Wannalancit Mills
650 Suffolk St., Suite 200
Lowell, MA 01854

978.970.5600 PHONE
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www.trcsolutions.com

June 25, 2013

Ms. Cheryl Henlin
City of New Bedford
Department of Environmental Stewardship
133 William Street
New Bedford, Massachusetts 02740

Subject: LTMMIP Wetland Sediment Monitoring – Spring 2013
Keith Middle School
New Bedford, Massachusetts

Dear Ms. Henlin:

This letter provides the results of annual wetland sediment monitoring for the Keith Middle School (KMS) located at 225 Hathaway Boulevard in New Bedford, Massachusetts (see Figure 1). TRC conducted the sediment sampling in accordance with the Revised Long-Term Monitoring and Maintenance Implementation Plan, Revision 5.5 (LTMMIP) for KMS dated August 2012, with modifications as described herein.

A TRC field scientist conducted the LTMMIP wetland sediment sampling on May 24, 2013. For the annual sediment monitoring, the LTMMIP calls for the collection of four randomly selected wetland sediment samples from locations abutting the cap slope per the sediment sampling protocol in Appendix G of the LTMMIP.

For the May 2013 monitoring event and consistent with annual sediment sampling conducted in accordance with the LTMMIP since May 2010, TRC used a random number generator to select three of the four sample locations within the southern portion of the wetland. A grid, with a width extending out approximately 10 feet perpendicular to the toe of the cap slope, was placed parallel to the wetland/embankment edge as documented on the December 11, 2006 As-Built Plan of Land prepared on behalf of BETA by Land Planning, Incorporated (Land Planning), of Hanson Massachusetts and presented in the BETA-prepared December 2006 *Final Completion and Inspection Report* (BETA, 2006b). The sample locations corresponded to randomly generated lengths (measured from south to north beginning at the southern wetland limit) parallel to the cap slope and widths (measured out perpendicular to the cap slope) as depicted in Figure 2 and listed in the following table:

Table		
Sample Location	**Length (feet)**	**Width (feet)**
Location #1 (SED-KMS-19)	165	4
Location #2 (SED-KMS-20)	270	8
Location #3 (SED-KMS-21)	380	2

Consistent with prior annual sampling events, the fourth sample was collected from a biased location at the bottom of the slope in the vicinity of the repaired KMS Site cap slope failure along the southern portion of the wetland. The biased sample was collected to evaluate the potential for impacts to sediment associated with the 2007 slope failure.[1]

All samples were collected using hand tools and were collected from a depth of 0 to 6 inches below the top of the sediment surface. Samples were analyzed for PCB Aroclors via SW-846 Method 8082 by Pace/Northeast Analytical, Incorporated (NEA) of Schenectady, New York. The approximate sample locations are illustrated on Figure 2 and in the photograph log presented in Attachment 1. The samples were designated as follows:

- SED-KMS-18 (Biased sample collected in vicinity of repaired slope failure)
- SED-KMS-19 (Duplicate collected)
- SED-KMS-20
- SED-KMS-21

TRC received the final laboratory results on June 20, 2013. Final data validation was completed on June 25, 2013 by TRC's senior quality assurance chemist. A copy of the data package is included as Attachment 2. All four (4) samples, including the duplicate sample, were non-detect (see Table 1) for PCB Aroclors. Pursuant to the EPA approved LTMMIP, further assessment is not required.

If you have any questions concerning this report, please do not hesitate to contact me at 978-656-3565 or via e-mail at dsullivan@trcsolutions.com.

[1] In the spring of 2007, a slope failure occurred on the steep slope above the wetland near the southwestern corner of the Site. The area measured approximately 7 feet by 8 feet where the topsoil has slumped to the bottom of the slope. The black separation fabric that demarcates the underlying impacted fill from the clean imported fill was not exposed; however, a small (approximately 3 to 4 inch) piece of the orange warning layer was visible in the top left quadrant of the damaged area (when viewed from the wetland). TRC oversaw final repair of the failed slope on October 30, 2008. The repair consisted of lining the damaged area with an 8-ounce non-woven geotextile fabric and covering the fabric with stone (rip-rap) up to local grade to restore the protective cap thickness and allow flow of storm water through the slope in this area without pressure buildup. The rip-rap is intended to allow free drainage of water and be more resistant to the erosive force of storm water overland run off.

Sincerely,

David M. Sullivan, LSP, CHMM
Senior Project Manager

Attachments

TABLE

Table 1
Summary of Analytical Results for Sediment Samples -- May 2013
Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte											
							Sample ID:	SED-KMS-18	SED-KMS-19		SED-KMS-20	SED-KMS-21
							Sample Depth (ft.):	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
							Sample Date:	5/24/2013	5/24/2013	5/24/2013	5/24/2013	5/24/2013
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1*	TSCA			Field Dup		
PCBs												
(mg/kg)	Aroclor 1016	2	2	3	3	2	1	0.304 U	0.271 U	0.285 U	0.251 U	0.243 U
	Aroclor 1221	2	2	3	3	2	1	0.304 U	0.271 U	0.285 U	0.251 U	0.243 U
	Aroclor 1232	2	2	3	3	2	1	0.304 U	0.271 U	0.285 U	0.251 U	0.243 U
	Aroclor 1242	2	2	3	3	2	1	0.304 U	0.271 U	0.285 U	0.251 U	0.243 U
	Aroclor 1248	2	2	3	3	2	1	0.304 U	0.271 U	0.285 U	0.251 U	0.243 U
	Aroclor 1254	2	2	3	3	2	1	0.304 U	0.271 U	0.285 U	0.251 U	0.243 U
	Aroclor 1260	2	2	3	3	2	1	0.304 U	0.271 U	0.285 U	0.251 U	0.243 U
	Total PCBs	2	2	3	3	2	1	0.304 U	0.271 U	0.285 U	0.251 U	0.243 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

UJ - Estimated non-detect.

Values in **Bold** indicate the compound was detected.

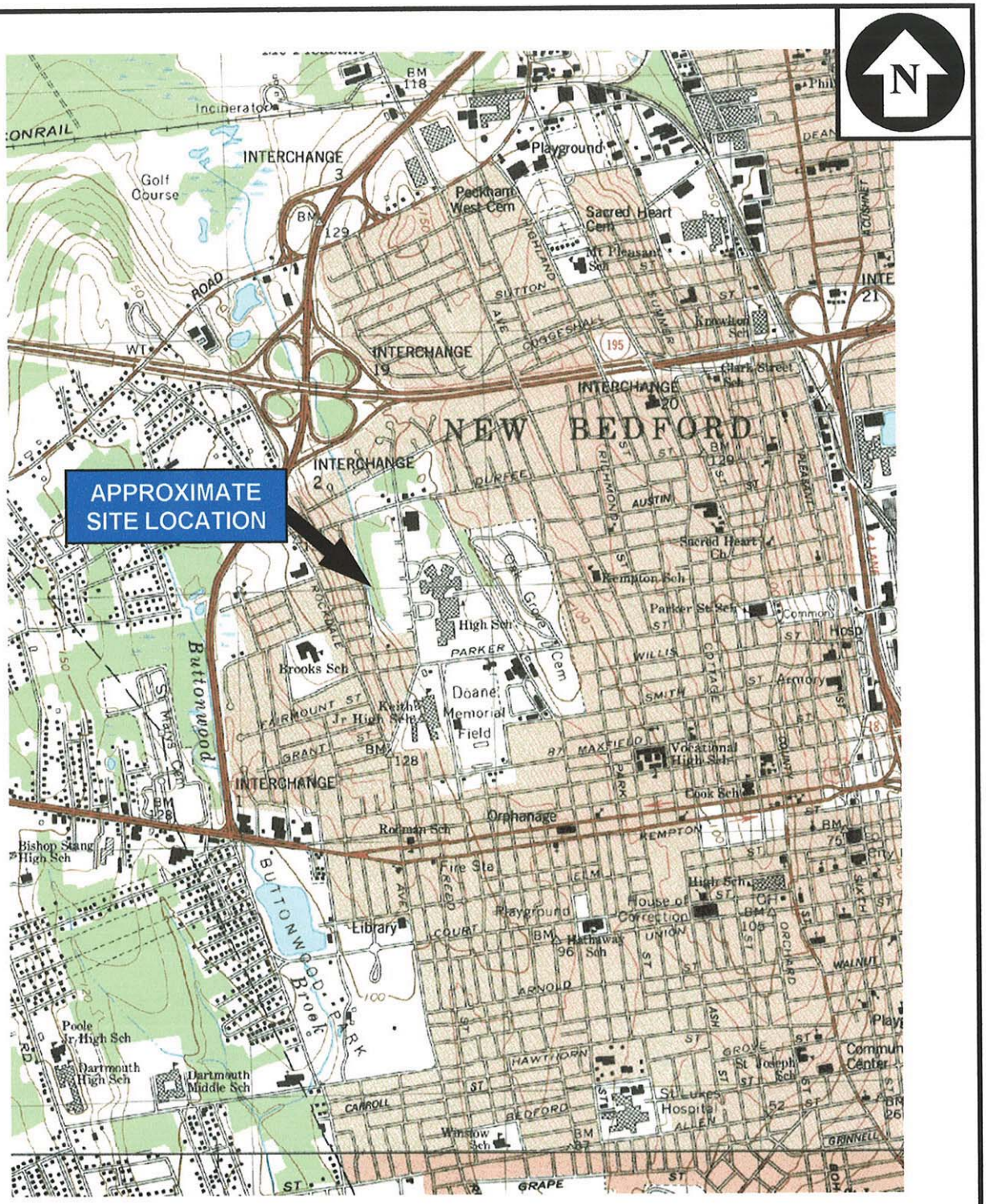
PCBs - Polychlorinated Biphenyls.

RC - Reportable Concentration.

TSCA - Toxic Substances Control Act criteria.

* - For reference purposes only.

FIGURES



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' X 15' USGS TOPOGRAPHIC QUADRANGLES: NEW BEDFORD NORTH, MA, 1979; NEW BEDFORD SOUTH, MA 1977

0 1000 2000 3000

scale in feet

QUADRANGLE LOCATION

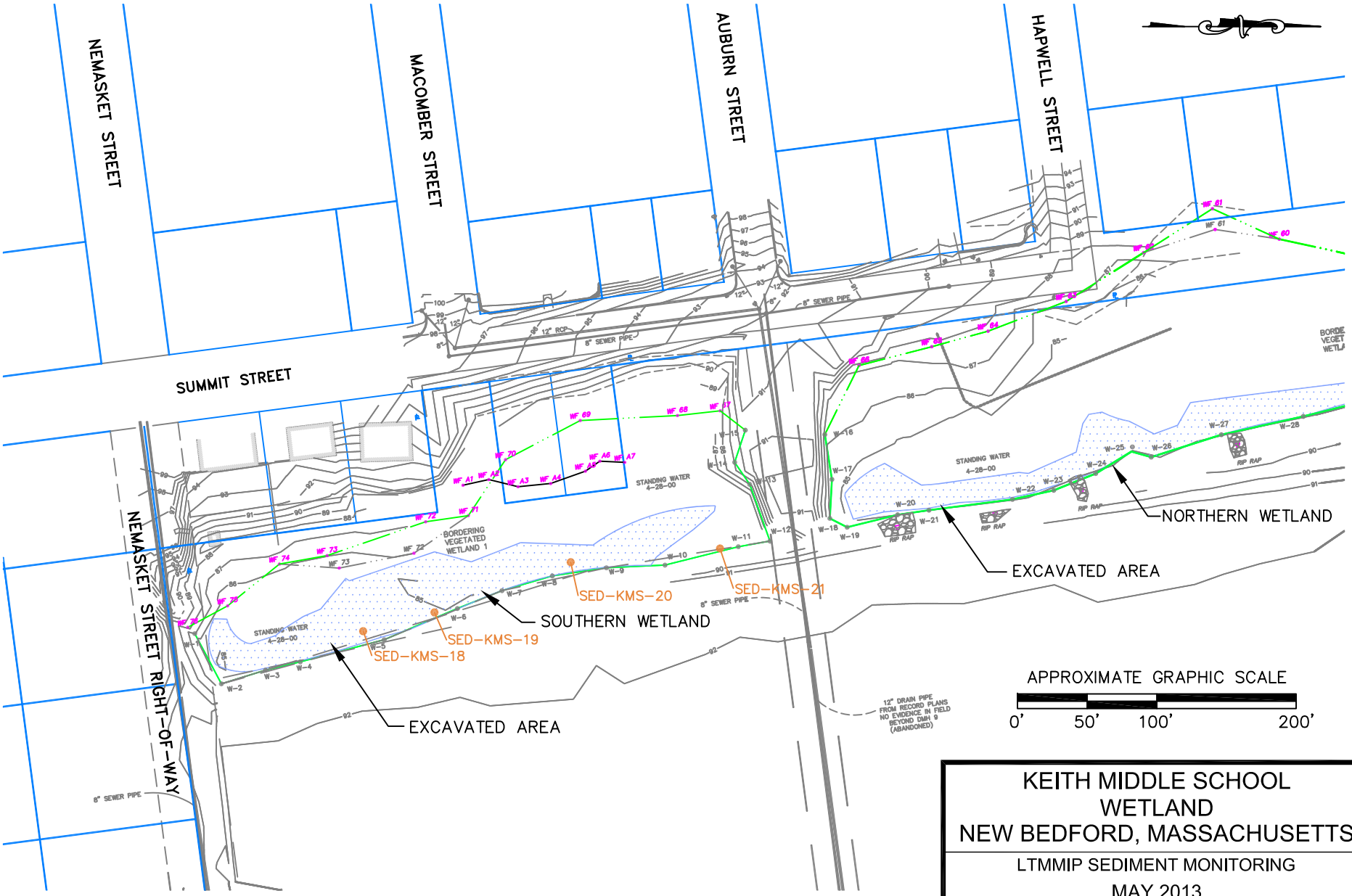
T:\E_CAD\115058\TOPO KEITH MIDDLE SCHOOL.ppt

KEITH MIDDLE SCHOOL WETLAND
PCB CONTAMINATED SEDIMENTS
NEW BEDFORD, MASSACHUSETTS

SITE LOCATION MAP

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

Drawn: HWB	SCALE: AS SHOWN	FIGURE 1
Checked: DS	Date: JULY 2008	



NOTE: DRAWING BASED ON "McCOY FIELD SITE PLAN" FROM BETA GROUP, NORWOOD, MA DATED 6-04 AND "NEW BEDFORD PROGRESS DRAWING" FROM BETA GROUP, NORWOOD, MA DATED 8-06.

LEGEND:

SED-KMS-18 ● SEDIMENT SAMPLE

W-6 BETA WETLINE EDGE, SAMPLE

PROPERTY BOUNDARY

KEITH MIDDLE SCHOOL WETLAND NEW BEDFORD, MASSACHUSETTS

LTMMIP SEDIMENT MONITORING

MAY 2013

TRC

Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE 2

DRAWN BY: ZLR

CHECKED BY: JBS

DATE: JUNE 2013

FILE: T:\E_CAD\115058\KMS LTMMIPSED 6-2013.dwg

Attachment 1

Site Photographs

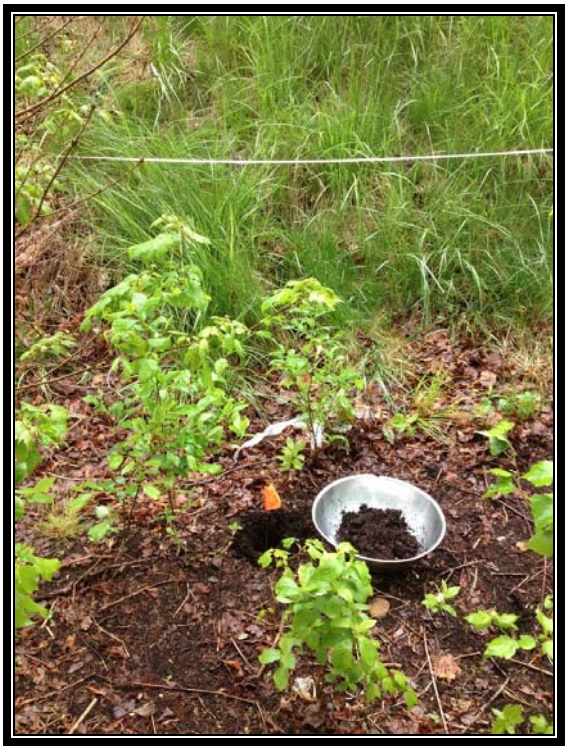
SITE PHOTOGRAPHS
LTMMIP Wetland Sediment Monitoring – May 24, 2013
Keith Middle School
New Bedford, Massachusetts

1) Location SED-KMS-18 (viewed to the east from the sample location).

2) Location SED-KMS-19 (viewed to the northwest).

SITE PHOTOGRAPHS
LTMMIP Wetland Sediment Monitoring – May 24, 2013
Keith Middle School
New Bedford, Massachusetts

3) Location SED-KMS-20 (viewed to the east).



4) Location SED-KMS-21 (viewed to the east).

Attachment 2

Laboratory Data Package

Pace Analytical e-Report

Report prepared for:
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN

Project ID: 115058 KEITH MIDDLE SCHOOL
Sampling Date(s): May 24, 2013
Lab Report ID: 13050717
Client Service Contact: Kelly Miller (518) 346-4592 ext. 23

Analysis Included:
PCB Analysis (Solid)

Test results meet all National Environmental Laboratory Accreditation Conference (NELAC) requirements unless noted in the case narrative. The results contained within this document relate only to the samples included in this report. Pace Analytical is responsible only for the certified testing and is not directly responsible for the integrity of the sample before laboratory receipt. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Dan Pfalzer
Laboratory Director

Certifications: New York (EPA: NY00906, ELAP: 11078), New Jersey (NY026), Connecticut (PH-0337), Massachusetts (M-NY906), Virgi nia (1884)

Pace Analytical Services, Inc.| 2190 Technology Drive | Schenectady, NY 12308
Phone: 518.346.4592 | internet: www.pacelabs.com

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CASE NARRATIVE

June 14, 2013

CASE NARRATIVE

This data package (SDG ID: 13050717) consists of 5 soil samples received on 05/25/2013. The samples are from Project Name: 115058 KEITH MIDDLE SCHOOL.

This sample delivery group consists of the following samples:

1

Lab Sample ID	Client ID	Collection Date
AQ09532	SED-KMS-18 (0-6")	05/24/2013 11:30
AQ09533	SED-KMS-19 (0-6")	05/24/2013 11:40
AQ09534	SED-KMS-19D (0-6")	05/24/2013 12:40
AQ09535	SED-KMS-20 (0-6")	05/24/2013 11:55
AQ09536	SED-KMS-21 (0-6")	05/24/2013 12:05

Sample Delivery and Receipt Conditions

(1.) All samples were delivered to the laboratory via FEDEX delivery service on 05/25/2013.

(2.) All samples were received at the laboratory intact and within holding times.

(3.) The following cooler temperature was recorded at sample receipt (Control limits are between 0-6 Degrees Celsius): 1.0 (IR) degrees Celsius. Please see Chain of Custody for details.

PCB Aroclor Analysis

Analysis for PCB Aroclors was performed by method SW-846 8082A using a dual column GC system. Samples were extracted by Soxhlet Extraction Method (EPA - Method 3540C). The following technical and administrative items were noted for the analysis:

(1.) Sample (LAB ID: AQ09534) was re-analyzed due to chromatographic interference from a non-target contaminant pattern originated from the sample injection. Results for the re-analysis are provided with RR1 sample ID suffix.

Qualifier Summary

(1.) B-Denotes analyte observed in associated method blank or extraction blank at a concentration exceeding the MDL.

(2.) J-Denotes concentration result greater than the MDL but less than the RL.

(3.) U-Denotes analyte not observed at a concentration greater than the MDL.

Respectfully submitted,

Kelly A. Miller

Kelly A. Miller
Project Manager

S:\Lims Data\1305\13050717\Package\CN_13050717_Rev00.doc

SAMPLE CHAIN OF CUSTODY

Pace Analytical®
www.pacelabs.com

<13050717P1>

130507171

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1590691

Section A Required Client Information:

Company: TRC
Address: 650 Suffolk St. Lowell, MA 01854
Email To: dsullivan@trcsolutions.com
Phone: 978-970-5600 Fax:
Requested Due Date/TAT: 5 Day

Section B Required Project Information:

Report To: David Sullivan
Copy To: Jeff Saunders
Purchase Order No.: TBD
Project Name: City of NB - KMS LTMMIP
Project Number: 115058

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☒ OTHER MCP

Site Location STATE: MA

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) PCBs (8082)	Soxhlet Extraction	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SED-KMS-18 (0-6")	SL	G			5/24/13	1130		1	X								X	X		AQ09532
2	SED-KMS-19 (0-6")	SL	G				1140		1	X								X	X		AQ09533
3	SED-KMS-19D (0-6")	SL	G				1240		1	X								X	X		AQ09534
4	SED-KMS-20 (0-6")	SL	G				1155		1	X								X	X		AQ09535
5	SED-KMS-21 (0-6")	SL	G				1205		1	X								X	X		AQ09536
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] / TRC	5/24/13	1345	Via Fedex	5/24/13					
	VIA FED EX			J. Butler / PACE	5/25/13	10:14	1.0°C	(Y)	(Y)	(Y)
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Zachary Richards
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 5/24/13

*Important Note: By signing this form you are accepting Pace's NET 30 ...

INTERNAL SAMPLE TRACKING RECORD

PCB EXTRACTION LOG

Pace Analytical®

Prep Date: 05/27/13 **Batch ID: 22241**

	Prep ID	LAB Sample ID	Alt Sample ID	Matrix	pH	Analysis Required	Extract Type / Unit	Percent Total Solids	Sample Amount (g or mL)	Extract Time On - 1	Extract Time Off - 1	Extract Time On - 2	Extract Time Off - 2	Date Acid Cleaned (MM/DD)	Date TBA Cleaned (MM/DD)	Date Florisil Shake (MM/DD)	Date Hg Shake (MM/DD)	Final Ext. Vol (mL)	Date Conc (MM/DD)	Comments
														Initial for required Clean Up Steps						
														MH	MH	MH	MH			
1	216504	PBLK-55	AQ09532B	Soil		E PCB S	SOX	N/A	10.178	15:00	07:00	NA	NA	05/28	05/28	05/28	05/28	25	05/28	
2	216503	LCS-55	AQ09532L	Soil		E PCB S	SOX	N/A	10.028	15:00	07:00	NA	NA	05/28	05/28	05/28	05/28	25	05/28	
3	216498	13050717-01	AQ09532	Soil		E PCB S	SOX	16.0	10.276	15:00	07:00	NA	NA	05/28	05/28	05/28	05/28	25	05/28	
4	216499	13050717-02	AQ09533	Soil		E PCB S	SOX	17.6	10.467	15:00	07:00	NA	NA	05/28	05/28	05/28	05/28	25	05/28	
5	216500	13050717-03	AQ09534	Soil		E PCB S	SOX	16.9	10.398	15:00	07:00	NA	NA	05/28	05/28	05/28	05/28	25	05/28	
6	216501	13050717-04	AQ09535	Soil		E PCB S	SOX	19.7	10.132	15:00	07:00	NA	NA	05/28	05/28	05/28	05/28	25	05/28	
7	216502	13050717-05	AQ09536	Soil		E PCB S	SOX	19.8	10.400	15:00	07:00	NA	NA	05/28	05/28	05/28	05/28	25	05/28	

Solvent, Surrogate, Spike, and Acid Information

Item	Lot Number	Amount (uL)	Conc (ug/mL)	B	L	LD	S	D	M	K
Sodium Sulfate CURRENT	113272	NA		☑	☑	☐	☑	☐	☐	☐
Thimbles	NO8433x80MM	NA		☑	☑	☐	☑	☐	☐	☐
Sulfuric Acid (Main Lab) CURRENT	K24J10	NA		☑	☑	☐	☑	☐	☐	☐
Mercury (Current)	062612HG	NA		☑	☑	☐	☑	☐	☐	☐
Acetone (Dewar)	DH124	NA		☑	☑	☐	☑	☐	☐	☐
TBA Solution	051313MLB2P176B	NA		☑	☑	☐	☑	☐	☐	☐
Hexane (Dewar)	DI425B	NA		☑	☑	☐	☑	☐	☐	☐
A1242 @ 12.5ppm in Hexane	051713B034P145A	1000	12.5	☐	☑	☐	☐	☐	☐	☐
10% Florisil CURRENT	051413MLB2P177B	NA		☑	☑	☐	☑	☐	☐	☐
0.5ppm TCMX/5.0ppm DCBP in HEXANE	052213B34P152A1-10	500	0.5/5.0	☑	☑	☐	☑	☐	☐	☐

3

Analyst Review: Melissa Harris
Melissa Harris

Peer Review: Craig Petrask
Craig Petrask

Print Date: 6/14/2013
Lims Version : 5.0.7.4
_EXT - LOGBOOK_GC-SV; Rev 02; 1.18.2010; EXTRACTION

PCB SCREEN SHEET

LRF: 13050717 **Batch ID:22241**

Lab Sample ID	File ID	Matrix	Prep Date	Wet Weight (g or mL)	Percent Solids	Dry Weight (g or mL)	Set Volume (mL)	Screen Dilution	Screen Result	Bench Dilution	Dilution Sequence	Final Multiplier	Dilution Analyst
AQ09532B	GC10B-702-22	Soil	**05/27/13**	10.178	N/A	10.178	25	25	0.0093147	1	NA	25x	Michael Abrahamson
	GC10F-723-22	Soil	**05/27/13**	10.178	N/A	10.178	25	25	0.0093147	1	NA	25x	Michael Abrahamson
AQ09532L	GC10B-702-23	Soil	**05/27/13**	10.028	N/A	10.028	25	25	0.66072	1	NA	25x	Michael Abrahamson
	GC10F-723-23	Soil	**05/27/13**	10.028	N/A	10.028	25	25	0.66072	1	NA	25x	Michael Abrahamson
AQ09532	GC10B-702-24	Soil	**05/27/13**	10.276	16.0	1.6442	25	250	0.0042577	1	NA	25x	Michael Abrahamson
	GC10F-723-24	Soil	**05/27/13**	10.276	16.0	1.6442	25	250	0.0042577	1	NA	25x	Michael Abrahamson
AQ09533	GC10B-702-25	Soil	**05/27/13**	10.467	17.6	1.8422	25	250	0.0045286	1	NA	25x	Michael Abrahamson
	GC10F-723-25	Soil	**05/27/13**	10.467	17.6	1.8422	25	250	0.0045286	1	NA	25x	Michael Abrahamson
AQ09534RR1	GC10B-702-29	Soil	**05/27/13**	10.398	16.9	1.7573	25	250	0.0031250	1	NA	25x	Michael Abrahamson
	GC10F-723-29	Soil	**05/27/13**	10.398	16.9	1.7573	25	250	0.0031250	1	NA	25x	Michael Abrahamson
AQ09535	GC10B-702-27	Soil	**05/27/13**	10.132	19.7	1.9960	25	250	0.0052817	1	NA	25x	Michael Abrahamson
	GC10F-723-27	Soil	**05/27/13**	10.132	19.7	1.9960	25	250	0.0052817	1	NA	25x	Michael Abrahamson
AQ09536	GC10B-702-28	Soil	**05/27/13**	10.400	19.8	2.0592	25	250	0.0038840	1	NA	25x	Michael Abrahamson
	GC10F-723-28	Soil	**05/27/13**	10.400	19.8	2.0592	25	250	0.0038840	1	NA	25x	Michael Abrahamson

3

COMMENTS: _____

Page 1 of 1

Print Date: 6/14/2013
Lims Version : 5.0.7.4
_EXT-INJSHEET_NL; Rev 00; 09.29.2010; EXTRACTION

SURROGATE % RECOVERY SUMMARY

4

2F-1
PCB SURROGATE RECOVERY

Laboratory Name: Pace Analytical Services, Inc. SDG: 13050717

ELAP ID No: 11078

GC Column (1): Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

GC Column (2): Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

LRF ID	LAB SAMPLE ID	LAB FILE ID	SURR 1 (Col 1) % REC #	SURR 2 (Col 1) % REC #	SURR 1 (Col 2) % REC #	SURR 2 (Col 2) % REC #	OTHER (1)	OTHER (2)	TOTAL OUT
PBLK-55	AQ09532B	GC10F-723-22	95.0	98.0					0
PBLK-55	AQ09532B	GC10B-702-22			99.6	103			0
LCS-55	AQ09532L	GC10F-723-23	98.7	104					0
LCS-55	AQ09532L	GC10B-702-23			97.4	105			0
13050717-01	AQ09532	GC10F-723-24	99.6	102					0
13050717-01	AQ09532	GC10B-702-24			95.6	106			0
13050717-02	AQ09533	GC10F-723-25	95.6	100					0
13050717-02	AQ09533	GC10B-702-25			95.4	111			0
13050717-03RR1	AQ09534RR1	GC10F-723-29	96.6	104					0
13050717-03RR1	AQ09534RR1	GC10B-702-29			97.9	115			0
13050717-04	AQ09535	GC10F-723-27	93.8	94.2					0
13050717-04	AQ09535	GC10B-702-27			95.6	108			0
13050717-05	AQ09536	GC10F-723-28	106	113					0
13050717-05	AQ09536	GC10B-702-28			105	122			0

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

	Advisory QC Limits.
SURR1 = TETRACHLORO-META-XYLENE	(60.0-140)
SURR2 = DECACHLOROBIPHENYL	(60.0-140)

Form II-CLP-PCB(PACE)

Print Date: 6/14/2013
Lims Version : 5.0.7.4

LABORATORY CONTROL SPIKE SUMMARY

5

3F-2
LABORATORY CONTROL SPIKE (LCS) RECOVERY

Laboratory Name: Pace Analytical Services, Inc.

ELAP ID No: 11078

SDG No: 13050717

LCS Lab ID: LCS-55

Blank Sample ID: PBLK-55

LCS File ID: GC10F-723-23

Method Blank File ID: GC10F-723-22

LCS Inj Date: 05/28/2013 16:29:55

Method Blank Inj Date: 05/28/2013 16:17:21

LCS ID: AQ09532L

Method Blank ID: AQ09532B

LCS Matrix: SODIUM SULFATE

Method Blank Matrix: SODIUM SULFATE

COMPOUND	SPIKE ADDED (ug/g)	LCS CONCENTRATION (ug/g)	LCS PERCENT RECOVERY #	QC LIMITS[1] PERCENT RECOVERY
Aroclor 1242	1.25	1.18	94.9	70.0-130

Column to be used to flag recovery values

* Values outside of QC limits

[1]QC Limits based upon laboratory defaults.

Spike Recovery: 0 out of 1 outside limits.

5

COMMENTS:

Form III-CLP-PCB (PACE)

Lims Version : 5.0.7.4

3F-2
LABORATORY CONTROL SPIKE (LCS) RECOVERY

Laboratory Name: Pace Analytical Services, Inc.

ELAP ID No: 11078 SDG No: 13050717

LCS Lab ID: LCS-55 Blank Sample ID: PBLK-55

LCS File ID: GC10B-702-23 Method Blank File ID: GC10B-702-22

LCS Inj Date: 05/28/2013 16:30:00 Method Blank Inj Date: 05/28/2013 16:17:25

LCS ID: AQ09532L Method Blank ID: AQ09532B

LCS Matrix: SODIUM SULFATE Method Blank Matrix: SODIUM SULFATE

COMPOUND	SPIKE ADDED (ug/g)	LCS CONCENTRATION (ug/g)	LCS PERCENT RECOVERY #	QC LIMITS[1] PERCENT RECOVERY
Aroclor 1242	1.25	1.18	95.0	70.0-130

Column to be used to flag recovery values

* Values outside of QC limits

[1]QC Limits based upon laboratory defaults.

Spike Recovery: 0 out of 1 outside limits.

5

COMMENTS:

Form III-CLP-PCB (PACE)

Lims Version : 5.0.7.4

METHOD BLANK SUMMARY

6

4C-1
PCB METHOD BLANK SUMMARY

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	Blank Sample ID:	PBLK-55
Matrix:	SODIUM SULFATE	Method Blank ID:	AQ09532B
Instrument ID:	GC10F	Lab File ID:	GC10F-723-22
Extraction Type:	Soxhlet Method (3540C)	Date Extracted:	05/27/2013
GC Column (1):	Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm	Date Analyzed:	05/28/2013
		Time Analyzed:	16:17:21

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE / TIME ANALYZED
LCS-55(LAB CONTROL SPIKE)	AQ09532L	GC10F-723-23	05/28/2013 16:29:55
SED-KMS-18 (0-6")	AQ09532	GC10F-723-24	05/28/2013 16:42:31
SED-KMS-19 (0-6")	AQ09533	GC10F-723-25	05/28/2013 16:55:06
SED-KMS-20 (0-6")	AQ09535	GC10F-723-27	05/28/2013 17:20:17
SED-KMS-21 (0-6")	AQ09536	GC10F-723-28	05/28/2013 17:32:53
SED-KMS-19D (0-6")	AQ09534RR1	GC10F-723-29	05/28/2013 17:45:28

4C-1
PCB METHOD BLANK SUMMARY

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	Blank Sample ID:	PBLK-55
Matrix:	SODIUM SULFATE	Method Blank ID:	AQ09532B
Instrument ID:	GC10B	Lab File ID:	GC10B-702-22
Extraction Type:	Soxhlet Method (3540C)	Date Extracted:	05/27/2013
GC Column (1):	Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm	Date Analyzed:	05/28/2013
		Time Analyzed:	16:17:25

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE / TIME ANALYZED
LCS-55(LAB CONTROL SPIKE)	AQ09532L	GC10B-702-23	05/28/2013 16:30:00
SED-KMS-18 (0-6")	AQ09532	GC10B-702-24	05/28/2013 16:42:35
SED-KMS-19 (0-6")	AQ09533	GC10B-702-25	05/28/2013 16:55:11
SED-KMS-20 (0-6")	AQ09535	GC10B-702-27	05/28/2013 17:20:22
SED-KMS-21 (0-6")	AQ09536	GC10B-702-28	05/28/2013 17:32:57
SED-KMS-19D (0-6")	AQ09534RR1	GC10B-702-29	05/28/2013 17:45:33

SAMPLE ANALYSIS DATA

7

1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	13050717-01
Matrix:	Soil	Client ID:	SED-KMS-18 (0-6")
Sample wt(Dry)/vol:	1.6442 g	Lab Sample ID:	AQ09532
Percent Moisture:	84.0	Date Received:	05/25/2013
Extraction:	Soxhlet Method (3540C)	Date Extracted:	05/27/2013
Conc. Extract Volume:	25000 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
		Sulfur Cleanup:	YES

Column 1 Information:

GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10F-723-24

Column 2 Information:

GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10B-702-24

Column Number	CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
1	12674-11-2	Aroclor 1016	0.304	U
1	11104-28-2	Aroclor 1221	0.304	U
1	11141-16-5	Aroclor 1232	0.304	U
1	53469-21-9	Aroclor 1242	0.304	U
1	12672-29-6	Aroclor 1248	0.304	U
1	11097-69-1	Aroclor 1254	0.304	U
1	11096-82-5	Aroclor 1260	0.304	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

7

FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	13050717-02
Matrix:	Soil	Client ID:	SED-KMS-19 (0-6")
Sample wt(Dry)/vol:	1.8422 g	Lab Sample ID:	AQ09533
Percent Moisture:	82.4	Date Received:	05/25/2013
Extraction:	Soxhlet Method (3540C)	Date Extracted:	05/27/2013
Conc. Extract Volume:	25000 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
		Sulfur Cleanup:	YES

Column 1 Information:

GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10F-723-25

Column 2 Information:

GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10B-702-25

Column Number	CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
1	12674-11-2	Aroclor 1016	0.271	U
1	11104-28-2	Aroclor 1221	0.271	U
1	11141-16-5	Aroclor 1232	0.271	U
1	53469-21-9	Aroclor 1242	0.271	U
1	12672-29-6	Aroclor 1248	0.271	U
1	11097-69-1	Aroclor 1254	0.271	U
1	11096-82-5	Aroclor 1260	0.271	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

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FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	13050717-03RR1
Matrix:	Soil	Client ID:	SED-KMS-19D (0-6")
Sample wt(Dry)/vol:	1.7573 g	Lab Sample ID:	AQ09534RR1
Percent Moisture:	83.1	Date Received:	05/25/2013
Extraction:	Soxhlet Method (3540C)	Date Extracted:	05/27/2013
Conc. Extract Volume:	25000 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
		Sulfur Cleanup:	YES

Column 1 Information:

GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10F-723-29

Column 2 Information:

GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10B-702-29

Column Number	CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
1	12674-11-2	Aroclor 1016	0.285	U
1	11104-28-2	Aroclor 1221	0.285	U
1	11141-16-5	Aroclor 1232	0.285	U
1	53469-21-9	Aroclor 1242	0.285	U
1	12672-29-6	Aroclor 1248	0.285	U
1	11097-69-1	Aroclor 1254	0.285	U
1	11096-82-5	Aroclor 1260	0.285	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

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FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	13050717-04
Matrix:	Soil	Client ID:	SED-KMS-20 (0-6")
Sample wt(Dry)/vol:	1.9960 g	Lab Sample ID:	AQ09535
Percent Moisture:	80.3	Date Received:	05/25/2013
Extraction:	Soxhlet Method (3540C)	Date Extracted:	05/27/2013
Conc. Extract Volume:	25000 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
		Sulfur Cleanup:	YES

Column 1 Information:

GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10F-723-27

Column 2 Information:

GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10B-702-27

Column Number	CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
1	12674-11-2	Aroclor 1016	0.251	U
1	11104-28-2	Aroclor 1221	0.251	U
1	11141-16-5	Aroclor 1232	0.251	U
1	53469-21-9	Aroclor 1242	0.251	U
1	12672-29-6	Aroclor 1248	0.251	U
1	11097-69-1	Aroclor 1254	0.251	U
1	11096-82-5	Aroclor 1260	0.251	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

7

FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	13050717-05
Matrix:	Soil	Client ID:	SED-KMS-21 (0-6")
Sample wt(Dry)/vol:	2.0592 g	Lab Sample ID:	AQ09536
Percent Moisture:	80.2	Date Received:	05/25/2013
Extraction:	Soxhlet Method (3540C)	Date Extracted:	05/27/2013
Conc. Extract Volume:	25000 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
		Sulfur Cleanup:	YES

Column 1 Information:

GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10F-723-28

Column 2 Information:

GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

Injection Volume: 1.0 uL

Lab File ID: GC10B-702-28

Column Number	CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
1	12674-11-2	Aroclor 1016	0.243	U
1	11104-28-2	Aroclor 1221	0.243	U
1	11141-16-5	Aroclor 1232	0.243	U
1	53469-21-9	Aroclor 1242	0.243	U
1	12672-29-6	Aroclor 1248	0.243	U
1	11097-69-1	Aroclor 1254	0.243	U
1	11096-82-5	Aroclor 1260	0.243	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

7

FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

ANALYTICAL SEQUENCE (GC10F)

8

8-D-1
PCB ANALYTICAL SEQUENCE

Laboratory Name: Pace Analytical Services, Inc. SDG No: 13050717

ELAP ID No: 11078

Instrument ID: GC10F Init. Calib. Date(s): 05/24/13

GC Column (1): Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

THE ANALYTICAL SEQUENCE OF SAMPLES, QC, AND STANDARDS IS GIVEN BELOW:

SURROGATE RETENTION TIME (RT) FROM INITIAL OR CONTINUING CALIBRATION
TCMX RT: 2.32 DCBP RT: 8.77

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE / TIME ANALYZED	TCMX RT # (+/-0.05 min)	DCBP RT # (+/-0.10 min)
01	A1016 20 PPB	052416A	GC10F-719-3	05/24/2013 08:20:00	2.32	8.77
02	A1016 100 PPB	052416B	GC10F-719-4	05/24/2013 08:32:36	2.32	8.77
03	A1016 250 PPB	052416C	GC10F-719-5	05/24/2013 08:45:12	2.32	8.77
04	A1016 500 PPB	052416D	GC10F-719-6	05/24/2013 08:57:48	2.32	8.77
05	A1016 1000 PPB	052416E	GC10F-719-7	05/24/2013 09:10:24	2.32	8.77
06	A1221 20 PPB	052421A	GC10F-719-8	05/24/2013 09:23:00	2.32	8.77
07	A1221 100 PPB	052421B	GC10F-719-9	05/24/2013 09:35:36	2.32	8.77
08	A1221 250 PPB	052421C	GC10F-719-10	05/24/2013 09:48:11	2.32	8.77
09	A1221 500 PPB	052421D	GC10F-719-11	05/24/2013 10:00:46	2.32	8.77
10	A1221 1000 PPB	052421E	GC10F-719-12	05/24/2013 10:13:22	2.32	8.77
11	A1232 20 PPB	052432A	GC10F-719-13	05/24/2013 10:25:58	2.32	8.77
12	A1232 100 PPB	052432B	GC10F-719-14	05/24/2013 10:38:34	2.32	8.77
13	A1232 250 PPB	052432C	GC10F-719-15	05/24/2013 10:51:10	2.32	8.77
14	A1232 500 PPB	052432D	GC10F-719-16	05/24/2013 11:03:46	2.32	8.77
15	A1232 1000 PPB	052432E	GC10F-719-17	05/24/2013 11:16:22	2.32	8.77
16	A1242 20 PPB	052442A	GC10F-719-18	05/24/2013 11:28:58	2.32	8.77
17	A1242 100 PPB	052442B	GC10F-719-19	05/24/2013 11:41:33	2.32	8.77
18	A1242 250 PPB	052442C	GC10F-719-20	05/24/2013 11:54:08	2.32	8.77
19	A1242 500 PPB	052442D	GC10F-719-21	05/24/2013 12:06:43	2.32	8.77
20	A1242 1000 PPB	052442E	GC10F-719-22	05/24/2013 12:19:17	2.32	8.77
21	A1248 20 PPB	052448A	GC10F-719-23	05/24/2013 12:31:52	2.32	8.77
22	A1248 100 PPB	052448B	GC10F-719-24	05/24/2013 12:44:29	2.32	8.77
23	A1248 250 PPB	052448C	GC10F-719-25	05/24/2013 12:57:04	2.32	8.77
24	A1248 500 PPB	052448D	GC10F-719-26	05/24/2013 13:09:40	2.32	8.77
25	A1248 1000 PPB	052448E	GC10F-719-27	05/24/2013 13:22:16	2.32	8.77
26	A1254 20 PPB	052454A	GC10F-719-28	05/24/2013 13:34:51	2.32	8.77
27	A1254 100 PPB	052454B	GC10F-719-29	05/24/2013 13:47:26	2.32	8.76
28	A1254 250 PPB	052454C	GC10F-719-30	05/24/2013 14:00:01	2.32	8.77
29	A1254 500 PPB	052454D	GC10F-719-31	05/24/2013 14:12:36	2.32	8.77
30	A1254 1000 PPB	052454E	GC10F-719-32	05/24/2013 14:25:11	2.32	8.76
31	A1260 20 PPB	052460A	GC10F-719-33	05/24/2013 14:37:46	2.32	8.77
32	A1260 100 PPB	052460B	GC10F-719-34	05/24/2013 14:50:22	2.32	8.77
33	A1260 250 PPB	052460C	GC10F-719-35	05/24/2013 15:02:56	2.32	8.77
34	A1260 500 PPB	052460D	GC10F-719-36	05/24/2013 15:15:35	2.32	8.77
35	A1260 1000 PPB	052460E	GC10F-719-37	05/24/2013 15:28:10	2.32	8.77
36	A1262 20 PPB	052462A	GC10F-719-38	05/24/2013 15:40:45	2.32	8.77
37	A1262 100 PPB	052462B	GC10F-719-39	05/24/2013 15:53:20	2.32	8.77
38	A1262 250 PPB	052462C	GC10F-719-40	05/24/2013 16:05:55	2.32	8.77

Column used to flag surrogate retention times outside expected range.

8-D-1
PCB ANALYTICAL SEQUENCE

Laboratory Name: Pace Analytical Services, Inc. SDG No: 13050717

ELAP ID No: 11078

Instrument ID: GC10F Init. Calib. Date(s): 05/24/13

GC Column (1): Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

THE ANALYTICAL SEQUENCE OF SAMPLES, QC, AND STANDARDS IS GIVEN BELOW:

SURROGATE RETENTION TIME (RT) FROM INITIAL OR CONTINUING CALIBRATION
TCMX RT: 2.32 DCBP RT: 8.77

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE / TIME ANALYZED	TCMX RT # (+/-0.05 min)	DCBP RT # (+/-0.10 min)
39	A1262 500 PPB	052462D	GC10F-719-41	05/24/2013 16:18:30	2.32	8.77
40	A1262 1000 PPB	052462E	GC10F-719-42	05/24/2013 16:31:06	2.32	8.77
41	A1268 20 PPB	052468A	GC10F-719-43	05/24/2013 16:43:40	2.32	8.77
42	A1268 100 PPB	052468B	GC10F-719-44	05/24/2013 16:56:16	2.32	8.77
43	A1268 250 PPB	052468C	GC10F-719-45	05/24/2013 17:08:52	2.32	8.77
44	A1268 500 PPB	052468D	GC10F-719-46	05/24/2013 17:21:28	2.32	8.77
45	A1268 1000 PPB	052468E	GC10F-719-47	05/24/2013 17:34:03	2.32	8.77
46	IUPAC 15 20 PPB	0524FSA	GC10F-719-48	05/24/2013 17:46:38	2.32	8.77
47	IUPAC 15 50 PPB	0524FSB	GC10F-719-49	05/24/2013 17:59:13	2.32	8.77
48	IUPAC 15 80 PPB	0524FSC	GC10F-719-50	05/24/2013 18:11:49	2.32	8.77
49	IUPAC 15 100 PPB	0524FSD	GC10F-719-51	05/24/2013 18:24:24	2.32	8.77
50	IUPAC 15 200 PPB	0524FSE	GC10F-719-52	05/24/2013 18:37:00	2.32	8.77
51	A1016 500 PPB	CS160524B	GC10F-719-65	05/24/2013 21:20:40	2.32	8.76
52	A1221 500 PPB	CS210524B	GC10F-719-66	05/24/2013 21:33:15	2.32	8.77
53	A1232 500 PPB	CS320524B	GC10F-719-67	05/24/2013 21:45:50	2.32	8.77
54	A1242 500 PPB	CS420524B	GC10F-719-68	05/24/2013 21:58:25	2.32	8.76
55	A1248 500 PPB	CS480524B	GC10F-719-69	05/24/2013 22:11:01	2.32	8.76
56	A1254 500 PPB	CS540524B	GC10F-719-70	05/24/2013 22:23:37	2.32	8.76
57	A1260 500 PPB	CS600524B	GC10F-719-71	05/24/2013 22:36:12	2.32	8.76
58	A1262 500 PPB	CS620524B	GC10F-719-72	05/24/2013 22:48:48	2.32	8.77
59	A1268 500 PPB	CS680524B	GC10F-719-73	05/24/2013 23:01:23	2.32	8.76
60	SURR IUPAC 15 70 PPB	130524FS02	GC10F-719-74	05/24/2013 23:13:58	2.32	8.77
61	A1016 500 PPB	CS160528A	GC10F-723-21	05/28/2013 15:09:43	2.32	8.77
62	PBLK-55(METHOD BLANK)	AQ09532B	GC10F-723-22	05/28/2013 16:17:21	2.33	8.77
63	LCS-55(LAB CONTROL SPIKE)	AQ09532L	GC10F-723-23	05/28/2013 16:29:55	2.32	8.76
64	SED-KMS-18 (0-6")	AQ09532	GC10F-723-24	05/28/2013 16:42:31	2.32	8.76
65	SED-KMS-19 (0-6")	AQ09533	GC10F-723-25	05/28/2013 16:55:06	2.32	8.76
66	SED-KMS-20 (0-6")	AQ09535	GC10F-723-27	05/28/2013 17:20:17	2.32	8.76
67	SED-KMS-21 (0-6")	AQ09536	GC10F-723-28	05/28/2013 17:32:53	2.32	8.76
68	SED-KMS-19D (0-6")	AQ09534RR1	GC10F-723-29	05/28/2013 17:45:28	2.32	8.76
69	A1221 500 PPB	CS210528A	GC10F-723-30	05/28/2013 17:58:04	2.32	8.76

Column used to flag surrogate retention times outside expected range.

INITIAL CALIBRATION DATA (GC10F)

9

6F-1
PCB INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Laboratory Name: Pace Analytical Services, Inc.
SDG NO: 13050717
ELAP ID No: 11078
Date(s) Analyzed: 05/24/13
Instrument ID: GC10F
GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	AMOUNT (ppb)	TOTAL[1] RF	MEAN RF	% RSD
Aroclor 1016	GC10F-719-3	052416A	20.0	70.109		
	GC10F-719-4	052416B	100	66.607		
	GC10F-719-5	052416C	250	67.653		
	GC10F-719-6	052416D	500	61.562		
	GC10F-719-7	052416E	1000	55.303	64.247	9.2
Aroclor 1221	GC10F-719-8	052421A	20.0	19.355		
	GC10F-719-9	052421B	100	18.702		
	GC10F-719-10	052421C	250	17.817		
	GC10F-719-11	052421D	500	17.479		
	GC10F-719-12	052421E	1000	16.559	17.983	6.0
Aroclor 1232	GC10F-719-13	052432A	20.0	31.511		
	GC10F-719-14	052432B	100	30.599		
	GC10F-719-15	052432C	250	29.229		
	GC10F-719-16	052432D	500	27.398		
	GC10F-719-17	052432E	1000	26.478	29.043	7.3
Aroclor 1242	GC10F-719-18	052442A	20.0	53.864		
	GC10F-719-19	052442B	100	52.270		
	GC10F-719-20	052442C	250	51.065		
	GC10F-719-21	052442D	500	50.325		
	GC10F-719-22	052442E	1000	45.679	50.641	6.1
Aroclor 1248	GC10F-719-23	052448A	20.0	53.439		
	GC10F-719-24	052448B	100	53.300		
	GC10F-719-25	052448C	250	51.736		
	GC10F-719-26	052448D	500	48.808		
	GC10F-719-27	052448E	1000	47.452	50.947	5.3
Aroclor 1254	GC10F-719-28	052454A	20.0	79.232		
	GC10F-719-29	052454B	100	83.111		
	GC10F-719-30	052454C	250	74.328		
	GC10F-719-31	052454D	500	71.135		
	GC10F-719-32	052454E	1000	68.884	75.338	7.7
Aroclor 1260	GC10F-719-33	052460A	20.0	94.709		
	GC10F-719-34	052460B	100	90.841		
	GC10F-719-35	052460C	250	80.807		
	GC10F-719-36	052460D	500	81.063		
	GC10F-719-37	052460E	1000	74.337	84.351	9.8
Aroclor 1262	GC10F-719-38	052462A	20.0	108.483		
	GC10F-719-39	052462B	100	99.498		
	GC10F-719-40	052462C	250	90.986		
	GC10F-719-41	052462D	500	84.416		
	GC10F-719-42	052462E	1000	80.496	92.776	12

FORM VI-CLP-PCB(PACE)

Print Date: 6/14/2013
Lims Version : 5.0.7.4

6F-1
PCB INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Laboratory Name: Pace Analytical Services, Inc.
SDG NO: 13050717
ELAP ID No: 11078
Date(s) Analyzed: 05/24/13
Instrument ID: GC10F
GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	AMOUNT (ppb)	TOTAL[1] RF	MEAN RF	% RSD
Aroclor 1268	GC10F-719-43	052468A	20.0	165.455		
	GC10F-719-44	052468B	100	168.364		
	GC10F-719-45	052468C	250	147.714		
	GC10F-719-46	052468D	500	134.651		
	GC10F-719-47	052468E	1000	125.800	148.397	13
TCMX	GC10F-719-28	052454A	2.00	400.029		
	GC10F-719-29	052454B	5.00	366.224		
	GC10F-719-30	052454C	8.00	350.634		
	GC10F-719-31	052454D	10.0	347.872		
	GC10F-719-32	052454E	20.0	350.664	363.085	6.0
4,4'-Dibromobiphenyl	GC10F-719-48	0524FSA	20.0	150.489		
	GC10F-719-49	0524FSB	50.0	153.155		
	GC10F-719-50	0524FSC	80.0	148.298		
	GC10F-719-51	0524FSD	100	141.536		
	GC10F-719-52	0524FSE	200	138.176	146.331	4.3
DCBP	GC10F-719-28	052454A	20.0	341.164		
	GC10F-719-29	052454B	50.0	290.224		
	GC10F-719-30	052454C	80.0	257.782		
	GC10F-719-31	052454D	100	259.000		
	GC10F-719-32	052454E	200	236.244	276.883	15

% RSD Limit <= 20%
TCMX=TETRACHLOROMETAXYLENE
DCBP=DECACHLOROBIPHENYL

[1] Response factor calculated using total area of 5 peaks used to quantitate each Aroclor. Mean response factor not used in Aroclor quantitation, calibration curve by linear regression used for quantitation. Concentrations are nominal values, please see Calibration Curve Report Point Table for actual values.

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INITIAL/CONTINUING CALIBRATION DATA (GC10F)

10

7E-1
PCB CALIBRATION VERIFICATION SUMMARY

Laboratory Name: Pace Analytical Services, Inc.
SDG NO: 13050717
ELAP ID No: 11078
Instrument ID: GC10F
GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	CALIB TYPE	CALC AMOUNT (ng/mL)	NOM AMOUNT (ng/mL)	PERCENT DIFFERENCE	Q	DATE / TIME ANALYZED
Aroclor 1016	GC10F-719-65	CS160524B	ICV	482	500	-3.59		05/24/2013 21:20:40
Aroclor 1221	GC10F-719-66	CS210524B	ICV	499	500	-0.258		05/24/2013 21:33:15
Aroclor 1232	GC10F-719-67	CS320524B	ICV	508	500	1.67		05/24/2013 21:45:50
Aroclor 1242	GC10F-719-68	CS420524B	ICV	509	500	1.82		05/24/2013 21:58:25
Aroclor 1248	GC10F-719-69	CS480524B	ICV	507	500	1.37		05/24/2013 22:11:01
Aroclor 1254	GC10F-719-70	CS540524B	ICV	522	500	4.39		05/24/2013 22:23:37
Aroclor 1260	GC10F-719-71	CS600524B	ICV	481	500	-3.77		05/24/2013 22:36:12
Aroclor 1262	GC10F-719-72	CS620524B	ICV	477	500	-4.61		05/24/2013 22:48:48
Aroclor 1268	GC10F-719-73	CS680524B	ICV	480	500	-3.97		05/24/2013 23:01:23
Aroclor 1016	GC10F-723-21	CS160528A	CCV	451	500	-9.82		05/28/2013 15:09:43
Aroclor 1221	GC10F-723-30	CS210528A	CCV	499	500	-0.206		05/28/2013 17:58:04

% Difference must be less than or equal to +/- 15 percent
ICV = Initial Calibration Verification
CCV = Continuing Calibration Verification

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7E-2
PCB CALIBRATION VERIFICATION SUMMARY

Laboratory Name: Pace Analytical Services, Inc.
SGD NO: 13050717
ELAP ID No: 11078
Instrument ID: GC10F
GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	CALIB* TYPE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO
Aroclor 1016	GC10F-719-65	CS160524B	ICV	1	3.17	3.09	3.25
		CS160524B	ICV	2	3.38	3.30	3.46
		CS160524B	ICV	3	3.70	3.62	3.78
		CS160524B	ICV	4	3.81	3.73	3.89
		CS160524B	ICV	5	3.88	3.80	3.96
Aroclor 1221	GC10F-719-66	CS210524B	ICV	1	1.65	1.57	1.73
		CS210524B	ICV	2	2.24	2.16	2.32
		CS210524B	ICV	3	2.53	2.45	2.61
		CS210524B	ICV	4	2.63	2.55	2.71
		CS210524B	ICV	5	2.70	2.62	2.78
Aroclor 1232	GC10F-719-67	CS320524B	ICV	1	2.69	2.61	2.77
		CS320524B	ICV	2	3.38	3.30	3.46
		CS320524B	ICV	3	3.71	3.63	3.79
		CS320524B	ICV	4	3.81	3.73	3.89
		CS320524B	ICV	5	3.88	3.80	3.96
Aroclor 1242	GC10F-719-68	CS420524B	ICV	1	3.17	3.09	3.25
		CS420524B	ICV	2	3.37	3.29	3.45
		CS420524B	ICV	3	3.70	3.62	3.78
		CS420524B	ICV	4	3.81	3.73	3.89
		CS420524B	ICV	5	3.88	3.80	3.96
Aroclor 1248	GC10F-719-69	CS480524B	ICV	1	4.16	4.08	4.24
		CS480524B	ICV	2	4.46	4.38	4.54
		CS480524B	ICV	3	4.74	4.66	4.82
		CS480524B	ICV	4	4.81	4.73	4.89
		CS480524B	ICV	5	4.98	4.90	5.06
Aroclor 1254	GC10F-719-70	CS540524B	ICV	1	5.11	5.03	5.19
		CS540524B	ICV	2	5.37	5.29	5.45
		CS540524B	ICV	3	5.48	5.40	5.56
		CS540524B	ICV	4	6.03	5.95	6.11
		CS540524B	ICV	5	6.32	6.24	6.40
Aroclor 1260	GC10F-719-71	CS600524B	ICV	1	6.33	6.25	6.41
		CS600524B	ICV	2	7.08	7.00	7.16
		CS600524B	ICV	3	7.35	7.27	7.43
		CS600524B	ICV	4	7.55	7.47	7.63
		CS600524B	ICV	5	8.04	7.96	8.12
Aroclor 1262	GC10F-719-72	CS620524B	ICV	1	6.33	6.25	6.41
		CS620524B	ICV	2	7.09	7.01	7.17
		CS620524B	ICV	3	7.35	7.27	7.43

FORM VII-CLP-PCB(PACE)

Print Date: 6/14/2013
Lims Version : 5.0.7.4

7E-2
PCB CALIBRATION VERIFICATION SUMMARY

Laboratory Name: Pace Analytical Services, Inc.
SGD NO: 13050717
ELAP ID No: 11078
Instrument ID: GC10F
GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	CALIB TYPE*	PEAK	RT	RT WINDOW FROM	RT WINDOW TO
Aroclor 1262		CS620524B	ICV	4	7.56	7.48	7.64
		CS620524B	ICV	5	8.05	7.97	8.13
Aroclor 1268	GC10F-719-73	CS680524B	ICV	1	7.55	7.47	7.63
		CS680524B	ICV	2	8.04	7.96	8.12
		CS680524B	ICV	3	7.49	7.41	7.57
		CS680524B	ICV	4	7.86	7.78	7.94
		CS680524B	ICV	5	7.94	7.86	8.02

* ICV = Initial Calibration Verification
CCV = Continuing Calibration Verification

10

7E-2
PCB CALIBRATION VERIFICATION SUMMARY

Laboratory Name: Pace Analytical Services, Inc.
SGD NO: 13050717
ELAP ID No: 11078
Instrument ID: GC10F
GC Column: Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	CALIB TYPE*	PEAK	RT	RT WINDOW FROM	RT WINDOW TO
Aroclor 1016	GC10F-723-21	CS160528A	CCV	1	3.18	3.09	3.25
		CS160528A	CCV	2	3.38	3.30	3.46
		CS160528A	CCV	3	3.71	3.62	3.78
		CS160528A	CCV	4	3.81	3.73	3.89
		CS160528A	CCV	5	3.88	3.80	3.96
Aroclor 1221	GC10F-723-30	CS210528A	CCV	1	1.65	1.57	1.73
		CS210528A	CCV	2	2.24	2.16	2.32
		CS210528A	CCV	3	2.53	2.45	2.61
		CS210528A	CCV	4	2.63	2.55	2.71
		CS210528A	CCV	5	2.69	2.62	2.78

* ICV = Initial Calibration Verification
CCV = Continuing Calibration Verification

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ANALYTICAL SEQUENCE (GC10B)

8-D-1
PCB ANALYTICAL SEQUENCE

Laboratory Name: Pace Analytical Services, Inc. SDG No: 13050717

ELAP ID No: 11078

Instrument ID: GC10B Init. Calib. Date(s): 05/24/13

GC Column (1): Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

THE ANALYTICAL SEQUENCE OF SAMPLES, QC, AND STANDARDS IS GIVEN BELOW:

SURROGATE RETENTION TIME (RT) FROM INITIAL OR CONTINUING CALIBRATION
TCMX RT: 3.05 DCBP RT: 9.07

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE / TIME ANALYZED	TCMX RT # (+/-0.05 min)	DCBP RT # (+/-0.10 min)
01	A1016 20 PPB	052416A	GC10B-697-3	05/24/2013 08:20:04	3.05	9.07
02	A1016 100 PPB	052416B	GC10B-697-4	05/24/2013 08:32:41	3.05	9.07
03	A1016 250 PPB	052416C	GC10B-697-5	05/24/2013 08:45:16	3.05	9.07
04	A1016 500 PPB	052416D	GC10B-697-6	05/24/2013 08:57:53	3.05	9.07
05	A1016 1000 PPB	052416E	GC10B-697-7	05/24/2013 09:10:28	3.05	9.07
06	A1221 20 PPB	052421A	GC10B-697-8	05/24/2013 09:23:05	3.05	9.07
07	A1221 100 PPB	052421B	GC10B-697-9	05/24/2013 09:35:40	3.05	9.07
08	A1221 250 PPB	052421C	GC10B-697-10	05/24/2013 09:48:16	3.05	9.07
09	A1221 500 PPB	052421D	GC10B-697-11	05/24/2013 10:00:51	3.05	9.07
10	A1221 1000 PPB	052421E	GC10B-697-12	05/24/2013 10:13:27	3.05	9.07
11	A1232 20 PPB	052432A	GC10B-697-13	05/24/2013 10:26:03	3.05	9.07
12	A1232 100 PPB	052432B	GC10B-697-14	05/24/2013 10:38:38	3.05	9.07
13	A1232 250 PPB	052432C	GC10B-697-15	05/24/2013 10:51:14	3.05	9.07
14	A1232 500 PPB	052432D	GC10B-697-16	05/24/2013 11:03:50	3.05	9.07
15	A1232 1000 PPB	052432E	GC10B-697-17	05/24/2013 11:16:26	3.05	9.07
16	A1242 20 PPB	052442A	GC10B-697-18	05/24/2013 11:29:02	3.05	9.07
17	A1242 100 PPB	052442B	GC10B-697-19	05/24/2013 11:41:37	3.05	9.07
18	A1242 250 PPB	052442C	GC10B-697-20	05/24/2013 11:54:12	3.05	9.07
19	A1242 500 PPB	052442D	GC10B-697-21	05/24/2013 12:06:47	3.05	9.07
20	A1242 1000 PPB	052442E	GC10B-697-22	05/24/2013 12:19:22	3.05	9.07
21	A1248 20 PPB	052448A	GC10B-697-23	05/24/2013 12:31:57	3.05	9.07
22	A1248 100 PPB	052448B	GC10B-697-24	05/24/2013 12:44:33	3.05	9.07
23	A1248 250 PPB	052448C	GC10B-697-25	05/24/2013 12:57:09	3.05	9.07
24	A1248 500 PPB	052448D	GC10B-697-26	05/24/2013 13:09:45	3.05	9.07
25	A1248 1000 PPB	052448E	GC10B-697-27	05/24/2013 13:22:21	3.05	9.07
26	A1254 20 PPB	052454A	GC10B-697-28	05/24/2013 13:34:55	3.05	9.07
27	A1254 100 PPB	052454B	GC10B-697-29	05/24/2013 13:47:30	3.05	9.07
28	A1254 250 PPB	052454C	GC10B-697-30	05/24/2013 14:00:05	3.05	9.07
29	A1254 500 PPB	052454D	GC10B-697-31	05/24/2013 14:12:40	3.05	9.07
30	A1254 1000 PPB	052454E	GC10B-697-32	05/24/2013 14:25:15	3.05	9.06
31	A1260 20 PPB	052460A	GC10B-697-33	05/24/2013 14:37:50	3.05	9.07
32	A1260 100 PPB	052460B	GC10B-697-34	05/24/2013 14:50:26	3.05	9.07
33	A1260 250 PPB	052460C	GC10B-697-35	05/24/2013 15:03:01	3.05	9.07
34	A1260 500 PPB	052460D	GC10B-697-36	05/24/2013 15:15:39	3.05	9.07
35	A1260 1000 PPB	052460E	GC10B-697-37	05/24/2013 15:28:15	3.05	9.07
36	A1262 20 PPB	052462A	GC10B-697-38	05/24/2013 15:40:49	3.05	9.07
37	A1262 100 PPB	052462B	GC10B-697-39	05/24/2013 15:53:24	3.05	9.07
38	A1262 250 PPB	052462C	GC10B-697-40	05/24/2013 16:06:00	3.05	9.07

Column used to flag surrogate retention times outside expected range.

FORM VIII-CLP-PCB(PACE)

Print Date: 6/14/2013
Lims Version : 5.0.7.4

8-D-1
PCB ANALYTICAL SEQUENCE

Laboratory Name: Pace Analytical Services, Inc. SDG No: 13050717

ELAP ID No: 11078

Instrument ID: GC10B Init. Calib. Date(s): 05/24/13

GC Column (1): Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

THE ANALYTICAL SEQUENCE OF SAMPLES, QC, AND STANDARDS IS GIVEN BELOW:

SURROGATE RETENTION TIME (RT) FROM INITIAL OR CONTINUING CALIBRATION
TCMX RT: 3.05 DCBP RT: 9.07

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE / TIME ANALYZED	TCMX RT # (+/-0.05 min)	DCBP RT # (+/-0.10 min)
39	A1262 500 PPB	052462D	GC10B-697-41	05/24/2013 16:18:35	3.05	9.07
40	A1262 1000 PPB	052462E	GC10B-697-42	05/24/2013 16:31:10	3.05	9.07
41	A1268 20 PPB	052468A	GC10B-697-43	05/24/2013 16:43:45	3.05	9.07
42	A1268 100 PPB	052468B	GC10B-697-44	05/24/2013 16:56:21	3.05	9.07
43	A1268 250 PPB	052468C	GC10B-697-45	05/24/2013 17:08:56	3.05	9.07
44	A1268 500 PPB	052468D	GC10B-697-46	05/24/2013 17:21:32	3.05	9.07
45	A1268 1000 PPB	052468E	GC10B-697-47	05/24/2013 17:34:07	3.05	9.07
46	IUPAC 15 20 PPB	0524FSA	GC10B-697-48	05/24/2013 17:46:42	3.05	9.07
47	IUPAC 15 50 PPB	0524FSB	GC10B-697-49	05/24/2013 17:59:18	3.05	9.07
48	IUPAC 15 80 PPB	0524FSC	GC10B-697-50	05/24/2013 18:11:54	3.05	9.07
49	IUPAC 15 100 PPB	0524FSD	GC10B-697-51	05/24/2013 18:24:28	3.05	9.07
50	IUPAC 15 200 PPB	0524FSE	GC10B-697-52	05/24/2013 18:37:04	3.05	9.07
51	A1016 500 PPB	CS160524B	GC10B-697-65	05/24/2013 21:20:44	3.04	9.06
52	A1221 500 PPB	CS210524B	GC10B-697-66	05/24/2013 21:33:19	3.05	9.07
53	A1232 500 PPB	CS320524B	GC10B-697-67	05/24/2013 21:45:54	3.05	9.07
54	A1242 500 PPB	CS420524B	GC10B-697-68	05/24/2013 21:58:30	3.05	9.07
55	A1248 500 PPB	CS480524B	GC10B-697-69	05/24/2013 22:11:06	3.05	9.07
56	A1254 500 PPB	CS540524B	GC10B-697-70	05/24/2013 22:23:41	3.05	9.06
57	A1260 500 PPB	CS600524B	GC10B-697-71	05/24/2013 22:36:17	3.05	9.07
58	A1262 500 PPB	CS620524B	GC10B-697-72	05/24/2013 22:48:53	3.05	9.07
59	A1268 500 PPB	CS680524B	GC10B-697-73	05/24/2013 23:01:27	3.05	9.07
60	SURR IUPAC 15 70 PPB	130524FS02	GC10B-697-74	05/24/2013 23:14:03	3.05	9.07
61	A1016 500 PPB	CS160528A	GC10B-702-21	05/28/2013 15:09:47	3.05	9.07
62	PBLK-55(METHOD BLANK)	AQ09532B	GC10B-702-22	05/28/2013 16:17:25	3.05	9.07
63	LCS-55(LAB CONTROL SPIKE)	AQ09532L	GC10B-702-23	05/28/2013 16:30:00	3.04	9.07
64	SED-KMS-18 (0-6")	AQ09532	GC10B-702-24	05/28/2013 16:42:35	3.05	9.06
65	SED-KMS-19 (0-6")	AQ09533	GC10B-702-25	05/28/2013 16:55:11	3.05	9.07
66	SED-KMS-20 (0-6")	AQ09535	GC10B-702-27	05/28/2013 17:20:22	3.05	9.06
67	SED-KMS-21 (0-6")	AQ09536	GC10B-702-28	05/28/2013 17:32:57	3.05	9.07
68	SED-KMS-19D (0-6")	AQ09534RR1	GC10B-702-29	05/28/2013 17:45:33	3.05	9.06
69	A1221 500 PPB	CS210528A	GC10B-702-30	05/28/2013 17:58:09	3.05	9.06

Column used to flag surrogate retention times outside expected range.

INITIAL CALIBRATION DATA (GC10B)

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6F-1
PCB INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Laboratory Name: Pace Analytical Services, Inc.
SDG NO: 13050717
ELAP ID No: 11078
Date(s) Analyzed: 05/24/13
Instrument ID: GC10B
GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	AMOUNT (ppb)	TOTAL[1] RF	MEAN RF	% RSD
Aroclor 1016	GC10B-697-3	052416A	20.0	56.808		
	GC10B-697-4	052416B	100	55.818		
	GC10B-697-5	052416C	250	58.776		
	GC10B-697-6	052416D	500	52.940		
	GC10B-697-7	052416E	1000	48.664	54.601	7.2
Aroclor 1221	GC10B-697-8	052421A	20.0	15.416		
	GC10B-697-9	052421B	100	14.769		
	GC10B-697-10	052421C	250	14.009		
	GC10B-697-11	052421D	500	13.904		
	GC10B-697-12	052421E	1000	13.765	14.373	4.9
Aroclor 1232	GC10B-697-13	052432A	20.0	28.232		
	GC10B-697-14	052432B	100	25.229		
	GC10B-697-15	052432C	250	24.025		
	GC10B-697-16	052432D	500	24.191		
	GC10B-697-17	052432E	1000	23.494	25.034	7.6
Aroclor 1242	GC10B-697-18	052442A	20.0	46.657		
	GC10B-697-19	052442B	100	44.559		
	GC10B-697-20	052442C	250	43.888		
	GC10B-697-21	052442D	500	45.225		
	GC10B-697-22	052442E	1000	41.162	44.298	4.6
Aroclor 1248	GC10B-697-23	052448A	20.0	49.644		
	GC10B-697-24	052448B	100	47.828		
	GC10B-697-25	052448C	250	46.358		
	GC10B-697-26	052448D	500	44.445		
	GC10B-697-27	052448E	1000	41.849	46.025	6.6
Aroclor 1254	GC10B-697-28	052454A	20.0	61.174		
	GC10B-697-29	052454B	100	69.965		
	GC10B-697-30	052454C	250	66.833		
	GC10B-697-31	052454D	500	62.639		
	GC10B-697-32	052454E	1000	62.497	64.622	5.7
Aroclor 1260	GC10B-697-33	052460A	20.0	87.714		
	GC10B-697-34	052460B	100	97.245		
	GC10B-697-35	052460C	250	86.254		
	GC10B-697-36	052460D	500	87.266		
	GC10B-697-37	052460E	1000	87.076	89.111	5.1
Aroclor 1262	GC10B-697-38	052462A	20.0	106.271		
	GC10B-697-39	052462B	100	107.283		
	GC10B-697-40	052462C	250	100.147		
	GC10B-697-41	052462D	500	99.593		
	GC10B-697-42	052462E	1000	91.005	100.860	6.5

FORM VI-CLP-PCB(PACE)

Print Date: 6/14/2013
Lims Version : 5.0.7.4

6F-1
PCB INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Laboratory Name: Pace Analytical Services, Inc.
SDG NO: 13050717
ELAP ID No: 11078
Date(s) Analyzed: 05/24/13
Instrument ID: GC10B
GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	AMOUNT (ppb)	TOTAL[1] RF	MEAN RF	% RSD
Aroclor 1268	GC10B-697-43	052468A	20.0	179.977		
	GC10B-697-44	052468B	100	184.016		
	GC10B-697-45	052468C	250	173.766		
	GC10B-697-46	052468D	500	170.788		
	GC10B-697-47	052468E	1000	154.847	172.679	6.5
TCMX	GC10B-697-28	052454A	2.00	314.604		
	GC10B-697-29	052454B	5.00	281.177		
	GC10B-697-30	052454C	8.00	279.218		
	GC10B-697-31	052454D	10.0	273.728		
	GC10B-697-32	052454E	20.0	276.277	285.001	5.9
4,4'-Dibromobiphenyl	GC10B-697-48	0524FSA	20.0	184.810		
	GC10B-697-49	0524FSB	50.0	171.544		
	GC10B-697-50	0524FSC	80.0	169.350		
	GC10B-697-51	0524FSD	100	167.829		
	GC10B-697-52	0524FSE	200	153.419	169.390	6.6
DCBP	GC10B-697-28	052454A	20.0	322.869		
	GC10B-697-29	052454B	50.0	281.673		
	GC10B-697-30	052454C	80.0	267.263		
	GC10B-697-31	052454D	100	259.553		
	GC10B-697-32	052454E	200	247.420	275.755	11

% RSD Limit <= 20%
TCMX=TETRACHLOROMETAXYLENE
DCBP=DECACHLOROBIPHENYL

[1] Response factor calculated using total area of 5 peaks used to quantitate each Aroclor. Mean response factor not used in Aroclor quantitation, calibration curve by linear regression used for quantitation. Concentrations are nominal values, please see Calibration Curve Report Point Table for actual values.

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INITIAL/CONTINUING CALIBRATION DATA (GC10B)

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7E-1
PCB CALIBRATION VERIFICATION SUMMARY

Laboratory Name: Pace Analytical Services, Inc. SDG NO: 13050717

ELAP ID No: 11078

Instrument ID: GC10B

GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	CALIB TYPE	CALC AMOUNT (ng/mL)	NOM AMOUNT (ng/mL)	PERCENT DIFFERENCE	Q	DATE / TIME ANALYZED
Aroclor 1016	GC10B-697-65	CS160524B	ICV	493	500	-1.34		05/24/2013 21:20:44
Aroclor 1221	GC10B-697-66	CS210524B	ICV	500	500	0.0937		05/24/2013 21:33:19
Aroclor 1232	GC10B-697-67	CS320524B	ICV	486	500	-2.71		05/24/2013 21:45:54
Aroclor 1242	GC10B-697-68	CS420524B	ICV	493	500	-1.48		05/24/2013 21:58:30
Aroclor 1248	GC10B-697-69	CS480524B	ICV	515	500	3.10		05/24/2013 22:11:06
Aroclor 1254	GC10B-697-70	CS540524B	ICV	528	500	5.61		05/24/2013 22:23:41
Aroclor 1260	GC10B-697-71	CS600524B	ICV	463	500	-7.33		05/24/2013 22:36:17
Aroclor 1262	GC10B-697-72	CS620524B	ICV	467	500	-6.63		05/24/2013 22:48:53
Aroclor 1268	GC10B-697-73	CS680524B	ICV	461	500	-7.80		05/24/2013 23:01:27
Aroclor 1016	GC10B-702-21	CS160528A	CCV	493	500	-1.40		05/28/2013 15:09:47
Aroclor 1221	GC10B-702-30	CS210528A	CCV	522	500	4.40		05/28/2013 17:58:09

% Difference must be less than or equal to +/- 15 percent

ICV = Initial Calibration Verification

CCV = Continuing Calibration Verification

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7E-2
PCB CALIBRATION VERIFICATION SUMMARY

Laboratory Name: Pace Analytical Services, Inc.
SGD NO: 13050717
ELAP ID No: 11078
Instrument ID: GC10B
GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	CALIB* TYPE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO
Aroclor 1016	GC10B-697-65	CS160524B	ICV	1	3.77	3.69	3.85
		CS160524B	ICV	2	3.95	3.87	4.03
		CS160524B	ICV	3	4.22	4.14	4.30
		CS160524B	ICV	4	4.32	4.24	4.40
		CS160524B	ICV	5	4.40	4.32	4.48
Aroclor 1221	GC10B-697-66	CS210524B	ICV	1	2.57	2.49	2.65
		CS210524B	ICV	2	3.03	2.95	3.11
		CS210524B	ICV	3	3.24	3.16	3.32
		CS210524B	ICV	4	3.33	3.25	3.41
		CS210524B	ICV	5	3.38	3.30	3.46
Aroclor 1232	GC10B-697-67	CS320524B	ICV	1	3.38	3.30	3.46
		CS320524B	ICV	2	3.96	3.88	4.04
		CS320524B	ICV	3	4.23	4.15	4.31
		CS320524B	ICV	4	4.33	4.25	4.41
		CS320524B	ICV	5	4.41	4.33	4.49
Aroclor 1242	GC10B-697-68	CS420524B	ICV	1	3.77	3.69	3.85
		CS420524B	ICV	2	3.96	3.88	4.04
		CS420524B	ICV	3	4.23	4.15	4.31
		CS420524B	ICV	4	4.33	4.25	4.41
		CS420524B	ICV	5	4.40	4.32	4.48
Aroclor 1248	GC10B-697-69	CS480524B	ICV	1	4.62	4.54	4.70
		CS480524B	ICV	2	4.92	4.84	5.00
		CS480524B	ICV	3	5.16	5.08	5.24
		CS480524B	ICV	4	5.24	5.16	5.32
		CS480524B	ICV	5	5.42	5.34	5.50
Aroclor 1254	GC10B-697-70	CS540524B	ICV	1	5.49	5.41	5.57
		CS540524B	ICV	2	5.77	5.69	5.85
		CS540524B	ICV	3	5.88	5.80	5.96
		CS540524B	ICV	4	6.39	6.31	6.47
		CS540524B	ICV	5	6.69	6.61	6.77
Aroclor 1260	GC10B-697-71	CS600524B	ICV	1	6.69	6.61	6.77
		CS600524B	ICV	2	7.41	7.33	7.49
		CS600524B	ICV	3	7.71	7.63	7.79
		CS600524B	ICV	4	7.86	7.78	7.94
		CS600524B	ICV	5	8.37	8.29	8.45
Aroclor 1262	GC10B-697-72	CS620524B	ICV	1	6.69	6.61	6.77
		CS620524B	ICV	2	7.41	7.33	7.49
		CS620524B	ICV	3	7.72	7.64	7.80

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FORM VII-CLP-PCB(PACE)

Print Date: 6/14/2013
Lims Version : 5.0.7.4

7E-2
PCB CALIBRATION VERIFICATION SUMMARY

Laboratory Name: Pace Analytical Services, Inc.
SGD NO: 13050717
ELAP ID No: 11078
Instrument ID: GC10B
GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	CALIB TYPE*	PEAK	RT	RT WINDOW FROM	RT WINDOW TO
Aroclor 1262		CS620524B	ICV	4	7.87	7.79	7.95
		CS620524B	ICV	5	8.38	8.30	8.46
Aroclor 1268	GC10B-697-73	CS680524B	ICV	1	7.86	7.78	7.94
		CS680524B	ICV	2	8.37	8.29	8.45
		CS680524B	ICV	3	7.81	7.73	7.89
		CS680524B	ICV	4	8.16	8.08	8.24
		CS680524B	ICV	5	8.24	8.16	8.32

* ICV = Initial Calibration Verification
CCV = Continuing Calibration Verification

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7E-2
PCB CALIBRATION VERIFICATION SUMMARY

Laboratory Name: Pace Analytical Services, Inc.
SGD NO: 13050717
ELAP ID No: 11078
Instrument ID: GC10B
GC Column: Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm

COMPOUND	LAB FILE ID	LAB SAMPLE ID	CALIB TYPE*	PEAK	RT	RT WINDOW FROM	RT WINDOW TO
Aroclor 1016	GC10B-702-21	CS160528A	CCV	1	3.77	3.69	3.85
		CS160528A	CCV	2	3.96	3.87	4.03
		CS160528A	CCV	3	4.23	4.14	4.30
		CS160528A	CCV	4	4.32	4.24	4.40
		CS160528A	CCV	5	4.40	4.32	4.48
Aroclor 1221	GC10B-702-30	CS210528A	CCV	1	2.57	2.49	2.65
		CS210528A	CCV	2	3.03	2.95	3.11
		CS210528A	CCV	3	3.23	3.16	3.32
		CS210528A	CCV	4	3.33	3.25	3.41
		CS210528A	CCV	5	3.38	3.30	3.46

* ICV = Initial Calibration Verification
CCV = Continuing Calibration Verification

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QC SAMPLE RAW DATA

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1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	PBLK-55
Matrix:	SODIUM SULFATE	Client ID:	METHOD BLANK
Sample wt(Dry)/vol:	10.178 g	Lab Sample ID:	AQ09532B
Percent Moisture:	0.0	Lab File ID:	GC10F-723-22
Extraction:	Soxhlet Method (3540C)	Date Received:	
Conc. Extract Volume:	25000 uL	Date Extracted:	05/27/2013
Injection Volume:	1.0 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
GC Column:	Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm	Sulfur Cleanup:	YES

CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
12674-11-2	Aroclor 1016	0.0500	U
11104-28-2	Aroclor 1221	0.0500	U
11141-16-5	Aroclor 1232	0.0500	U
53469-21-9	Aroclor 1242	0.0500	U
12672-29-6	Aroclor 1248	0.0500	U
11097-69-1	Aroclor 1254	0.0500	U
11096-82-5	Aroclor 1260	0.0500	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

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FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	PBLK-55
Matrix:	SODIUM SULFATE	Client ID:	METHOD BLANK
Sample wt(Dry)/vol:	10.178 g	Lab Sample ID:	AQ09532B
Percent Moisture:	0.0	Lab File ID:	GC10B-702-22
Extraction:	Soxhlet Method (3540C)	Date Received:	
Conc. Extract Volume:	25000 uL	Date Extracted:	05/27/2013
Injection Volume:	1.0 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
GC Column:	Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm	Sulfur Cleanup:	YES

CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
12674-11-2	Aroclor 1016	0.0500	U
11104-28-2	Aroclor 1221	0.0500	U
11141-16-5	Aroclor 1232	0.0500	U
53469-21-9	Aroclor 1242	0.0500	U
12672-29-6	Aroclor 1248	0.0500	U
11097-69-1	Aroclor 1254	0.0500	U
11096-82-5	Aroclor 1260	0.0500	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

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FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	LCS-55
Matrix:	SODIUM SULFATE	Client ID:	LAB CONTROL SPIKE
Sample wt(Dry)/vol:	10.028 g	Lab Sample ID:	AQ09532L
Percent Moisture:	0.0	Lab File ID:	GC10F-723-23
Extraction:	Soxhlet Method (3540C)	Date Received:	
Conc. Extract Volume:	25000 uL	Date Extracted:	05/27/2013
Injection Volume:	1.0 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
GC Column:	Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm	Sulfur Cleanup:	YES

CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
12674-11-2	Aroclor 1016	0.0500	U
11104-28-2	Aroclor 1221	0.0500	U
11141-16-5	Aroclor 1232	0.0500	U
53469-21-9	Aroclor 1242	1.18	
12672-29-6	Aroclor 1248	0.0500	U
11097-69-1	Aroclor 1254	0.0500	U
11096-82-5	Aroclor 1260	0.0500	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

14

FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

1D-1
PCB ANALYSIS DATA SHEET

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	LRF ID:	LCS-55
Matrix:	SODIUM SULFATE	Client ID:	LAB CONTROL SPIKE
Sample wt(Dry)/vol:	10.028 g	Lab Sample ID:	AQ09532L
Percent Moisture:	0.0	Lab File ID:	GC10B-702-23
Extraction:	Soxhlet Method (3540C)	Date Received:	
Conc. Extract Volume:	25000 uL	Date Extracted:	05/27/2013
Injection Volume:	1.0 uL	Date Analyzed:	05/28/2013
Method:	SW-846 8082 (PCB)	Dilution Factor:	1
GC Column:	Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm	Sulfur Cleanup:	YES

CAS NO	COMPOUND NAME	CONCENTRATION UG/G	Q
12674-11-2	Aroclor 1016	0.0500	U
11104-28-2	Aroclor 1221	0.0500	U
11141-16-5	Aroclor 1232	0.0500	U
53469-21-9	Aroclor 1242	1.18	
12672-29-6	Aroclor 1248	0.0500	U
11097-69-1	Aroclor 1254	0.0500	U
11096-82-5	Aroclor 1260	0.0500	U

Laboratory Qualifiers:
U - Denotes analyte not detected at concentration greater than or equal to the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

14

FORM I-CLP-PCB

Print Date: 6/14/2013
Lims Version : 5.0.7.4

10-B
PCB Identification Summary

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	Client ID:	LCS-55(LAB CONTROL SPIKE)
LRF Sample ID:	LCS-55	Lab Sample ID:	AQ09532L
Instrument 1 ID:	GC10B	Instrument 2 ID:	GC10F
Date Analyzed:	05/28/2013 4:30:00 PM	Date Analyzed:	05/28/2013 4:29:55 PM
GC Column 1:	Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm	GC Column 2:	Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm
Lab File ID 1:	GC10B-702-23	Lab File ID 2:	GC10F-723-23
Matrix:	Soil		

Analyte	Column	Peak	RT (min)	RT Window From	RT Window To	Concentration (ug/g)	RPD (%)	*
Aroclor 1016	1	1	3.77	3.69	3.85			
		2	3.95	3.87	4.03			
		3	4.22	4.14	4.30			
		4	4.32	4.24	4.40			
		5	4.40	4.32	4.48			
	2	1	3.17	3.09	3.25			
		2	3.38	3.30	3.46			
		3	3.70	3.62	3.78			
		4	3.81	3.73	3.89			
		5	3.88	3.80	3.96			
Aroclor 1221	1	1	NA	2.49	2.65			
		2	NA	2.95	3.11			
		3	NA	3.16	3.32			
		4	NA	3.25	3.41			
		5	NA	3.30	3.46			
	2	1	NA	1.57	1.73			
		2	NA	2.16	2.32			
		3	NA	2.45	2.61			
		4	NA	2.55	2.71			
		5	NA	2.62	2.78			
Aroclor 1232	1	1	NA	3.30	3.46			
		2	3.95	3.88	4.04			
		3	4.22	4.15	4.31			
		4	4.32	4.25	4.41			
		5	4.40	4.33	4.49			
	2	1	NA	2.61	2.77			
		2	3.38	3.30	3.46			
		3	3.70	3.63	3.79			
		4	3.81	3.73	3.89			
		5	3.88	3.80	3.96			
Aroclor 1242	1	1	3.77	3.69	3.85			
		2	3.95	3.88	4.04			
		3	4.22	4.15	4.31			
		4	4.32	4.25	4.41			
		5	4.40	4.32	4.48	1.18		
	2	1	3.17	3.09	3.25			
		2	3.38	3.29	3.45			
		3	3.70	3.62	3.78			
		4	3.81	3.73	3.89			
		5	3.88	3.80	3.96	1.18	0.00	

Relative Percent Difference Limit = 40.0%

FORM 10-CLP-PCB(PACE)

Print Date: 6/14/2013
Lims Version : 5.0.7.4

10-B
PCB Identification Summary

Laboratory Name:	Pace Analytical Services, Inc.	SDG No:	13050717
ELAP ID No:	11078	Client ID:	LCS-55(LAB CONTROL SPIKE)
LRF Sample ID:	LCS-55	Lab Sample ID:	AQ09532L
Instrument 1 ID:	GC10B	Instrument 2 ID:	GC10F
Date Analyzed:	05/28/2013 4:30:00 PM	Date Analyzed:	05/28/2013 4:29:55 PM
GC Column 1:	Phenomenex, Zebron ZB-5, 20 m, 0.18 mm ID, 0.18 µm	GC Column 2:	Phenomenex, Zebron ZB-1MS, 20 m, 0.18 mm ID, 0.18 µm
Lab File ID 1:	GC10B-702-23	Lab File ID 2:	GC10F-723-23
Matrix:	Soil		

Analyte	Column	Peak	RT (min)	RT Window		Concentration (ug/g)	RPD (%)	*
				From	To			
Aroclor 1248	1	1	NA	4.54	4.70			
		2	NA	4.84	5.00			
		3	NA	5.08	5.24			
		4	NA	5.16	5.32			
		5	NA	5.34	5.50			
	2	1	NA	4.08	4.24			
		2	NA	4.38	4.54			
		3	NA	4.66	4.82			
		4	NA	4.73	4.89			
		5	NA	4.90	5.06			
Aroclor 1254	1	1	NA	5.41	5.57			
		2	NA	5.69	5.85			
		3	NA	5.80	5.96			
		4	NA	6.31	6.47			
		5	NA	6.61	6.77			
	2	1	NA	5.03	5.19			
		2	NA	5.29	5.45			
		3	NA	5.40	5.56			
		4	NA	5.95	6.11			
		5	NA	6.24	6.40			
Aroclor 1260	1	1	NA	6.61	6.77			
		2	NA	7.33	7.49			
		3	NA	7.63	7.79			
		4	NA	7.78	7.94			
		5	NA	8.29	8.45			
	2	1	NA	6.25	6.41			
		2	NA	7.00	7.16			
		3	NA	7.27	7.43			
		4	NA	7.47	7.63			
		5	NA	7.96	8.12			

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Relative Percent Difference Limit = 40.0%

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