(a)pyrene	98.0	ug/kg	26.7	3.5	1	09/29/16 06:44	10/05/16 17:49	50-32-8	
Benzo(g,h,i)perylene	38.5	ug/kg	26.7	7.7	1	09/29/16 06:44	10/05/16 17:49	191-24-2	
Benzofluoranthenes (Total)	268	ug/kg	80.0	29.3	1	09/29/16 06:44	10/05/16 17:49		
Chrysene	112	ug/kg	26.7	1.4	1	09/29/16 06:44	10/05/16 17:49	218-01-9	
Dibenz(a,h)acridine	<10.1	ug/kg	26.7	10.1	1	09/29/16 06:44	10/05/16 17:49	226-36-8	
Dibenz(a,h)anthracene	11.2J	ug/kg	26.7	9.1	1	09/29/16 06:44	10/05/16 17:49	53-70-3	
Dibenzo(a,e)pyrene	10.1J	ug/kg	26.7	2.5	1	09/29/16 06:44	10/05/16 17:49	192-65-4	
Dibenzo(a,h)pyrene	<7.5	ug/kg	26.7	7.5	1	09/29/16 06:44	10/05/16 17:49	189-64-0	
Dibenzo(a,i)pyrene	2.6J	ug/kg	26.7	2.6	1	09/29/16 06:44	10/05/16 17:49	189-55-9	
Dibenzo(a,l)pyrene	3.4J	ug/kg	26.7	1.5	1	09/29/16 06:44	10/05/16 17:49	191-30-0	
7H-Dibenzo(c,g)carbazole	<4.5	ug/kg	26.7	4.5	1	09/29/16 06:44	10/05/16 17:49	194-59-2	
7,12-Dimethylbenz(a)anthracene	<7.5	ug/kg	26.7	7.5	1	09/29/16 06:44	10/05/16 17:49	57-97-6	
Fluoranthene	199	ug/kg	26.7	2.0	1	09/29/16 06:44	10/05/16 17:49	206-44-0	
Fluorene	6.0J	ug/kg	26.7	1.5	1	09/29/16 06:44	10/05/16 17:49	86-73-7	
Indeno(1,2,3-cd)pyrene	36.7	ug/kg	26.7	8.0	1	09/29/16 06:44	10/05/16 17:49	193-39-5	
3-Methylcholanthrene	<4.0	ug/kg	26.7	4.0	1	09/29/16 06:44	10/05/16 17:49	56-49-5	
5-Methylchrysene	4.3J	ug/kg	26.7	3.2	1	09/29/16 06:44	10/05/16 17:49	3697-24-3	
2-Methylnaphthalene	<1.7	ug/kg	26.7	1.7	1	09/29/16 06:44	10/05/16 17:49	91-57-6	
Naphthalene	<1.6	ug/kg	26.7	1.6	1	09/29/16 06:44	10/05/16 17:49	91-20-3	
Phenanthrene	61.0	ug/kg	26.7	1.6	1	09/29/16 06:44	10/05/16 17:49	85-01-8	
Pyrene	152	ug/kg	26.7	2.0	1	09/29/16 06:44	10/05/16 17:49	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	69	%	46-125		1	09/29/16 06:44	10/05/16 17:49	321-60-8	
p-Terphenyl-d14 (S)	71	%	46-125		1	09/29/16 06:44	10/05/16 17:49	1718-51-0	

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ANALYTICAL RESULTS

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Sample: BCPP-1-4 Comp **Lab ID: 10364126005** Collected: 09/28/16 14:30 Received: 09/28/16 16:20 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP, TCLP									
Analytical Method: EPA 6010C Preparation Method: EPA 3010									
Leachate Method/Date: EPA 1311; 11/09/16 14:26 Initial pH: 8.15; Final pH: 3.06									
Arsenic	<0.034	mg/L	0.10	0.034	1	11/10/16 10:22	11/10/16 17:30	7440-38-2	
Barium	0.73	mg/L	0.20	0.079	1	11/10/16 10:22	11/10/16 17:30	7440-39-3	
Cadmium	0.0016J	mg/L	0.015	0.0011	1	11/10/16 10:22	11/10/16 17:30	7440-43-9	
Chromium	<0.0046	mg/L	0.050	0.0046	1	11/10/16 10:22	11/10/16 17:30	7440-47-3	
Lead	0.021J	mg/L	0.050	0.0091	1	11/10/16 10:22	11/10/16 17:30	7439-92-1	
Selenium	<0.051	mg/L	0.12	0.051	1	11/10/16 10:22	11/10/16 17:30	7782-49-2	
Silver	<0.0050	mg/L	0.050	0.0050	1	11/10/16 10:22	11/10/16 17:30	7440-22-4	
7470A Mercury, TCLP									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Leachate Method/Date: EPA 1311; 11/09/16 14:26 Initial pH: 8.15; Final pH: 3.06									
Mercury	<0.094	ug/L	0.60	0.094	1	11/10/16 08:35	11/10/16 13:39	7439-97-6	H3

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

QC Batch: 446183

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470A Mercury TCLP

Associated Lab Samples: 10364126005

METHOD BLANK: 2438626

Matrix: Water

Associated Lab Samples: 10364126005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.094	0.60	0.094	11/10/16 13:35	

METHOD BLANK: 2436110

Matrix: Water

Associated Lab Samples: 10364126005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.094	0.60	0.094	11/10/16 13:58	

METHOD BLANK: 2436111

Matrix: Water

Associated Lab Samples: 10364126005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.094	0.60	0.094	11/10/16 14:00	

LABORATORY CONTROL SAMPLE: 2438627

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	15	15.9	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2438628

2438629

Parameter	Units	10364126005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.094	15	15	16.0	15.6	107	104	80-120	3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

QC Batch: 446181

Analysis Method: EPA 6010C

QC Batch Method: EPA 3010

Analysis Description: 6010C TCLP

Associated Lab Samples: 10364126005

METHOD BLANK: 2438608

Matrix: Water

Associated Lab Samples: 10364126005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	<0.034	0.10	0.034	11/10/16 17:12	
Barium	mg/L	<0.079	0.20	0.079	11/10/16 17:12	
Cadmium	mg/L	<0.0011	0.015	0.0011	11/10/16 17:12	
Chromium	mg/L	<0.0046	0.050	0.0046	11/10/16 17:12	
Lead	mg/L	<0.0091	0.050	0.0091	11/10/16 17:12	
Selenium	mg/L	<0.051	0.12	0.051	11/10/16 17:12	
Silver	mg/L	<0.0050	0.050	0.0050	11/10/16 17:12	

METHOD BLANK: 2436110

Matrix: Water

Associated Lab Samples: 10364126005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	<0.034	0.10	0.034	11/10/16 17:51	
Barium	mg/L	<0.079	0.20	0.079	11/10/16 17:51	
Cadmium	mg/L	<0.0011	0.015	0.0011	11/10/16 17:51	
Chromium	mg/L	<0.0046	0.050	0.0046	11/10/16 17:51	
Lead	mg/L	<0.0091	0.050	0.0091	11/10/16 17:51	
Selenium	mg/L	<0.051	0.12	0.051	11/10/16 17:51	
Silver	mg/L	<0.0050	0.050	0.0050	11/10/16 17:51	

METHOD BLANK: 2436111

Matrix: Water

Associated Lab Samples: 10364126005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	<0.034	0.10	0.034	11/10/16 17:54	
Barium	mg/L	<0.079	0.20	0.079	11/10/16 17:54	
Cadmium	mg/L	<0.0011	0.015	0.0011	11/10/16 17:54	
Chromium	mg/L	<0.0046	0.050	0.0046	11/10/16 17:54	
Lead	mg/L	<0.0091	0.050	0.0091	11/10/16 17:54	
Selenium	mg/L	<0.051	0.12	0.051	11/10/16 17:54	
Silver	mg/L	<0.0050	0.050	0.0050	11/10/16 17:54	

LABORATORY CONTROL SAMPLE: 2438609

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	5	4.9	98	80-120	

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

LABORATORY CONTROL SAMPLE: 2438609

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	5	4.7	95	80-120	
Cadmium	mg/L	5	4.7	95	80-120	
Chromium	mg/L	5	4.6	92	80-120	
Lead	mg/L	5	4.7	94	80-120	
Selenium	mg/L	5	5.2	104	80-120	
Silver	mg/L	2.5	2.5	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2438610 2438611

Parameter	Units	10364126005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	<0.034	5	5	5.1	5.0	101	100	75-125	1	30	
Barium	mg/L	0.73	5	5	5.5	5.5	96	95	75-125	1	30	
Cadmium	mg/L	0.0016J	5	5	4.8	4.8	97	96	75-125	1	30	
Chromium	mg/L	<0.0046	5	5	4.6	4.6	93	92	75-125	1	30	
Lead	mg/L	0.021J	5	5	4.8	4.7	95	95	75-125	0	30	
Selenium	mg/L	<0.051	5	5	5.3	5.3	107	106	75-125	1	30	
Silver	mg/L	<0.0050	2.5	2.5	2.5	2.5	102	101	75-125	1	30	

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

QC Batch: 438500 Analysis Method: EPA 6010C
QC Batch Method: EPA 3050 Analysis Description: 6010C Solids
Associated Lab Samples: 10364126001, 10364126002, 10364126003, 10364126004

METHOD BLANK: 2381790 Matrix: Solid
Associated Lab Samples: 10364126001, 10364126002, 10364126003, 10364126004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/kg	<0.19	0.94	0.19	10/06/16 17:15	
Copper	mg/kg	<0.038	0.47	0.038	10/06/16 17:15	

LABORATORY CONTROL SAMPLE: 2381791

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	42.7	40.4	95	80-120	
Copper	mg/kg	42.7	41.3	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2381792 2381793

Parameter	Units	10364126001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	2.4	68	66.4	63.3	61.2	90	89	75-125	3	20	
Copper	mg/kg	13.3	68	66.4	78.3	77.0	96	96	75-125	2	20	

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

QC Batch: 439254

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 10364126001

SAMPLE DUPLICATE: 2386803

Parameter	Units	1276140001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	2.8	2.8	0	30	

SAMPLE DUPLICATE: 2386804

Parameter	Units	10364126001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	41.6	42.5	2	30	

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

QC Batch:	439284	Analysis Method:	ASTM D2974
QC Batch Method:	ASTM D2974	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	10364126002, 10364126003, 10364126004		

SAMPLE DUPLICATE: 2387015

Parameter	Units	10364272007 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.5	19.1	2	30	

SAMPLE DUPLICATE: 2387193

Parameter	Units	10364126002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	47.3	47.8	1	30	

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

QC Batch: 438145 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA 3550 Analysis Description: 8270D CPAH by SIM MSSV
Associated Lab Samples: 10364126001, 10364126002, 10364126003, 10364126004

METHOD BLANK: 2380189 Matrix: Solid
Associated Lab Samples: 10364126001, 10364126002, 10364126003, 10364126004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
2-Methylnaphthalene	ug/kg	<0.64	10.0	0.64	10/04/16 13:44	
3-Methylcholanthrene	ug/kg	<1.5	10.0	1.5	10/04/16 13:44	
5-Methylchrysene	ug/kg	<1.2	10.0	1.2	10/04/16 13:44	
7,12-Dimethylbenz(a)anthracene	ug/kg	<2.8	10.0	2.8	10/04/16 13:44	
7H-Dibenzo(c,g)carbazole	ug/kg	<1.7	10.0	1.7	10/04/16 13:44	
Acenaphthene	ug/kg	<0.61	10.0	0.61	10/04/16 13:44	
Acenaphthylene	ug/kg	<0.57	10.0	0.57	10/04/16 13:44	
Anthracene	ug/kg	<0.58	10.0	0.58	10/04/16 13:44	
Benzo(a)anthracene	ug/kg	<1.5	10.0	1.5	10/04/16 13:44	
Benzo(a)pyrene	ug/kg	<1.3	10.0	1.3	10/04/16 13:44	
Benzo(g,h,i)perylene	ug/kg	<2.9	10.0	2.9	10/04/16 13:44	
Benzo(a)fluoranthene (Total)	ug/kg	<11.0	30.0	11.0	10/04/16 13:44	
Chrysene	ug/kg	<0.53	10.0	0.53	10/04/16 13:44	
Dibenz(a,h)acridine	ug/kg	<3.8	10.0	3.8	10/04/16 13:44	
Dibenz(a,h)anthracene	ug/kg	<3.4	10.0	3.4	10/04/16 13:44	
Dibenzo(a,e)pyrene	ug/kg	<0.92	10.0	0.92	10/04/16 13:44	
Dibenzo(a,h)pyrene	ug/kg	<2.8	10.0	2.8	10/04/16 13:44	
Dibenzo(a,i)pyrene	ug/kg	<0.97	10.0	0.97	10/04/16 13:44	
Dibenzo(a,l)pyrene	ug/kg	<0.57	10.0	0.57	10/04/16 13:44	
Fluoranthene	ug/kg	<0.74	10.0	0.74	10/04/16 13:44	
Fluorene	ug/kg	<0.57	10.0	0.57	10/04/16 13:44	
Indeno(1,2,3-cd)pyrene	ug/kg	<3.0	10.0	3.0	10/04/16 13:44	
Naphthalene	ug/kg	<0.61	10.0	0.61	10/04/16 13:44	
Phenanthrene	ug/kg	<0.61	10.0	0.61	10/04/16 13:44	
Pyrene	ug/kg	<0.75	10.0	0.75	10/04/16 13:44	
2-Fluorobiphenyl (S)	%	80	46-125		10/04/16 13:44	
p-Terphenyl-d14 (S)	%	101	46-125		10/04/16 13:44	

LABORATORY CONTROL SAMPLE: 2380190

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Methylnaphthalene	ug/kg	100	70.1	70	41-125	
3-Methylcholanthrene	ug/kg	100	32.1	32	30-125	
5-Methylchrysene	ug/kg	100	89.5	90	67-125	
7,12-Dimethylbenz(a)anthracene	ug/kg	100	57.2	57	31-125 SS	
7H-Dibenzo(c,g)carbazole	ug/kg	100	89.1	89	51-125	
Acenaphthene	ug/kg	100	76.0	76	49-125	
Acenaphthylene	ug/kg	100	75.5	76	48-125	
Anthracene	ug/kg	100	79.3	79	63-125	
Benzo(a)anthracene	ug/kg	100	86.0	86	60-125	

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

LABORATORY CONTROL SAMPLE: 2380190

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzo(a)pyrene	ug/kg	100	90.2	90	63-125	
Benzo(g,h,i)perylene	ug/kg	100	85.6	86	59-125	
Benzo(a)fluoranthene (Total)	ug/kg	300	281	94	67-125	
Chrysene	ug/kg	100	85.8	86	62-125	
Dibenz(a,h)acridine	ug/kg	100	89.3	89	61-125	
Dibenz(a,h)anthracene	ug/kg	100	87.5	88	59-125	
Dibenzo(a,e)pyrene	ug/kg	100	89.1	89	48-125	
Dibenzo(a,h)pyrene	ug/kg	100	96.7	97	41-128	
Dibenzo(a,i)pyrene	ug/kg	100	83.1	83	33-125	
Dibenzo(a,l)pyrene	ug/kg	100	66.2	66	30-125	
Fluoranthene	ug/kg	100	81.9	82	65-125	
Fluorene	ug/kg	100	77.5	77	58-125	
Indeno(1,2,3-cd)pyrene	ug/kg	100	88.1	88	60-125	
Naphthalene	ug/kg	100	65.6	66	38-125	
Phenanthrene	ug/kg	100	81.4	81	62-125	
Pyrene	ug/kg	100	97.9	98	61-125	
2-Fluorobiphenyl (S)	%			64	46-125	
p-Terphenyl-d14 (S)	%			86	46-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2380191

2380192

Parameter	Units	10364126001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Methylnaphthalene	ug/kg	4.7J	171	171	121J	81.4J	68	45	47-125		30	M6
3-Methylcholanthrene	ug/kg	23.5	171	171	74.8J	66.2J	30	25	30-150		30	M6
5-Methylchrysene	ug/kg	101	171	171	193	215	54	66	46-125	11	30	
7,12-Dimethylbenz(a)anthracene	ug/kg	<4.8	171	171	121J	90.0J	70	53	30-150		30	SS
7H-Dibenzo(c,g)carbazole	ug/kg	<2.9	171	171	76.9J	56.3J	45	33	30-130		30	
Acenaphthene	ug/kg	62.4	171	171	154J	138J	54	44	30-144		30	
Acenaphthylene	ug/kg	38.5	171	171	137J	115J	58	45	36-125		30	
Anthracene	ug/kg	168	171	171	187	279	11	65	34-125	39	30	M6, R1
Benzo(a)anthracene	ug/kg	634	171	171	559	923	-43	169	30-150	49	30	M6, R1
Benzo(a)pyrene	ug/kg	748	171	171	692	1190	-33	259	30-150	53	30	M6, R1
Benzo(g,h,i)perylene	ug/kg	280	171	171	294	456	8	103	30-148	43	30	M6, R1
Benzo(a)fluoranthene (Total)	ug/kg	1890	514	514	1850	3010	-8	218	30-150	48	30	M6, R1
Chrysene	ug/kg	950	171	171	771	1290	-105	196	30-150	50	30	M6, R1
Dibenz(a,h)acridine	ug/kg	20.4	171	171	117J	98.7J	56	46	30-127		30	
Dibenz(a,h)anthracene	ug/kg	75.2	171	171	148J	169J	43	55	30-137		30	
Dibenzo(a,e)pyrene	ug/kg	55.1	171	171	105J	134J	29	46	30-150		30	M6
Dibenzo(a,h)pyrene	ug/kg	21.4	171	171	58.5J	62.0J	22	24	30-125		30	M6
Dibenzo(a,i)pyrene	ug/kg	6.2J	171	171	40.1J	32.7J	20	15	30-125		30	M6
Dibenzo(a,l)pyrene	ug/kg	3.9J	171	171	36.1J	32.4J	19	17	30-125		30	M6
Fluoranthene	ug/kg	2150	171	171	1530	2700	-364	321	30-150	56	30	M6, R1
Fluorene	ug/kg	72.4	171	171	160J	171	51	58	38-125		30	

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QUALITY CONTROL DATA

Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2380191 2380192												
Parameter	Units	10364126001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Indeno(1,2,3-cd)pyrene	ug/kg	273	171	171	291	440	11	98	30-150	41	30	M6, R1
Naphthalene	ug/kg	5.6J	171	171	108J	78.6J	60	43	38-125		30	
Phenanthrene	ug/kg	1050	171	171	762	1300	-166	147	30-150	52	30	M6, R1
Pyrene	ug/kg	1550	171	171	1140	1920	-239	215	30-150	51	30	M6, R1
2-Fluorobiphenyl (S)	%.						91	98	46-125			D3
p-Terphenyl-d14 (S)	%.						83	89	46-125			

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QUALIFIERS

Project: 23270051.37 PND BassettCrk RE2
Pace Project No.: 10364126

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 adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
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.
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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

WORKORDER QUALIFIERS

WO: 10364126

[1] Samples were received outside of the recommended temperature range of 0-6 degrees Celsius. The samples were received from the field on ice, indicating the cool down process had begun.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
H3 Sample was received or analysis requested beyond the recognized method holding time.
IS The internal standard recovery associated with this result exceeds the lower control limit. The reported result should be considered an estimated value.
M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
R1 RPD value was outside control limits.
SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: 23270051.37 PND BassettCrk RE2

Pace Project No.: 10364126

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10364126005	BCPP-1-4 Comp	EPA 3010	446181	EPA 6010C	446348
10364126001	BCPP-1 Comp	EPA 3050	438500	EPA 6010C	439084
10364126002	BCPP-2 Comp	EPA 3050	438500	EPA 6010C	439084
10364126003	BCPP-3 Comp	EPA 3050	438500	EPA 6010C	439084
10364126004	BCPP-4 Comp	EPA 3050	438500	EPA 6010C	439084
10364126005	BCPP-1-4 Comp	EPA 7470A	446183	EPA 7470A	446370
10364126001	BCPP-1 Comp	ASTM D2974	439254		
10364126002	BCPP-2 Comp	ASTM D2974	439284		
10364126003	BCPP-3 Comp	ASTM D2974	439284		
10364126004	BCPP-4 Comp	ASTM D2974	439284		
10364126001	BCPP-1 Comp	EPA 3550	438145	EPA 8270D by SIM	438967
10364126002	BCPP-2 Comp	EPA 3550	438145	EPA 8270D by SIM	438967
10364126003	BCPP-3 Comp	EPA 3550	438145	EPA 8270D by SIM	438967
10364126004	BCPP-4 Comp	EPA 3550	438145	EPA 8270D by SIM	438967

REPORT OF LABORATORY ANALYSIS

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	Document Name: Sample Condition Upon Receipt Form	Document Revised: 02Aug2016 Page 1 of 2
	Document No.: F-MN-L-213-rev.17	Issuing Authority: Pace Minnesota Quality Office

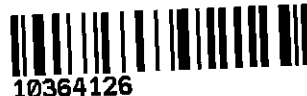
**Sample Condition
Upon Receipt**

Client Name:

Project #:

WO#: 10364126

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ SpeedDee ☒ Other: quicksilver



Tracking Number:

Custody Seal on Cooler/Box Present?

☒ Yes ☐ No

Seals Intact?

☒ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material:

☐ Bubble Wrap

☒ Bubble Bags

☐ None

☐ Other:

Temp Blank?

☒ Yes

☐ No

Thermometer

☐ 151401163

☐ B88A912167504

Type of Ice:

☒ Wet

☐ Blue

☐ None

☐ Samples on ice, cooling process has begun

Used:

☒ 151401164

☐ B88A0143310098

Cooler Temp Read (°C): 10.9

Cooler Temp Corrected (°C): 10.8

Biological Tissue Frozen?

☐ Yes

☐ No

☒ N/A

Temp should be above freezing to 6°C

Correction Factor: -0.1

Date and Initials of Person Examining Contents:

Chit 9/26/16

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)?

☐ Yes

☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)?

☐ Yes

☒ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

			COMMENTS:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	Note if sediment is visible in the dissolved container
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes Date/Time/ID/Analysis Matrix: <u>SL</u>			
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.	<input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
All containers needing preservation are found to be in compliance with EPA recommendation?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Sample #
(HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH >9 Sulfide, NaOH >12 Cyanide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Initial when completed:
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted:

Date/Time:

Comments/Resolution: Temp ok, received from field on ice.

Project Manager Review:

Date: 09/29/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).