



TETRA TECH EM INC.

August 21, 2018

Greg Haet
EH&S Associate Director, Environmental Protection
Office of Environment, Health & Safety
University of California, Berkeley
University Hall, 3rd Floor #1150
Berkeley, CA 94720

**Subject: Soil Sampling Results at Building 180 Utility Trench Project
Richmond Field Station
University of California, Berkeley**

Dear Mr. Haet:

Tetra Tech, Inc. was contracted by the University of California (UC) Berkeley to conduct sampling activities at Richmond Field Station in Richmond, California. The objective of the sampling effort was to characterize near-surface soil in the grass area on the northwest side of Building 180, also known as Gull Meadow SE, to evaluate soil conditions that workers could be exposed to while installing a subsurface utility corridor in the meadow. This letter provides the rationale for the selected sampling location, a summary of field sampling protocols, and sample results.

Sample Location

Increment sampling methodology was selected for this project to provide a comprehensive and thorough evaluation of chemical concentrations in a specific area of potential exposure, or decision unit. The rationale for this project was based on selecting a decision unit to best represent potential exposure to workers digging from a previous surface spill to surface soils within the entire Gull Meadow SE. While the excavation was intended to extend to 12 to 18 inches below ground surface, surface sample depths of 0 to 6 inches below ground surface were collected to most effectively capture any potential previous contaminant spills at ground surface. The decision unit is shown on the attached figure.

Field Sampling Protocols

The soil sample was collected on May 25, 2018. The decision unit boundary was identified in the field based on the rationale presented above. One multi-increment soil sample composed of 101 increment locations was collected, as shown on the attached figure

Incremental sampling methodology was used to maximize the goal of obtaining sufficient material over the decision unit to account for both compositional and distributional heterogeneity of any possible contamination.

The field sampler began at a corner of the surface decision unit and sampled in an orthogonal pattern, moving from north to south to collect subsamples from 101 locations within the decision unit. The precise location of the subsamples is not critical as long as they are distributed throughout the decision unit. The samples were collected using a decontaminated 18-inch long, 1-inch diameter drill bit into a decontaminated bucket. The drill was forwarded through a hole in the bottom of the bucket 6 inches deep and thereby displacing the top 6 inches of soil directly into the bucket.

Approximately 2 kilograms of soil mass was collected and placed in two 32-oz glass jars provided by the laboratory. Following collection, the sample jar was labeled, wrapped with protective bubble wrap material, and placed into a sealable plastic bag. The sample was taken directly from the field to Enthalpy Laboratory in Berkeley, California. A copy of the chain-of-custody form is presented in Attachment 1.

Analytical Methods and Results

Upon receipt of the sample jars, Enthalpy Laboratory implemented their subsampling protocol for reducing the 2 kilograms of soil mass to the desired mass appropriate for each analysis. Their protocol entails drying, sieving, and pulverizing the 2 kilograms of soil mass, followed by subsampling the mass with 100 increments to reach the desired mass.

The soil subsample was then analyzed for metals, polychlorinated biphenyls (PCB), and polycyclic aromatic hydrocarbons (PAH) using the methods listed below.


- Metals by EPA Method 6010; Mercury by EPA Method 7471
- PCB analysis by EPA Method 8082, Soxhlet extraction by EPA Method 3650
- PAH analysis by EPA 8270C SIM

Analytical results were compared to Category I, Category II, and Maintenance Worker Screening Criteria presented in the *Final Soil Management Plan, Revision 1*, dated April 10, 2017. No results exceeded any of the criteria.

Analytical summary tables for detected concentrations are presented in the Tables 1, 2, and 3 following this letter. Complete analytical results are presented in Attachment 1.

If you have any questions or comments regarding this submittal, please call me at (415) 497-9060.

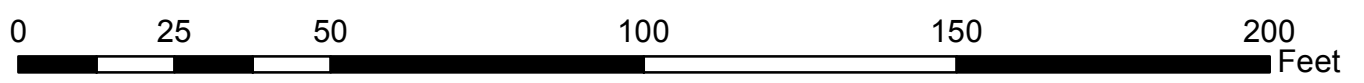
Sincerely,


Jason Brodersen, PG
Project Manager

Attachment 1: Complete Analytical Results



- Gull Meadow SE DU
- Gull Meadow SE ISM Increments
- Open Swale
- Open Swale
- Storm Drain Manholes
- Underground Culvert
- Gutters
- - - Underground Culvert, Abandoned (Grouted at Manholes)
- Existing City of Richmond Sewer
- - - Abandoned City of Richmond Sewer
- RFS_SanitaryMH
- Existing RFS Sewer
- - - Abandoned RFS Sewer



University of California, Berkeley
 Richmond Field Station
Gull Meadow SE Decision Unit
 Richmond, CA



Table 1: Metals Results Summary

B180 Utility Trenching Sampling
University of California, Berkeley, Richmond Field Station Site

Sample ID	Sample Location	Depth (feet bgs)	Units	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CHROMIUM	COBALT	COPPER	LEAD	MERCURY	MOLYBDENUM	NICKEL	SELENIUM	SILVER	VANADIUM	ZINC	
Category I Criteria				109	16	2,110	29	68.1	100,000	73	10,900	320	77	1,360	280	1,340	1,360	1,360	81,600	
Category II On-Site Management Criteria				1,090	16	21,100	290	681	100,000	199	100,000	800	275	13,600	606	13,400	13,600	13,600	13,600	100,000
Maintenance Worker Screening Criteria				2,720	16	52,600	128	73	100,000	34.1	100,000	320	1,920	34,000	1,180	33,500	34,000	34,000	34,000	100,000
RFS-B180-DU01	B180-DU01	0.0 - 0.5	mg/kg	1.2 J	16	190	0.39	0.65	36	11	440	160	18	1.6	30	2.2 U	1.7	28	160	

Screening criteria based on *Final Soil Management Plan, Revision 1*, dated April 10, 2017.

- J Estimated value below reporting limit
- mg/kg Milligrams per kilogram
- U Nondetect at reporting limit listed

Table 2: Polychlorinated Biphenyl Summary

B180 Utility Trenching Sampling

University of California, Berkeley, Richmond Field Station Site

Sample ID	Sample Location	Depth (feet bgs)	Units	AROCLOR-1016	AROCLOR-1221	AROCLOR-1232	AROCLOR-1242	AROCLOR-1248	AROCLOR-1254	AROCLOR-1260	TOTAL AROCLORS
Category I Criteria				1	1	1	1	1	1	1	1
Category II On-Site Management Criteria				1	1	1	1	1	1	1	1
Maintenance Worker Screening Criteria				1	1	1	1	1	1	1	1
RFS-B180-DU01	B180-DU01	0.0 - 0.5	mg/kg	ND	ND	ND	ND	ND	ND	0.031	0.031

Screening criteria based on *Final Soil Management Plan, Revision 1*, dated April 10, 2017.

Total Aroclor values are calculated by summing the detected concentrations of Aroclors for each sample.

mg/kg Milligrams per kilogram

ND Not detected

Table 3: Polycyclic Aromatic Hydrocarbon Results Summary
 B180 Utility Trenching Sampling
 University of California, Berkeley, Richmond Field Station Site

Sample ID	Sample Location	Depth (feet bgs)	Units	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PYRENE	BAP (EQ)
Category I Criteria				6,050	6,050	30,200	0.88	0.145	0.88	3,020	0.88	8.8	0.145	4,030	4,030	0.88	3.57	4,030	3,020	0.4
Category II On-Site Management Criteria				60,500	60,500	100,000	8.8	1.45	8.8	30,200	8.8	88	1.45	40,300	40,300	8.8	35.7	40,300	30,200	1.45
Maintenance Worker Screening Criteria				100,000	100,000	100,000	5.87	0.963	5.87	75,600	5.87	58.7	0.963	100,000	100,000	5.87	450	100,000	75,600	0.4
RFS-B180-DU01	B180-DU01	0.0 - 0.5	mg/kg	0.140 U	0.140 U	0.140 U	0.047 U	0.09 J	0.2	0.15	0.045 J	0.120 J	0.140 U	0.120 J	0.057 J	0.100 J	0.140 U	0.140 U	0.130 J	0.12

Screening criteria based on *Final Soil Management Plan, Revision 1*, dated April 10, 2017.
 BAP (EQ) Benzo(a)pyrene equivalency quotient
 J Estimated value below reporting limit
 mg/kg Milligrams per kilogram
 U Nondetect at reporting limit listed

ATTACHMENT 1
COMPLETE ANALYTICAL RESULTS



ENTHALPY

ANALYTICAL



Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 300092

ANALYTICAL REPORT

Semivolatile Organics by GC/MS SIM

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 1035225322.01
Location : RFS Corp Yard
Level : IV

Sample ID
RFS-B180-DU01

Lab ID
300092-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____

Mike Dahlquist
Project Manager
mike.dahlquist@enthalpy.com
(510) 204-2225 Ext 13101

Date: 06/11/2018

CA ELAP# 2896, NELAP# 4044-001

**CASE NARRATIVE
SEMIVOLATILE ORGANICS BY GC/MS SIM (EPA 8270C-SIM)**

Laboratory number: 300092
Client: Tetra Tech EMI
Project: 1035225322.01
Location: RFS Corp Yard
Request Date: 05/25/18
Samples Received: 05/25/18

This data package contains sample and QC results for one soil sample, requested for the above referenced project on 05/25/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):

RFS-B180-DU01 (lab # 300092-001) was diluted due to the dark and viscous nature of the sample extract.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY



Formerly Curtis & Tompkins Labs

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Project No: 103S225322.01

Project Name: RFS B180 Trawl

Project P. O. No: _____

Report Level: I II III IV

Standard: Standard RUSH

Sampler: J BRUDERSEN

Report To: J BRUDERSEN

Company: TERNA TECH

Telephone: 415-497-9060

Email: Jason.Brudersen@ternatech.com

Lab No.	Sample ID.	SAMPLING		MATRIX	# of Containers	CHEMICAL PRESERVATIVE				ANALYTICAL REQUEST
		Date Collected	Time Collected			Water	Solid	HCl	H2SO4	
	RFS-B180-DU01	5/25/18	1130	X	3					15M PAER / 100 SUBSTRATE
										CAM 17 METALS 6010
										MERCURY 7471
										PAH SIM 8110
										PLB KOEL + SCHLETT EXT

C&T LOGIN # 700092

Notes: _____

RELINQUISHED BY: DATE: 5/25/18 TIME: 1235

RECEIVED BY: DATE: 5/25/18 TIME: 12:35

Intact
 Cold
 On Ice
 Ambient

SAMPLE RECEIPT CHECKLIST



Section 1: Login # 300092 Client: Tetra Tech
 Date Received: 5-25-18 Project: RFS B180

Section 2: Samples received in a cooler? Yes, how many? _____ No (skip Section 3 below)
 If no cooler Sample Temp (°C): _____ using IR Gun # A, or B
 Samples received on ice directly from the field. Cooling process had begun
 If in cooler: Date Opened 5-25-18 By (print) sp (sign) sp
 Shipping info (if applicable) _____
 Are custody seals present? No, or Yes. If yes, where? on cooler, on samples, on package
 Date: _____ How many _____ Signature, Initials, None
 Were custody seals intact upon arrival? Yes No N/A

Section 3: Important : Notify PM if temperature exceeds 6°C or arrive frozen.

Packing in cooler: (if other, describe) _____
 Bubble Wrap, Foam blocks, Bags, None, Cloth material, Cardboard, Styrofoam, Paper towels
 Samples received on ice directly from the field. Cooling process had begun
 Type of ice used : Wet, Blue/Gel, None Temperature blank(s) included? Yes, No
 Temperature measured using Thermometer ID: _____, or IR Gun # A B
 Cooler Temp (°C): #1: _____, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	X		
Were Method 5035 sampling containers present?		X	
If YES, what time were they transferred to freezer?			
Did all bottles arrive unbroken/unopened?	X		
Are there any missing / extra samples?		X	
Are samples in the appropriate containers for indicated tests?	X		
Are sample labels present, in good condition and complete?	X		
Does the container count match the COC?	X		
Do the sample labels agree with custody papers?	X		
Was sufficient amount of sample sent for tests requested?	X		
Did you change the hold time in LIMS for unpreserved VOAs?			X
Did you change the hold time in LIMS for preserved terracores?			X
Are bubbles > 6mm absent in VOA samples?			X
Was the client contacted concerning this sample delivery?		X	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (if N/A, skip the rest of section 5)			X
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			
pH strip lot# _____, pH strip lot# _____, pH strip lot# _____			
Preservative added:			
<input type="checkbox"/> H2SO4 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HCL lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HNO3 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> NaOH lot# _____ added to samples _____ on/at _____			

Section 6:
 Explanations/Comments: _____

Date Logged in 5-25-18 By (print) sp (sign) sp
 Date Labeled 5-25-18 By (print) sp (sign) sp

Results & QC Summary

Semivolatile Organics by GC/MS SIM

Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Field ID:	RFS-B180-DU01	Batch#:	260066
Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	ug/Kg	Prepared:	05/31/18
Basis:	dry	Analyzed:	06/01/18
Diln Fac:	25.00		

Moisture: 9%

Analyte	Result	RL	MDL
Naphthalene	ND	140	27
Acenaphthylene	ND	140	27
Acenaphthene	ND	140	27
Fluorene	ND	140	27
Phenanthrene	57 J	140	27
Anthracene	ND	140	27
Fluoranthene	120 J	140	27
Pyrene	130 J	140	27
Benzo(a)anthracene	47 J	140	27
Chrysene	120 J	140	27
Benzo(b)fluoranthene	200	140	27
Benzo(k)fluoranthene	45 J	140	27
Benzo(a)pyrene	90 J	140	27
Indeno(1,2,3-cd)pyrene	100 J	140	27
Dibenz(a,h)anthracene	ND	140	27
Benzo(g,h,i)perylene	150	140	27

Surrogate	%REC	Limits
Nitrobenzene-d5	DO	43-120
2-Fluorobiphenyl	DO	36-120
Terphenyl-d14	DO	56-120

J= Estimated value
 DO= Diluted Out
 ND= Not Detected at or above MDL
 RL= Reporting Limit
 MDL= Method Detection Limit

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC934136	Batch#:	260066
Matrix:	Soil	Prepared:	05/31/18
Units:	ug/Kg	Analyzed:	05/31/18

Analyte	Result	RL	MDL
Naphthalene	ND	5.0	1.0
Acenaphthylene	ND	5.0	1.0
Acenaphthene	ND	5.0	1.0
Fluorene	ND	5.0	1.0
Phenanthrene	ND	5.0	1.0
Anthracene	ND	5.0	1.0
Fluoranthene	ND	5.0	1.0
Pyrene	ND	5.0	1.0
Benzo(a)anthracene	ND	5.0	1.0
Chrysene	ND	5.0	1.0
Benzo(b)fluoranthene	ND	5.0	1.0
Benzo(k)fluoranthene	ND	5.0	1.0
Benzo(a)pyrene	ND	5.0	1.0
Indeno(1,2,3-cd)pyrene	ND	5.0	1.0
Dibenz(a,h)anthracene	ND	5.0	1.0
Benzo(g,h,i)perylene	ND	5.0	1.0

Surrogate	%REC	Limits
Nitrobenzene-d5	103	43-120
2-Fluorobiphenyl	93	36-120
Terphenyl-d14	110	56-120

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC934137	Batch#:	260066
Matrix:	Soil	Prepared:	05/31/18
Units:	ug/Kg	Analyzed:	05/31/18

Analyte	Spiked	Result	%REC	Limits
Naphthalene	33.33	32.89	99	51-120
Acenaphthylene	33.33	32.56	98	59-120
Acenaphthene	33.33	34.06	102	54-120
Fluorene	33.33	34.68	104	64-120
Phenanthrene	33.33	35.26	106	61-120
Anthracene	33.33	34.08	102	62-120
Fluoranthene	33.33	34.50	103	67-120
Pyrene	33.33	36.03	108	65-120
Benzo(a)anthracene	33.33	34.59	104	64-120
Chrysene	33.33	22.22	67	46-120
Benzo(b)fluoranthene	33.33	34.53	104	59-120
Benzo(k)fluoranthene	33.33	35.26	106	64-120
Benzo(a)pyrene	33.33	33.73	101	64-120
Indeno(1,2,3-cd)pyrene	33.33	32.49	97	49-120
Dibenz(a,h)anthracene	33.33	23.90	72	41-120
Benzo(g,h,i)perylene	33.33	34.38	103	44-120

Surrogate	%REC	Limits
Nitrobenzene-d5	112	43-120
2-Fluorobiphenyl	99	36-120
Terphenyl-d14	111	56-120

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	260066
MSS Lab ID:	300022-008	Sampled:	05/22/18
Matrix:	Soil	Received:	05/22/18
Units:	ug/Kg	Prepared:	05/31/18
Basis:	dry	Analyzed:	06/01/18
Diln Fac:	1.000		

Type: MS
Lab ID: QC934138

Moisture: 22%

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	3.324	42.24	21.09	42	36-120
Acenaphthylene	<1.274	42.24	30.46	72	49-120
Acenaphthene	<1.274	42.24	33.01	78	44-120
Fluorene	<1.274	42.24	36.92	87	53-120
Phenanthrene	1.966	42.24	37.67	85	48-121
Anthracene	<1.274	42.24	35.53	84	51-120
Fluoranthene	2.246	42.24	35.26	78	48-124
Pyrene	2.275	42.24	39.94	89	51-128
Benzo(a)anthracene	<1.274	42.24	34.90	83	50-123
Chrysene	1.800	42.24	23.34	51	34-120
Benzo(b)fluoranthene	1.817	42.24	35.54	80	38-120
Benzo(k)fluoranthene	<1.274	42.24	34.14	81	48-120
Benzo(a)pyrene	<1.274	42.24	35.12	83	51-120
Indeno(1,2,3-cd)pyrene	<1.274	42.24	33.72	80	35-120
Dibenz(a,h)anthracene	<1.274	42.24	25.92	61	32-120
Benzo(g,h,i)perylene	2.246	42.24	43.21	97	34-120

Surrogate	%REC	Limits
Nitrobenzene-d5	81	43-120
2-Fluorobiphenyl	65	36-120
Terphenyl-d14	115	56-120

RPD= Relative Percent Difference

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	260066
MSS Lab ID:	300022-008	Sampled:	05/22/18
Matrix:	Soil	Received:	05/22/18
Units:	ug/Kg	Prepared:	05/31/18
Basis:	dry	Analyzed:	06/01/18
Diln Fac:	1.000		

Type: MSD Moisture: 22%
Lab ID: QC934139

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	42.38	19.85	39	36-120	6	44
Acenaphthylene	42.38	28.89	68	49-120	6	42
Acenaphthene	42.38	30.78	73	44-120	7	39
Fluorene	42.38	34.27	81	53-120	8	34
Phenanthrene	42.38	36.21	81	48-121	4	46
Anthracene	42.38	33.15	78	51-120	7	41
Fluoranthene	42.38	33.96	75	48-124	4	48
Pyrene	42.38	38.38	85	51-128	4	50
Benzo(a)anthracene	42.38	33.40	79	50-123	5	43
Chrysene	42.38	21.95	48	34-120	6	54
Benzo(b)fluoranthene	42.38	32.30	72	38-120	10	49
Benzo(k)fluoranthene	42.38	29.34	69	48-120	15	44
Benzo(a)pyrene	42.38	31.08	73	51-120	13	48
Indeno(1,2,3-cd)pyrene	42.38	29.65	70	35-120	13	37
Dibenz(a,h)anthracene	42.38	22.70	54	32-120	14	43
Benzo(g,h,i)perylene	42.38	36.50	81	34-120	17	38

Surrogate	%REC	Limits
Nitrobenzene-d5	81	43-120
2-Fluorobiphenyl	61	36-120
Terphenyl-d14	109	56-120

RPD= Relative Percent Difference

ENTHALPY DFTPP TUNE FOR 300092 MSSIM Soil
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 528189186007 File : veb07 Time : 11-MAY-2018 11:43
Caltype : DFTPP/PEM

Standards: S36307

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	111070	38.21	
68	< 2% of mass 69	0	0.00	
69		125579	100.00	
70	< 2% of mass 69	667	0.53	
127	40% - 60% of mass 198	129032	44.39	
197	< 1% of mass 198	0	0.00	
198		290666	100.00	
199	5% - 9% of mass 198	19536	6.72	
275	10% - 30% of mass 198	77037	26.50	
365	> 1% of mass 198	7306	2.51	
441	Present, < mass 443	36554	75.77	
442	> 40% and < 100% of mass 198	247488	85.15	
443	17% - 23% of mass 442	48245	19.49	

JW1 05/11/18 [Decafluorotriphenylphosphine]: Picked or reassigned peak.

JW1 05/11/18 [4,4'-DDT]: Picked or reassigned peak.

Decafluorotriphenylphosphine: **m**

Analyst: JW1 Date: 05/11/18 Reviewer: TKM Date: 05/11/18

ENTHALPY DFTPP TUNE FOR 300092 MSSIM Soil
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 528218043004 File : vev04 Time : 31-MAY-2018 15:01
Caltype : DFTPP/PEM

Standards: S36307

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	116344	42.45	
68	< 2% of mass 69	0	0.00	
69		127912	100.00	
70	< 2% of mass 69	576	0.45	
127	40% - 60% of mass 198	129701	47.32	
197	< 1% of mass 198	0	0.00	
198		274090	100.00	
199	5% - 9% of mass 198	18402	6.71	
275	10% - 30% of mass 198	69138	25.22	
365	> 1% of mass 198	7433	2.71	
441	Present, < mass 443	33634	78.83	
442	> 40% and < 100% of mass 198	222594	81.21	
443	17% - 23% of mass 442	42669	19.17	

Analyst: JW1 Date: 05/31/18 Reviewer: LW Date: 06/01/18

ENTHALPY DFTPP TUNE FOR 300092 MSSIM Soil
EPA 8270C

```
Inst   : MSBNA03          Run Name : DFTPP/PEM      IDF       : 1.0
Seqnum : 528219529004    File   : vf104       Time      : 01-JUN-2018 14:01
                                           Caltype  : DFTPP/PEM
```

Standards: S36307

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	112874	42.16	
68	< 2% of mass 69	0	0.00	
69		124146	100.00	
70	< 2% of mass 69	775	0.62	
127	40% - 60% of mass 198	125165	46.75	
197	< 1% of mass 198	0	0.00	
198		267712	100.00	
199	5% - 9% of mass 198	18608	6.95	
275	10% - 30% of mass 198	69136	25.82	
365	> 1% of mass 198	6867	2.57	
441	Present, < mass 443	34784	76.12	
442	> 40% and < 100% of mass 198	229909	85.88	
443	17% - 23% of mass 442	45698	19.88	

JW1 06/04/18 [4,4'-DDD]: Corrected automatically drawn baseline.

Analyst: JW1 Date: 06/04/18 Reviewer: LW Date: 06/04/18

ENTHALPY INITIAL CALIBRATION FOR 300092 MSSIM Soil: EPA 8270C-SIM

Inst : MSBNA03
 Calnum : 528189186001
 Units : ug/mL

Name : 3PAHSIM
 Date : 11-MAY-2018 12:02
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	veb08	528189186008	ICAL	11-MAY-2018 12:02	S36971
L2	veb09	528189186009	ICAL	11-MAY-2018 12:34	S36972
L3	veb10	528189186010	ICAL	11-MAY-2018 13:08	S36973
L4	veb11	528189186011	ICAL	11-MAY-2018 13:40	S36974
L5	veb12	528189186012	ICAL	11-MAY-2018 14:12	S36976
L6	veb13	528189186013	ICAL	11-MAY-2018 14:45	S36977
L7	veb14	528189186014	ICAL	11-MAY-2018 15:17	S36978

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r ² %RSD	Max %RSD	Min RF	Min r ²	Flg
Naphthalene	0.9309	0.9593	0.9775	0.9747	0.9430	0.8912	0.8908	AVRG		1.06590		0.9382	4	15	0.05	0.99	
Acenaphthylene	1.6081	1.6472	1.6759	1.6892	1.6573	1.5429	1.5049	AVRG		0.61807		1.6179	4	15	0.05	0.99	
Acenaphthene	0.9218	0.9535	0.9873	0.9877	0.9849	0.9161	0.9270	AVRG		1.04815		0.9541	3	15	0.05	0.99	
Fluorene	1.1744	1.2166	1.2535	1.2290	1.1967	1.1240	1.1008	AVRG		0.84389		1.1850	5	15	0.05	0.99	
Phenanthrene	0.9893	1.0001	1.0283	1.0273	0.9999	0.9087	0.9109	AVRG		1.01974		0.9806	5	15	0.05	0.99	
Anthracene	0.9811	0.9994	1.0239	1.0109	0.9819	0.9018	0.8967	AVRG		1.03006		0.9708	5	15	0.05	0.99	
Fluoranthene	1.1407	1.1541	1.1866	1.1836	1.1352	1.0251	1.0244	AVRG		0.89177		1.1214	6	15	0.05	0.99	
Pyrene	1.3486	1.3666	1.3972	1.3870	1.4018	1.2640	1.2723	AVRG		0.74171		1.3482	4	15	0.05	0.99	
Benzo(a)anthracene	1.2495	1.2430	1.2734	1.2935	1.2652	1.1310	1.1483	AVRG		0.81358		1.2291	5	15	0.05	0.99	
Chrysene	1.1114	1.1415	1.1963	1.2129	1.2146	1.0936	1.0886	AVRG		0.86861		1.1513	5	15	0.05	0.99	
Benzo(b)fluoranthene	1.2366	1.2524	1.2732	1.3173	1.2609	1.1568	1.1938	AVRG		0.80542		1.2416	4	15	0.05	0.99	
Benzo(k)fluoranthene	1.4264	1.4026	1.5105	1.4814	1.3485	1.3391	1.4312	AVRG		0.70425		1.4200	4	15	0.05	0.99	
Benzo(a)pyrene	1.0807	1.0909	1.1451	1.1967	1.1718	1.1043	1.1485	AVRG		0.88184		1.1340	4	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	1.1455	1.1766	1.2455	1.3118	1.3088	1.2674	1.3858	AVRG		0.79173		1.2631	7	15	0.05	0.99	
Dibenz(a,h)anthracene	0.8063	0.8173	0.8683	0.9193	0.9258	0.9174	1.0417	AVRG		1.11181		0.8994	9	15	0.05	0.99	
Benzo(g,h,i)perylene	0.9563	0.9696	1.0090	1.0676	1.0536	1.0046	1.0554	AVRG		0.98367		1.0166	4	15	0.05	0.99	
Nitrobenzene-d5	0.4025	0.4184	0.4335	0.4369	0.4325	0.4115	0.4195	AVRG		2.36897		0.4221	3	15	0.05	0.99	
2-Fluorobiphenyl	1.4635	1.4653	1.4934	1.4884	1.4329	1.3234	1.2965	AVRG		0.70257		1.4233	6	15	0.05	0.99	
Terphenyl-d14	1.0908	1.1058	1.1503	1.1543	1.1561	1.0722	1.0917	AVRG		0.89500		1.1173	3	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-1	0.2000	2	0.5000	4	1.0000	4	2.0000	1	5.0000	-5	10.000	-5
Acenaphthylene	0.1000	-1	0.2000	2	0.5000	4	1.0000	4	2.0000	2	5.0000	-5	10.000	-7
Acenaphthene	0.1000	-3	0.2000	0	0.5000	3	1.0000	4	2.0000	3	5.0000	-4	10.000	-3
Fluorene	0.1000	-1	0.2000	3	0.5000	6	1.0000	4	2.0000	1	5.0000	-5	10.000	-7
Phenanthrene	0.1000	1	0.2000	2	0.5000	5	1.0000	5	2.0000	2	5.0000	-7	10.000	-7
Anthracene	0.1000	1	0.2000	3	0.5000	5	1.0000	4	2.0000	1	5.0000	-7	10.000	-8
Fluoranthene	0.1000	2	0.2000	3	0.5000	6	1.0000	6	2.0000	1	5.0000	-9	10.000	-9
Pyrene	0.1000	0	0.2000	1	0.5000	4	1.0000	3	2.0000	4	5.0000	-6	10.000	-6
Benzo(a)anthracene	0.1000	2	0.2000	1	0.5000	4	1.0000	5	2.0000	3	5.0000	-8	10.000	-7
Chrysene	0.1000	-3	0.2000	-1	0.5000	4	1.0000	5	2.0000	6	5.0000	-5	10.000	-5
Benzo(b)fluoranthene	0.1000	0	0.2000	1	0.5000	3	1.0000	6	2.0000	2	5.0000	-7	10.000	-4
Benzo(k)fluoranthene	0.1000	0	0.2000	-1	0.5000	6	1.0000	4	2.0000	-5	5.0000	-6	10.000	1
Benzo(a)pyrene	0.1000	-5	0.2000	-4	0.5000	1	1.0000	6	2.0000	3	5.0000	-3	10.000	1
Indeno(1,2,3-cd)pyrene	0.1000	-9	0.2000	-7	0.5000	-1	1.0000	4	2.0000	4	5.0000	0	10.000	10
Dibenz(a,h)anthracene	0.1000	-10	0.2000	-9	0.5000	-3	1.0000	2	2.0000	3	5.0000	2	10.000	16
Benzo(g,h,i)perylene	0.1000	-6	0.2000	-5	0.5000	-1	1.0000	5	2.0000	4	5.0000	-1	10.000	4
Nitrobenzene-d5	0.1000	-5	0.2000	-1	0.5000	3	1.0000	3	2.0000	2	5.0000	-3	10.000	-1
2-Fluorobiphenyl	0.1000	3	0.2000	3	0.5000	5	1.0000	5	2.0000	1	5.0000	-7	10.000	-9
Terphenyl-d14	0.1000	-2	0.2000	-1	0.5000	3	1.0000	3	2.0000	3	5.0000	-4	10.000	-2

JW1 05/11/18 [1,4-Dioxane]: Corrected automatically drawn baseline in all levels.

Analyst: JW1

Date: 05/11/18

Reviewer: TKM

Date: 05/11/18

Instrument amount = a0 + response * a1 + response^2 * a2; AVRGE=Average response factor

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 MSSIM Soil
EPA 8270C-SIM

Inst : MSBNA03
Calnum : 528189186001

Name : 3PAHSIM
Cal Date : 11-MAY-2018

ICV 528189186015 (veb15 11-MAY-2018) stds: S36862

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.045	ug/mL	5	30	
Acenaphthylene	1.000	1.121	ug/mL	12	30	
Acenaphthene	1.000	1.048	ug/mL	5	20	
Fluorene	1.000	1.088	ug/mL	9	30	
Phenanthrene	1.000	1.095	ug/mL	9	30	
Anthracene	1.000	1.063	ug/mL	6	30	
Fluoranthene	1.000	1.092	ug/mL	9	20	
Pyrene	1.000	1.108	ug/mL	11	30	
Benzo(a)anthracene	1.000	1.046	ug/mL	5	30	
Chrysene	1.000	1.055	ug/mL	6	30	
Benzo(b)fluoranthene	1.000	0.9943	ug/mL	-1	30	
Benzo(k)fluoranthene	1.000	1.021	ug/mL	2	30	
Benzo(a)pyrene	1.000	1.089	ug/mL	9	20	
Indeno(1,2,3-cd)pyrene	1.000	1.038	ug/mL	4	30	
Dibenz(a,h)anthracene	1.000	1.041	ug/mL	4	30	
Benzo(g,h,i)perylene	1.000	1.114	ug/mL	11	30	

Analyst: JW1

Date: 05/11/18

Reviewer: TKM

Date: 05/11/18

ENTHALPY CONTINUING CALIBRATION FOR 300092 MSSIM Soil
EPA 8270C-SIM

Inst : MSBNA03 Run Name : CCV IDF : 1.0
 Seqnum : 528218043005 File : vev05 Time : 31-MAY-2018 15:18
 Cal : 528189186001 Caldate : 11-MAY-2018
 Standards: S36976

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9382	0.9786	2.000	2.086	ug/mL	4	30	0.0500	
Acenaphthylene	1.6179	1.7266	2.000	2.134	ug/mL	7	30	0.0500	
Acenaphthene	0.9541	1.0210	2.000	2.140	ug/mL	7	20	0.0500	
Fluorene	1.1850	1.2597	2.000	2.126	ug/mL	6	30	0.0500	
Phenanthrene	0.9806	1.0554	2.000	2.153	ug/mL	8	30	0.0500	
Anthracene	0.9708	1.0322	2.000	2.127	ug/mL	6	30	0.0500	
Fluoranthene	1.1214	1.1536	2.000	2.058	ug/mL	3	20	0.0500	
Pyrene	1.3482	1.4460	2.000	2.145	ug/mL	7	30	0.0500	
Benzo(a)anthracene	1.2291	1.2899	2.000	2.099	ug/mL	5	30	0.0500	
Chrysene	1.1513	1.2310	2.000	2.139	ug/mL	7	30	0.0500	
Benzo(b)fluoranthene	1.2416	1.3125	2.000	2.114	ug/mL	6	30	0.0500	
Benzo(k)fluoranthene	1.4200	1.4491	2.000	2.041	ug/mL	2	30	0.0500	
Benzo(a)pyrene	1.1340	1.2002	2.000	2.117	ug/mL	6	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.2631	1.3333	2.000	2.111	ug/mL	6	30	0.0500	
Dibenz(a,h)anthracene	0.8994	0.9755	2.000	2.169	ug/mL	8	30	0.0500	
Benzo(g,h,i)perylene	1.0166	1.0544	2.000	2.074	ug/mL	4	30	0.0500	
Nitrobenzene-d5	0.4221	0.4760	2.000	2.255	ug/mL	13	30	0.0500	
2-Fluorobiphenyl	1.4233	1.4758	2.000	2.074	ug/mL	4	30	0.0500	
Terphenyl-d14	1.1173	1.1640	2.000	2.084	ug/mL	4	30	0.0500	

JW1 05/31/18 [1,4-Dioxane]: Corrected automatically drawn baseline.

Analyst: JW1 Date: 05/31/18 Reviewer: LW Date: 06/01/18

ENTHALPY CONTINUING CALIBRATION FOR 300092 MSSIM Soil
EPA 8270C-SIM

Inst : MSBNA03 Run Name : CCV IDF : 1.0
 Seqnum : 528219529005 File : vf105 Time : 01-JUN-2018 14:19
 Cal : 528189186001 Caldate : 11-MAY-2018
 Standards: S36973

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9382	0.9810	0.5000	0.5228	ug/mL	5	30	0.0500	
Acenaphthylene	1.6179	1.6955	0.5000	0.5240	ug/mL	5	30	0.0500	
Acenaphthene	0.9541	1.0073	0.5000	0.5279	ug/mL	6	20	0.0500	
Fluorene	1.1850	1.2741	0.5000	0.5376	ug/mL	8	30	0.0500	
Phenanthrene	0.9806	1.0513	0.5000	0.5360	ug/mL	7	30	0.0500	
Anthracene	0.9708	1.0337	0.5000	0.5324	ug/mL	6	30	0.0500	
Fluoranthene	1.1214	1.1640	0.5000	0.5190	ug/mL	4	20	0.0500	
Pyrene	1.3482	1.3949	0.5000	0.5173	ug/mL	3	30	0.0500	
Benzo(a)anthracene	1.2291	1.2755	0.5000	0.5189	ug/mL	4	30	0.0500	
Chrysene	1.1513	1.1781	0.5000	0.5117	ug/mL	2	30	0.0500	
Benzo(b)fluoranthene	1.2416	1.2798	0.5000	0.5154	ug/mL	3	30	0.0500	
Benzo(k)fluoranthene	1.4200	1.4705	0.5000	0.5178	ug/mL	4	30	0.0500	
Benzo(a)pyrene	1.1340	1.1419	0.5000	0.5035	ug/mL	1	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.2631	1.2588	0.5000	0.4983	ug/mL	0	30	0.0500	
Dibenz(a,h)anthracene	0.8994	0.9017	0.5000	0.5012	ug/mL	0	30	0.0500	
Benzo(g,h,i)perylene	1.0166	1.0080	0.5000	0.4958	ug/mL	-1	30	0.0500	
Nitrobenzene-d5	0.4221	0.4840	0.5000	0.5733	ug/mL	15	30	0.0500	
2-Fluorobiphenyl	1.4233	1.5081	0.5000	0.5298	ug/mL	6	30	0.0500	
Terphenyl-d14	1.1173	1.1094	0.5000	0.4965	ug/mL	-1	30	0.0500	

JW1 06/04/18 [1,4-Dioxane]: Corrected automatically drawn baseline.

Analyst: JW1 Date: 06/04/18 Reviewer: LW Date: 06/04/18

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 528218043

Date : 05/31/18
 Sequence : MSBNA03 vev

Reference : vev05
 Analyzed : 05/31/18 15:18

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	16954	7.48	59697	9.12	36547	11.43	67706	13.39	53331	16.87	45412	18.61
		LOWER LIMIT	8477	6.98	29849	8.62	18274	10.93	33853	12.89	26666	16.37	22706	18.11
		UPPER LIMIT	33908	7.98	119394	9.62	73094	11.93	135412	13.89	106662	17.37	90824	19.11
005	CCV	CCV	16954	7.48	59697	9.12	36547	11.43	67706	13.39	53331	16.87	45412	18.61
006	SAMPLE	300081-001	14690	7.48	54626	9.12	36389	11.43	65810	13.39	53085	16.87	44377	18.61
007	SAMPLE	300081-003	14020	7.48	52098	9.12	33312	11.43	59811	13.39	49479	16.87	41900	18.61
008	LCS	QC933862	15968	7.48	56835	9.12	35147	11.43	64509	13.39	52042	16.87	45187	18.61
009	MS	QC933863	15794	7.48	56339	9.12	35369	11.43	63872	13.39	52897	16.86	45269	18.61
010	MSD	QC933864	14701	7.48	52510	9.12	32803	11.43	59318	13.39	48612	16.86	41942	18.61
014	BLANK	QC934136	14952	7.48	54812	9.12	35351	11.43	62957	13.39	52274	16.86	44617	18.61
015	LCS	QC934137	14209	7.48	51009	9.12	31752	11.43	57969	13.39	47007	16.86	40327	18.61
017	MS	QC934138	14093	7.49	51062	9.12	32377	11.43	57256	13.39	41390	16.87	33739	18.61
018	MSD	QC934139	14442	7.48	52201	9.12	33352	11.43	58381	13.39	42497	16.87	33978	18.61
019	SAMPLE	300223-001	14732	7.48	53820	9.12	35734	11.43	63821	13.39	50025	16.87	41811	18.60
020	SAMPLE	300223-002	14821	7.49	51409	9.12	35110	11.43	62879	13.39	46454	16.86	39476	18.61
021	SAMPLE	300223-003	15818	7.49	53940	9.12	36631	11.43	65003	13.39	48187	16.87	41553	18.61
022	SAMPLE	300223-004	14584	7.49	49100	9.12	33579	11.43	59796	13.39	45878	16.87	38318	18.61

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 528219529

Date : 06/01/18
 Sequence : MSBNA03 vf1

Reference : vf105
 Analyzed : 06/01/18 14:19

#	Type	Sample ID	DCBZ14D4	RT	NAPHD8	RT	ACEND10	RT	PHEND10	RT	CHYD12	RT	PERYD12	RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	15595	7.48	56739	9.12	35535	11.43	64536	13.39	53914	16.87	46246	18.61
		LOWER LIMIT	7798	6.98	28370	8.62	17768	10.93	32268	12.89	26957	16.37	23123	18.11
		UPPER LIMIT	31190	7.98	113478	9.62	71070	11.93	129072	13.89	107828	17.37	92492	19.11
005	CCV	CCV	15595	7.48	56739	9.12	35535	11.43	64536	13.39	53914	16.87	46246	18.61
006	MS	QC934138	14333	7.49	52241	9.12	32562	11.43	58600	13.39	42599	16.87	36671	18.61
007	MSD	QC934139	13762	7.49	50358	9.12	32266	11.43	56885	13.39	41946	16.87	38480	18.61
009	SAMPLE	300226-001	13400	7.48	49748	9.12	33000	11.43	57438	13.39	44945	16.87	37608	18.61
011	SAMPLE	300047-001	13419	7.48	49289	9.12	31328	11.43	52633	13.39	32959	16.87	29158	18.61
012	SAMPLE	300047-002	12975	7.48	48015	9.12	30944	11.43	53982	13.39	37026	16.87	31394	18.61
013	SAMPLE	300092-001	13215	7.48	49331	9.12	32155	11.43	55925	13.39	44290	16.87	36506	18.61

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 528189186

Instrument : MSBNA03 Begun : 05/11/18 09:06
 Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv6, bna_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	veb01	IB	IB			05/11/18 09:06	1.0		?t
003	veb03	IB	IB			05/11/18 10:15	1.0		?t
004	veb04	TUN	DFTPP/PEM			05/11/18 10:40	1.0	1	
005	veb05	CCV	RTCHECK			05/11/18 11:00	1.0	2	1:BZBF=2.3
006	veb06	TUN	DFTPP/PEM			05/11/18 11:28	1.0	1	t
007	veb07	TUN	DFTPP/PEM			05/11/18 11:43	1.0	1	
008	veb08	ICAL	ICAL			05/11/18 12:02	1.0	3	
009	veb09	ICAL	ICAL			05/11/18 12:34	1.0	4	
010	veb10	ICAL	ICAL			05/11/18 13:08	1.0	5	
011	veb11	ICAL	ICAL			05/11/18 13:40	1.0	6	
012	veb12	ICAL	ICAL			05/11/18 14:12	1.0	2	
013	veb13	ICAL	ICAL			05/11/18 14:45	1.0	7	
014	veb14	ICAL	ICAL			05/11/18 15:17	1.0	8	
015	veb15	ICV	ICV			05/11/18 15:50	1.0	9	
016	veb16	TUN	DFTPP/PEM			05/11/18 16:24	1.0	1	
017	veb17	CCV	CCV			05/11/18 16:42	1.0	6	
018	veb18	LOD	218623-089	Water	258368	05/11/18 17:21	1.0	10	
019	veb19	LOD	218623-088	Water	258368	05/11/18 17:53	1.0	10	
020	veb20	LOD	209076-102	Soil	258329	05/11/18 18:25	1.0	10	
021	veb21	LOD	209076-103	Soil	258329	05/11/18 18:58	1.0	10	
022	veb22	LOD	209076-104	Soil	258329	05/11/18 19:30	1.0	10	
023	veb23	BLANK	QC926890	Soil	258206	05/11/18 20:02	1.0	10	
024	veb24	LOQ	298551-006	Soil	258047	05/11/18 20:35	1.0	10	
025	veb25	LOQ	298551-001	Water	258124	05/11/18 21:08	1.0	10	
026	veb26	MDL	298632-001	Soil	258206	05/11/18 21:41	1.0	10	
027	veb27	BLANK	QC931341	Soil	259346	05/11/18 22:14	1.0	10	
028	veb28	LCS	QC931342	Soil	259346	05/11/18 22:47	1.0	10	
029	veb29	BLANK	QC931546	Water	259395	05/11/18 23:20	1.0	10	
030	veb30	BS	QC931547	Water	259395	05/11/18 23:54	1.0	10	spk
031	veb31	BSD	QC931548	Water	259395	05/12/18 00:27	1.0	10	
032	veb32	SAMPLE	299490-005	Soil	259346	05/12/18 01:01	50.0	10	
033	veb33	MSS	299573-002	Soil	259346	05/12/18 01:34	10.0	10	
034	veb34	SAMPLE	299651-001	Water	259395	05/12/18 02:07	1.0	10	
035	veb35	SAMPLE	299360-008	Water	259109	05/12/18 02:42	2.0	10	high NT
036	veb36	SAMPLE	299348-005	Water	259020	05/12/18 03:14	4.0	10	high NT
037	veb37	CCV	CCV			05/12/18 03:49	1.0	6	

JW1 05/11/18 : Chemstation crashed, run 2 was lost.

JW1 05/11/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

JW1 05/14/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 16 through 37.

Standards used: 1=S36307 2=S36976 3=S36971 4=S36972 5=S36973 6=S36974 7=S36977 8=S36978 9=S36862 10=S36018

Flags used: ?t=missing tune spk=5% spike rule t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 528218043

Instrument : MSBNA03 Begun : 05/31/18 10:03
 Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv6, bna_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vev01	IB	IB			05/31/18 10:03	1.0		?t
002	vev02	IB	IB			05/31/18 10:37	1.0		?t
003	vev03	TUN	DFTPP/PEM			05/31/18 11:03	1.0	1	t
004	vev04	TUN	DFTPP/PEM			05/31/18 15:01	1.0	1	
005	vev05	CCV	CCV			05/31/18 15:18	1.0	2	
006	vev06	SAMPLE	300081-001	Water	259999	05/31/18 15:50	1.0	3	
007	vev07	SAMPLE	300081-003	Water	259999	05/31/18 16:22	1.0	3	
008	vev08	LCS	QC933862	Water	259999	05/31/18 16:54	1.0	3	
009	vev09	MS	QC933863	Water	259999	05/31/18 17:25	1.0	3	
010	vev10	MSD	QC933864	Water	259999	05/31/18 17:57	1.0	3	
011	vev11	SAMPLE	300022-013	Water	259999	05/31/18 18:29	1.0	3	
012	vev12	SAMPLE	300022-014	Water	259999	05/31/18 19:01	1.0	3	
013	vev13	SAMPLE	300022-015	Water	259999	05/31/18 19:32	1.0	3	
014	vev14	BLANK	QC934136	Soil	260066	05/31/18 20:02	1.0	3	
015	vev15	LCS	QC934137	Soil	260066	05/31/18 20:33	1.0	3	
016	vev16	MSS	300022-008	Soil	260066	05/31/18 21:04	1.0	3	
017	vev17	MS	QC934138	Soil	260066	05/31/18 21:35	1.0	3	
018	vev18	MSD	QC934139	Soil	260066	05/31/18 22:06	1.0	3	
019	vev19	SAMPLE	300223-001	Soil	260066	05/31/18 22:37	1.0	3	
020	vev20	SAMPLE	300223-002	Soil	260066	05/31/18 23:08	1.0	3	
021	vev21	SAMPLE	300223-003	Soil	260066	05/31/18 23:39	1.0	3	
022	vev22	SAMPLE	300223-004	Soil	260066	06/01/18 00:10	1.0	3	
023	vev23	SAMPLE	300022-010	Soil	260066	06/01/18 00:41	1.0	3	
024	vev24	SAMPLE	300022-011	Soil	260066	06/01/18 01:13	1.0	3	
025	vev25	CCV	CCV			06/01/18 01:44	1.0	2	

JW1 06/01/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 25.

Standards used: 1=S36307 2=S36976 3=S36018

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 528219529

Instrument : MSBNA03 Begun : 06/01/18 10:49
 Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv6, bna_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vf101	IB	IB			06/01/18 10:49	1.0		?t
002	vf102	IB	IB			06/01/18 11:24	1.0		?t
003	vf103	TUN	DFTPP/PEM			06/01/18 11:53	1.0	1	
004	vf104	TUN	DFTPP/PEM			06/01/18 14:01	1.0	1	
005	vf105	CCV	CCV			06/01/18 14:19	1.0	2	
006	vf106	MS	QC934138	Soil	260066	06/01/18 14:57	1.0	3	
007	vf107	MSD	QC934139	Soil	260066	06/01/18 15:29	1.0	3	
008	vf108	SAMPLE	300022-016	Soil	260066	06/01/18 16:01	100.0	3	
009	vf109	SAMPLE	300226-001	Soil	260066	06/01/18 16:33	25.0	3	
010	vf110	SAMPLE	300022-012	Soil	260066	06/01/18 17:05	1.0	3	
011	vf111	SAMPLE	300047-001	Soil	260066	06/01/18 17:37	25.0	3	
012	vf112	SAMPLE	300047-002	Soil	260066	06/01/18 18:08	10.0	3	
013	vf113	SAMPLE	300092-001	Soil	260066	06/01/18 18:40	25.0	3	
014	vf114	SAMPLE	300022-011	Soil	260066	06/01/18 19:11	1.0	3	
015	vf115	CCV	CCV			06/01/18 19:42	1.0	4	

JW1 06/04/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S36307 2=S36973 3=S36018 4=S36976

Flags used: ?t=missing tune

SAMPLE PREPARATION SUMMARY

Batch #	: 260066			Analysis	: 8270-SIM
Started By	: ALE	Prep Date	: 31-MAY-2018 11:33	Finished By	: ALE
Method	: 3550C	SOP Version	: 8270-SIM_3550_rv6	Units	: g
Spike #1 ID	: S36715	Spike #2 ID	: S36376		

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
300022-008		Soil	30.2	1	1	0.03311		1				8270-SIM	Transferred weight from SA2179
300022-010		Soil	30	1	1	0.03333		1				8270-SIM	Transferred weight from SA2182
300022-011		Soil	29.8	1	1	0.03356		1				8270-SIM	Transferred weight from SA2183
300022-012		Soil	29.69	1	1	0.03368		1				8270-SIM	Transferred weight from SA2184
300022-016		Soil	29.68	1	1	0.03369		1				8270-SIM	Transferred weight from SA2185
300047-001		Soil	30.09	1	1	0.03323		1				8270-SIM	Transferred weight from SA2186
300047-002		Soil	30.11	1	1	0.03321		1				8270-SIM	Transferred weight from SA2187
300092-001		Soil	30.12	1	1	0.0332		1				8270-SIM	See comment 1 below
300223-001		Soil	29.94	1	1	0.0334		1				8270-SIM	See comment 2 below
300223-002		Soil	30.33	1	1	0.03297		1				8270-SIM	See comment 2 below
300223-003		Soil	29.88	1	1	0.03347		1				8270-SIM	See comment 2 below
300223-004		Soil	30.32	1	1	0.03298		1				8270-SIM	See comment 2 below
300226-001		Soil	30.12	1	1	0.0332		1				8270-SIM	See comment 3 below
QC934136	BLANK	Soil	30	1	1	0.03333		1				8270-SIM	
QC934137	LCS	Soil	30	1	1	0.03333		1	1			8270-SIM	
QC934138	MS	Soil	30.35	1	1	0.03295		1	1			8270-SIM	Transferred weight from SA2180
QC934139	MSD	Soil	30.25	1	1	0.03306		1	1			8270-SIM	Transferred weight from SA2181

Comment 1: MIS-dry; Transferred weight from SA2188

Comment 2: Prepped 31-MAY-2018 12:05; A/O ALE

Comment 3: Prepped 01-JUN-2018 11:10; A/O ALE

JW1 06/01/18 : Ok to report 300223 without MS/D per MJD.

LW 06/01/18 : Paperwork for samples started 5-31-18, Blank and LCS reviewed

JW1 06/04/18 : Ok to report MS/D for 300022 with failures per MJD.

Analyst: JW1 Date: 06/01/18 Reviewer: LW Date: 06/04/18

LIMS Batch No: 260066
 LIMS Analysis: 8270-SIM
 Date Extracted: 5/31/18

Extraction Method:
 EPA 3550C Sonication
 Other _____

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BK 4245

Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Cleanup (x if needed)	Comments
300022-008	C	transferred	✓ 1.0		MSS A/O ALE 1130 5/31/18
	10 B		✓ 1.0		
	11 B		✓ 1.0		
	12 A		✓ 1.0		
5 ↓	16 B		✓ 1.0		RD 1 5/31/18
300047-001	E		✓ 1.0		
↓	2 E		✓ 1.0		
300092-001	ABC		✓ 1.0		MIS-dry
MR QC934136	N/A	30.00	✓ 1.0		
10 LCS	7	N/A	✓ 1.0		
MS	8	C	transferred	✓ 1.0	
MSD ↓	9	C	transferred	✓ 1.0	OK
300223-001	E	29.94	✓ 1.0		A/O MES/31/18 12:05 RD 15/31/18
↓	2	30.33	✓ 1.0		
15 ↓	3	29.88	✓ 1.0		
	4	30.32	✓ 1.0		
			□ 1.0		
			□ 1.0		
			□ 1.0		
20			□ 1.0		
			□ 1.0		
			□ 1.0		
			□ 1.0		
			□ 1.0		
			□ 1.0		
			□ 1.0		
			□ 1.0		

MS/MSD not included due to: insufficient volume, or other (reason)

✓ Balance ID: B-15 Has been calibrated? Yes No

Baked, CH₂Cl₂-rinsed granular Na₂SO₄ used for QC & to dry samples
1.0 mL of surrogate solution was added to all samples
1.0 mL of matrix spiking solution was added to all spikes
 ≥100mL 1:1 CH₂Cl₂:Acetone was added to all:

Mfg & Lot # / LIMS # / Time	Date/Initials
EM16128500	8-21-18/3-29-18 ALE 5/31/18
S36715B	
S36376A	
EM58068	
FC181319	
11:33/12:05/11:10	
N/A	
18B2156592	5-30-18
70°C	
AC18852, AC18998, L91279	

✓ **Solvent was added at (time)**
 sonicated 3 times w/ ≥100mL soxhlet extractors on at:
 soxhlets off at:

Extracts filtered through baked, CH₂Cl₂-rinsed powdered Na₂SO₄
 Concentrated to final volume at temperature (degrees C)

Used thermometer(s) #
 Relinquished to BNA department

[Signature] 5/31/18
 Extraction Chemist / Date

Continued from page 77
 Continued on page 77
[Signature] 5/31/18
 A/O R/R DO 6/4/18 Reviewed by / Date

Sample Raw Data

Semivolatile Organics by GC/MS SIM

Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Field ID:	RFS-B180-DU01	Batch#:	260066
Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	ug/Kg	Prepared:	05/31/18
Basis:	dry	Analyzed:	06/01/18
Diln Fac:	25.00		

Moisture: 9%

Analyte	Result	RL	MDL
Naphthalene	ND	140	27
Acenaphthylene	ND	140	27
Acenaphthene	ND	140	27
Fluorene	ND	140	27
Phenanthrene	57 J	140	27
Anthracene	ND	140	27
Fluoranthene	120 J	140	27
Pyrene	130 J	140	27
Benzo(a)anthracene	47 J	140	27
Chrysene	120 J	140	27
Benzo(b)fluoranthene	200	140	27
Benzo(k)fluoranthene	45 J	140	27
Benzo(a)pyrene	90 J	140	27
Indeno(1,2,3-cd)pyrene	100 J	140	27
Dibenz(a,h)anthracene	ND	140	27
Benzo(g,h,i)perylene	150	140	27

Surrogate	%REC	Limits
Nitrobenzene-d5	DO	43-120
2-Fluorobiphenyl	DO	36-120
Terphenyl-d14	DO	56-120

J= Estimated value

DO= Diluted Out

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

ENTHALPY SAMPLE USER REPORT FOR EPA 8270C-SIM

Inst : MSBNA03 Lab ID : 300092-001 Client ID : RFS-B180-DU01
 Seqnum : 528219529013.1 Matrix : Soil Acct : TTEMI (MJD)
 File : vf113 Batch : 260066 Time : 01-JUN-2018 18:40
 Cal : 528189186001 Caldate : 11-MAY-2018
 IDF : 25.0 Raw Units : ug/mL Units : ug/Kg

30.12 g --> 1.0 ml = 0.0332 ml/g PDF

Analyte	Raw	Result	RL	Blank	Flags
Naphthalene	0.004300	ND	120		u
Acenaphthylene	0.01180	ND	120		u
Acenaphthene	0.004600	ND	120		u
Fluorene	0.006200	ND	120		u
Phenanthrene	0.06250	52 J	120		u
Anthracene	0.01370	ND	120		u
Fluoranthene	0.1366	110 J	120		u
Pyrene	0.1423	120 J	120		u
Benzo(a)anthracene	0.05150	43 J	120		u
Chrysene	0.1306	110 J	120		u
Benzo(b)fluoranthene	0.2191	180	120		u
Benzo(k)fluoranthene	0.04920	41 J	120		m u
Benzo(a)pyrene	0.09820	82 J	120		m u
Indeno(1,2,3-cd)pyrene	0.1111	92 J	120		u
Dibenz(a,h)anthracene	0.02870	ND	120		u
Benzo(g,h,i)perylene	0.1696	140	120		u

Surrogate	Raw	Spiked	Result	%Rec	Limits	Flags
Nitrobenzene-d5	0.04250	33.20	35.28	DO	43-120	u
2-Fluorobiphenyl	0.03910	33.20	32.45	DO	36-120	u
Terphenyl-d14	0.04330	33.20	35.94	DO	56-120	u

ISTD (CCV vf105)	CCV Area	SAMPLE Area	%Drift	CCV RT	SAMPLE RT	Drift
Naphthalene-d8	56739	49331	-13.06	9.12	9.12	0.00
Acenaphthene-d10	35535	32155	-9.51	11.43	11.43	0.00
Phenanthrene-d10	64536	55925	-13.34	13.39	13.39	0.00
Chrysene-d12	53914	44290	-17.85	16.87	16.87	0.01
Perylene-d12	46246	36506	-21.06	18.61	18.61	0.00

06/01/18 : Was diluted due to the dark and viscous nature of the sample extract.

JW1 06/04/18 [Benzo(b)fluoranthene]: Picked or reassigned peak.

JW1 06/04/18 [Benzo(a)pyrene]: Corrected automatically drawn baseline.

(not in upper half)

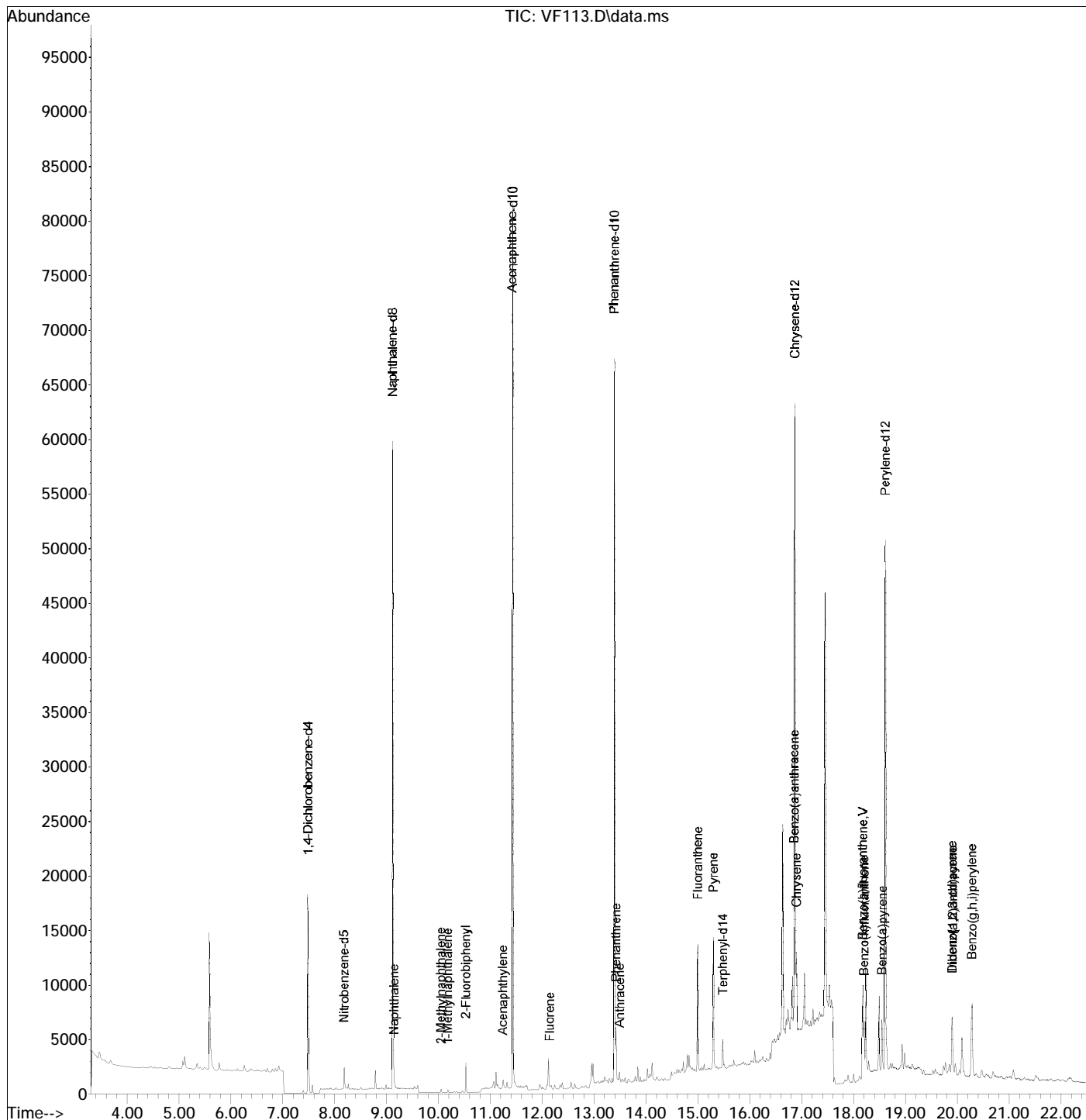
Analyst: JW1 Date: 06/05/18 Reviewer: LW Date: 06/05/18

m=manual integration u=use

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF113.D
 Acq On : 1 Jun 2018 6:40 pm
 Operator :
 Sample : S,300092-001
 Misc : 260066,25, //DV
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 04 17:06:17 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF113.D
 Acq On : 1 Jun 2018 6:40 pm
 Operator :
 Sample : S,300092-001
 Misc : 260066,25, //DV
 ALS Vial : 13 Sample Multiplier: 1

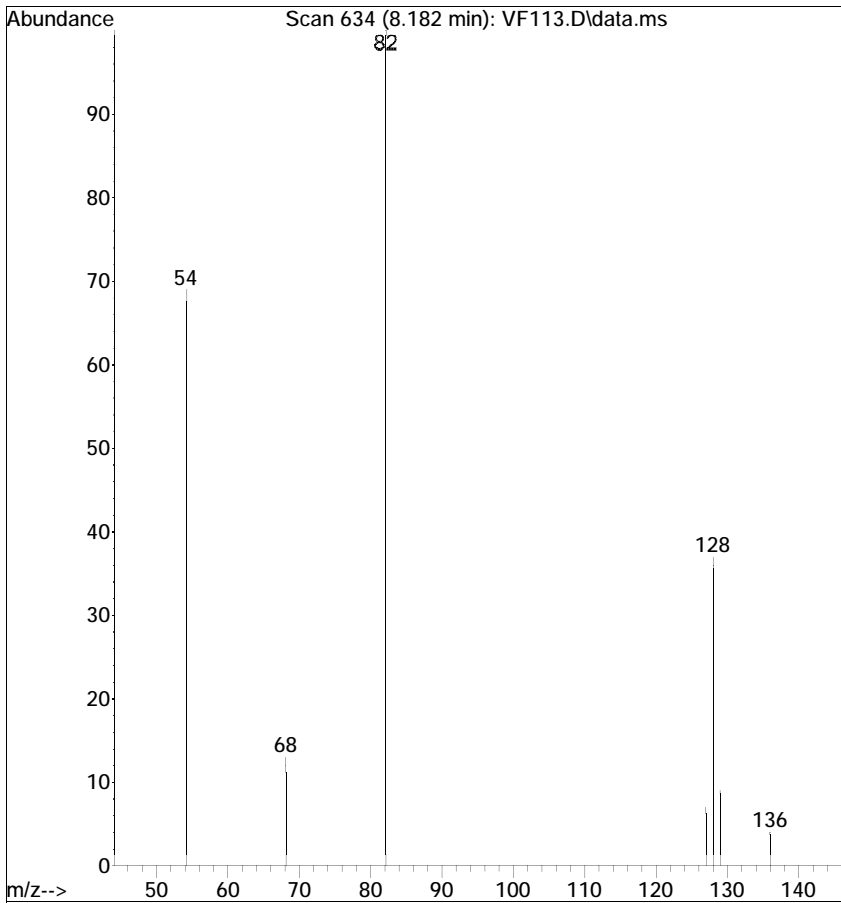
Quant Time: Jun 04 17:06:17 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.484	152	13215	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.115	136	49331	1.0000	ug/mL	-0.01
8) Acenaphthene-d10	11.428	164	32155	1.0000	ug/mL	-0.01
13) Phenanthrene-d10	13.389	188	55925	1.0000	ug/mL	0.00
18) Chrysene-d12	16.865	240	44290	1.0000	ug/mL	0.00
23) Perylene-d12	18.606	264	36506	1.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	0.000	88	0	N.D.		
4) Nitrobenzene-d5	8.182	82	884	0.0425	ug/mL	91
5) Naphthalene	9.143	128	197	0.0043	ug/mL	57
6) 2-Methylnaphthalene	10.048	142	170	0.0049	ug/mL	96
7) 1-Methylnaphthalene	10.179	142	123	0.0039	ug/mL	88
9) 2-Fluorobiphenyl	10.525	172	1788	0.0391	ug/mL	97
10) Acenaphthylene	11.240	152	612	0.0118	ug/mL	84
11) Acenaphthene	11.428	154	140	0.0046	ug/mL	# 42
12) Fluorene	12.142	166	238	0.0062	ug/mL	# 91
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.418	178	3426	0.0625	ug/mL	95
16) Anthracene	13.489	178	744	0.0137	ug/mL	81
17) Fluoranthene	14.995	202	8566	0.1366	ug/mL	96
19) Pyrene	15.296	202	8497	0.1423	ug/mL	99
20) Terphenyl-d14	15.476	244	2144	0.0433	ug/mL	90
21) Benzo(a)anthracene	16.850	228	2804	0.0515	ug/mL	86
22) Chrysene	16.895	228	6659	0.1306	ug/mL	97
24) Benzo(b)fluoranthene	18.170	252	9929	0.2191	ug/mL	# 87
25) Benzo(k)fluoranthene	18.199	252	2551m	0.0492	ug/mL	
26) Benzo(a)pyrene	18.546	252	4065m	0.0982	ug/mL	
27) Indeno(1,2,3-cd)pyrene	19.898	276	5122	0.1111	ug/mL	# 40
28) Dibenz(a,h)anthracene	19.901	278	942	0.0287	ug/mL	# 45
29) Benzo(g,h,i)perylene	20.274	276	6295	0.1696	ug/mL	# 83

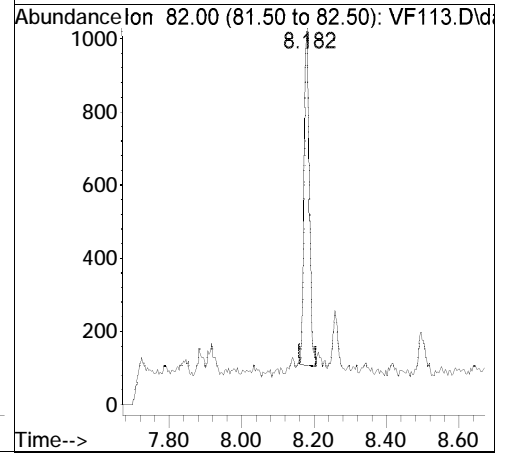
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Raw

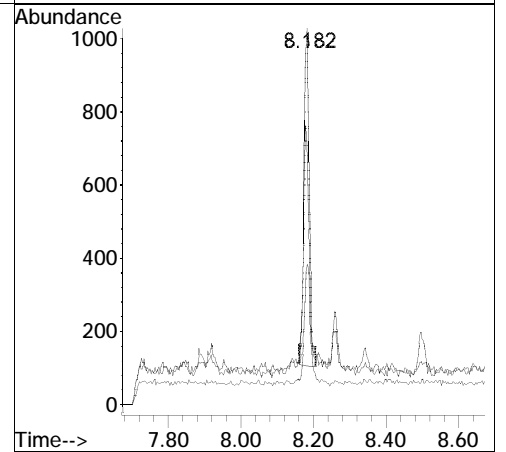
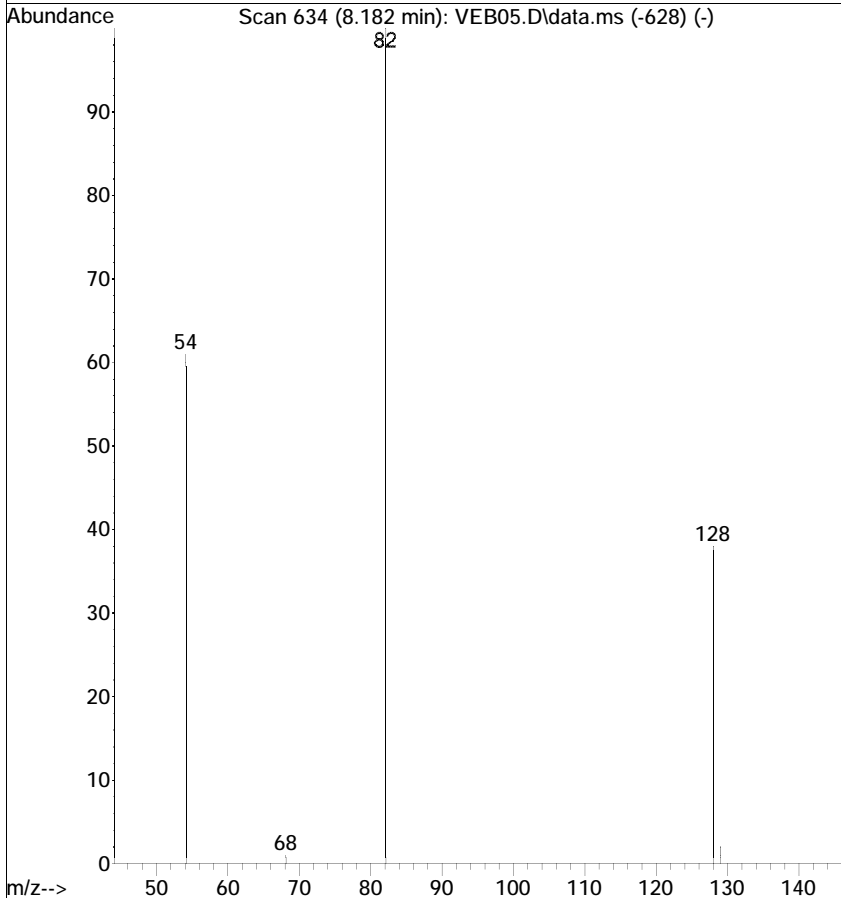


#4
 Nitrobenzene-d5
 Concen: 0.0425 ug/mL
 RT: 8.182 min Scan# 634
 Delta R.T. -0.000 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

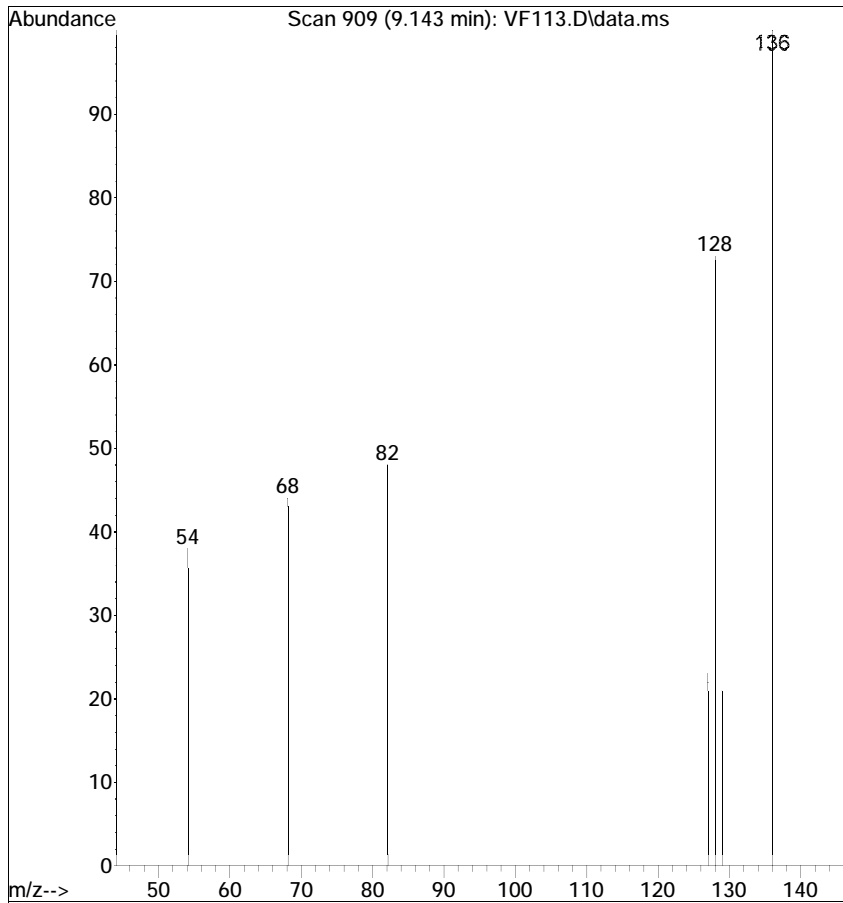
Tgt Ion	Resp	Lower	Upper
82	884		
128	37.3	10.5	50.5
54	69.1	56.2	96.2



Ref

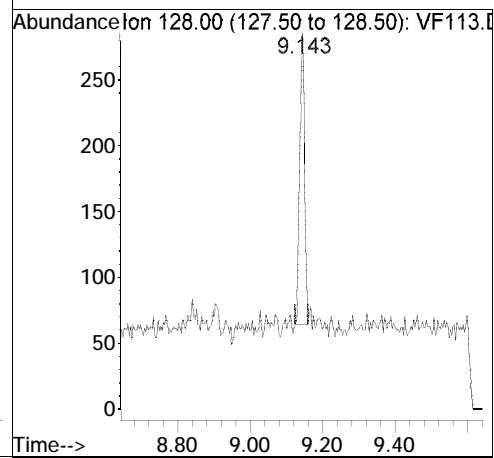


Raw

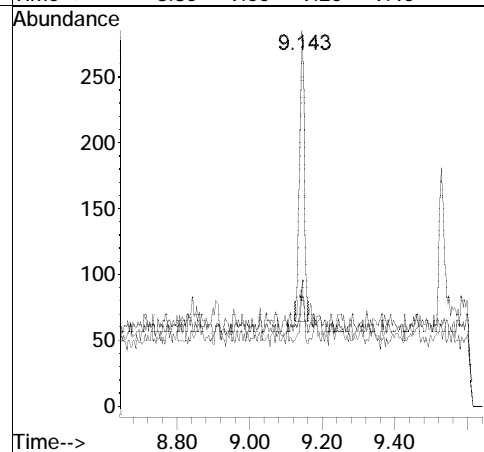
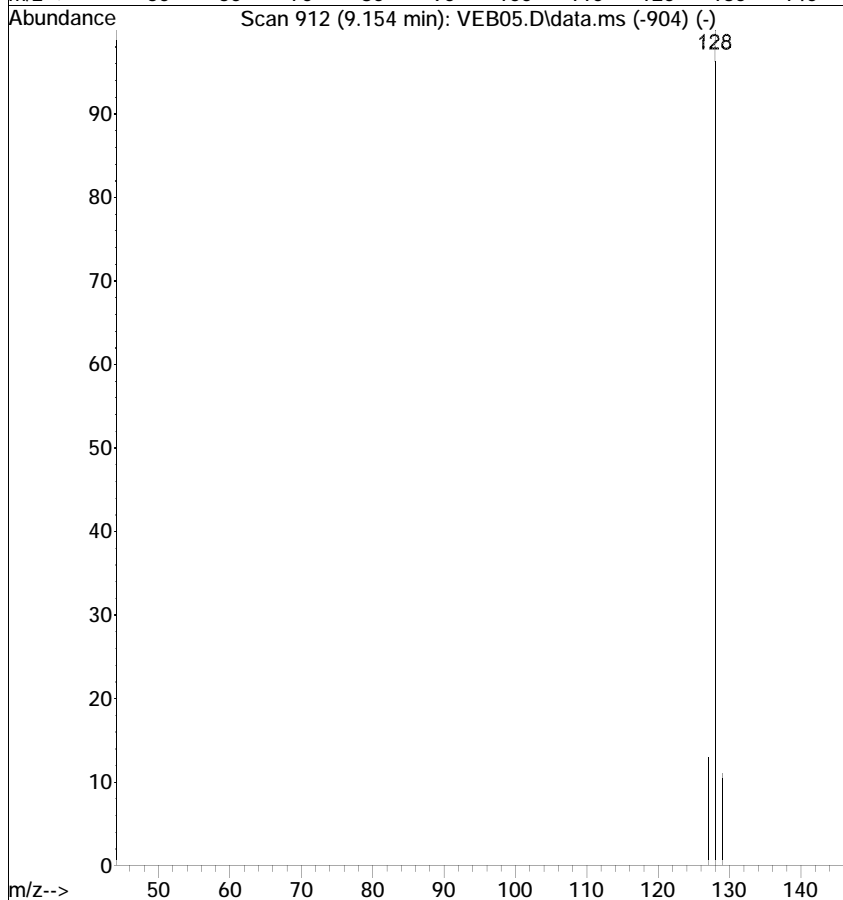


#5
 Naphthalene
 Concen: 0.0043 ug/mL
 RT: 9.143 min Scan# 909
 Delta R.T. -0.011 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

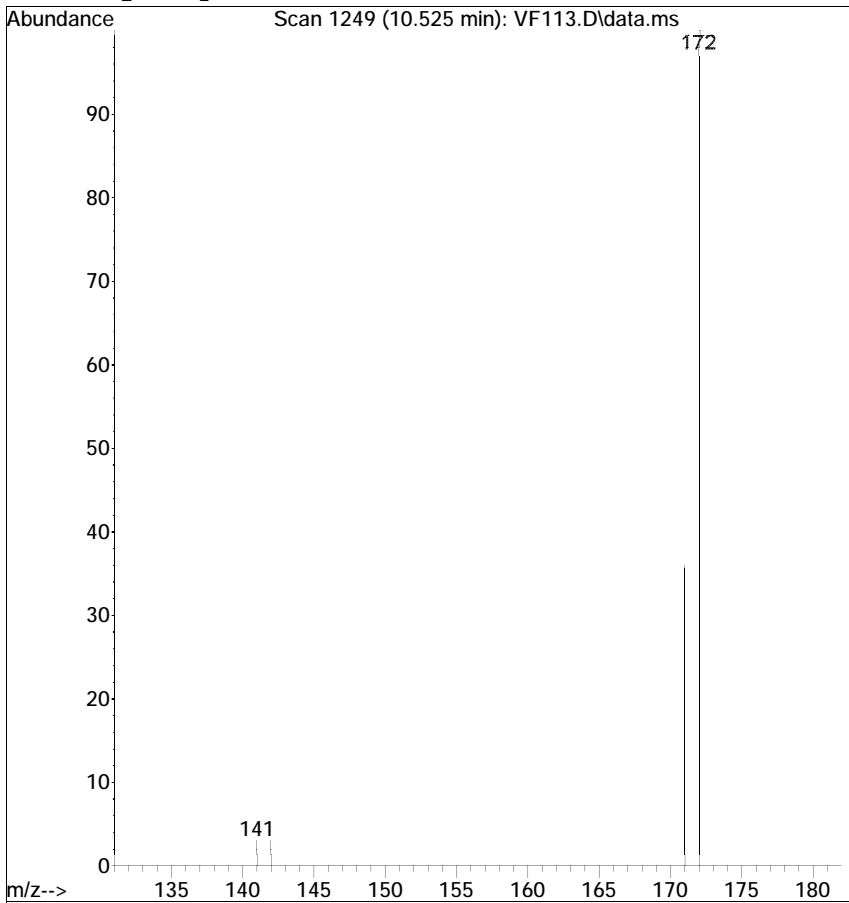
Tgt Ion	Ratio	Lower	Upper	Resp
128	100			197
129	28.1	0.0	31.1	
127	30.9	0.0	34.0	



Ref

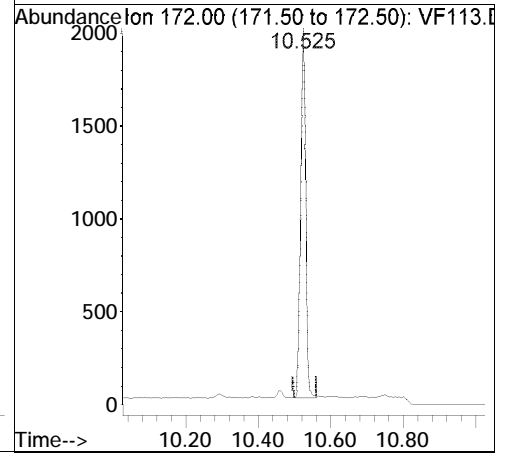


Raw

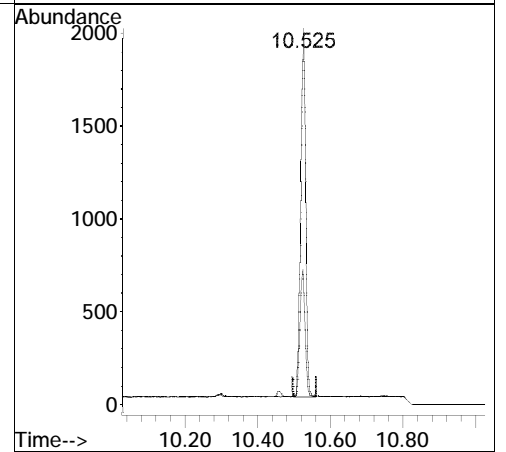
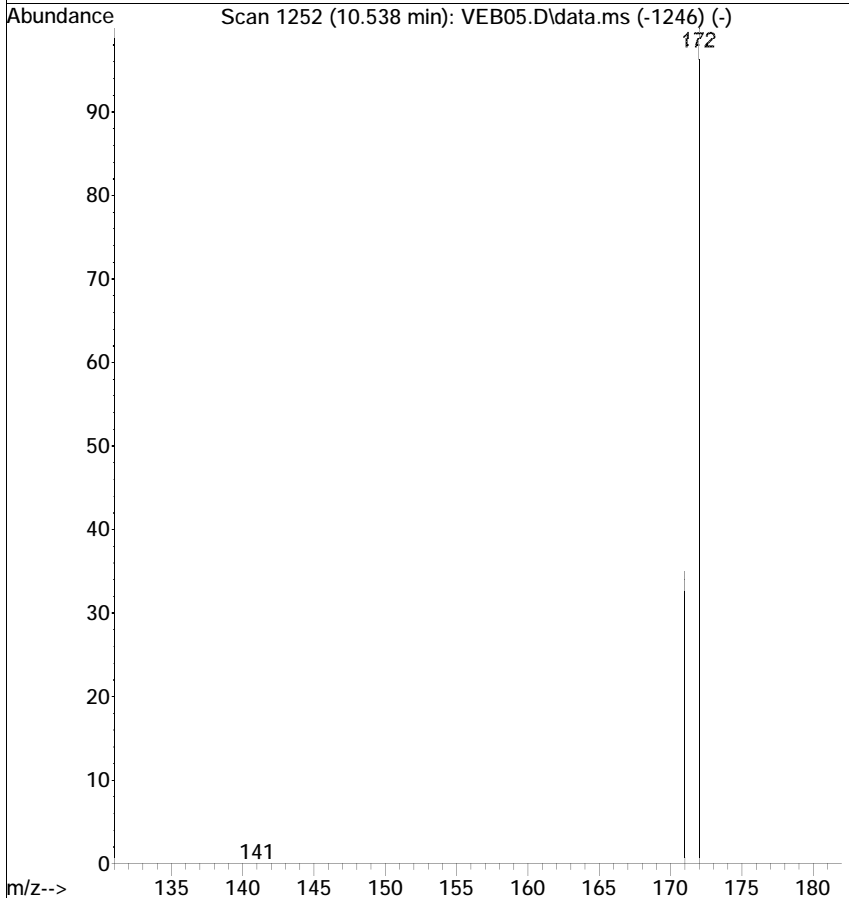


#9
 2-Fluorobiphenyl
 Concen: 0.0391 ug/mL
 RT: 10.525 min Scan# 1249
 Delta R.T. -0.013 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

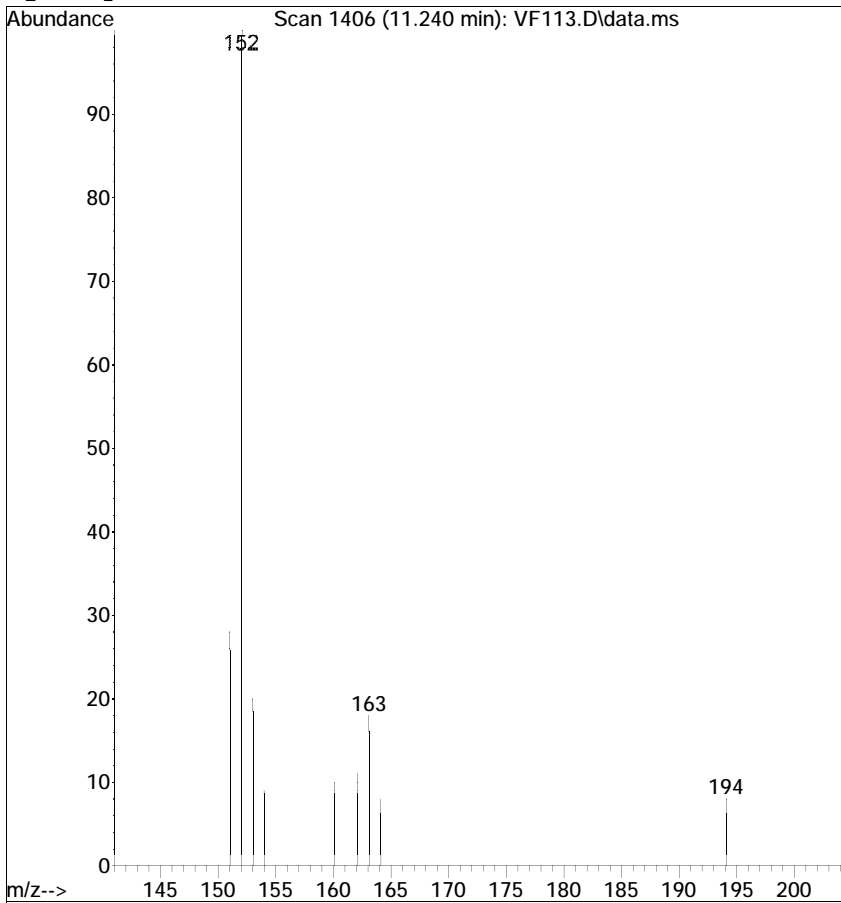
Tgt Ion	Resp	Lower	Upper
172	1788	100	100
171	36.1	14.4	54.4



Ref

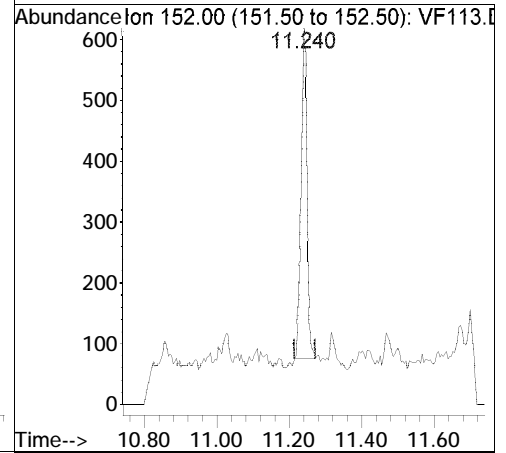


Raw

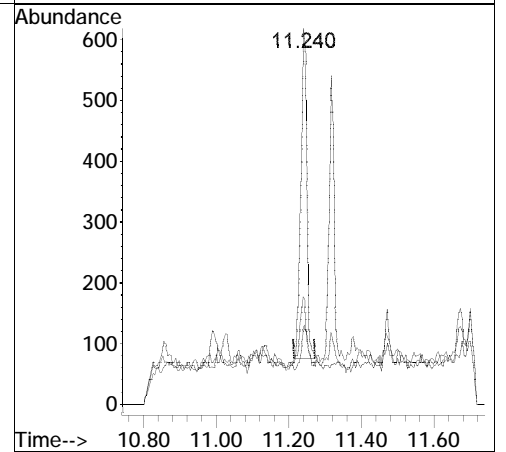
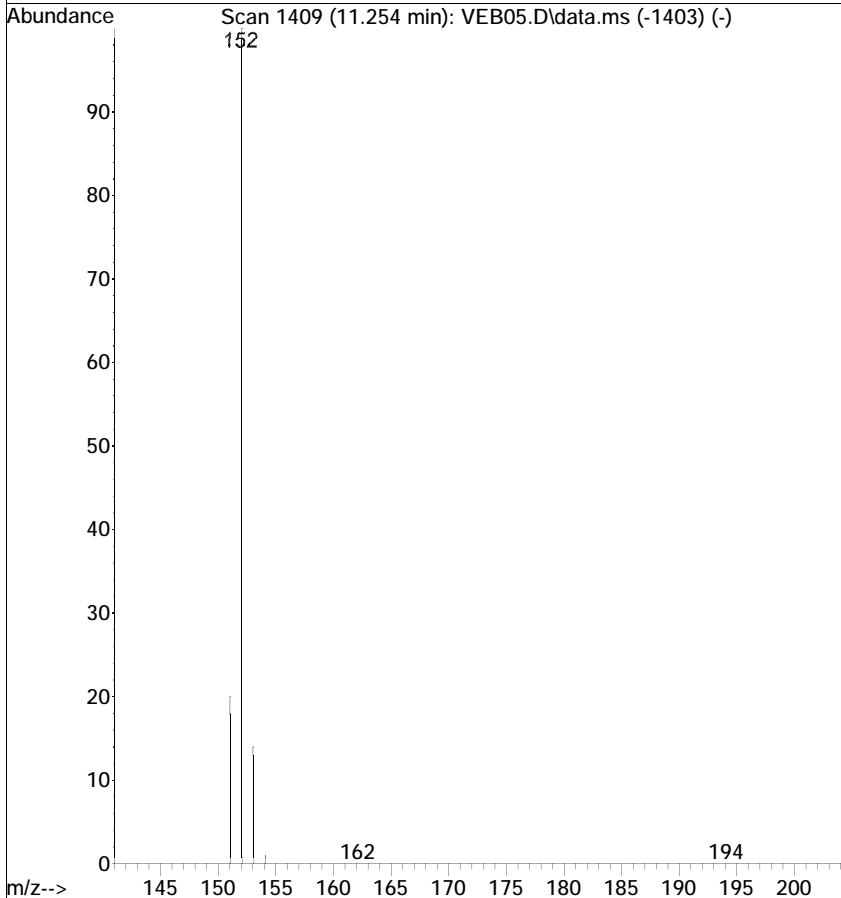


#10
 Acenaphthylene
 Concen: 0.0118 ug/mL
 RT: 11.240 min Scan# 1406
 Delta R.T. -0.013 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

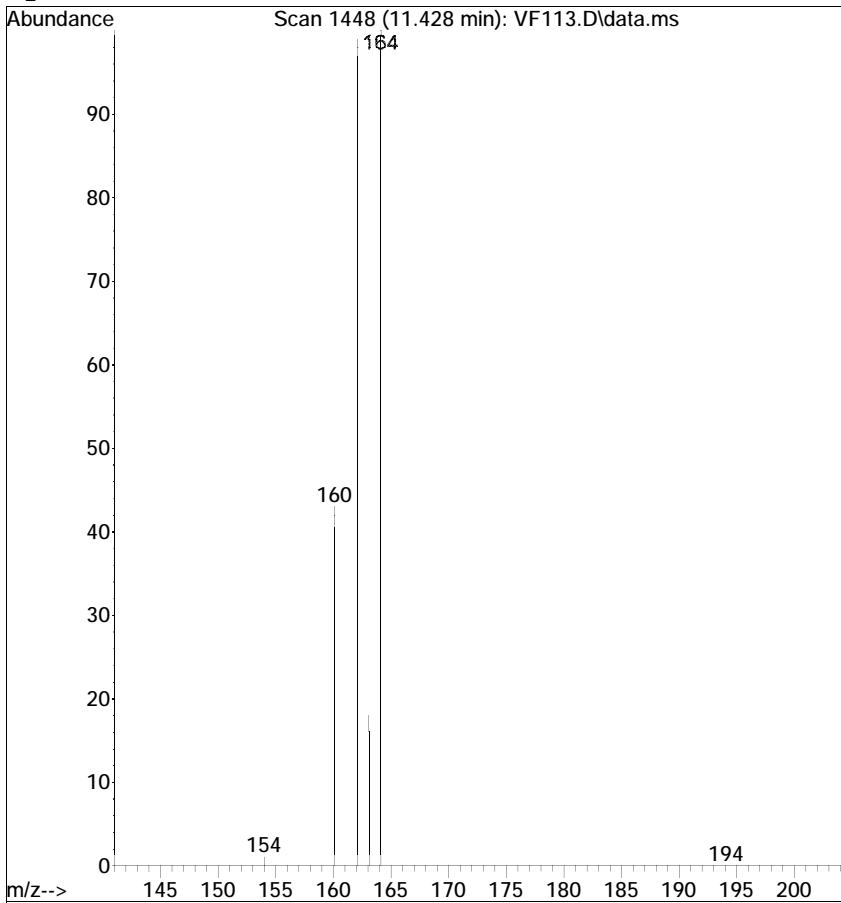
Tgt Ion	Resp	Lower	Upper
152	100		
151	28.5	1.0	41.0
153	19.9	0.0	33.1



Ref

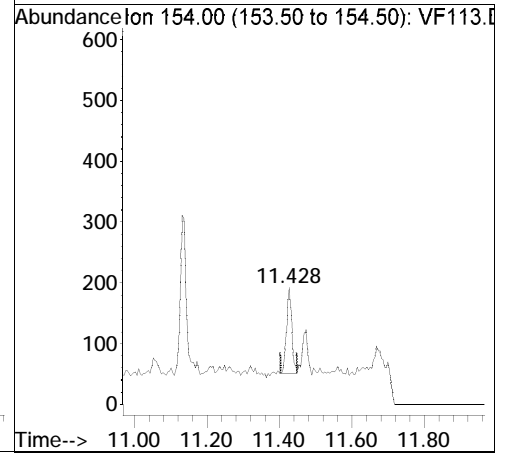


Raw

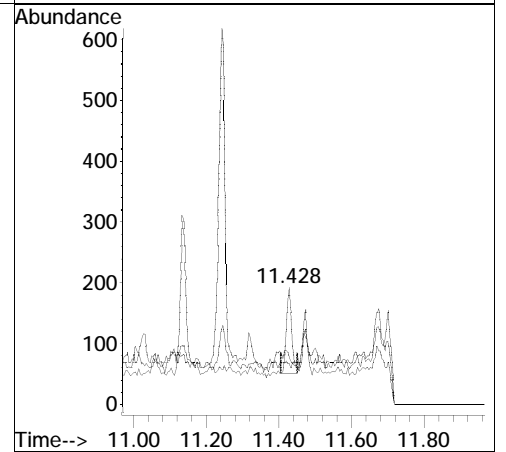
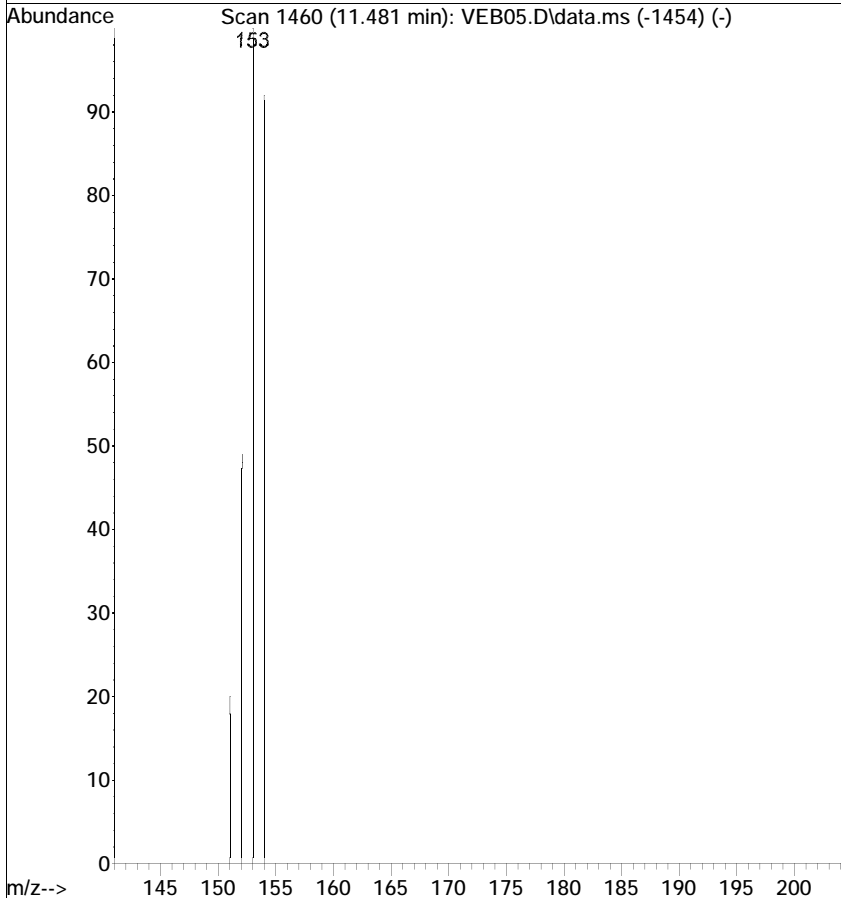


#11
 Acenaphthene
 Concen: 0.0046 ug/mL
 RT: 11.428 min Scan# 1448
 Delta R.T. -0.053 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

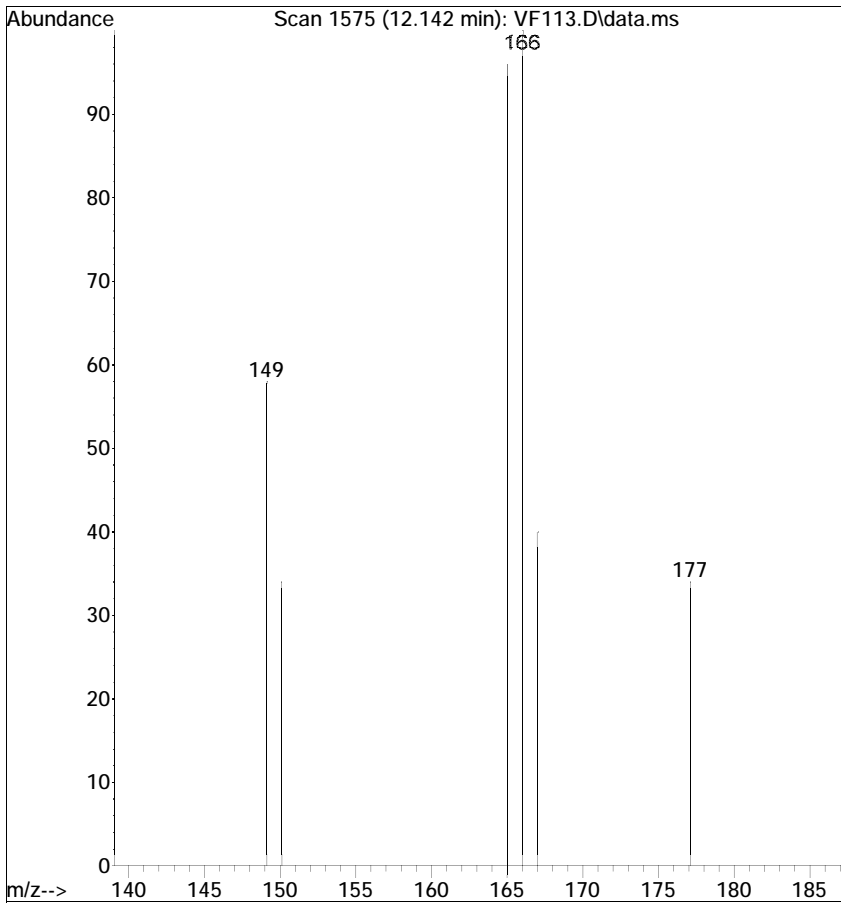
Tgt Ion	Resp	Lower	Upper
154	100		
152	39.6	35.4	75.4
153	34.9	96.8	136.8#



Ref

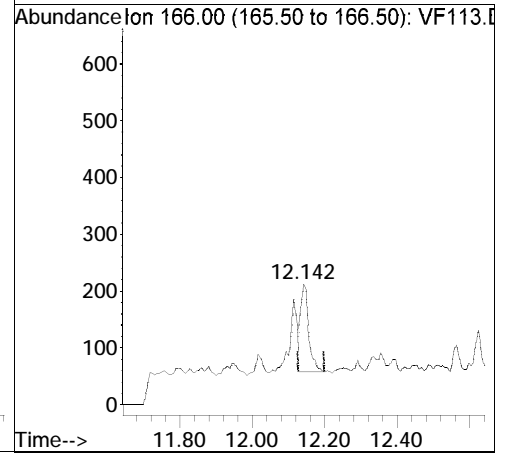


Raw

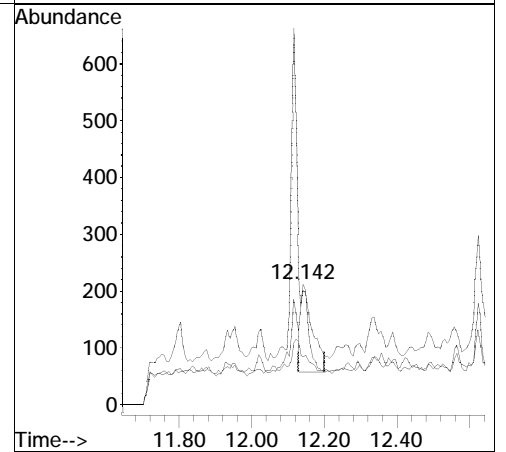
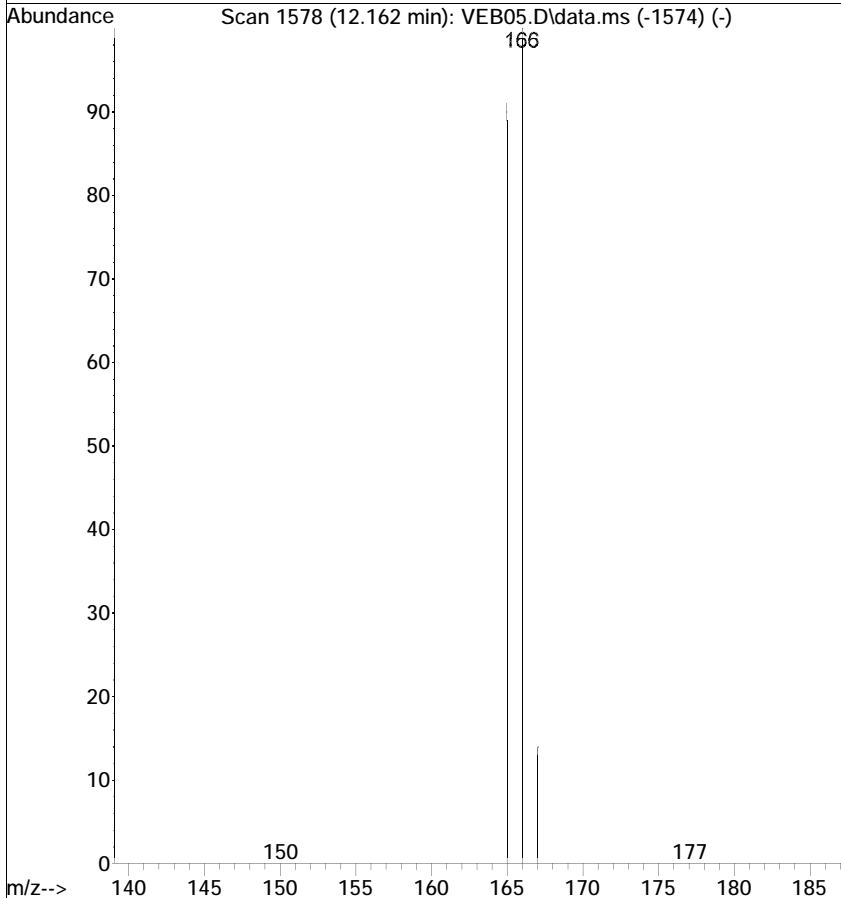


#12
 Fluorene
 Concen: 0.0062 ug/mL
 RT: 12.142 min Scan# 1575
 Delta R.T. -0.014 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

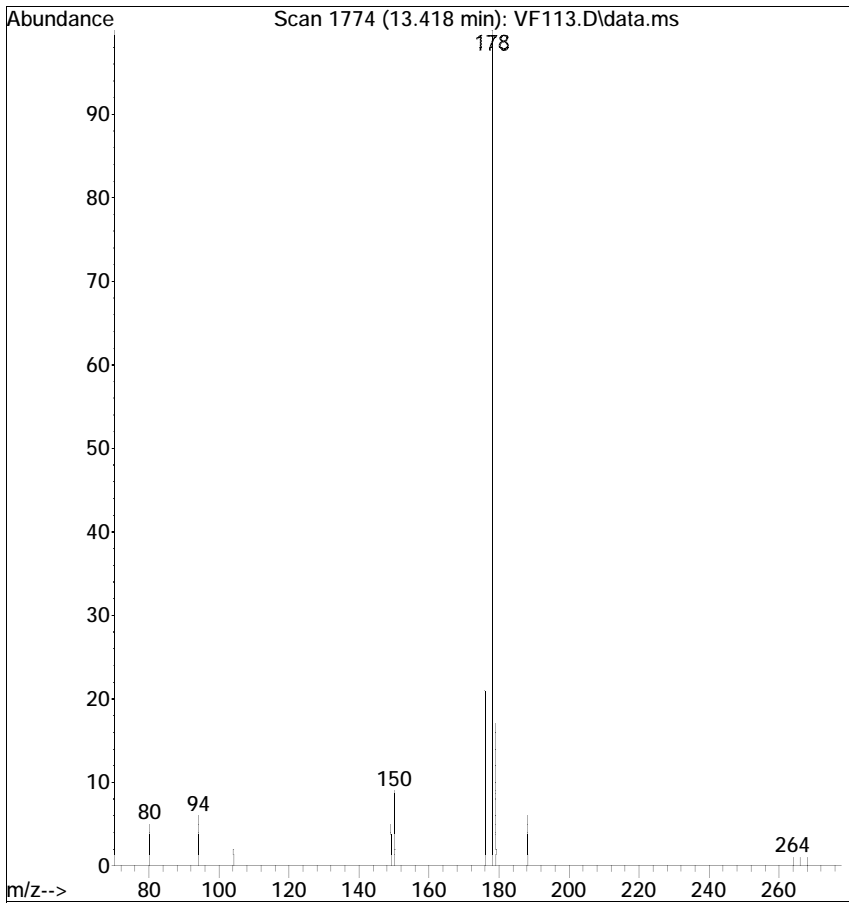
Tgt Ion	Resp	Lower	Upper
166	100		
165	95.8	74.9	114.9
167	40.1	0.0	33.9#



Ref

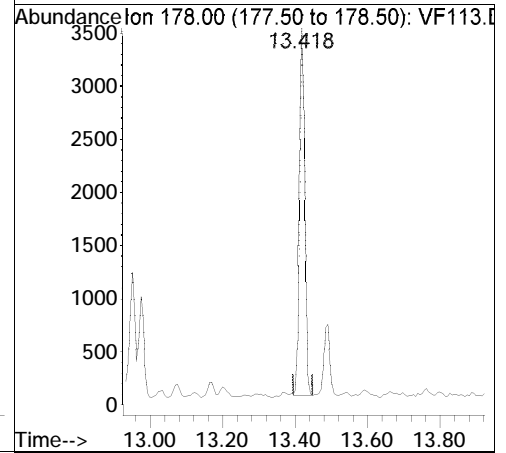


Raw

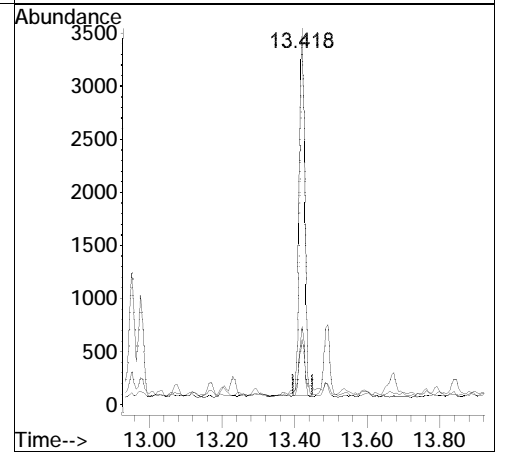
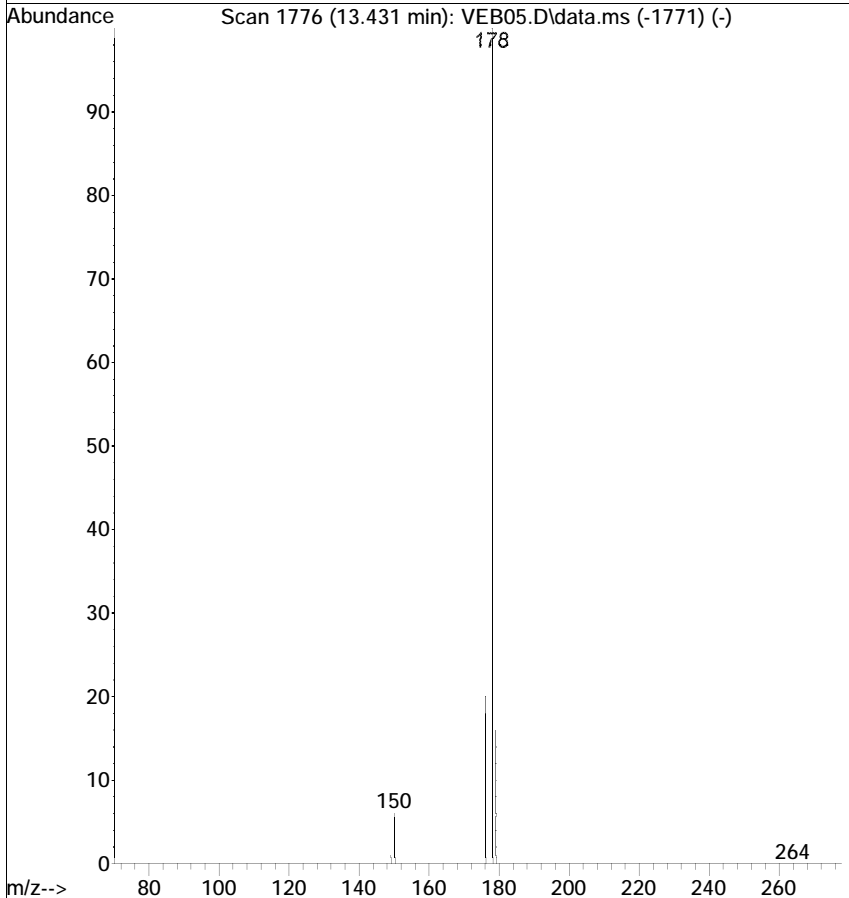


#15
 Phenanthrene
 Concen: 0.0625 ug/mL
 RT: 13.418 min Scan# 1774
 Delta R.T. -0.011 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

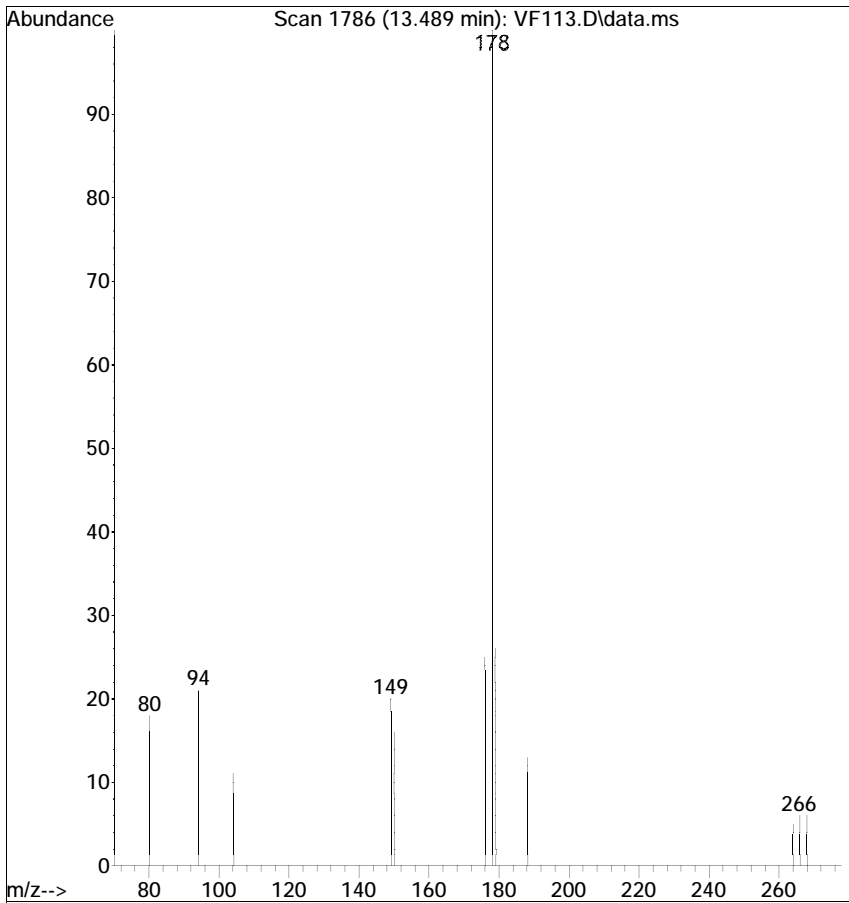
Tgt Ion	Resp	Lower	Upper
178	3426		
179	17.4	0.0	35.0
176	20.9	0.0	38.9



Ref

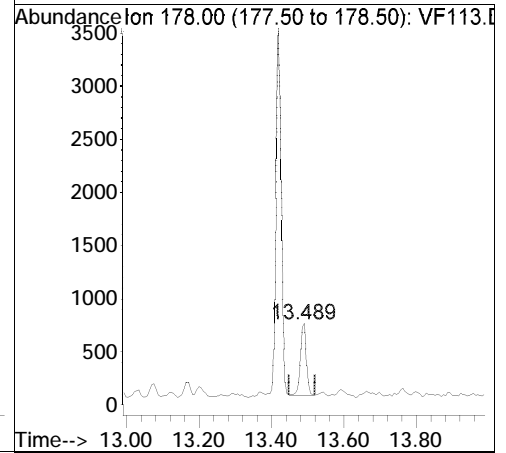


Raw

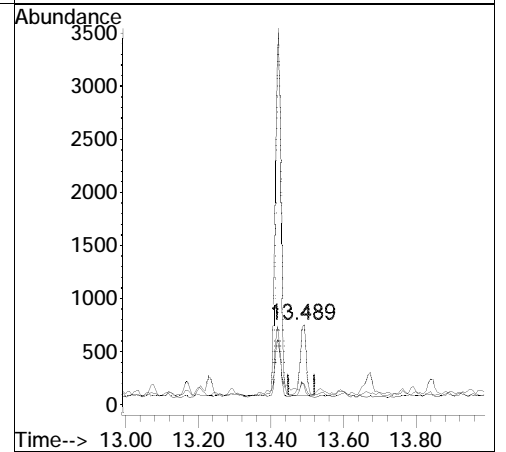
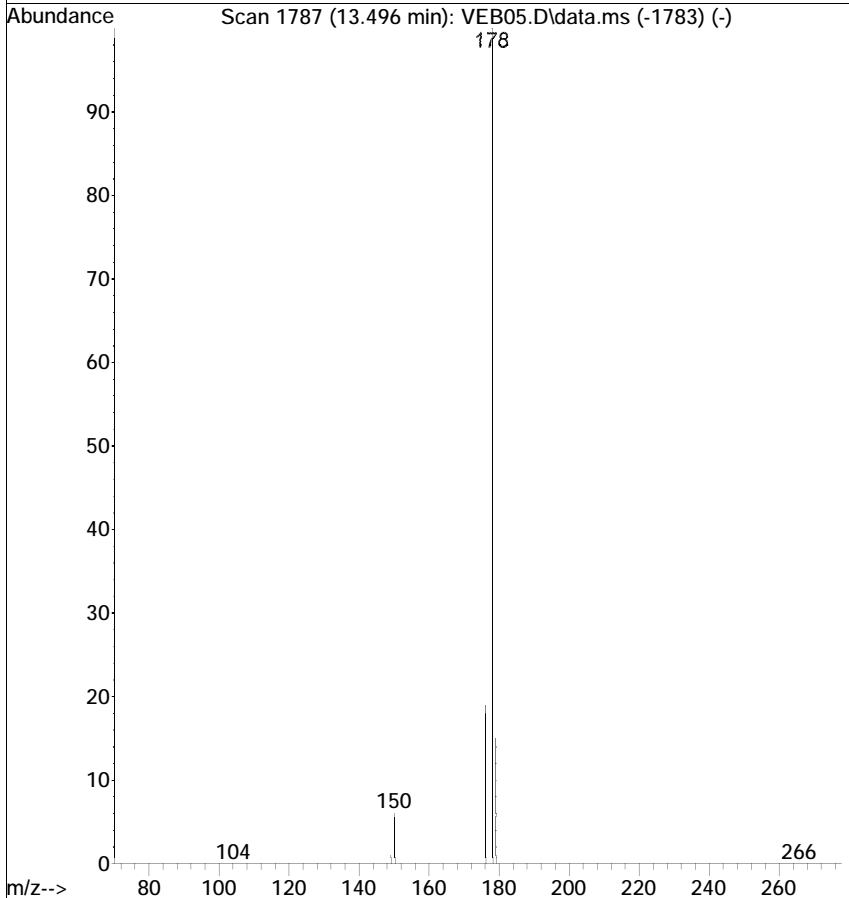


#16
 Anthracene
 Concen: 0.0137 ug/mL
 RT: 13.489 min Scan# 1786
 Delta R.T. -0.006 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

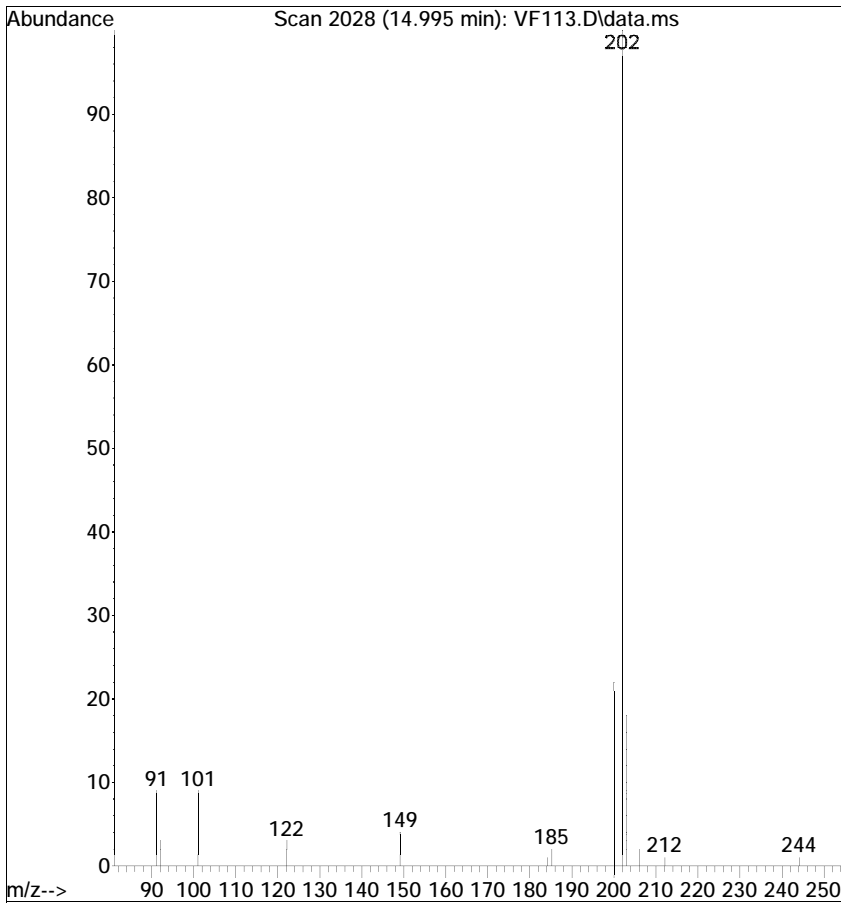
Tgt Ion	Resp	Lower	Upper
178	100		
179	26.4	0.0	34.4
176	25.1	0.0	39.5



Ref

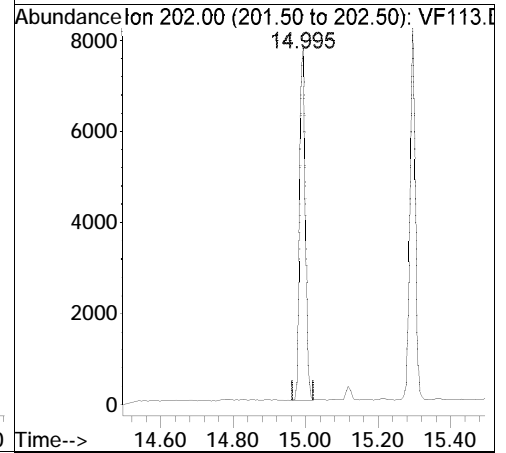


Raw

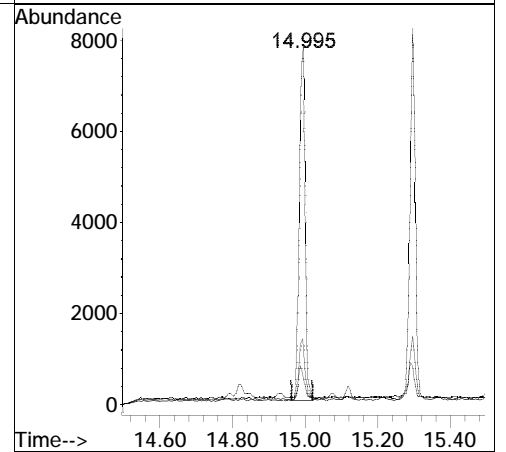
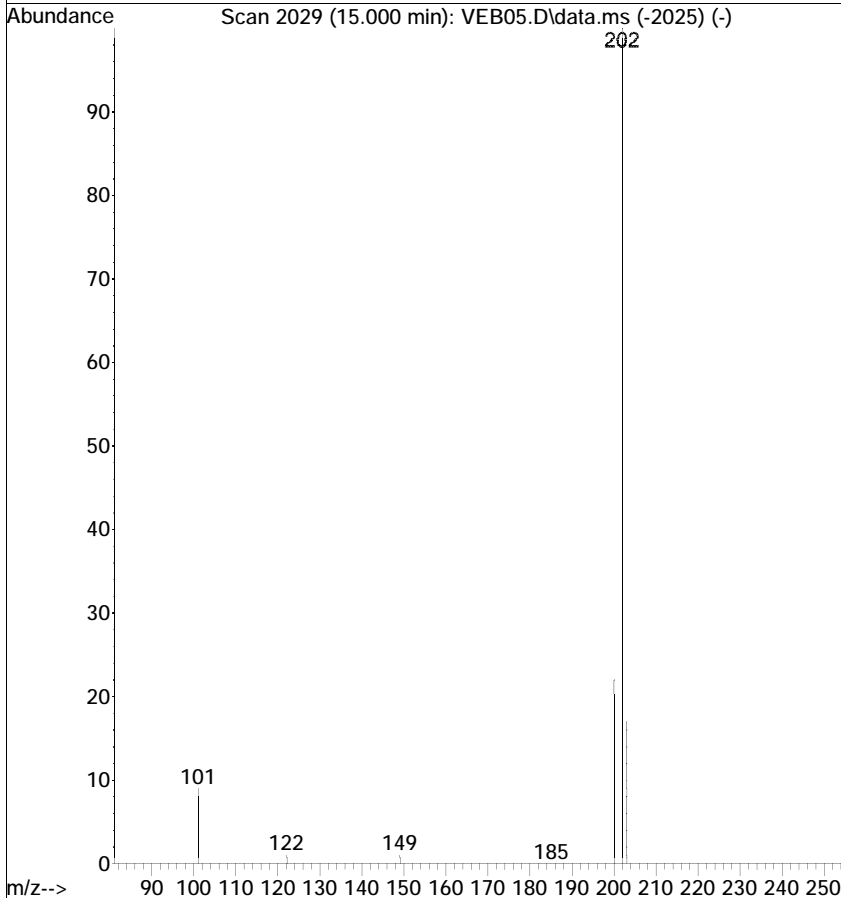


#17
 Fluoranthene
 Concen: 0.1366 ug/mL
 RT: 14.995 min Scan# 2028
 Delta R.T. -0.006 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

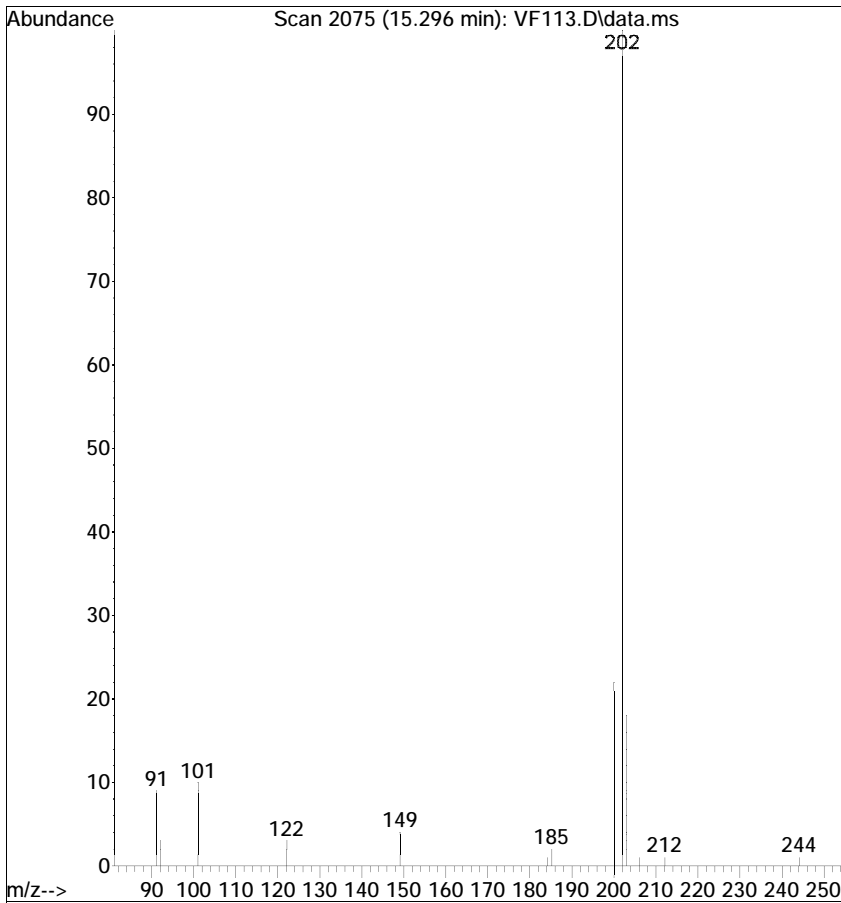
Tgt Ion	Resp	Lower	Upper
202	100		
101	8.7	0.0	21.1
203	18.4	0.0	37.0



Ref

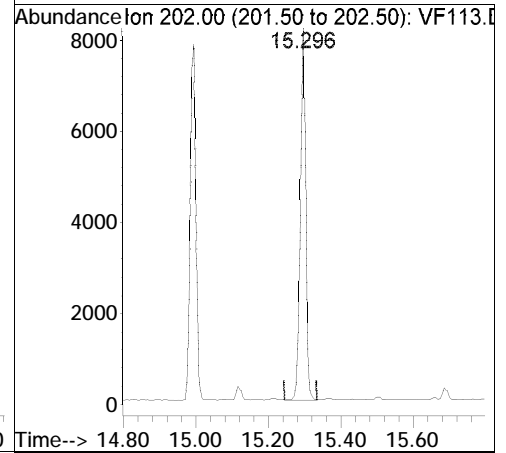


Raw

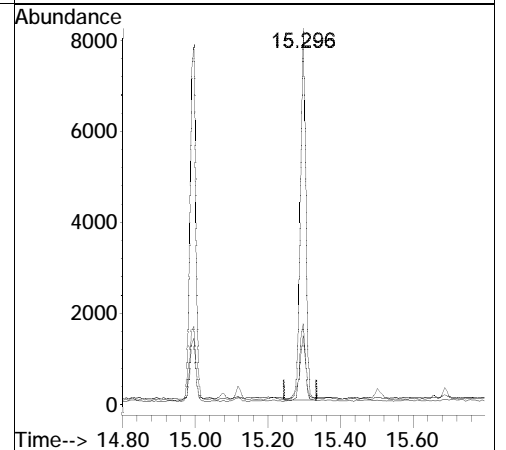
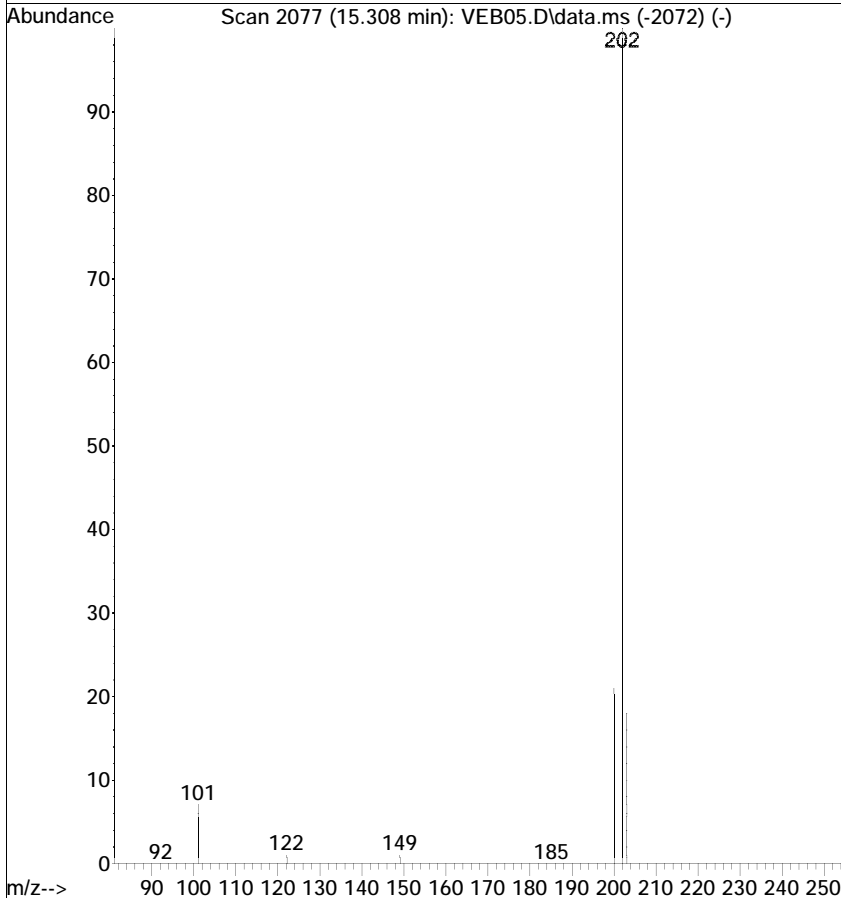


#19
 Pyrene
 Concen: 0.1423 ug/mL
 RT: 15.296 min Scan# 2075
 Delta R.T. -0.006 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

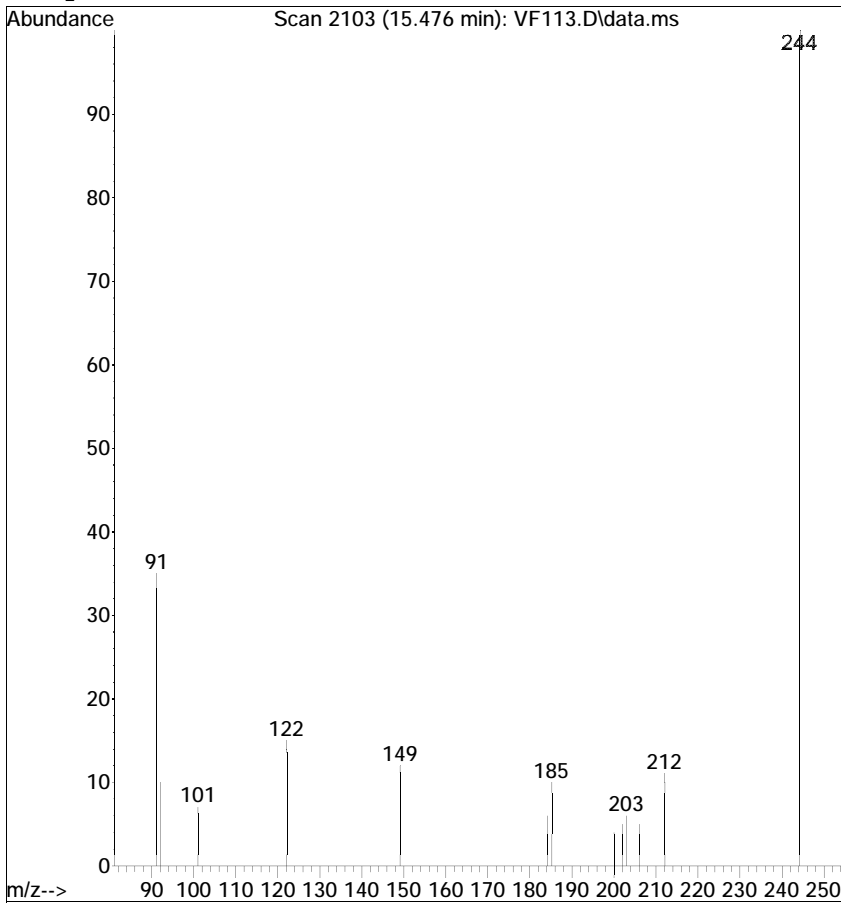
Tgt Ion	Resp	Lower	Upper
202	8497		
200	21.7	1.1	41.1
203	18.3	0.0	37.7



Ref

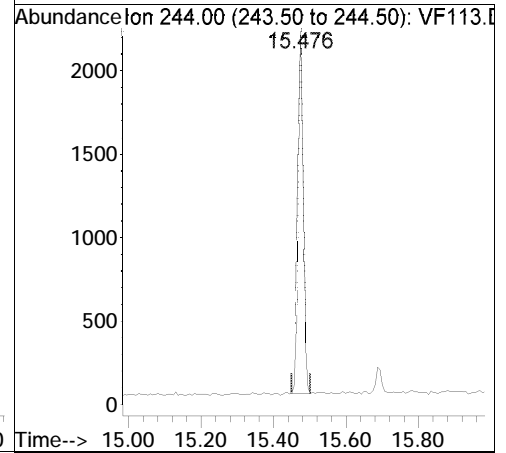


Raw

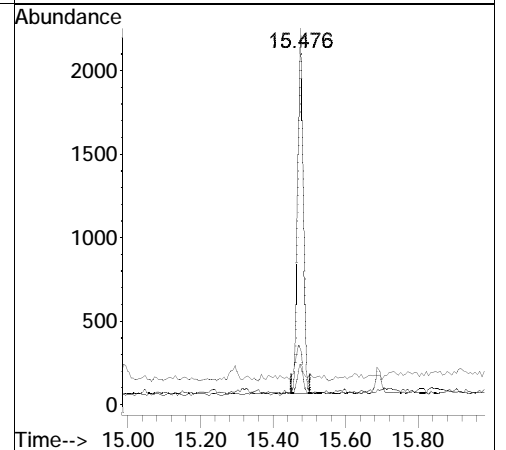
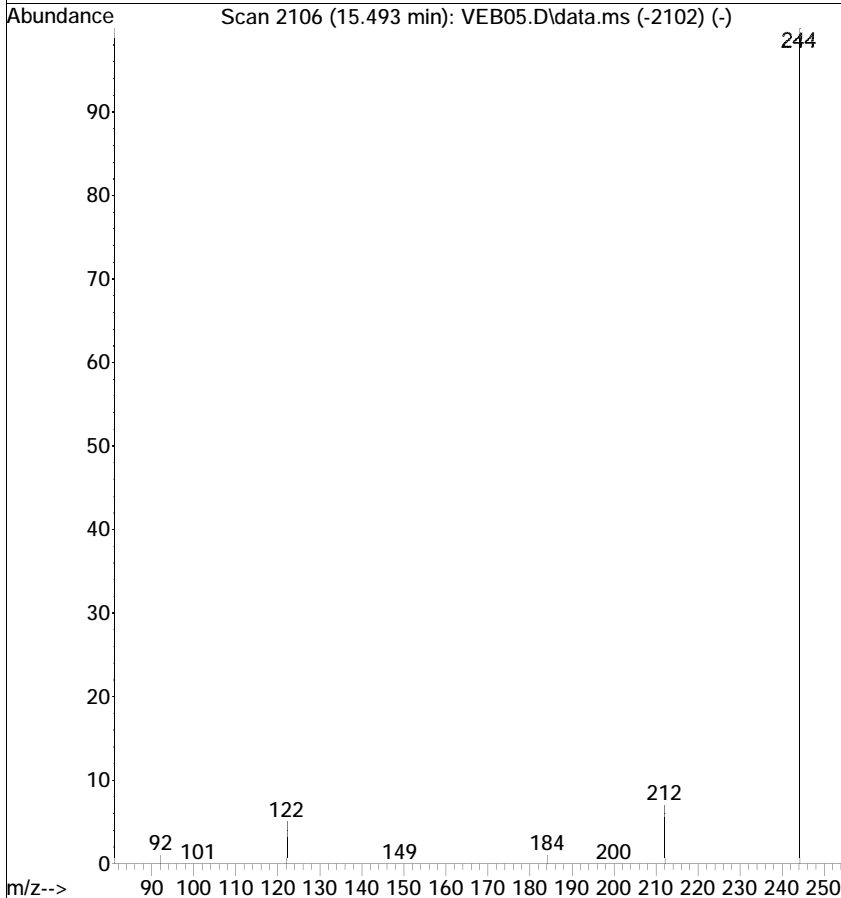


#20
 Terphenyl-d14
 Concen: 0.0433 ug/mL
 RT: 15.476 min Scan# 2103
 Delta R.T. -0.013 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

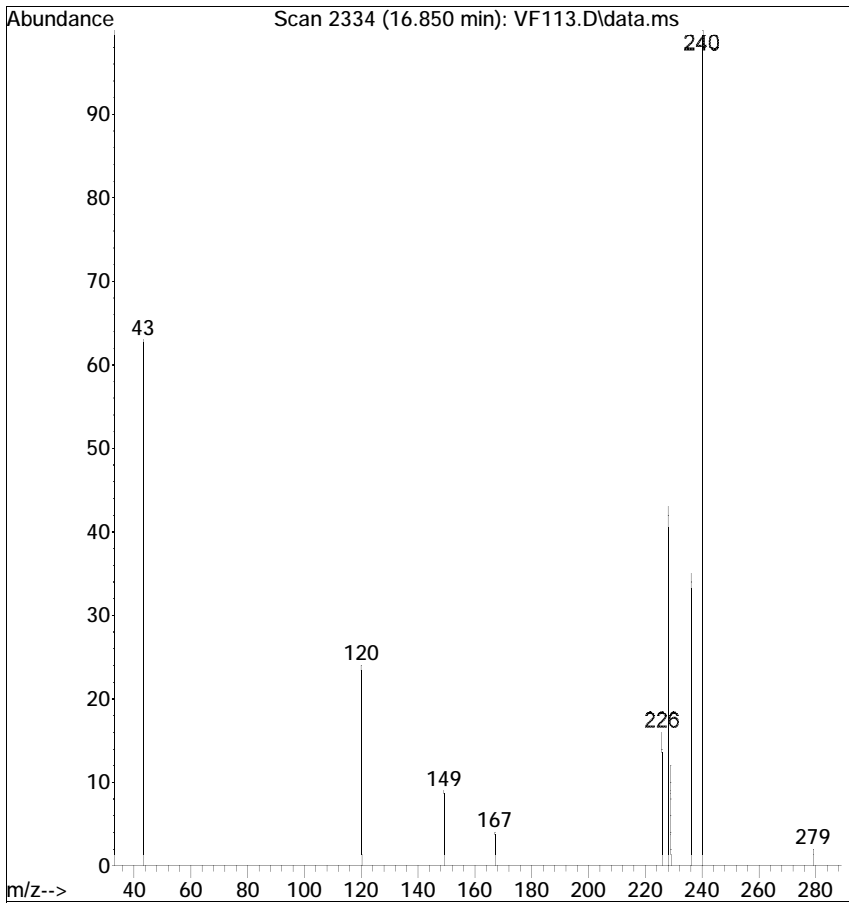
Tgt Ion	Resp	Lower	Upper
244	100		
122	14.6	0.0	25.0
212	10.7	0.0	31.4



Ref

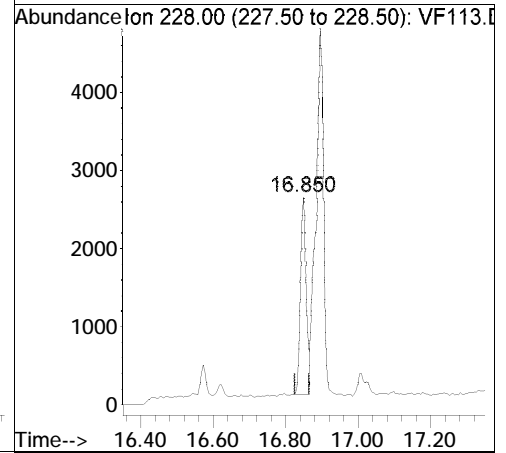


Raw

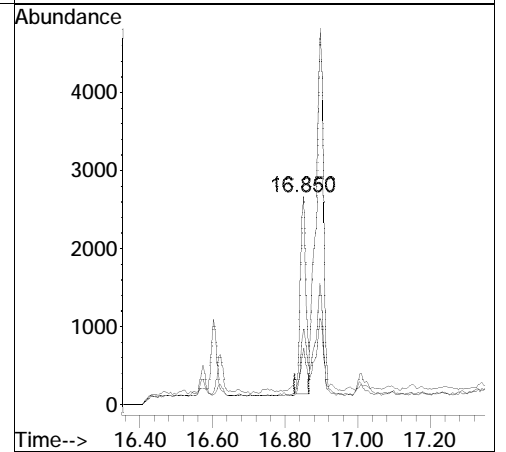
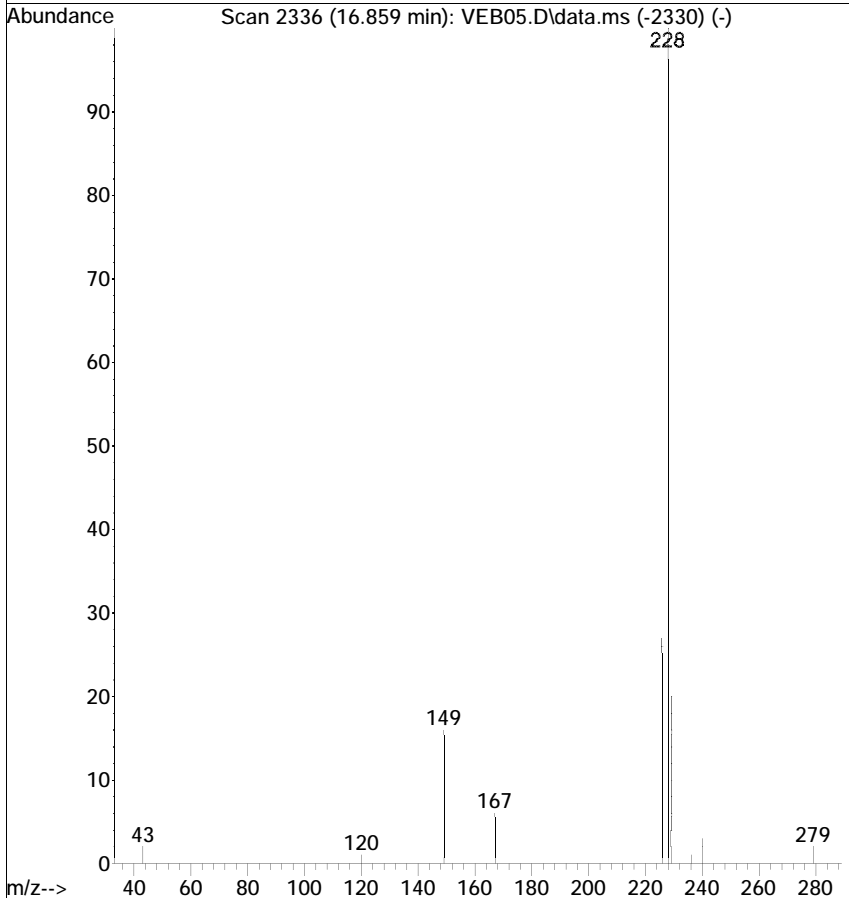


#21
 Benzo(a)anthracene
 Concen: 0.0515 ug/mL
 RT: 16.850 min Scan# 2334
 Delta R.T. -0.005 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

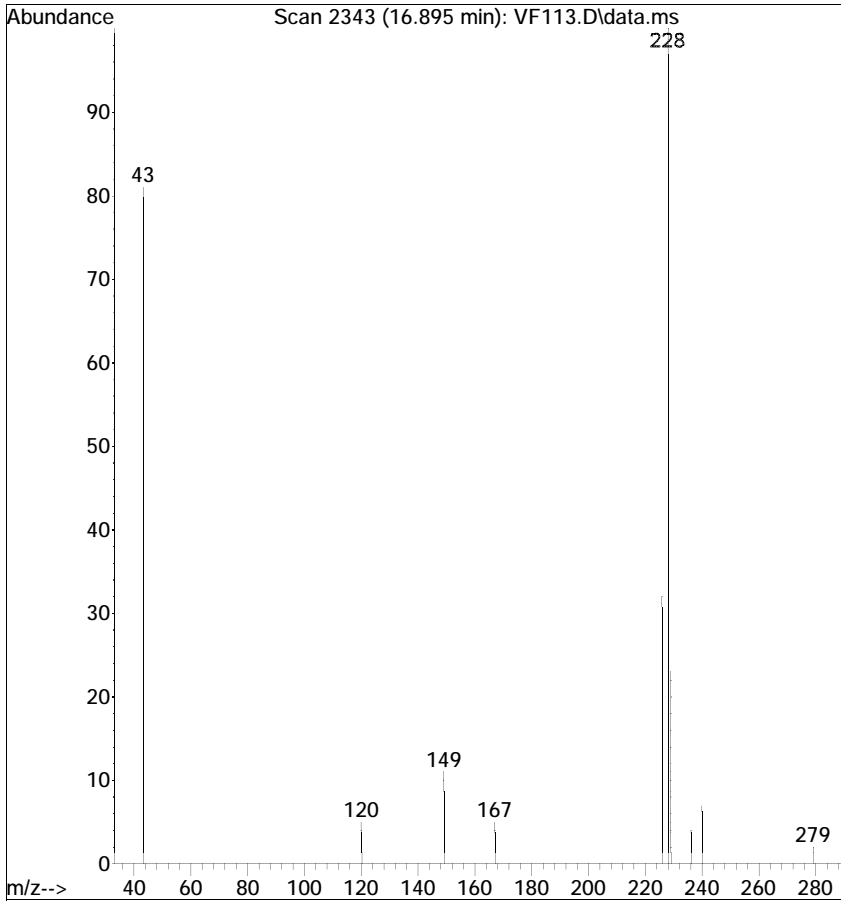
Tgt Ion	Ratio	Lower	Upper
228	100		
229	27.3	0.1	40.1
226	36.4	9.3	49.3



Ref

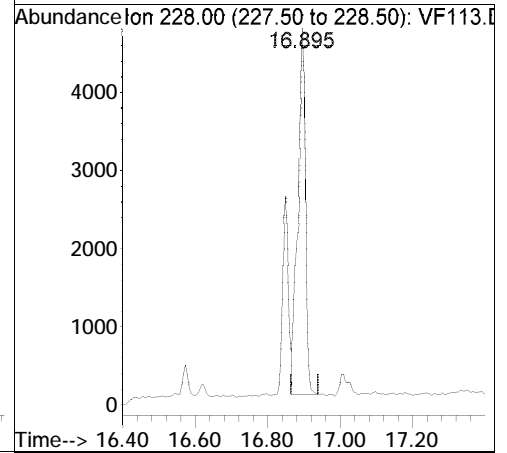


Raw

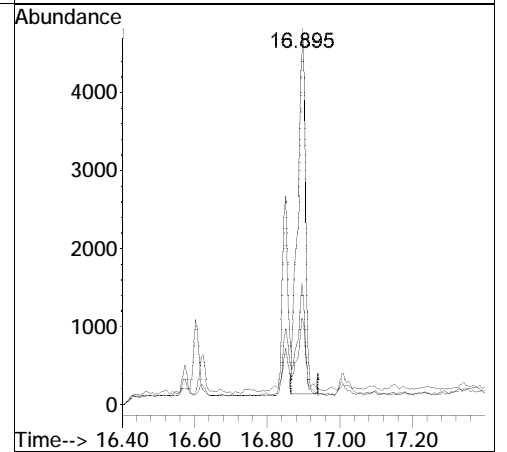
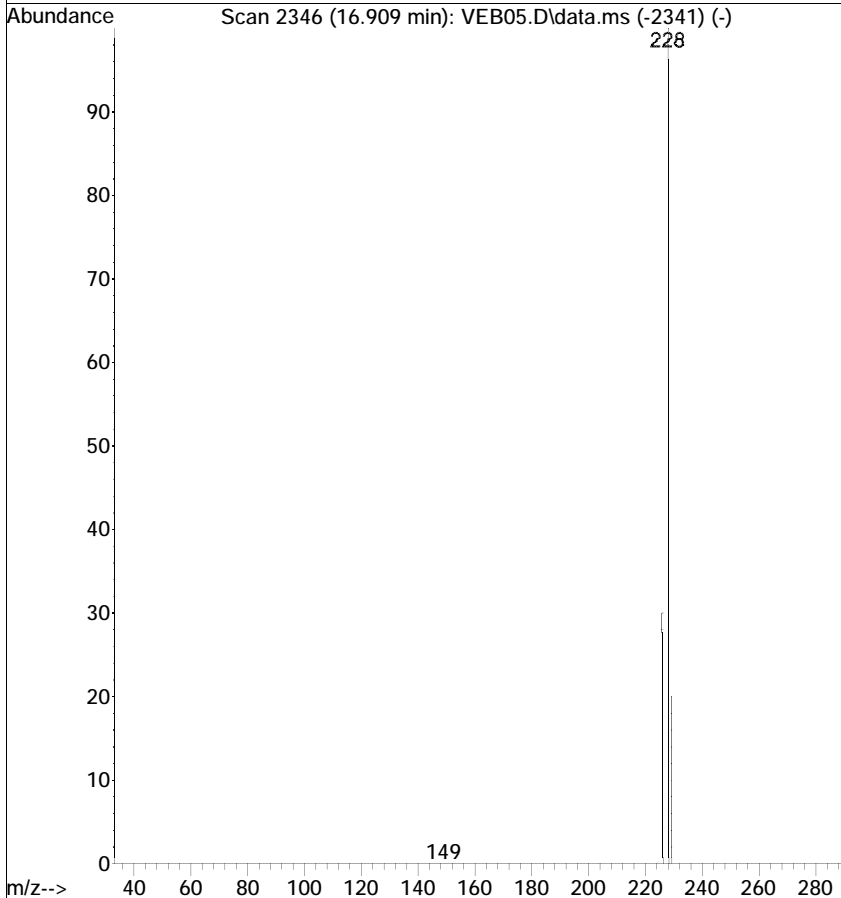


#22
 Chrysene
 Concen: 0.1306 ug/mL
 RT: 16.895 min Scan# 2343
 Delta R.T. -0.010 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

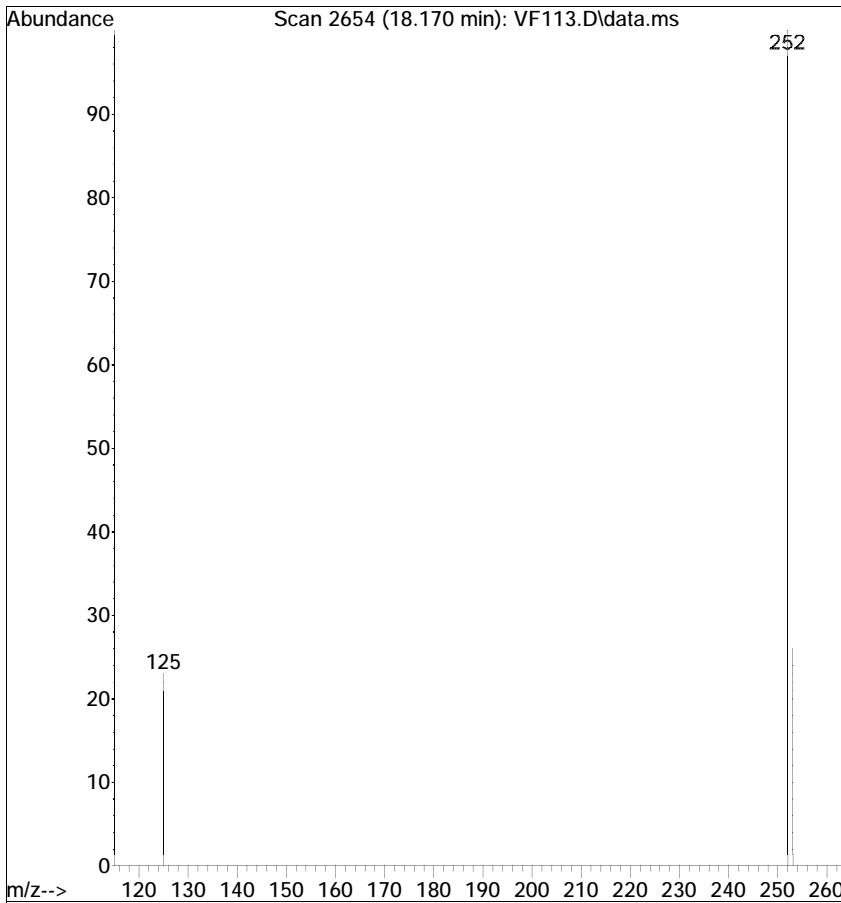
Tgt Ion	Resp	Lower	Upper
228	100		
226	32.3	13.4	53.4
229	23.2	0.8	40.8



Ref

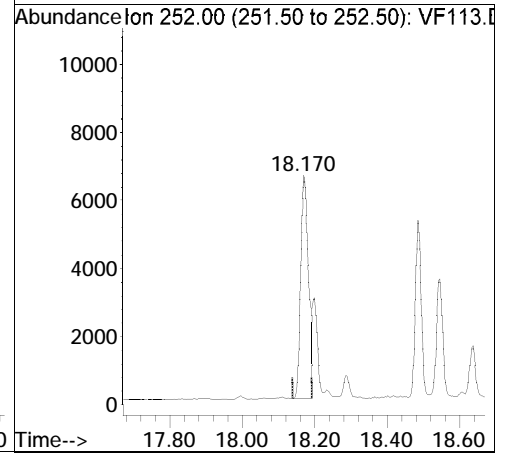


Raw

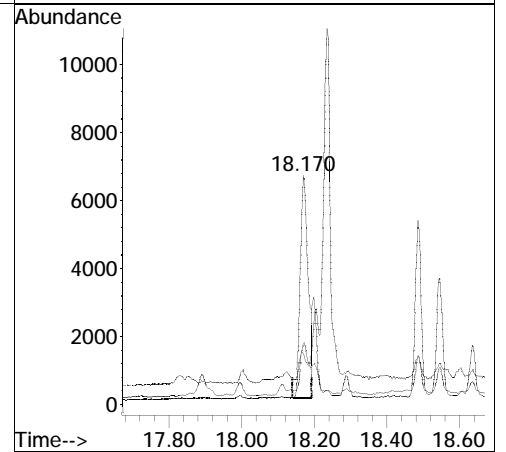
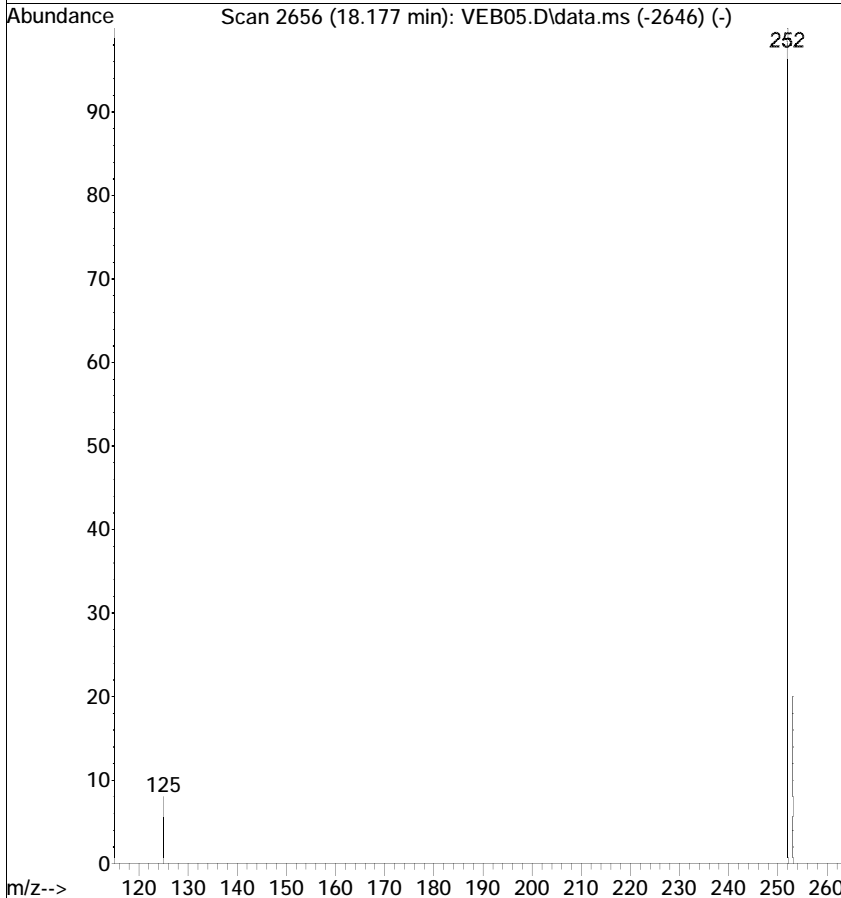


#24
 Benzo(b)fluoranthene
 Concen: 0.2191 ug/mL
 RT: 18.170 min Scan# 2654
 Delta R.T. -0.003 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

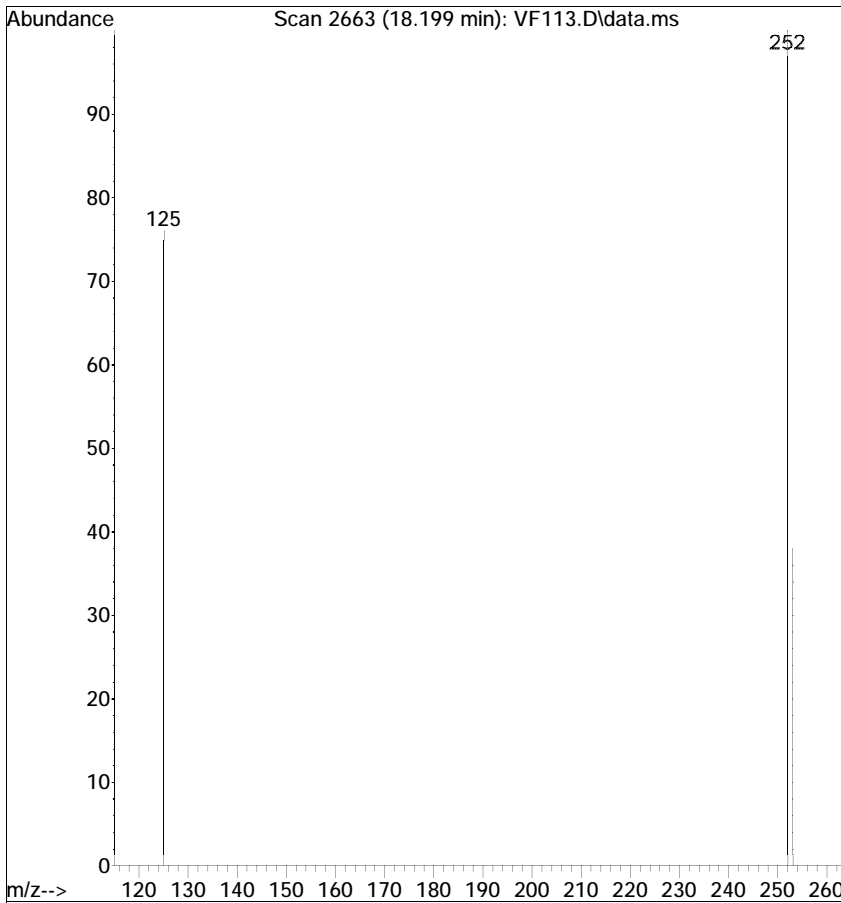
Tgt Ion	Resp	Lower	Upper
252	9929		
253	26.5	1.0	41.0
125	22.9	0.0	20.9#



Ref

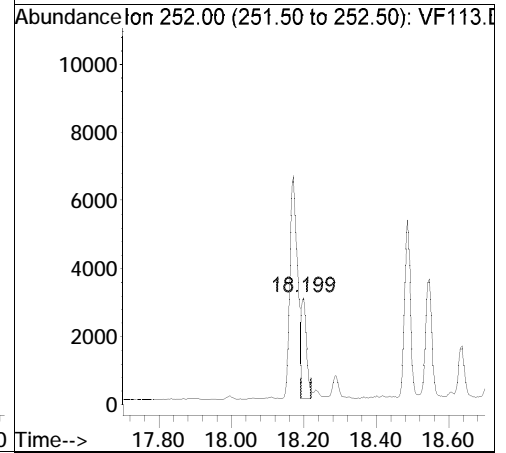


Raw

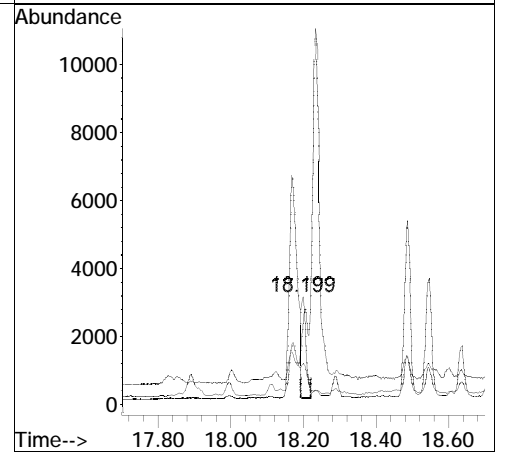
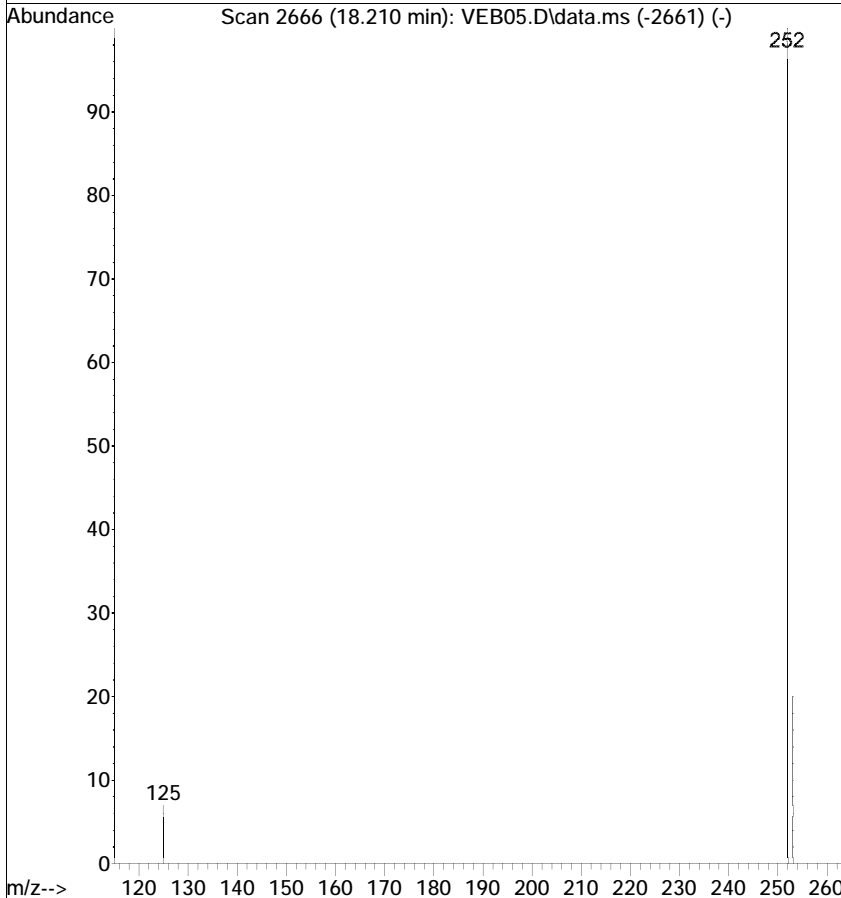


#25
 Benzo(k)fluoranthene
 Concen: 0.0492 ug/mL m
 RT: 18.199 min Scan# 2663
 Delta R.T. -0.004 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

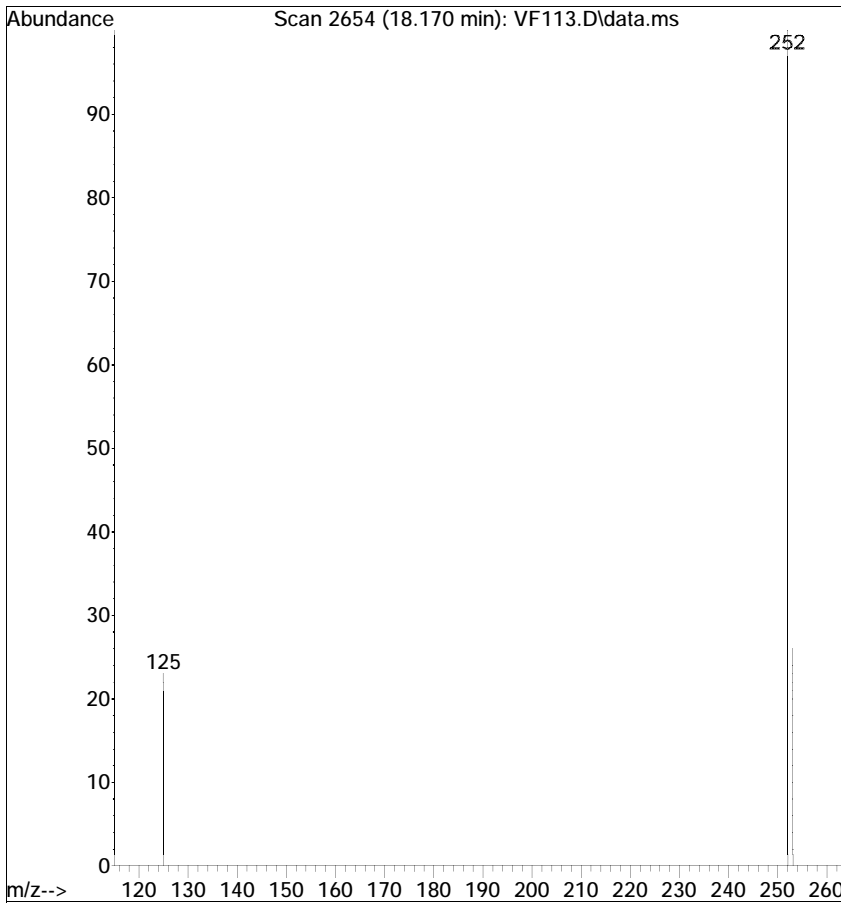
Tgt Ion	Resp	Lower	Upper
252	100		
253	37.9	1.1	41.1
125	75.5	0.0	21.1#



Ref

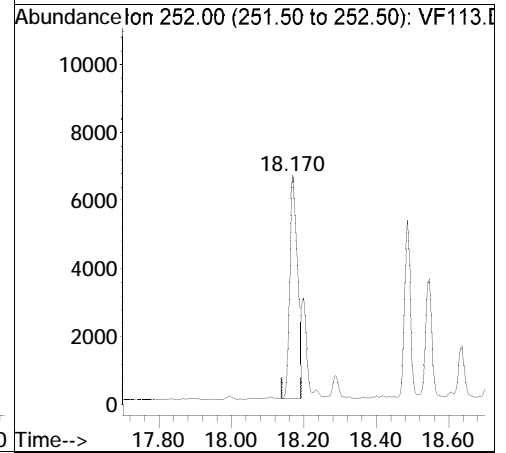


Raw

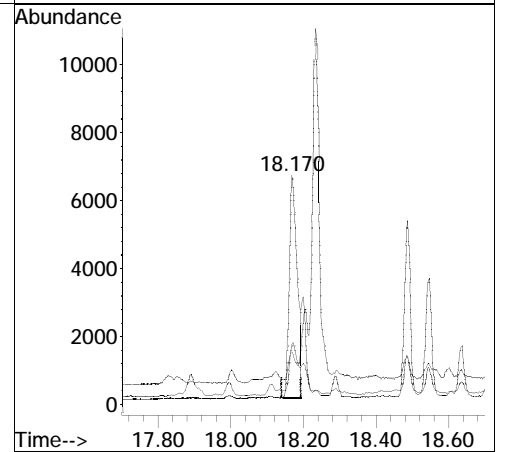
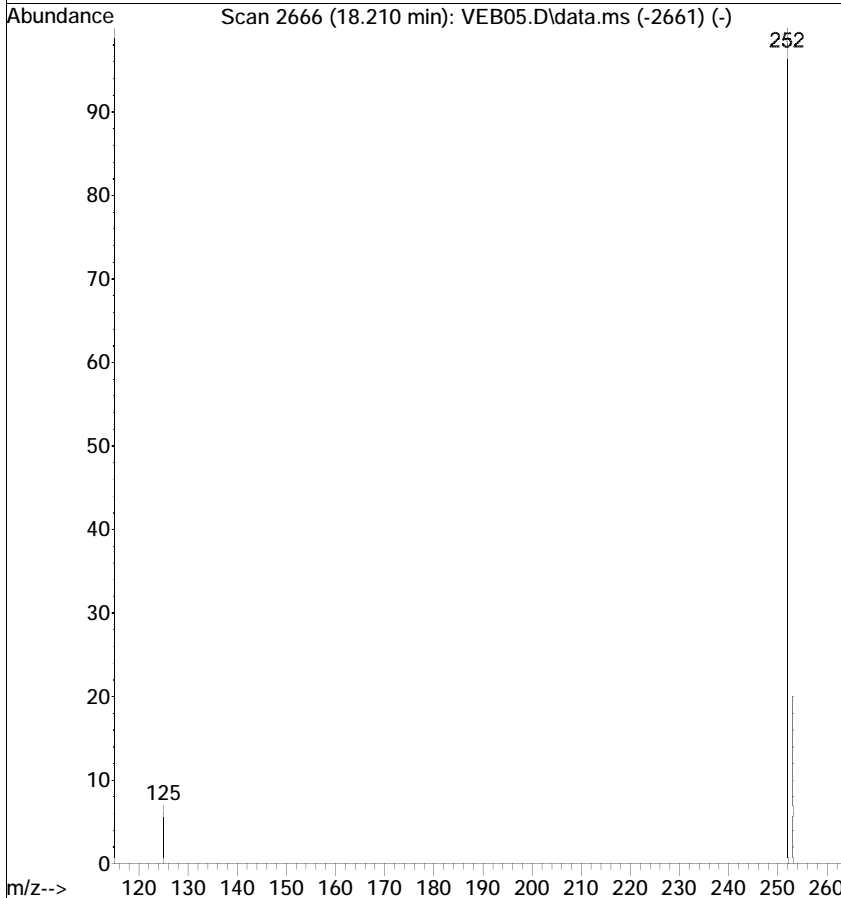


#25
 Benzo(k)fluoranthene
 Concen: 0.1915 ug/mL
 RT: 18.170 min Scan# 2654
 Delta R.T. -0.033 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

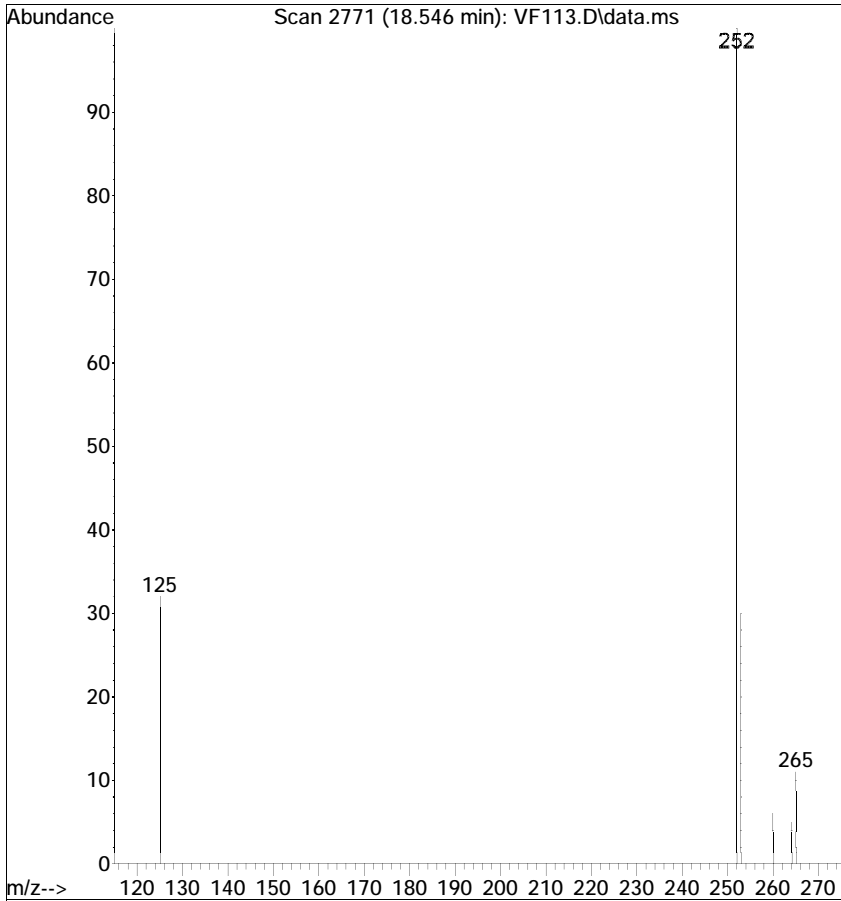
Tgt Ion	Resp	Lower	Upper
252	9929		
253	26.5	1.1	41.1
125	22.9	0.0	21.1#



Ref

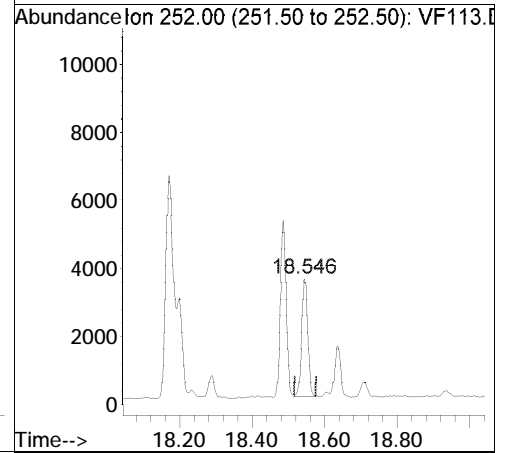


Raw

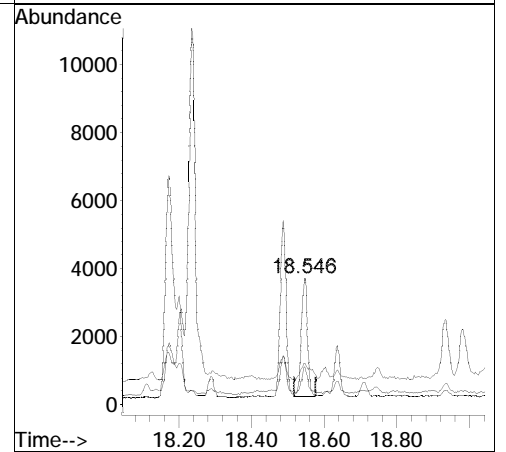
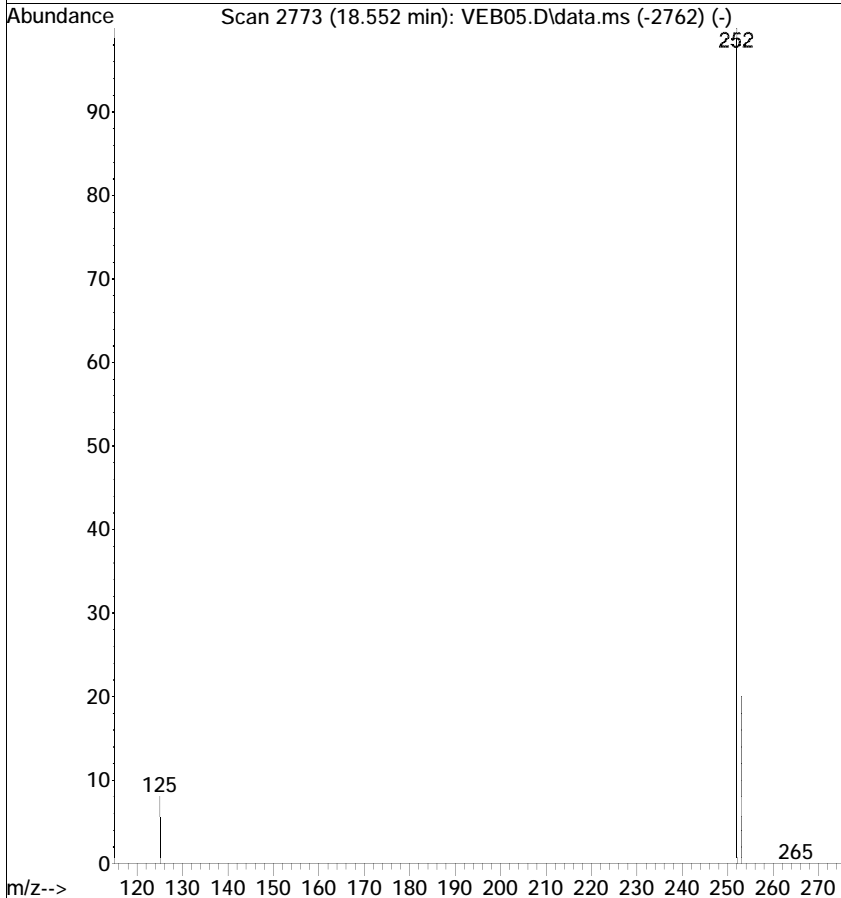


#26
 Benzo(a)pyrene
 Concen: 0.0982 ug/mL m
 RT: 18.546 min Scan# 2771
 Delta R.T. 0.000 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

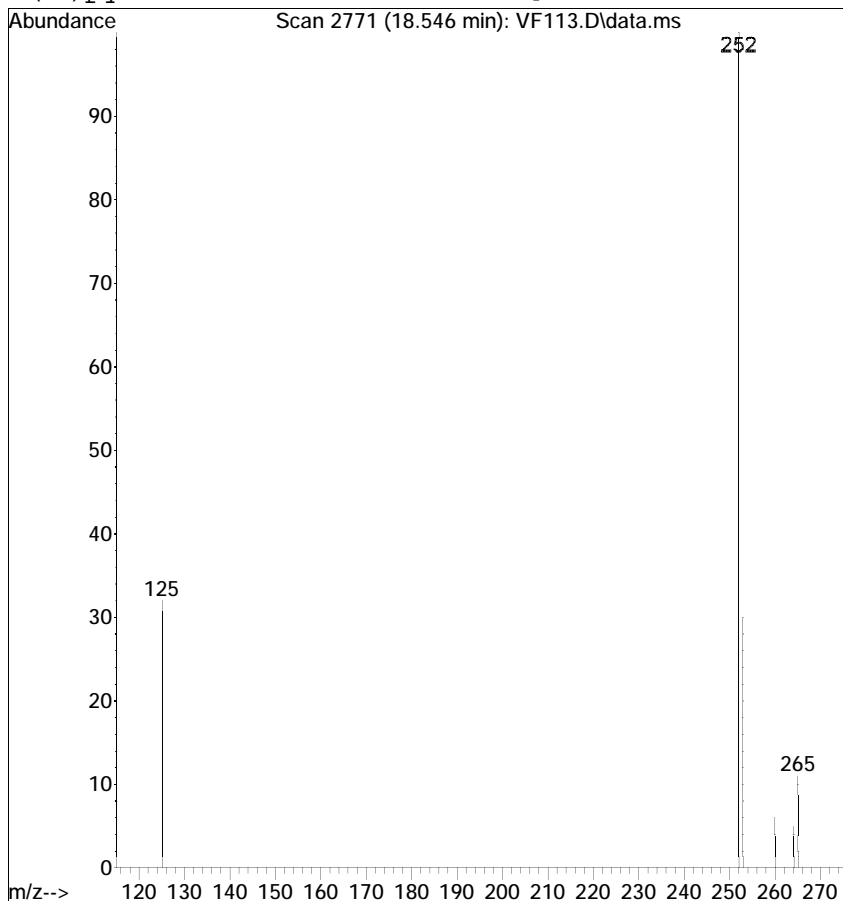
Tgt Ion	Resp	Lower	Upper
252	4065		
253	29.8	3.4	43.4
125	32.4	0.0	20.9#



Ref

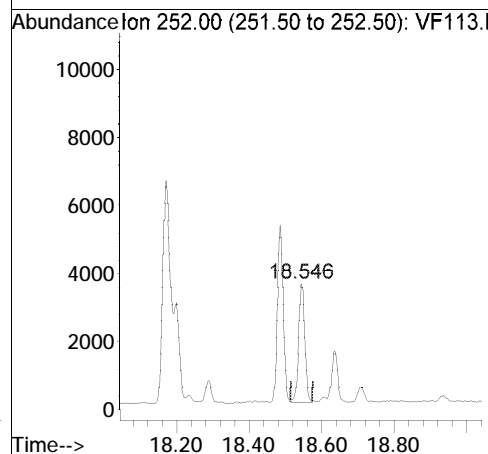


Raw

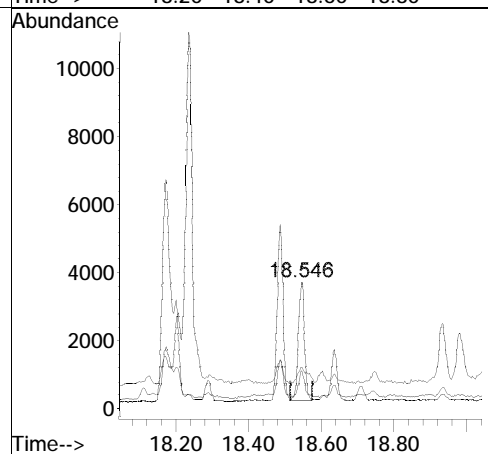
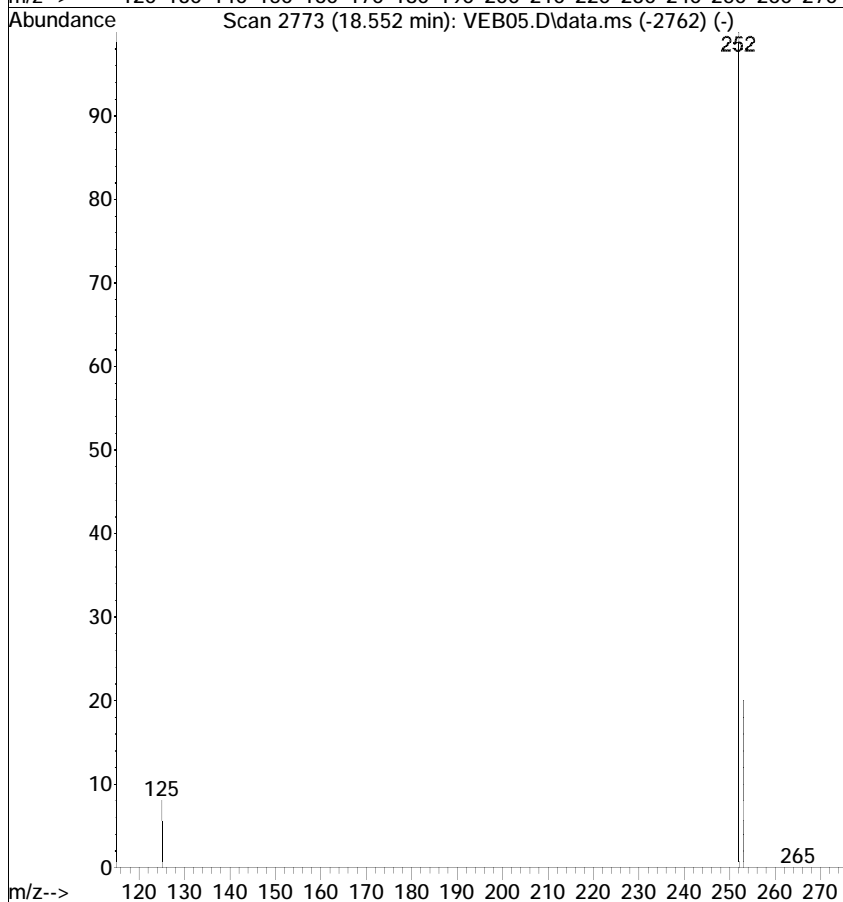


#26
 Benzo(a)pyrene
 Concen: 0.0993 ug/mL
 RT: 18.546 min Scan# 2771
 Delta R.T. 0.000 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

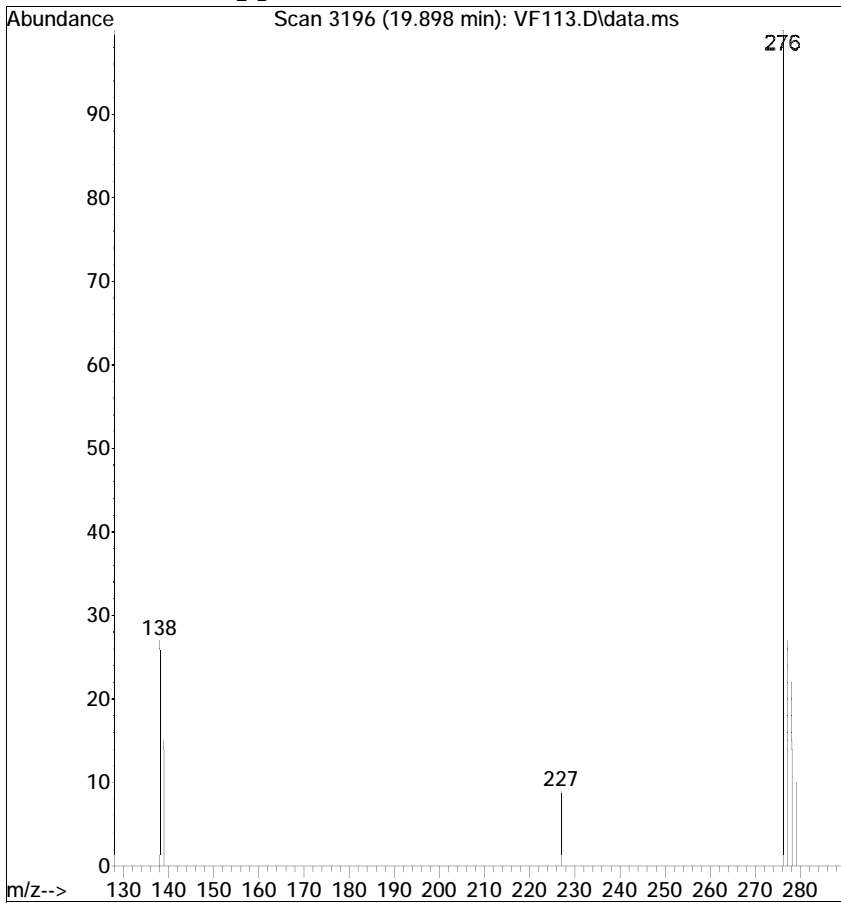
Tgt Ion	Resp	Lower	Upper
252	4111		
253	29.8	3.4	43.4
125	32.4	0.0	20.9#



Ref

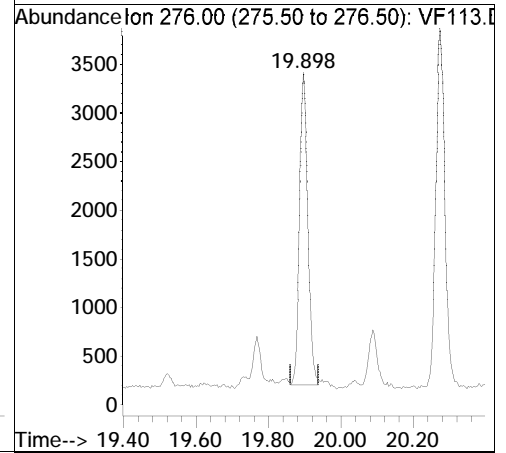


Raw

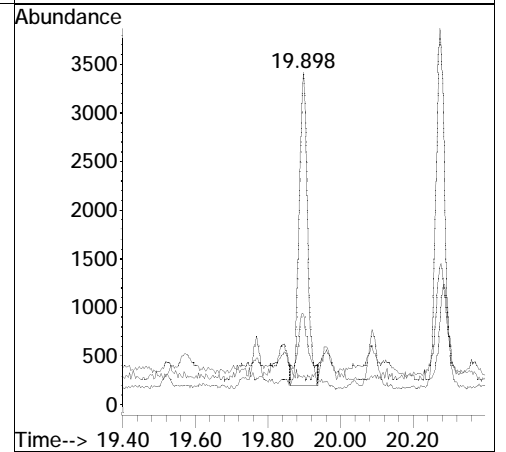
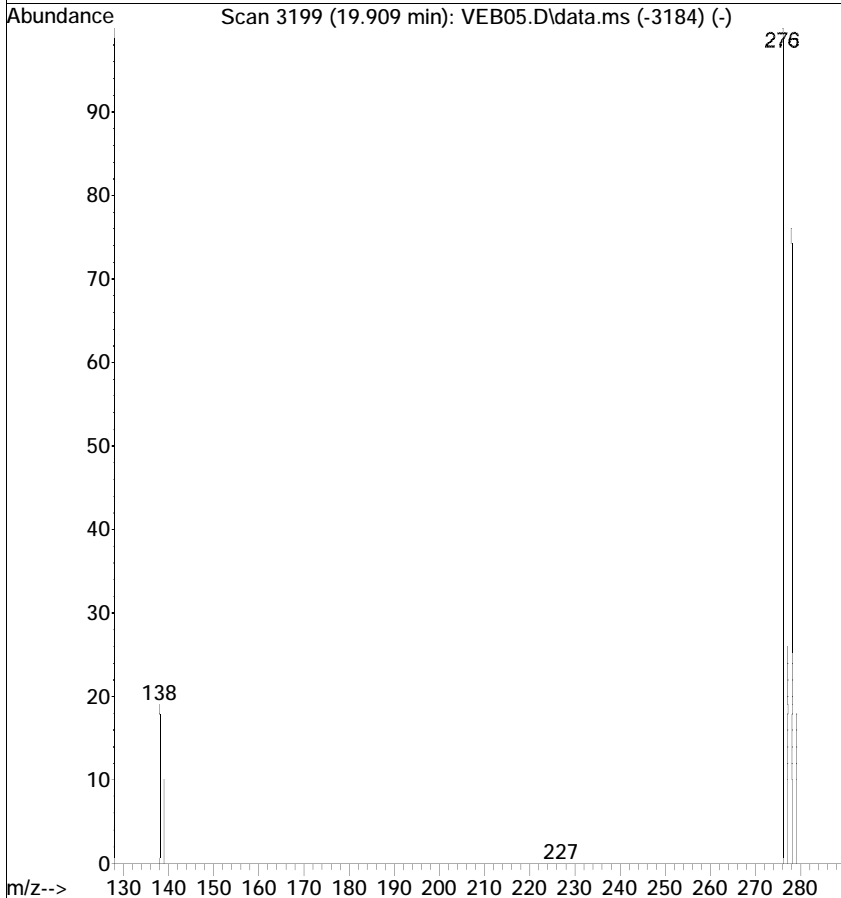


#27
 Indeno(1,2,3-cd)pyrene
 Concen: 0.1111 ug/mL
 RT: 19.898 min Scan# 3196
 Delta R.T. -0.003 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

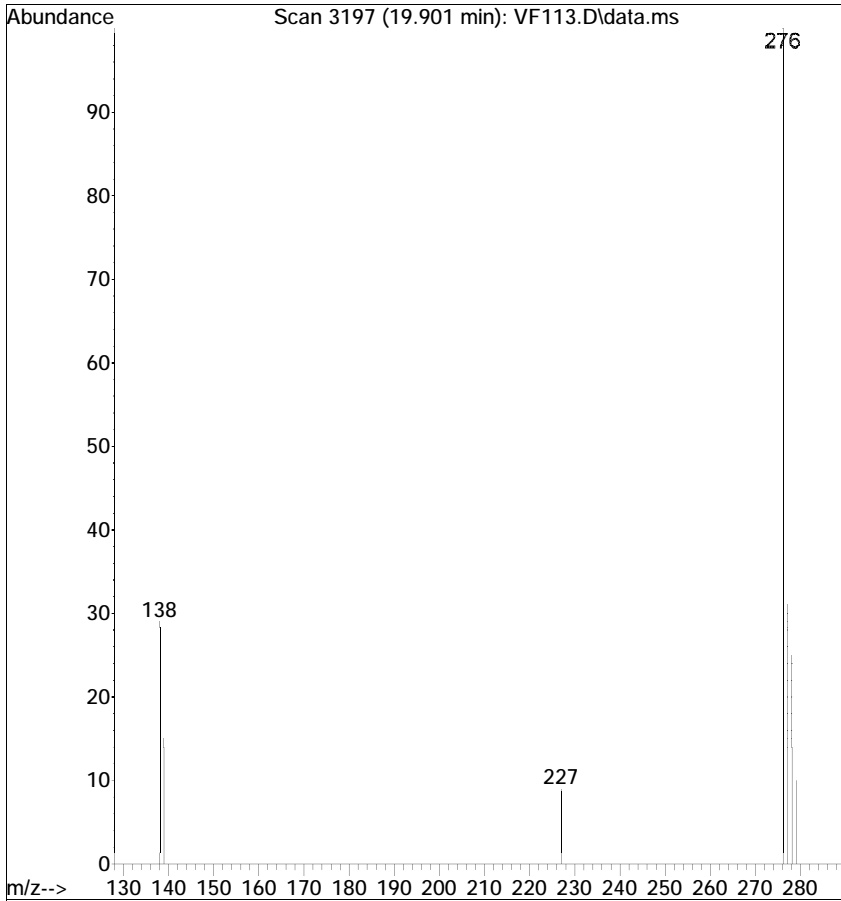
Tgt Ion	Resp	Lower	Upper
276	100		
138	27.5	0.0	23.1#
227	9.0	0.0	21.0



Ref

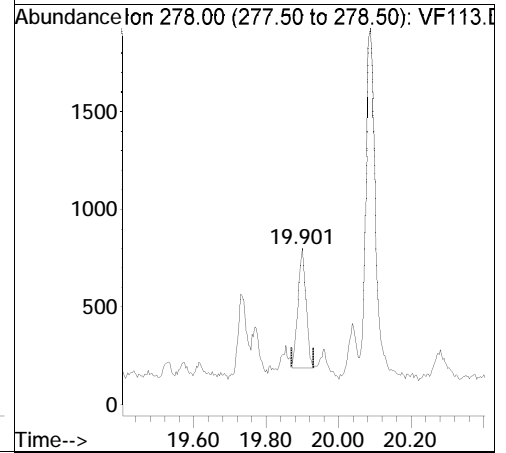


Raw

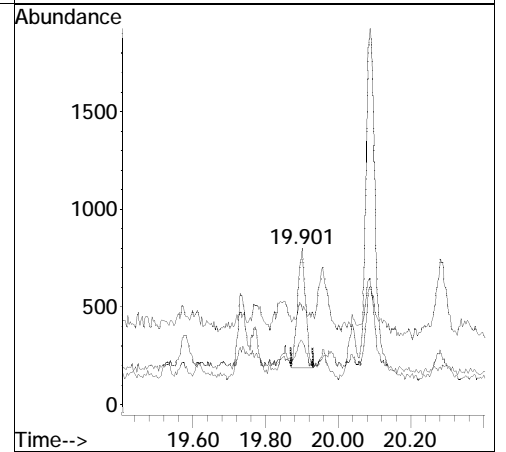
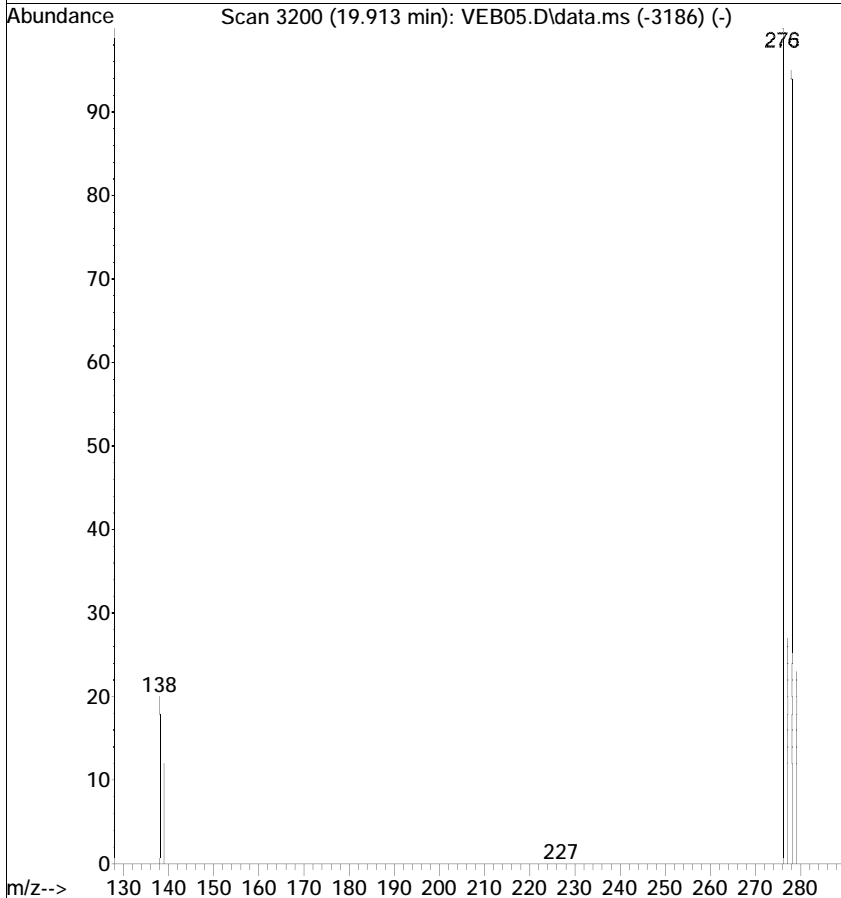


#28
 Dibenz(a,h)anthracene
 Concen: 0.0287 ug/mL
 RT: 19.901 min Scan# 3197
 Delta R.T. -0.007 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

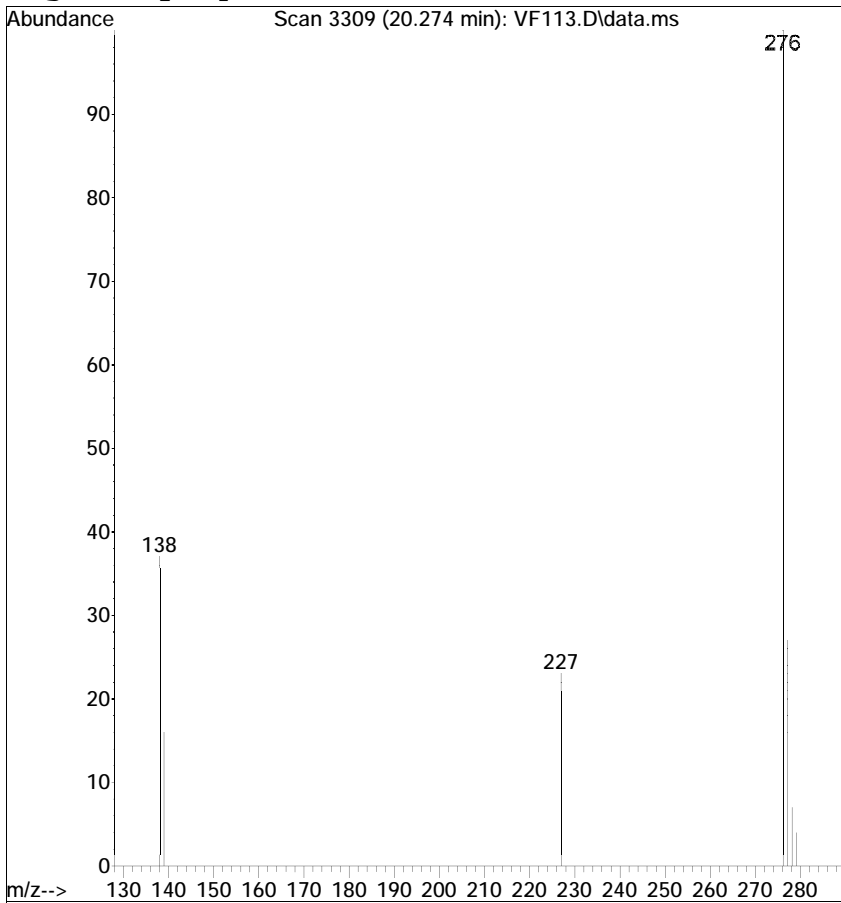
Tgt Ion	Ratio	Lower	Upper
278	100		
139	60.5	0.0	22.2#
279	40.7	0.7	40.7#



Ref

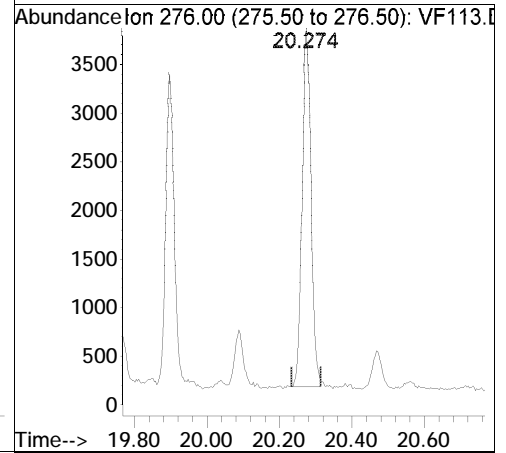


Raw

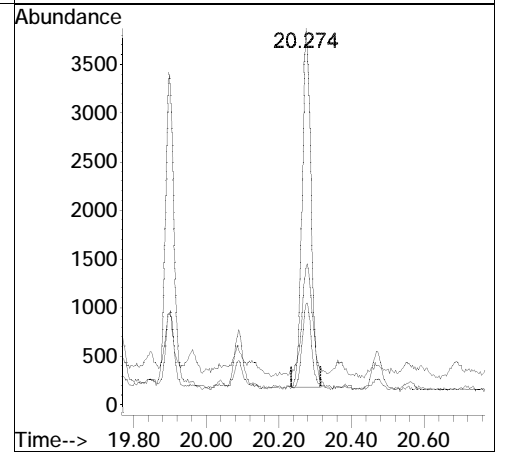
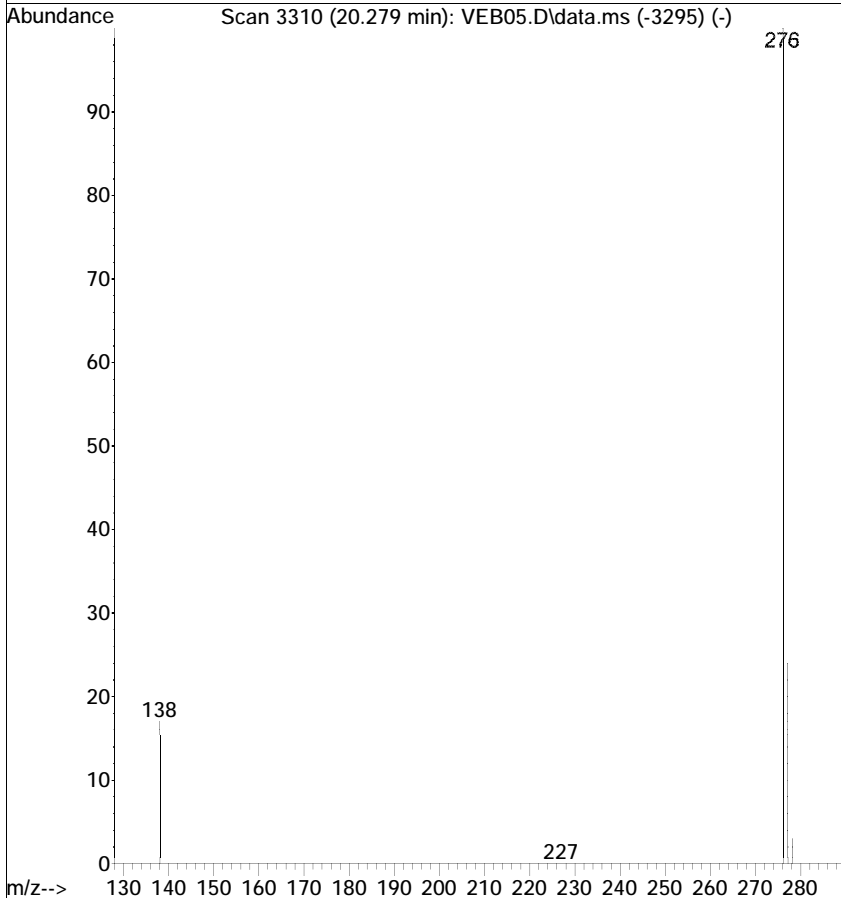


#29
 Benzo(g,h,i)perylene
 Concen: 0.1696 ug/mL
 RT: 20.274 min Scan# 3309
 Delta R.T. 0.003 min
 Lab File: VF113.D
 Acq: 1 Jun 2018 6:40 pm

Tgt Ion	Resp	Lower	Upper
276	6295		
138	36.8	0.0	22.1#
277	27.0	2.5	42.5



Ref



QC Raw Data

Batch QC Report

Semivolatile Organics by GC/MS SIM			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	260066
MSS Lab ID:	300022-008	Sampled:	05/22/18
Matrix:	Soil	Received:	05/22/18
Units:	ug/Kg	Prepared:	05/31/18
Basis:	dry	Analyzed:	06/01/18
Diln Fac:	1.000		

Type: MS Moisture: 22%
 Lab ID: QC934138

Analyte	MSS Result	Spiked	Result	%REC	Limits
Naphthalene	3.324	42.24	21.09	42	36-120
Acenaphthylene	<1.274	42.24	30.46	72	49-120
Acenaphthene	<1.274	42.24	33.01	78	44-120
Fluorene	<1.274	42.24	36.92	87	53-120
Phenanthrene	1.966	42.24	37.67	85	48-121
Anthracene	<1.274	42.24	35.53	84	51-120
Fluoranthene	2.246	42.24	35.26	78	48-124
Pyrene	2.275	42.24	39.94	89	51-128
Benzo(a)anthracene	<1.274	42.24	34.90	83	50-123
Chrysene	1.800	42.24	23.34	51	34-120
Benzo(b)fluoranthene	1.817	42.24	35.54	80	38-120
Benzo(k)fluoranthene	<1.274	42.24	34.14	81	48-120
Benzo(a)pyrene	<1.274	42.24	35.12	83	51-120
Indeno(1,2,3-cd)pyrene	<1.274	42.24	33.72	80	35-120
Dibenz(a,h)anthracene	<1.274	42.24	25.92	61	32-120
Benzo(g,h,i)perylene	2.246	42.24	43.21	97	34-120

Surrogate	%REC	Limits
Nitrobenzene-d5	81	43-120
2-Fluorobiphenyl	65	36-120
Terphenyl-d14	115	56-120

RPD= Relative Percent Difference

Batch QC Report

Semivolatile Organics by GC/MS SIM			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	260066
MSS Lab ID:	300022-008	Sampled:	05/22/18
Matrix:	Soil	Received:	05/22/18
Units:	ug/Kg	Prepared:	05/31/18
Basis:	dry	Analyzed:	06/01/18
Diln Fac:	1.000		

Type: MSD
 Lab ID: QC934139

Moisture: 22%

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Naphthalene	42.38	19.85	39	36-120	6	44
Acenaphthylene	42.38	28.89	68	49-120	6	42
Acenaphthene	42.38	30.78	73	44-120	7	39
Fluorene	42.38	34.27	81	53-120	8	34
Phenanthrene	42.38	36.21	81	48-121	4	46
Anthracene	42.38	33.15	78	51-120	7	41
Fluoranthene	42.38	33.96	75	48-124	4	48
Pyrene	42.38	38.38	85	51-128	4	50
Benzo(a)anthracene	42.38	33.40	79	50-123	5	43
Chrysene	42.38	21.95	48	34-120	6	54
Benzo(b)fluoranthene	42.38	32.30	72	38-120	10	49
Benzo(k)fluoranthene	42.38	29.34	69	48-120	15	44
Benzo(a)pyrene	42.38	31.08	73	51-120	13	48
Indeno(1,2,3-cd)pyrene	42.38	29.65	70	35-120	13	37
Dibenz(a,h)anthracene	42.38	22.70	54	32-120	14	43
Benzo(g,h,i)perylene	42.38	36.50	81	34-120	17	38

Surrogate	%REC	Limits
Nitrobenzene-d5	81	43-120
2-Fluorobiphenyl	61	36-120
Terphenyl-d14	109	56-120

RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 300092 MSSIM Soil
EPA 8270C-SIM

Type : MSS	Type : MS	Type : MSD
Inst : MSBNA03	Inst : MSBNA03	Inst : MSBNA03
Seqnum : 528218043016	Seqnum : 528219529006.6	Seqnum : 528219529007.6
File : vev16	File : vf106	File : vf107
IDF : 1.0	IDF : 1.0	IDF : 1.0
Lab ID : 300022-008	Lab ID : QC934138	Lab ID : QC934139
Matrix : Soil	Matrix : Soil	Matrix : Soil
Batch : 260066	Batch : 260066	Batch : 260066
Time : 31-MAY-2018 21:04	Time : 01-JUN-2018 14:57	Time : 01-JUN-2018 15:29
Cal : 528189186001	Cal : 528189186001	Cal : 528189186001
Units : ug/Kg		

MSS: 30.20 g --> 1.0 ml = 0.03311 ml/g PDF
 MS: 30.35 g --> 1.0 ml = 0.03295 ml/g PDF
 MSD: 30.25 g --> 1.0 ml = 0.03306 ml/g PDF

Analyte	MSS		MS			MSD		MSD			Limits	RPD	Lim	Flags
	MSS	Spiked	Raw	Result	%Rec	Spiked	Raw	Result	%Rec					
Naphthalene	2.593 J	32.95	0.4992	16.45	42	33.06	0.4683	15.48	39	36-120	6	44	u	
Acenaphthylene	ND	32.95	0.7210	23.76	72	33.06	0.6816	22.53	68	49-120	6	42	u	
Acenaphthene	ND	32.95	0.7814	25.75	78	33.06	0.7262	24.01	73	44-120	7	39	u	
Fluorene	ND	32.95	0.8741	28.80	87	33.06	0.8085	26.73	81	53-120	8	34	u	
Phenanthrene	1.533 J	32.95	0.8917	29.38	85	33.06	0.8543	28.24	81	48-121	4	46	u	
Anthracene	ND	32.95	0.8412	27.72	84	33.06	0.7822	25.86	78	51-120	7	41	u	
Fluoranthene	1.752 J	32.95	0.8347	27.50	78	33.06	0.8013	26.49	75	48-124	4	48	u	
Pyrene	1.775 J	32.95	0.9456	31.16	89	33.06	0.9055	29.93	85	51-128	4	50	u	
Benzo(a)anthracene	ND	32.95	0.8262	27.22	83	33.06	0.7880	26.05	79	50-123	5	43	u	
Chrysene	1.404 J	32.95	0.5526	18.21	51	33.06	0.5178	17.12	48	34-120	6	54	u	
Benzo(b)fluoranthene	1.417 J	32.95	0.8414	27.72	80	33.06	0.7622	25.20	72	38-120	10	49	u	
Benzo(k)fluoranthene	ND	32.95	0.8081	26.63	81	33.06	0.6923	22.89	69	48-120	15	44	u	
Benzo(a)pyrene	ND	32.95	0.8314	27.39	83	33.06	0.7334	24.24	73	51-120	13	48	u	
Indeno(1,2,3-cd)pyrene	ND	32.95	0.7982	26.30	80	33.06	0.6997	23.13	70	35-120	13	37	u	
Dibenz(a,h)anthracene	ND	32.95	0.6137	20.22	61	33.06	0.5356	17.71	54	32-120	14	43	u	
Benzo(g,h,i)perylene	1.752 J	32.95	1.023	33.71	97	33.06	0.8611	28.47	81	34-120	17	38	u	
Nitrobenzene-d5		32.95	0.8113	26.73	81	33.06	0.8126	26.86	81	43-120			u	
2-Fluorobiphenyl		32.95	0.6529	21.51	65	33.06	0.6080	20.10	61	36-120			u	
Terphenyl-d14		32.95	1.154	38.01	115	33.06	1.086	35.89	109	56-120			u	

ISTD (CCV vf105)	CCV Area	MS Area	%Drift	CCV RT	MS RT	Drift
Naphthalene-d8	56739	52241	-7.93	9.12	9.12	0.00
Acenaphthene-d10	35535	32562	-8.37	11.43	11.43	0.00
Phenanthrene-d10	64536	58600	-9.20	13.39	13.39	0.00
Chrysene-d12	53914	42599	-20.99	16.87	16.87	0.01
Perylene-d12	46246	36671	-20.70	18.61	18.61	0.00

ISTD (CCV vf105)	CCV Area	MSD Area	%Drift	CCV RT	MSD RT	Drift
Naphthalene-d8	56739	50358	-11.25	9.12	9.12	0.00
Acenaphthene-d10	35535	32266	-9.20	11.43	11.43	0.00
Phenanthrene-d10	64536	56885	-11.86	13.39	13.39	0.00
Chrysene-d12	53914	41946	-22.20	16.87	16.87	0.01
Perylene-d12	46246	38480	-16.79	18.61	18.61	0.00

JW1 06/04/18 [1,4-Dioxane]: Corrected automatically drawn baseline for spike & dup. [general version]

JW1 06/04/18 : Failures likely due to matrix, RPDs low and LCS is passing well for all failing compounds. [general version]

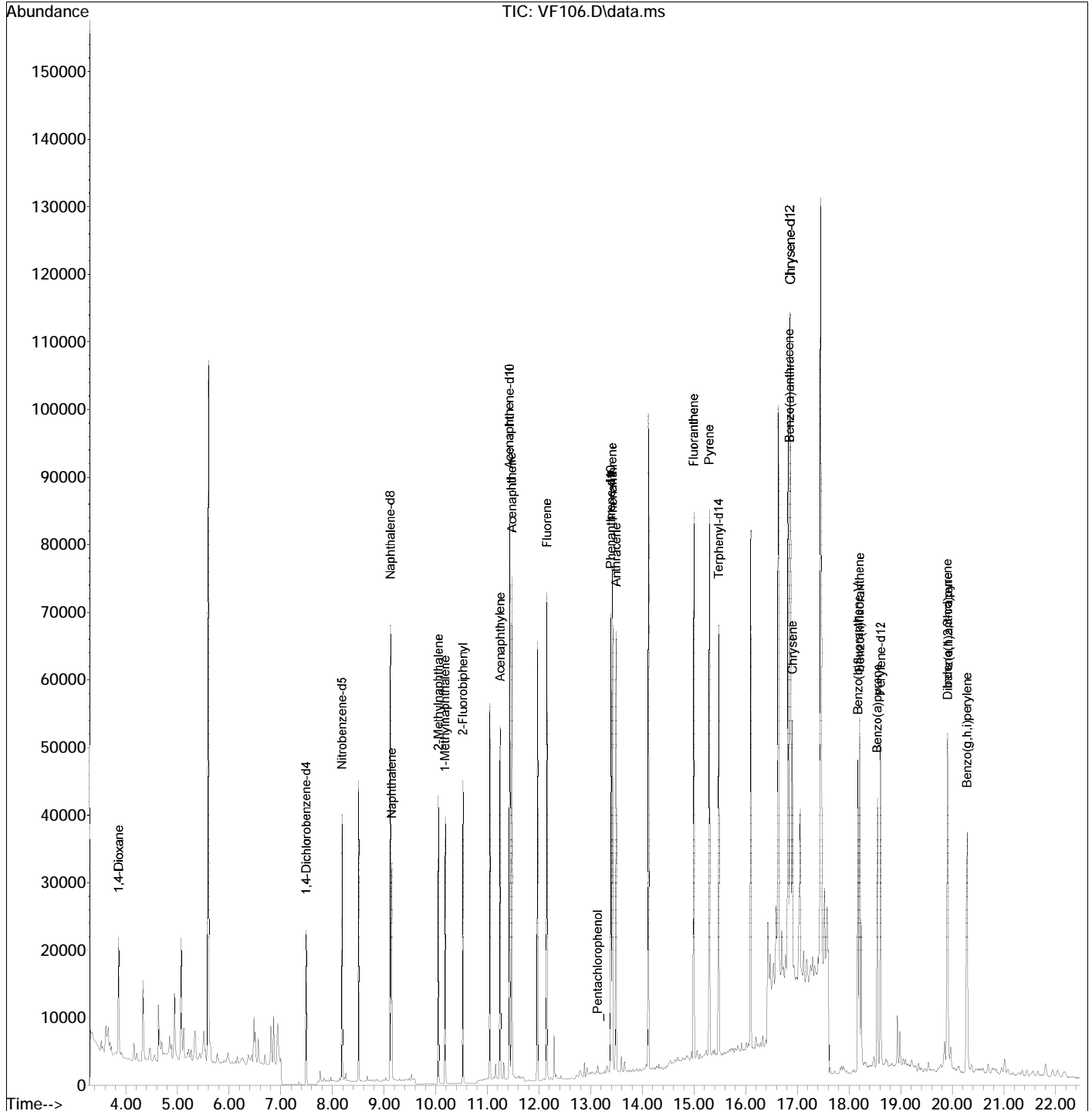
Analyst: JW1 Date: 06/05/18 Reviewer: LW Date: 06/05/18

u=use

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF106.D
 Acq On : 1 Jun 2018 2:57 pm
 Operator :
 Sample : MS, QC934138
 Misc : 260066,1,
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 04 11:14:31 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF106.D
 Acq On : 1 Jun 2018 2:57 pm
 Operator :
 Sample : MS, QC934138
 Misc : 260066,1,
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 04 11:14:31 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.492	152	14333	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.118	136	52241	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.432	164	32562	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.389	188	58600	1.0000	ug/mL	0.00
18) Chrysene-d12	16.865	240	42599	1.0000	ug/mL	0.00
23) Perylene-d12	18.608	264	36671	1.0000	ug/mL	0.00

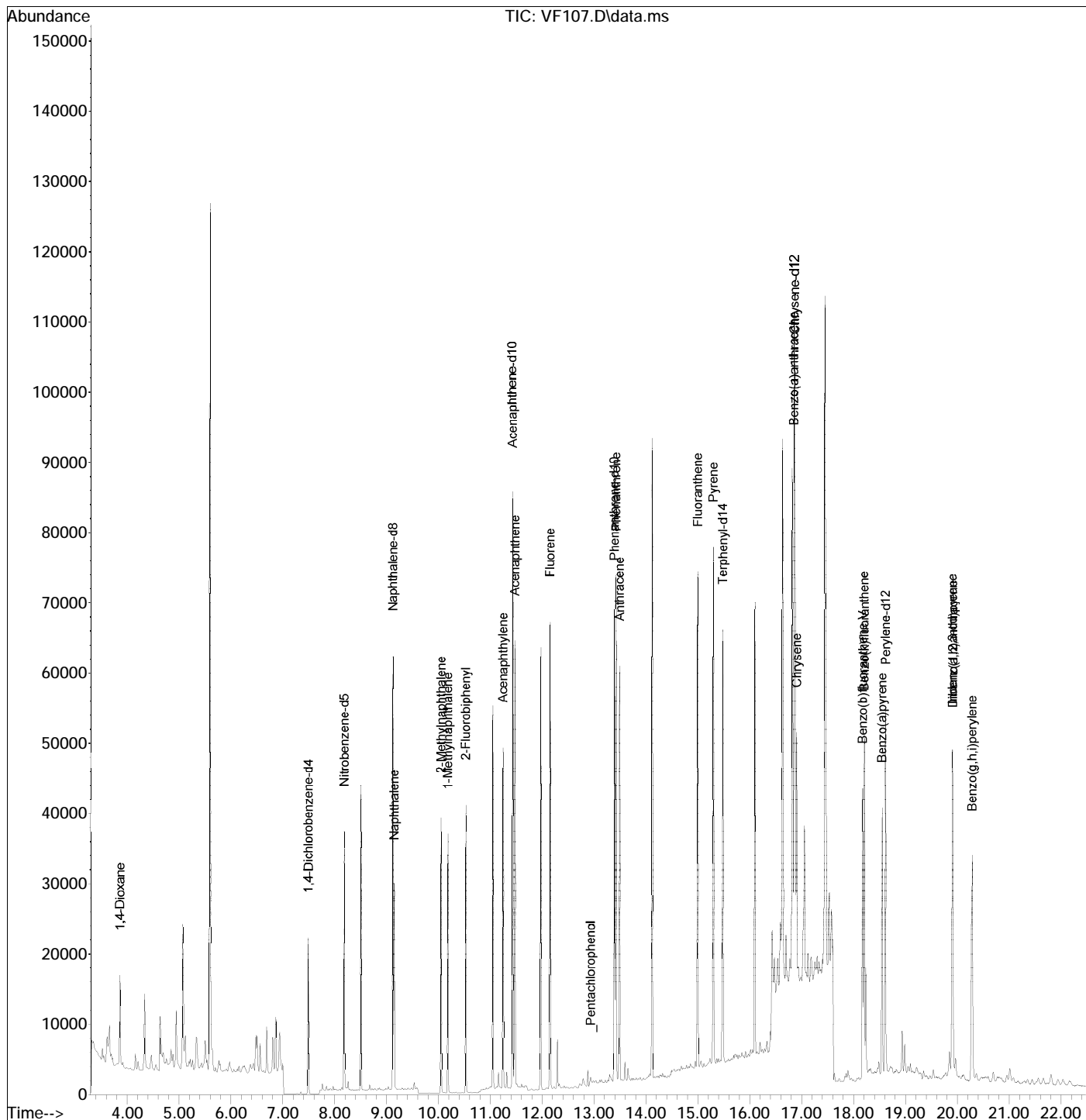
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.858	88	12205m	1.8787	ug/mL	
4) Nitrobenzene-d5	8.182	82	17890	0.8113	ug/mL	87
5) Naphthalene	9.146	128	24467	0.4992	ug/mL	99
6) 2-Methylnaphthalene	10.048	142	21757	0.5921	ug/mL	96
7) 1-Methylnaphthalene	10.179	142	19945	0.5934	ug/mL	97
9) 2-Fluorobiphenyl	10.525	172	30258	0.6529	ug/mL	99
10) Acenaphthylene	11.244	152	37984	0.7210	ug/mL	98
11) Acenaphthene	11.472	154	24276	0.7814	ug/mL	94
12) Fluorene	12.148	166	33729	0.8741	ug/mL	97
14) _Pentachlorophenol	13.134	266	494	3.0371	ug/mL	98
15) Phenanthrene	13.419	178	51243	0.8917	ug/mL	98
16) Anthracene	13.490	178	47854	0.8412	ug/mL	98
17) Fluoranthene	14.994	202	54853	0.8347	ug/mL	98
19) Pyrene	15.295	202	54309	0.9456	ug/mL	99
20) Terphenyl-d14	15.474	244	54906	1.1536	ug/mL	91
21) Benzo(a)anthracene	16.850	228	43258	0.8262	ug/mL	98
22) Chrysene	16.899	228	27100	0.5526	ug/mL	96
24) Benzo(b)fluoranthene	18.171	252	38307	0.8414	ug/mL	94
25) Benzo(k)fluoranthene	18.200	252	42080	0.8081	ug/mL	94
26) Benzo(a)pyrene	18.545	252	34572	0.8314	ug/mL	99
27) Indeno(1,2,3-cd)pyrene	19.903	276	36973	0.7982	ug/mL	55
28) Dibenz(a,h)anthracene	19.906	278	20243	0.6137	ug/mL	88
29) Benzo(g,h,i)perylene	20.279	276	38136	1.0230	ug/mL	# 91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF107.D
 Acq On : 1 Jun 2018 3:29 pm
 Operator :
 Sample : MSD, QC934139
 Misc : 260066,1,
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 04 11:15:30 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF107.D
 Acq On : 1 Jun 2018 3:29 pm
 Operator :
 Sample : MSD, QC934139
 Misc : 260066,1,
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 04 11:15:30 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.488	152	13762	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.118	136	50358	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.427	164	32266	1.0000	ug/mL	-0.01
13) Phenanthrene-d10	13.388	188	56885	1.0000	ug/mL	0.00
18) Chrysene-d12	16.865	240	41946	1.0000	ug/mL	0.00
23) Perylene-d12	18.609	264	38480	1.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.858	88	8761m	1.4045	ug/mL	
4) Nitrobenzene-d5	8.181	82	17273	0.8126	ug/mL	87
5) Naphthalene	9.146	128	22125	0.4683	ug/mL	99
6) 2-Methylnaphthalene	10.048	142	19628	0.5541	ug/mL	94
7) 1-Methylnaphthalene	10.179	142	18129	0.5595	ug/mL	100
9) 2-Fluorobiphenyl	10.524	172	27923	0.6080	ug/mL	98
10) Acenaphthylene	11.240	152	35581	0.6816	ug/mL	99
11) Acenaphthene	11.472	154	22355	0.7262	ug/mL	91
12) Fluorene	12.149	166	30911	0.8085	ug/mL	98
14) _Pentachlorophenol	12.932	266	170	1.0767	ug/mL	# 72
15) Phenanthrene	13.418	178	47654	0.8543	ug/mL	98
16) Anthracene	13.489	178	43198	0.7822	ug/mL	98
17) Fluoranthene	14.995	202	51111	0.8013	ug/mL	98
19) Pyrene	15.296	202	51210	0.9055	ug/mL	99
20) Terphenyl-d14	15.475	244	50878	1.0856	ug/mL	92
21) Benzo(a)anthracene	16.850	228	40625	0.7880	ug/mL	98
22) Chrysene	16.895	228	25006	0.5178	ug/mL	97
24) Benzo(b)fluoranthene	18.170	252	36413	0.7622	ug/mL	94
25) Benzo(k)fluoranthene	18.200	252	37826	0.6923	ug/mL	94
26) Benzo(a)pyrene	18.546	252	32002	0.7334	ug/mL	98
27) Indeno(1,2,3-cd)pyrene	19.901	276	34006	0.6997	ug/mL	# 53
28) Dibenz(a,h)anthracene	19.904	278	18537	0.5356	ug/mL	89
29) Benzo(g,h,i)perylene	20.281	276	33687	0.8611	ug/mL	# 90

(#) = qualifier out of range (m) = manual integration (+) = signals summed

ENTHALPY SPIKE USER REPORT FOR 300092 MSSIM Soil
EPA 8270C-SIM

Type : MSS	Type : MS	Type : MSD
Inst : MSBNA03	Inst : MSBNA03	Inst : MSBNA03
Seqnum : 528218043016	Seqnum : 528218043017.3	Seqnum : 528218043018.3
File : vev16	File : vev17	File : vev18
IDF : 1.0	IDF : 1.0	IDF : 1.0
Lab ID : 300022-008	Lab ID : QC934138	Lab ID : QC934139
Matrix : Soil	Matrix : Soil	Matrix : Soil
Batch : 260066	Batch : 260066	Batch : 260066
Time : 31-MAY-2018 21:04	Time : 31-MAY-2018 21:35	Time : 31-MAY-2018 22:06
Cal : 528189186001	Cal : 528189186001	Cal : 528189186001
Units : ug/Kg		

MSS: 30.20 g --> 1.0 ml = 0.03311 ml/g PDF
 MS: 30.35 g --> 1.0 ml = 0.03295 ml/g PDF
 MSD: 30.25 g --> 1.0 ml = 0.03306 ml/g PDF

Analyte	MSS		MS			MSD		MSD			Limits	RPD	Lim	Flags
	Raw	Spiked	Raw	Result	%Rec	Raw	Result	%Rec	Result	%Rec				
Naphthalene	2.593 J	32.95	0.5243	17.28	45	33.06	0.4662	15.41	39	36-120	12	44		
Acenaphthylene	ND	32.95	0.7457	24.57	75	33.06	0.6710	22.18	67	49-120	11	42		
Acenaphthene	ND	32.95	0.8113	26.73	81	33.06	0.7148	23.63	71	44-120	13	39		
Fluorene	ND	32.95	0.8838	29.12	88	33.06	0.7966	26.33	80	53-120	10	34		
Phenanthrene	1.533 J	32.95	0.9183	30.26	87	33.06	0.8424	27.85	80	48-121	9	46		
Anthracene	ND	32.95	0.8704	28.68	87	33.06	0.7903	26.13	79	51-120	10	41		
Fluoranthene	1.752 J	32.95	0.8552	28.18	80	33.06	0.7920	26.18	74	48-124	8	48		
Pyrene	1.775 J	32.95	0.9823	32.37	93	33.06	0.8963	29.63	84	51-128	9	50		
Benzo(a)anthracene	ND	32.95	0.8472	27.91	85	33.06	0.7718	25.51	77	50-123	9	43		
Chrysene	1.404 J	32.95	0.5753	18.96	53	33.06	0.5271	17.42	48	34-120	9	54		
Benzo(b)fluoranthene	1.417 J	32.95	0.8902	29.33	85	33.06	0.8361	27.64	79	38-120	6	49		
Benzo(k)fluoranthene	ND	32.95	0.8498	28.00	85	33.06	0.7548	24.95	75	48-120	12	44		
Benzo(a)pyrene	ND	32.95	0.8482	27.95	85	33.06	0.7792	25.76	78	51-120	8	48		
Indeno(1,2,3-cd)pyrene	ND	32.95	0.6979	23.00	70	33.06	0.6102	20.17	61	35-120	13	37		
Dibenz(a,h)anthracene	ND	32.95	0.5279	17.39	53	33.06	0.4660	15.40	47	32-120	12	43		
Benzo(g,h,i)perylene	1.752 J	32.95	0.8196	27.00	77	33.06	0.7095	23.45	66	34-120	14	38		
Nitrobenzene-d5		32.95	0.8533	28.12	85	33.06	0.7994	26.43	80	43-120				
2-Fluorobiphenyl		32.95	0.6600	21.75	66	33.06	0.5947	19.66	59	36-120				
Terphenyl-d14		32.95	1.188	39.15	119	33.06	1.089	36.00	109	56-120				

ISTD (CCV vev05)	CCV Area	MS Area	%Drift	CCV RT	MS RT	Drift
Naphthalene-d8	59697	51062	-14.46	9.12	9.12	0.00
Acenaphthene-d10	36547	32377	-11.41	11.43	11.43	0.00
Phenanthrene-d10	67706	57256	-15.43	13.39	13.39	0.00
Chrysene-d12	53331	41390	-22.39	16.87	16.87	0.00
Perylene-d12	45412	33739	-25.70	18.61	18.61	0.00

ISTD (CCV vev05)	CCV Area	MSD Area	%Drift	CCV RT	MSD RT	Drift
Naphthalene-d8	59697	52201	-12.56	9.12	9.12	0.00
Acenaphthene-d10	36547	33352	-8.74	11.43	11.43	0.00
Phenanthrene-d10	67706	58381	-13.77	13.39	13.39	0.00
Chrysene-d12	53331	42497	-20.31	16.87	16.87	0.00
Perylene-d12	45412	33978	-25.18	18.61	18.61	0.00

JW1 06/01/18 [1,4-Dioxane]: Corrected automatically drawn baseline for spike & dup. [general version]

JW1 06/01/18 : Failures likely due to matrix, RPDs low and LCS is passing well for all failing compounds, despite Dibenz(a,h)anthracene technically passing it is borderline and the RPDs between the MS/D are low. [general version]

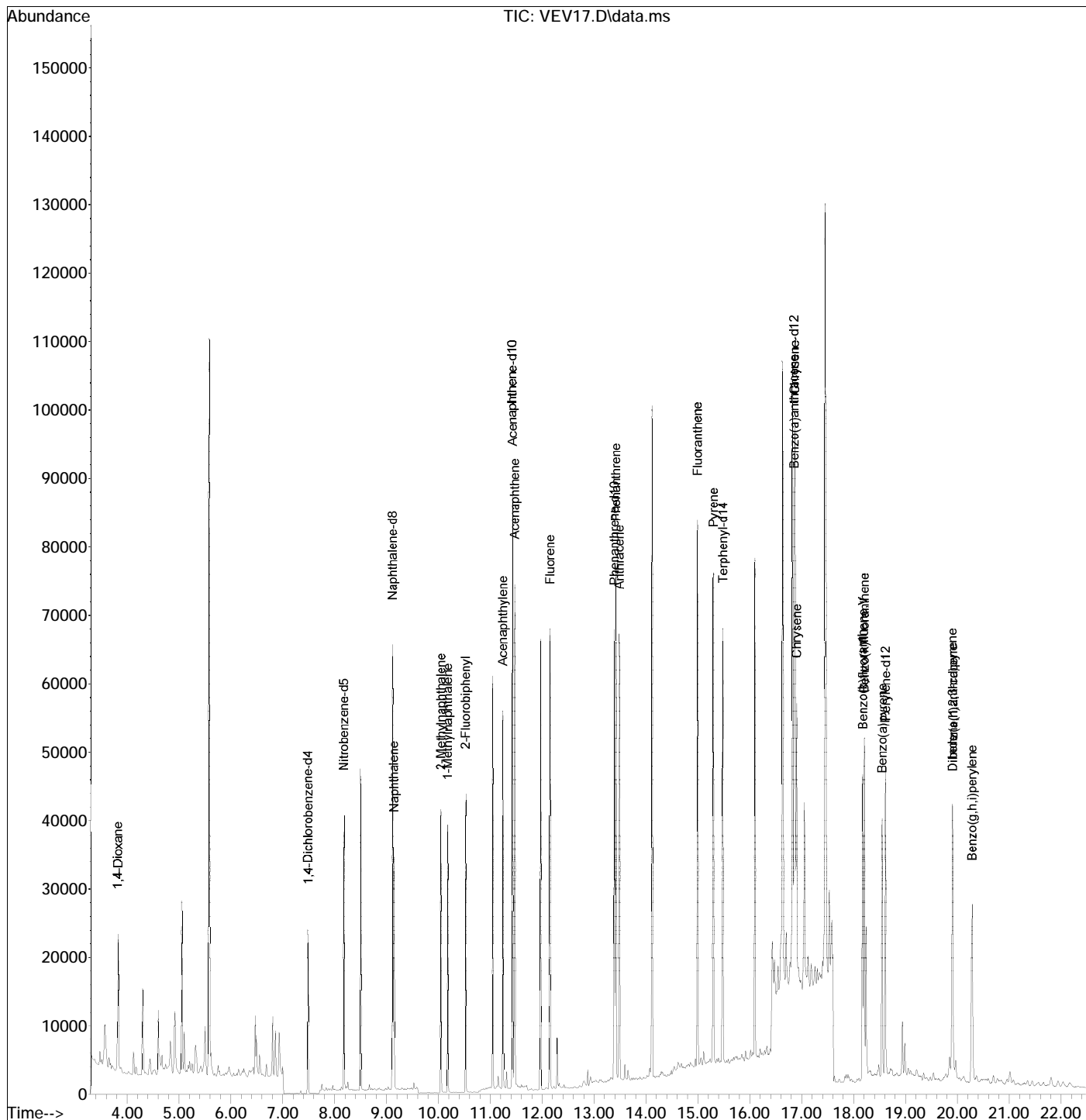
JW1 06/01/18 : Rerun at 1X for low istd compared to ical. [general version]

Analyst: JW1 Date: 06/05/18 * Reviewer: _____ Date: _____

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\053118\
 Data File : VEV17.D
 Acq On : 31 May 2018 9:35 pm
 Operator :
 Sample : MS, QC934138
 Misc : 260066,1,
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 01 13:00:07 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\053118\
 Data File : VEV17.D
 Acq On : 31 May 2018 9:35 pm
 Operator :
 Sample : MS, QC934138
 Misc : 260066,1,
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 01 13:00:07 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.485	152	14093	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.115	136	51062	1.0000	ug/mL	-0.01
8) Acenaphthene-d10	11.428	164	32377	1.0000	ug/mL	-0.01
13) Phenanthrene-d10	13.388	188	57256	1.0000	ug/mL	0.00
18) Chrysene-d12	16.865	240	41390	1.0000	ug/mL	0.00
23) Perylene-d12	18.609	264	33739	1.0000	ug/mL	0.00

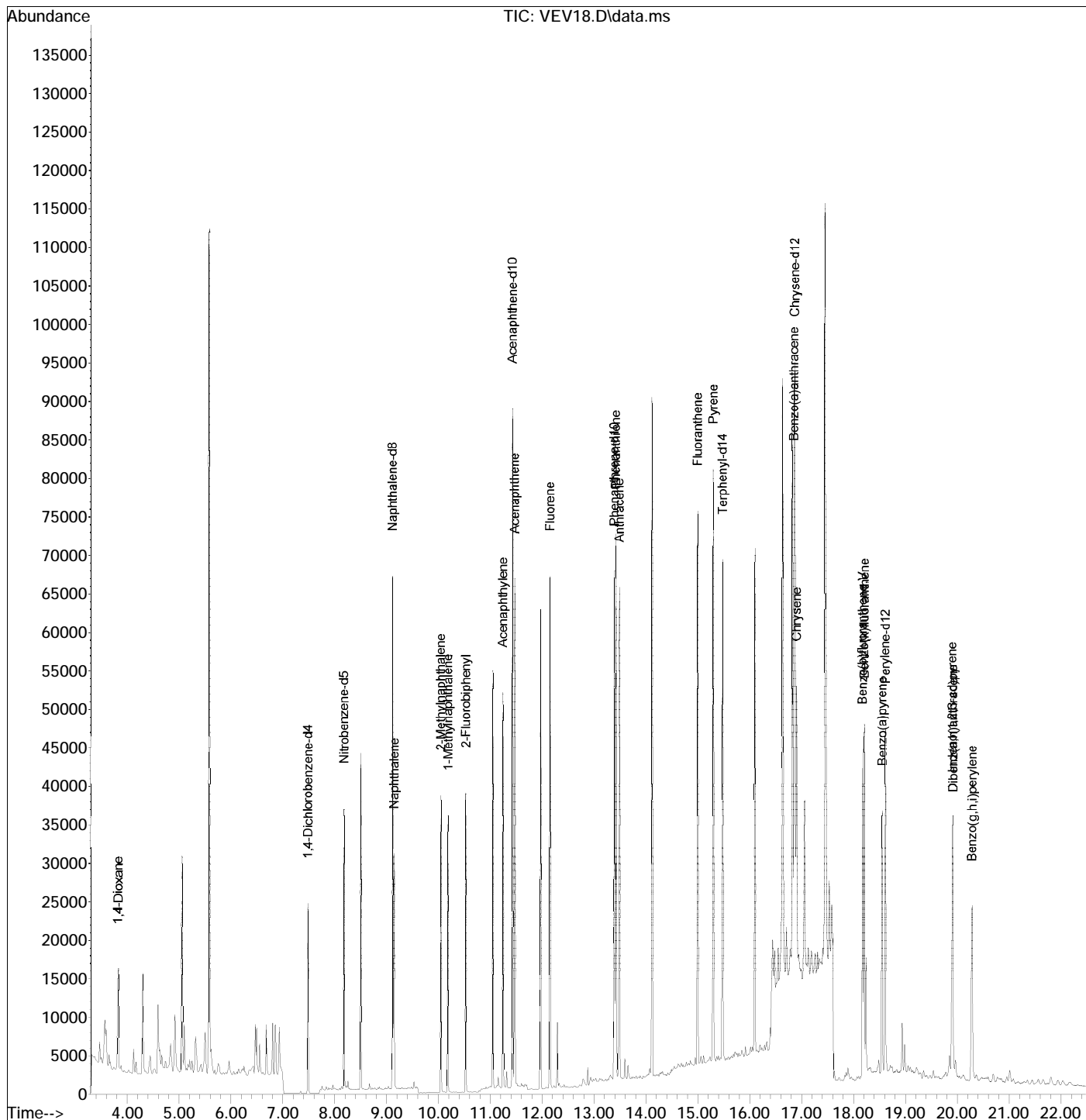
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.823	88	11980m	1.8754	ug/mL	
4) Nitrobenzene-d5	8.178	82	18392	0.8533	ug/mL	86
5) Naphthalene	9.143	128	25117	0.5243	ug/mL	99
6) 2-Methylnaphthalene	10.048	142	22074	0.6146	ug/mL	90
7) 1-Methylnaphthalene	10.179	142	20095	0.6116	ug/mL	95
9) 2-Fluorobiphenyl	10.524	172	30415	0.6600	ug/mL	99
10) Acenaphthylene	11.240	152	39065	0.7457	ug/mL	99
11) Acenaphthene	11.468	154	25060	0.8113	ug/mL	94
12) Fluorene	12.149	166	33909	0.8838	ug/mL	94
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.417	178	51561	0.9183	ug/mL	98
16) Anthracene	13.483	178	48379	0.8704	ug/mL	98
17) Fluoranthene	14.989	202	54907	0.8552	ug/mL	98
19) Pyrene	15.296	202	54816	0.9823	ug/mL	100
20) Terphenyl-d14	15.476	244	54949	1.1882	ug/mL	92
21) Benzo(a)anthracene	16.850	228	43102	0.8472	ug/mL	99
22) Chrysene	16.895	228	27412	0.5753	ug/mL	98
24) Benzo(b)fluoranthene	18.170	252	37292	0.8902	ug/mL	94
25) Benzo(k)fluoranthene	18.200	252	40714	0.8498	ug/mL	94
26) Benzo(a)pyrene	18.546	252	32454	0.8482	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.901	276	29742	0.6979	ug/mL	# 54
28) Dibenz(a,h)anthracene	19.904	278	16021	0.5279	ug/mL	87
29) Benzo(g,h,i)perylene	20.277	276	28113	0.8196	ug/mL	# 91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\053118\
 Data File : VEV18.D
 Acq On : 31 May 2018 10:06 pm
 Operator :
 Sample : MSD, QC934139
 Misc : 260066,1,
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 01 13:00:50 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\053118\
 Data File : VEV18.D
 Acq On : 31 May 2018 10:06 pm
 Operator :
 Sample : MSD, QC934139
 Misc : 260066,1,
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 01 13:00:50 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.484	152	14442	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.116	136	52201	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.427	164	33352	1.0000	ug/mL	-0.01
13) Phenanthrene-d10	13.389	188	58381	1.0000	ug/mL	0.00
18) Chrysene-d12	16.865	240	42497	1.0000	ug/mL	0.00
23) Perylene-d12	18.606	264	33978	1.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.825	88	8834m	1.3495	ug/mL	
4) Nitrobenzene-d5	8.179	82	17616	0.7994	ug/mL	84
5) Naphthalene	9.144	128	22830	0.4662	ug/mL	99
6) 2-Methylnaphthalene	10.044	142	19952	0.5434	ug/mL	100
7) 1-Methylnaphthalene	10.180	142	18531	0.5517	ug/mL	95
9) 2-Fluorobiphenyl	10.525	172	28230	0.5947	ug/mL	97
10) Acenaphthylene	11.240	152	36208	0.6710	ug/mL	100
11) Acenaphthene	11.468	154	22745	0.7148	ug/mL	98
12) Fluorene	12.149	166	31482	0.7966	ug/mL	97
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.419	178	48227	0.8424	ug/mL	98
16) Anthracene	13.484	178	44791	0.7903	ug/mL	99
17) Fluoranthene	14.994	202	51852	0.7920	ug/mL	97
19) Pyrene	15.295	202	51354	0.8963	ug/mL	100
20) Terphenyl-d14	15.474	244	51704	1.0889	ug/mL	92
21) Benzo(a)anthracene	16.850	228	40315	0.7718	ug/mL	99
22) Chrysene	16.894	228	25788	0.5271	ug/mL	98
24) Benzo(b)fluoranthene	18.168	252	35272	0.8361	ug/mL	97
25) Benzo(k)fluoranthene	18.201	252	36419	0.7548	ug/mL	92
26) Benzo(a)pyrene	18.545	252	30022	0.7792	ug/mL	99
27) Indeno(1,2,3-cd)pyrene	19.900	276	26186	0.6102	ug/mL	# 51
28) Dibenz(a,h)anthracene	19.906	278	14242	0.4660	ug/mL	86
29) Benzo(g,h,i)perylene	20.276	276	24507	0.7095	ug/mL	# 92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Batch QC Report

Semivolatile Organics by GC/MS SIM			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC934137	Batch#:	260066
Matrix:	Soil	Prepared:	05/31/18
Units:	ug/Kg	Analyzed:	05/31/18

Analyte	Spiked	Result	%REC	Limits
Naphthalene	33.33	32.89	99	51-120
Acenaphthylene	33.33	32.56	98	59-120
Acenaphthene	33.33	34.06	102	54-120
Fluorene	33.33	34.68	104	64-120
Phenanthrene	33.33	35.26	106	61-120
Anthracene	33.33	34.08	102	62-120
Fluoranthene	33.33	34.50	103	67-120
Pyrene	33.33	36.03	108	65-120
Benzo(a)anthracene	33.33	34.59	104	64-120
Chrysene	33.33	22.22	67	46-120
Benzo(b)fluoranthene	33.33	34.53	104	59-120
Benzo(k)fluoranthene	33.33	35.26	106	64-120
Benzo(a)pyrene	33.33	33.73	101	64-120
Indeno(1,2,3-cd)pyrene	33.33	32.49	97	49-120
Dibenz(a,h)anthracene	33.33	23.90	72	41-120
Benzo(g,h,i)perylene	33.33	34.38	103	44-120

Surrogate	%REC	Limits
Nitrobenzene-d5	112	43-120
2-Fluorobiphenyl	99	36-120
Terphenyl-d14	111	56-120

ENTHALPY SPIKE USER REPORT FOR 300092 MSSIM Soil
EPA 8270C-SIM

Type : LCS
 Inst : MSBNA03
 Seqnum : 528218043015.6
 File : vev15
 IDF : 1.0
 Lab ID : QC934137
 Matrix : Soil
 Batch : 260066
 Time : 31-MAY-2018 20:33
 Cal : 528189186001
 Units : ug/Kg

LCS: 30.00 g --> 1.0 ml = 0.03333 ml/g PDF

Analyte	Spiked	Raw	LCS	%Rec	Limits	Flags
Naphthalene	33.33	0.9867	32.89	99	51-120	u
Acenaphthylene	33.33	0.9767	32.56	98	59-120	u
Acenaphthene	33.33	1.022	34.06	102	54-120	u
Fluorene	33.33	1.041	34.68	104	64-120	u
Phenanthrene	33.33	1.058	35.26	106	61-120	u
Anthracene	33.33	1.023	34.08	102	62-120	u
Fluoranthene	33.33	1.035	34.50	103	67-120	u
Pyrene	33.33	1.081	36.03	108	65-120	u
Benzo(a)anthracene	33.33	1.038	34.59	104	64-120	u
Chrysene	33.33	0.6665	22.22	67	46-120	u
Benzo(b)fluoranthene	33.33	1.036	34.53	104	59-120	u
Benzo(k)fluoranthene	33.33	1.058	35.26	106	64-120	u
Benzo(a)pyrene	33.33	1.012	33.73	101	64-120	u
Indeno(1,2,3-cd)pyrene	33.33	0.9747	32.49	97	49-120	u
Dibenz(a,h)anthracene	33.33	0.7171	23.90	72	41-120	u
Benzo(g,h,i)perylene	33.33	1.031	34.38	103	44-120	u
Nitrobenzene-d5	33.33	1.115	37.17	112	43-120	u
2-Fluorobiphenyl	33.33	0.9949	33.16	99	36-120	u
Terphenyl-d14	33.33	1.110	37.00	111	56-120	u

ISTD (CCV vev05)	CCV Area	LCS Area	%Drift	CCV RT	LCS RT	Drift
Naphthalene-d8	59697	51009	-14.55	9.12	9.12	0.00
Acenaphthene-d10	36547	31752	-13.12	11.43	11.43	0.00
Phenanthrene-d10	67706	57969	-14.38	13.39	13.39	0.00
Chrysene-d12	53331	47007	-11.86	16.87	16.86	-0.01
Perylene-d12	45412	40327	-11.20	18.61	18.61	0.00

JW1 06/01/18 [1,4-Dioxane]: Corrected automatically drawn baseline. [general version]

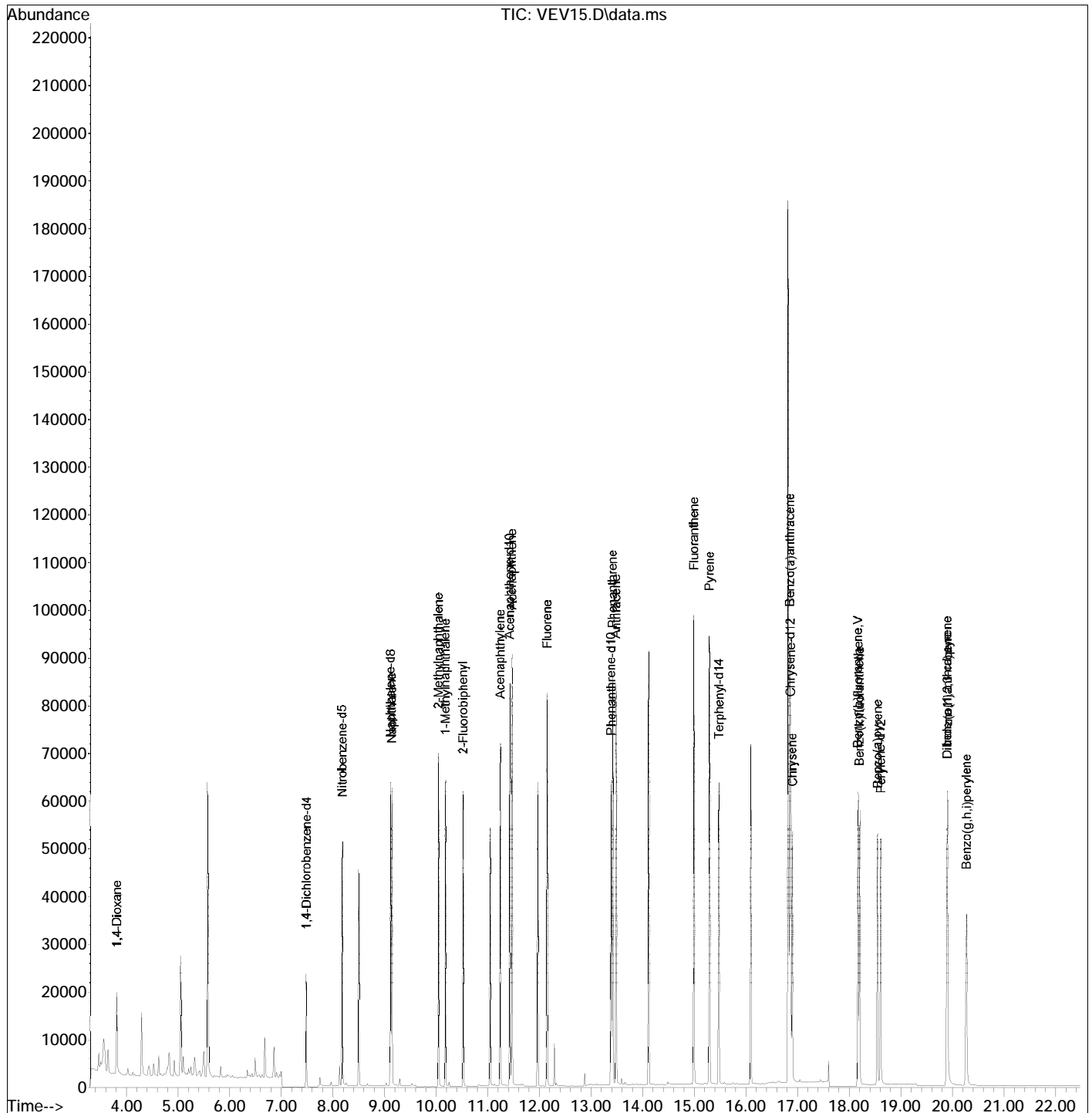
Analyst: JW1 Date: 06/05/18 Reviewer: LW Date: 06/05/18

u=use

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\053118\
 Data File : VEV15.D
 Acq On : 31 May 2018 8:33 pm
 Operator :
 Sample : LCS, QC934137
 Misc : 260066,1,
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 01 12:50:10 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\053118\
 Data File : VEV15.D
 Acq On : 31 May 2018 8:33 pm
 Operator :
 Sample : LCS, QC934137
 Misc : 260066,1,
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 01 12:50:10 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.484	152	14209	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.115	136	51009	1.0000	ug/mL	-0.01
8) Acenaphthene-d10	11.428	164	31752	1.0000	ug/mL	-0.01
13) Phenanthrene-d10	13.389	188	57969	1.0000	ug/mL	0.00
18) Chrysene-d12	16.860	240	47007	1.0000	ug/mL	-0.01
23) Perylene-d12	18.606	264	40327	1.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.811	88	10486m	1.6281	ug/mL	
4) Nitrobenzene-d5	8.178	82	24008	1.1150	ug/mL	85
5) Naphthalene	9.143	128	47219	0.9867	ug/mL	99
6) 2-Methylnaphthalene	10.044	142	36878	1.0278	ug/mL	98
7) 1-Methylnaphthalene	10.179	142	32929	1.0033	ug/mL	93
9) 2-Fluorobiphenyl	10.525	172	44964	0.9949	ug/mL	97
10) Acenaphthylene	11.240	152	50177	0.9767	ug/mL	100
11) Acenaphthene	11.468	154	30950	1.0217	ug/mL	95
12) Fluorene	12.148	166	39151	1.0405	ug/mL	96
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.418	178	60127	1.0577	ug/mL	99
16) Anthracene	13.483	178	57546	1.0225	ug/mL	99
17) Fluoranthene	14.989	202	67276	1.0349	ug/mL	98
19) Pyrene	15.290	202	68494	1.0808	ug/mL	98
20) Terphenyl-d14	15.475	244	58301	1.1100	ug/mL	93
21) Benzo(a)anthracene	16.845	228	59963	1.0378	ug/mL	98
22) Chrysene	16.895	228	36068	0.6665	ug/mL	96
24) Benzo(b)fluoranthene	18.166	252	51874	1.0360	ug/mL	98
25) Benzo(k)fluoranthene	18.196	252	60570	1.0578	ug/mL	98
26) Benzo(a)pyrene	18.543	252	46279	1.0120	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.894	276	49645	0.9747	ug/mL	56
28) Dibenz(a,h)anthracene	19.897	278	26010	0.7171	ug/mL	90
29) Benzo(g,h,i)perylene	20.267	276	42285	1.0314	ug/mL	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3550C
Project#:	1035225322.01	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC934136	Batch#:	260066
Matrix:	Soil	Prepared:	05/31/18
Units:	ug/Kg	Analyzed:	05/31/18

Analyte	Result	RL	MDL
Naphthalene	ND	5.0	1.0
Acenaphthylene	ND	5.0	1.0
Acenaphthene	ND	5.0	1.0
Fluorene	ND	5.0	1.0
Phenanthrene	ND	5.0	1.0
Anthracene	ND	5.0	1.0
Fluoranthene	ND	5.0	1.0
Pyrene	ND	5.0	1.0
Benzo(a)anthracene	ND	5.0	1.0
Chrysene	ND	5.0	1.0
Benzo(b)fluoranthene	ND	5.0	1.0
Benzo(k)fluoranthene	ND	5.0	1.0
Benzo(a)pyrene	ND	5.0	1.0
Indeno(1,2,3-cd)pyrene	ND	5.0	1.0
Dibenz(a,h)anthracene	ND	5.0	1.0
Benzo(g,h,i)perylene	ND	5.0	1.0

Surrogate	%REC	Limits
Nitrobenzene-d5	103	43-120
2-Fluorobiphenyl	93	36-120
Terphenyl-d14	110	56-120

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

ENTHALPY BLANK USER REPORT FOR 300092 MSSIM Soil
EPA 8270C-SIM

Inst : MSBNA03 Lab ID : QC934136
 Seqnum : 528218043014.6 Matrix : Soil
 File : vev14 Batch : 260066 Time : 31-MAY-2018 20:02
 Cal : 528189186001 Caldate : 11-MAY-2018
 IDF : 1.0 Raw Units : ug/mL Units : ug/Kg

30.00 g --> 1.0 ml = 0.03333 ml/g PDF

Analyte	Raw	Result	RL	Flags
Naphthalene	0.003100	ND	5.0	u
Acenaphthylene	0	ND	5.0	u
Acenaphthene	0.004300	ND	5.0	u
Fluorene	0	ND	5.0	u
Phenanthrene	0.004300	ND	5.0	u
Anthracene	0.004300	ND	5.0	u
Fluoranthene	0.004200	ND	5.0	u
Pyrene	0.005700	ND	5.0	u
Benzo(a)anthracene	0.004200	ND	5.0	u
Chrysene	0.002600	ND	5.0	u
Benzo(b)fluoranthene	0.003300	ND	5.0	u
Benzo(k)fluoranthene	0.002900	ND	5.0	u
Benzo(a)pyrene	0.002200	ND	5.0	u
Indeno(1,2,3-cd)pyrene	0.002600	ND	5.0	u
Dibenz(a,h)anthracene	0	ND	5.0	u
Benzo(g,h,i)perylene	0.003200	ND	5.0	u

Surrogate	Raw	Spiked	Result	%Rec	Limits	Flags
Nitrobenzene-d5	1.034	33.33	34.46	103	43-120	u
2-Fluorobiphenyl	0.9290	33.33	30.97	93	36-120	u
Terphenyl-d14	1.097	33.33	36.58	110	56-120	u

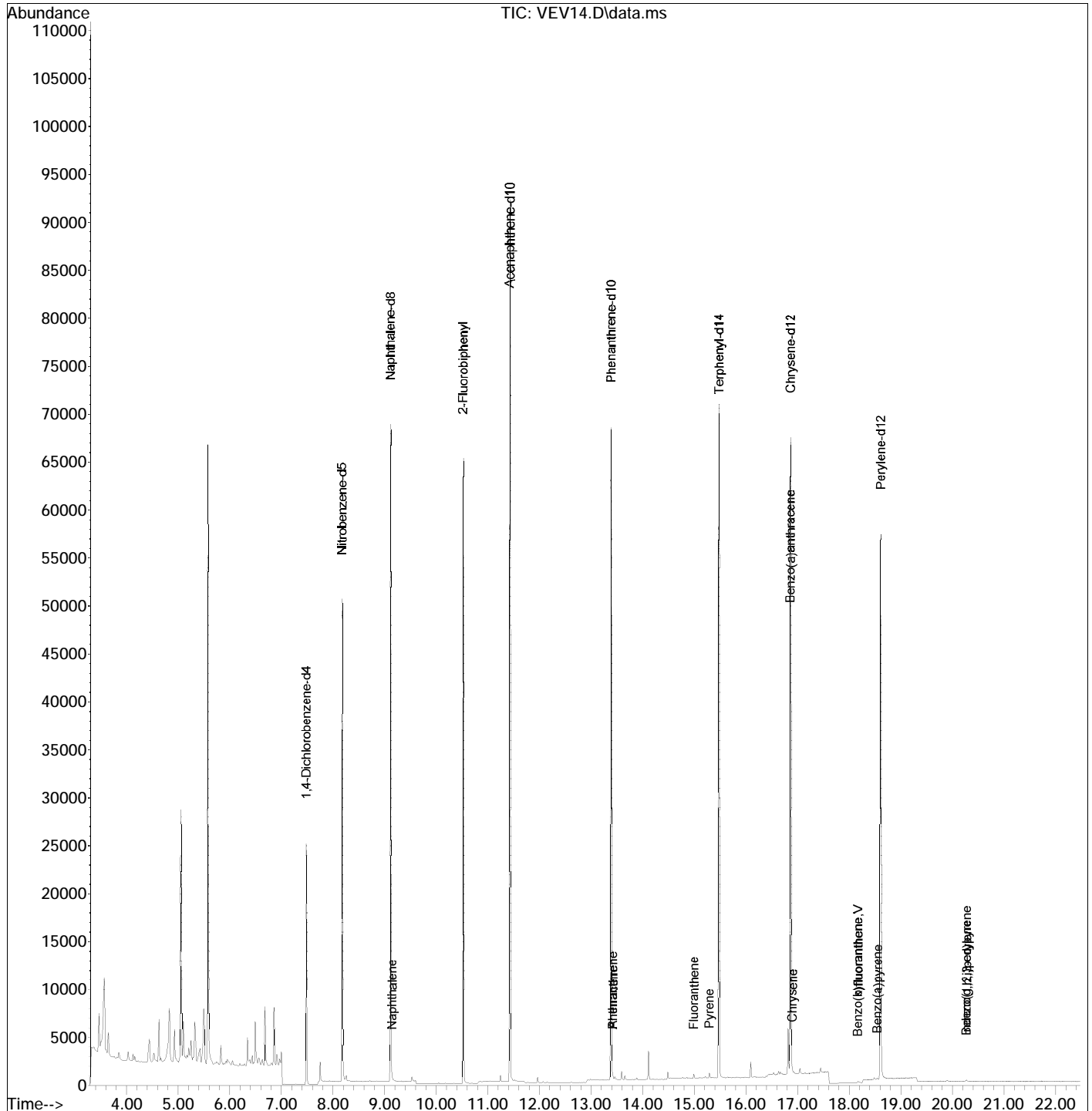
ISTD (CCV vev05)	CCV Area	BLANK Area	%Drift	CCV RT	BLANK RT	Drift
Naphthalene-d8	59697	54812	-8.18	9.12	9.12	0.00
Acenaphthene-d10	36547	35351	-3.27	11.43	11.43	0.00
Phenanthrene-d10	67706	62957	-7.01	13.39	13.39	0.00
Chrysene-d12	53331	52274	-1.98	16.87	16.86	-0.01
Perylene-d12	45412	44617	-1.75	18.61	18.61	0.00

Analyst: JW1 Date: 06/05/18 Reviewer: LW Date: 06/05/18

u=use

Data Path : G:\csinput.net\DATA\053118\
 Data File : VEV14.D
 Acq On : 31 May 2018 8:02 pm
 Operator :
 Sample : MB, QC934136
 Misc : 260066,1,
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 31 20:25:26 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\053118\
 Data File : VEV14.D
 Acq On : 31 May 2018 8:02 pm
 Operator :
 Sample : MB, QC934136
 Misc : 260066,1,
 ALS Vial : 14 Sample Multiplier: 1

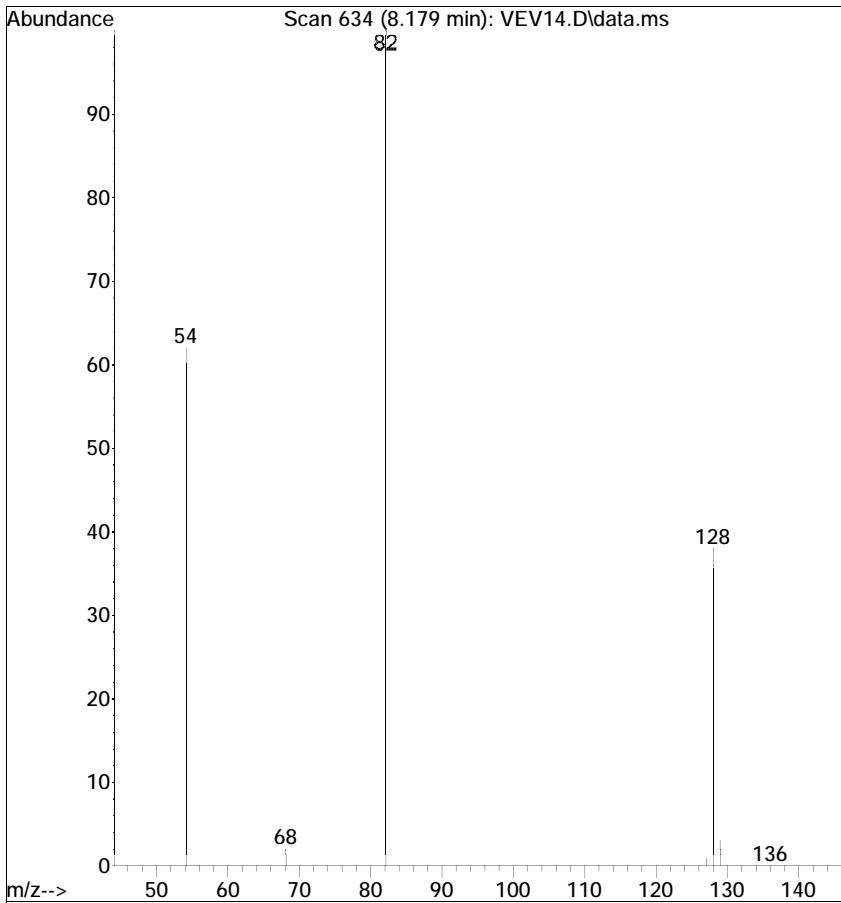
Quant Time: May 31 20:25:26 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.484	152	14952	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.115	136	54812	1.0000	ug/mL	-0.01
8) Acenaphthene-d10	11.427	164	35351	1.0000	ug/mL	-0.01
13) Phenanthrene-d10	13.388	188	62957	1.0000	ug/mL	0.00
18) Chrysene-d12	16.860	240	52274	1.0000	ug/mL	0.00
23) Perylene-d12	18.606	264	44617	1.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Rel.RT	Qvalue
2) 1,4-Dioxane	0.000	88	0	N.D.			
4) Nitrobenzene-d5	8.179	82	23919	1.0338	ug/mL	84	
5) Naphthalene	9.143	128	160	0.0031	ug/mL	# 50	
6) 2-Methylnaphthalene	0.000	142	0	N.D.			
7) 1-Methylnaphthalene	0.000	142	0	N.D.			
9) 2-Fluorobiphenyl	10.525	172	46743	0.9290	ug/mL	97	
10) Acenaphthylene	0.000	152	0	N.D.			
11) Acenaphthene	11.427	154	146	0.0043	ug/mL	# 35	
12) Fluorene	0.000	166	0	N.D.			
14) _Pentachlorophenol	0.000	266	0	N.D.			
15) Phenanthrene	13.418	178	265	0.0043	ug/mL	67	
16) Anthracene	13.418	178	265	0.0043	ug/mL	68	
17) Fluoranthene	14.989	202	296	0.0042	ug/mL	# 69	
19) Pyrene	15.290	202	399	0.0057	ug/mL	79	
20) Terphenyl-d14	15.476	244	64096	1.0974	ug/mL	93	
21) Benzo(a)anthracene	16.855	228	268	0.0042	ug/mL	# 65	
22) Chrysene	16.895	228	159	0.0026	ug/mL	# 50	
24) Benzo(b)fluoranthene	18.167	252	181	0.0033	ug/mL	# 1	
25) Benzo(k)fluoranthene	18.167	252	181	0.0029	ug/mL	# 1	
26) Benzo(a)pyrene	18.543	252	112	0.0022	ug/mL	# 1	
27) Indeno(1,2,3-cd)pyrene	20.268	276	144	0.0026	ug/mL	# 1	
28) Dibenz(a,h)anthracene	0.000	278	0	N.D.			
29) Benzo(g,h,i)perylene	20.268	276	144	0.0032	ug/mL	# 28	

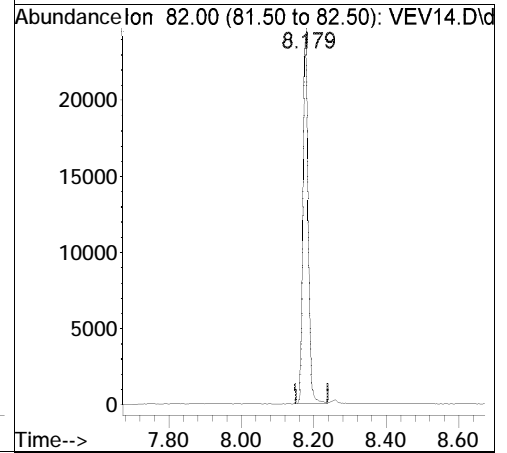
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Raw

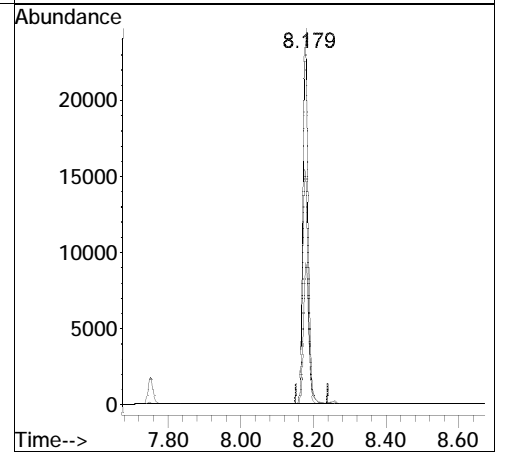
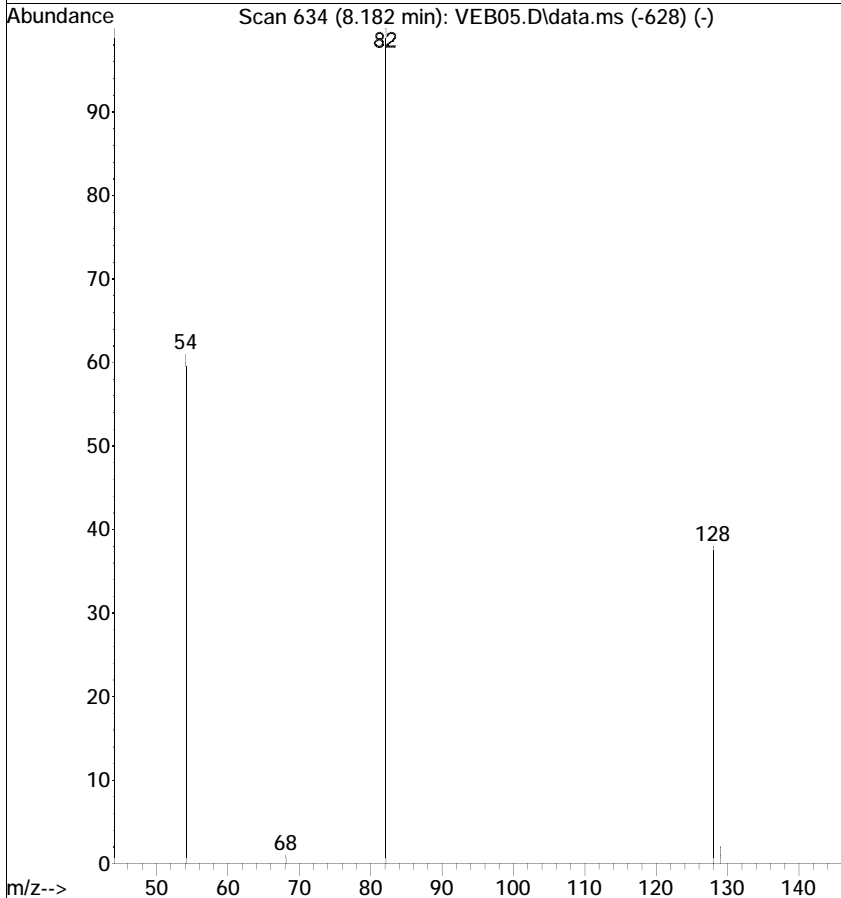


#4
 Nitrobenzene-d5
 Concen: 1.0338 ug/mL
 RT: 8.179 min Scan# 634
 Delta R.T. -0.003 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

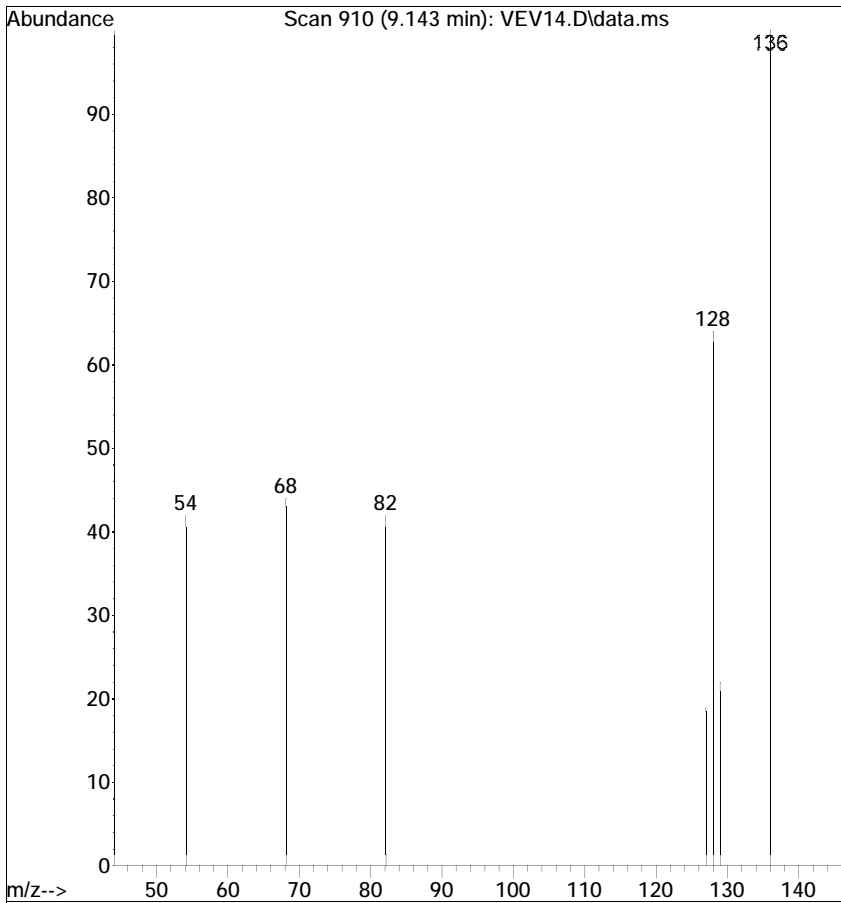
Tgt Ion	Resp	Lower	Upper
82	23919		
128	37.7	10.5	50.5
54	61.9	56.2	96.2



Ref

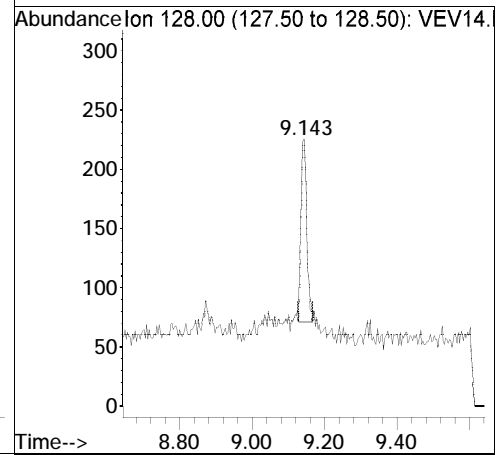


Raw

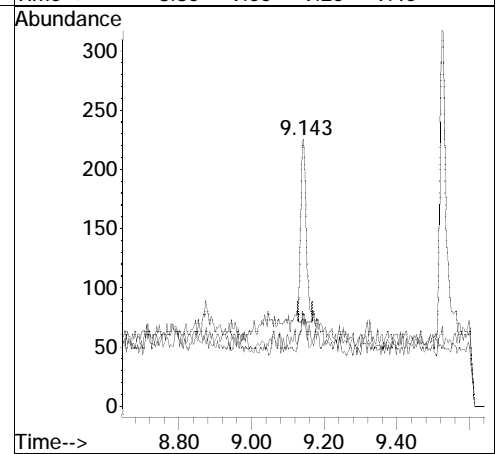
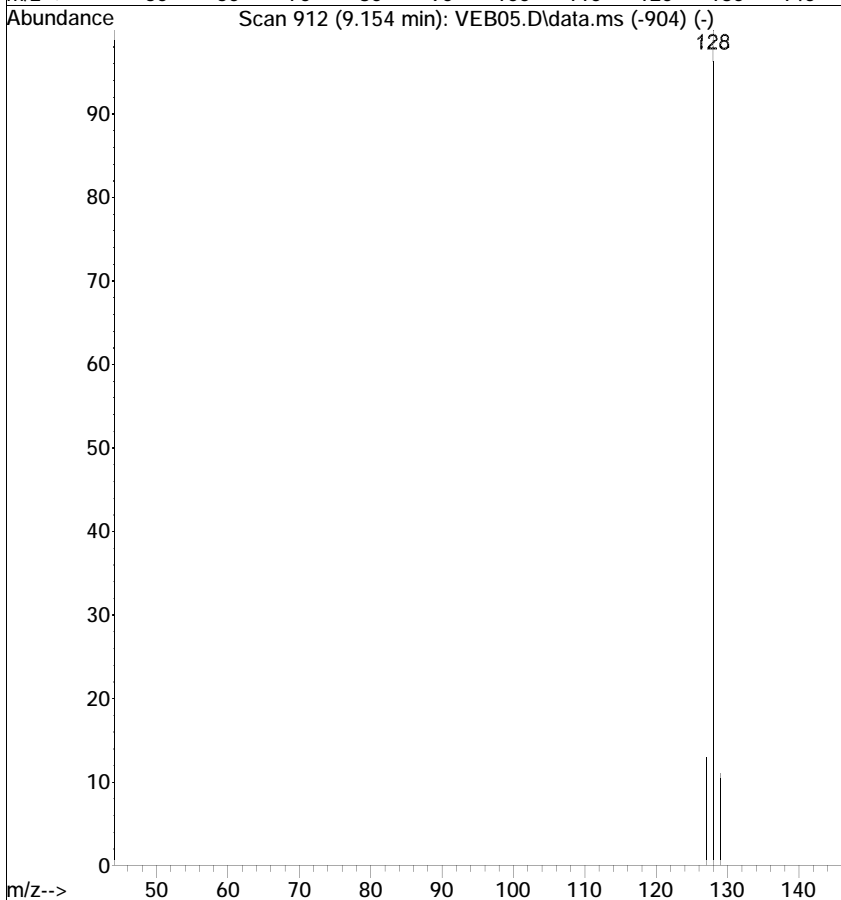


#5
 Naphthalene
 Concen: 0.0031 ug/mL
 RT: 9.143 min Scan# 910
 Delta R.T. -0.010 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

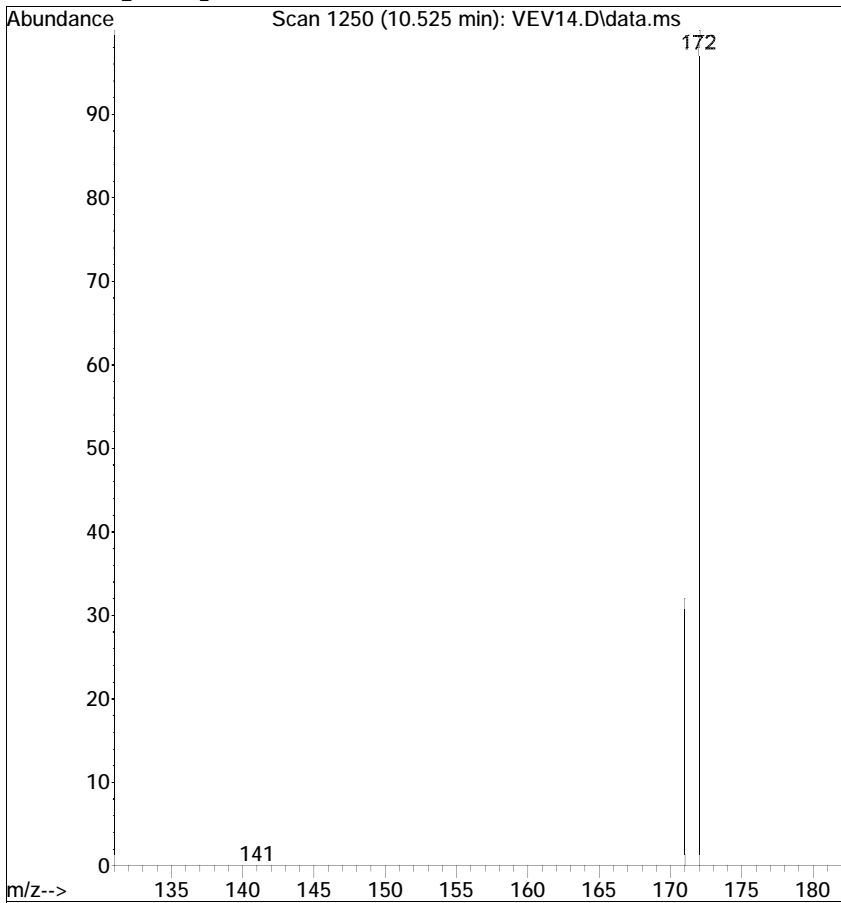
Tgt Ion	Resp	Lower	Upper
128	100		
129	34.7	0.0	31.1#
127	30.2	0.0	34.0



Ref

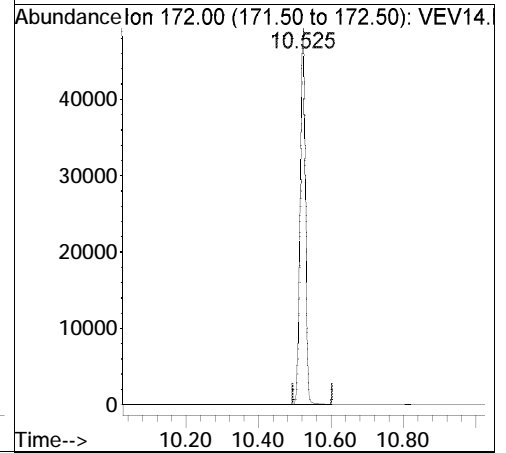


Raw

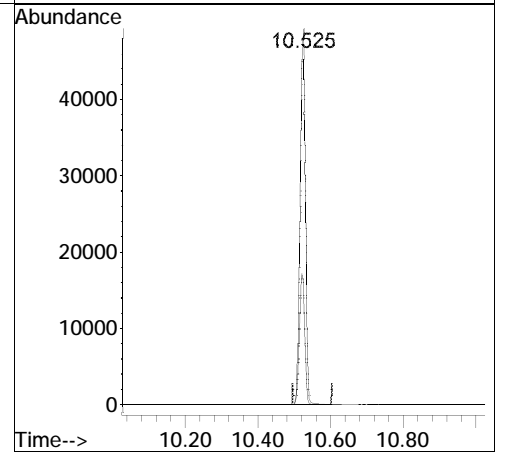
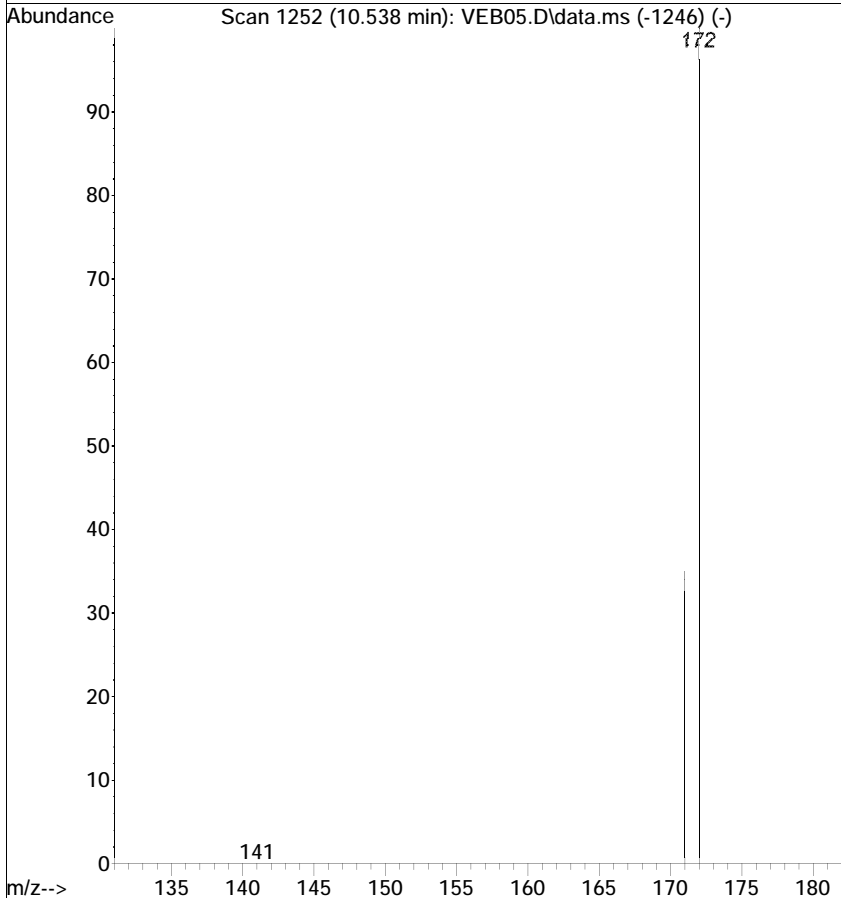


#9
 2-Fluorobiphenyl
 Concen: 0.9290 ug/mL
 RT: 10.525 min Scan# 1250
 Delta R.T. -0.013 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

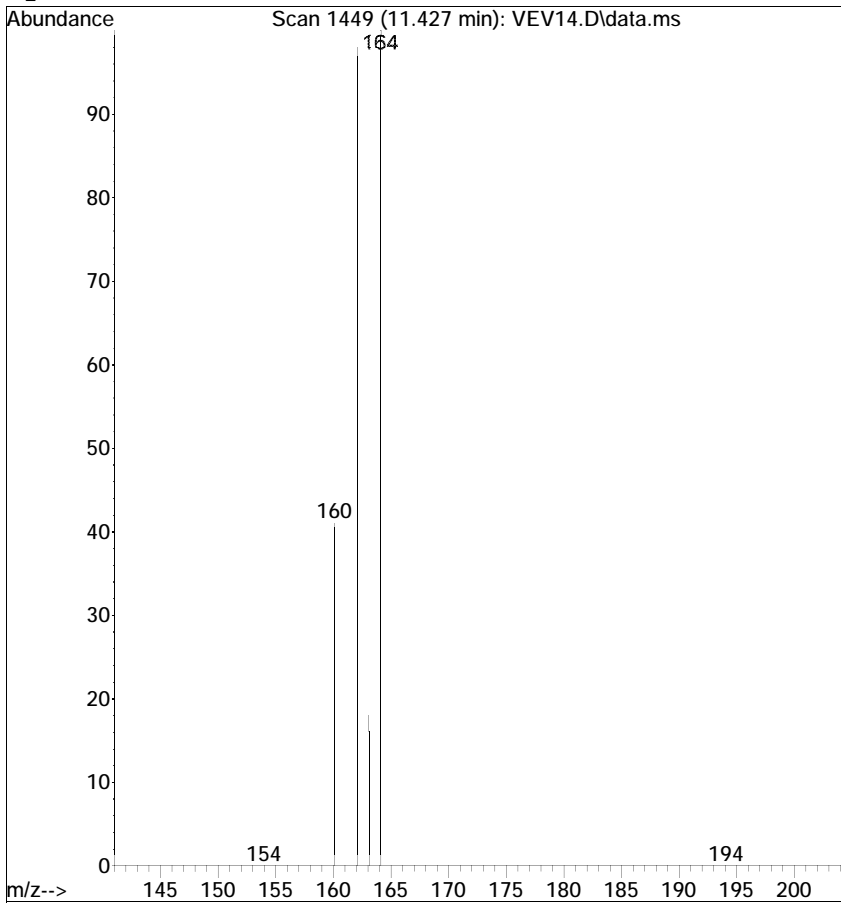
Tgt Ion	Resp	Lower	Upper
172	46743	100	100
171	32.5	14.4	54.4



Ref

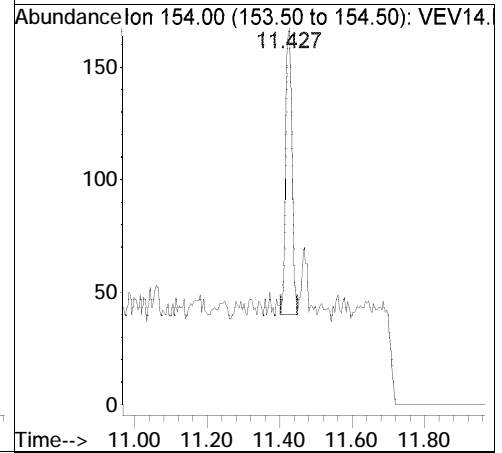


Raw

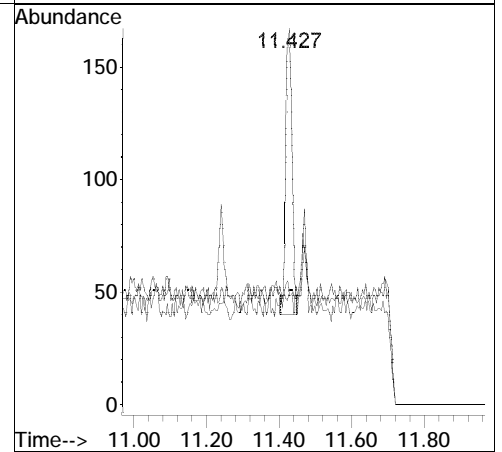
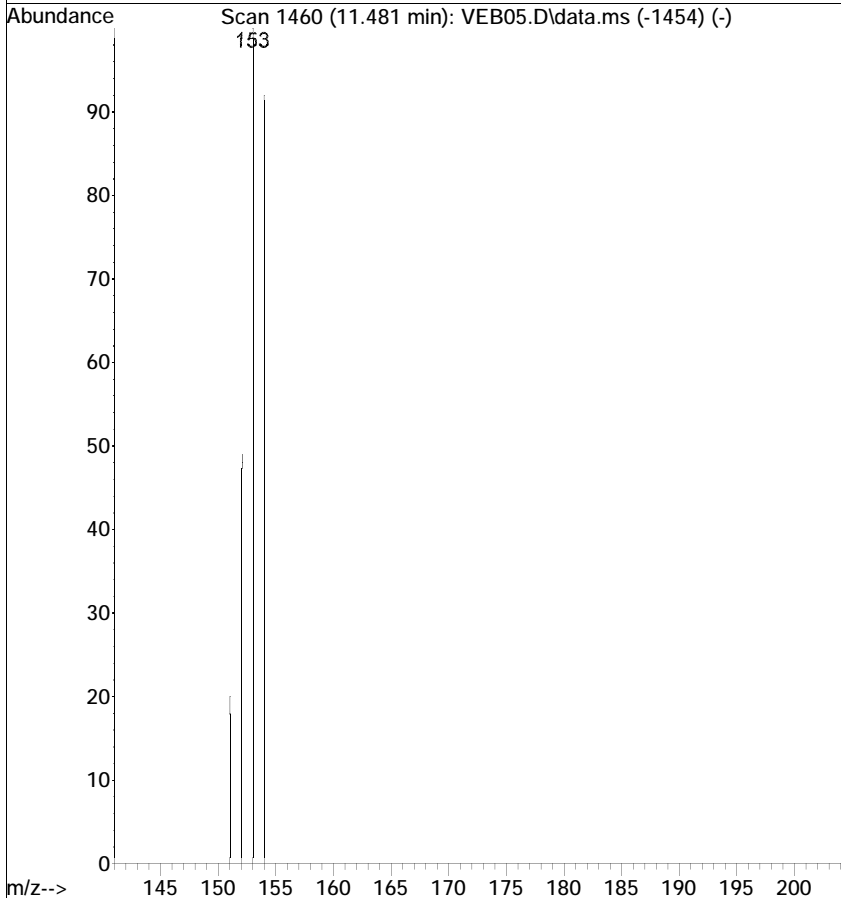


#11
 Acenaphthene
 Concen: 0.0043 ug/mL
 RT: 11.427 min Scan# 1449
 Delta R.T. -0.053 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

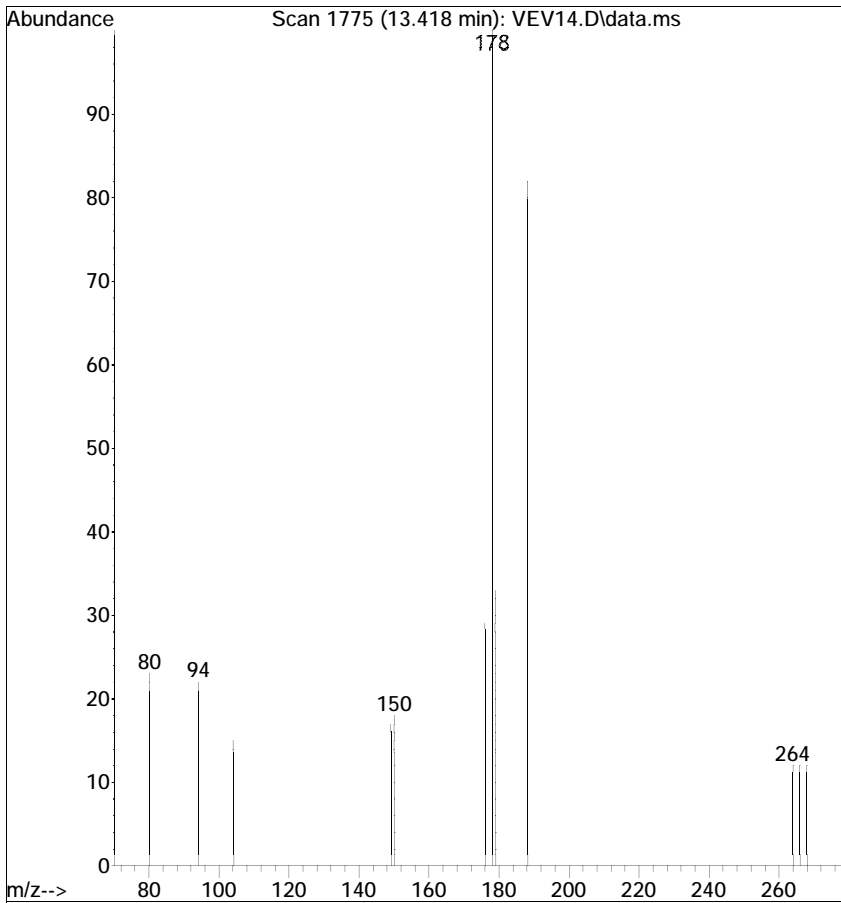
Tgt Ion	Ratio	Lower	Upper
154	100		
152	28.7	35.4	75.4#
153	30.5	96.8	136.8#



Ref

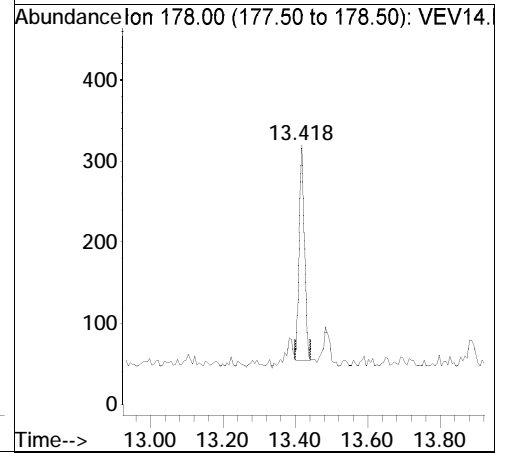


Raw

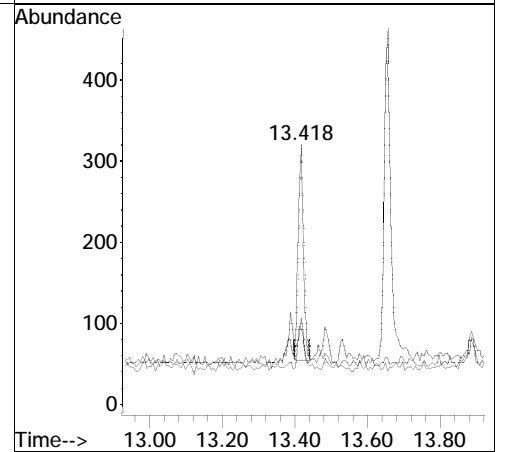
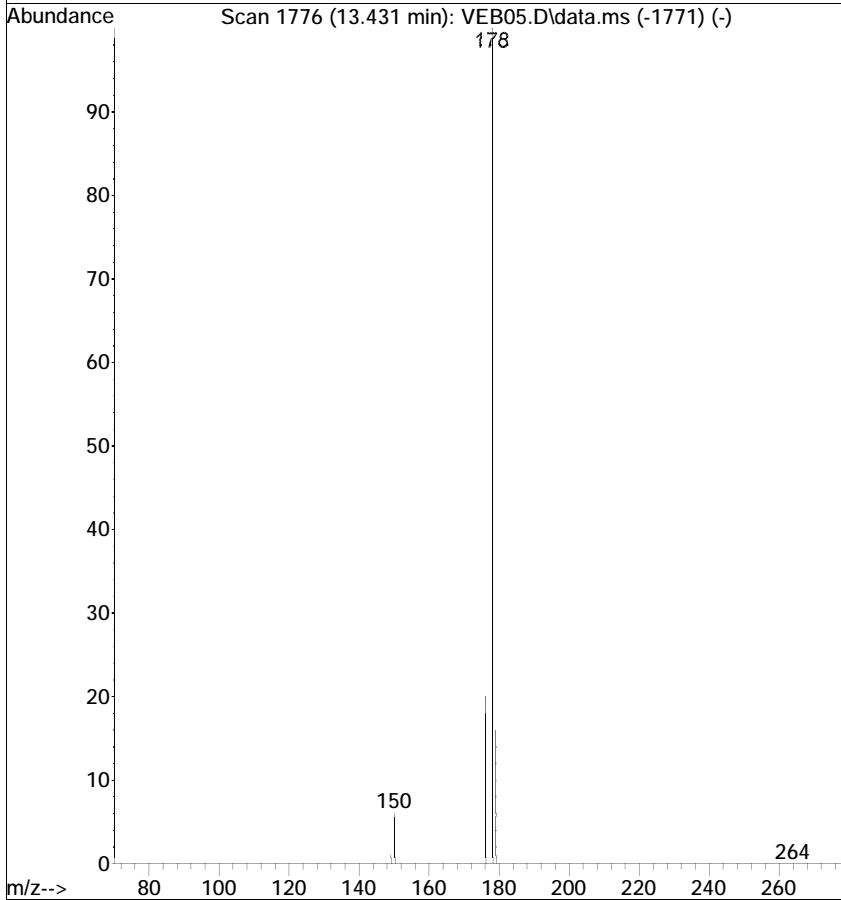


#15
 Phenanthrene
 Concen: 0.0043 ug/mL
 RT: 13.418 min Scan# 1775
 Delta R.T. -0.012 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

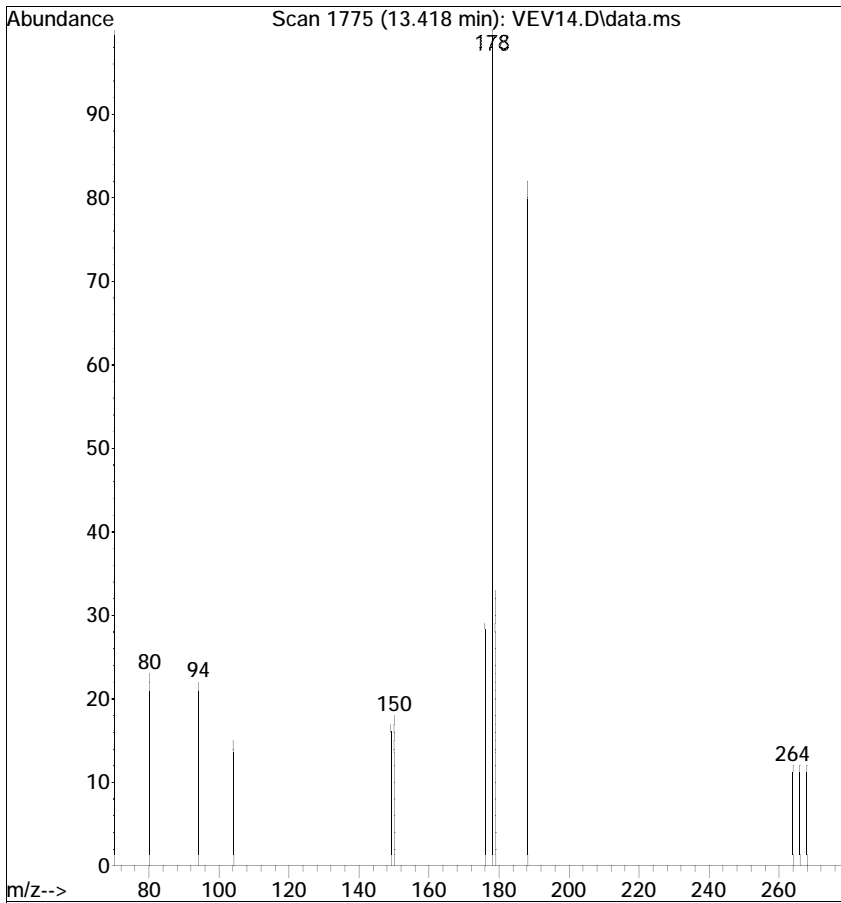
Tgt Ion	Resp	Lower	Upper
178	100		
179	33.4	0.0	35.0
176	29.4	0.0	38.9



Ref

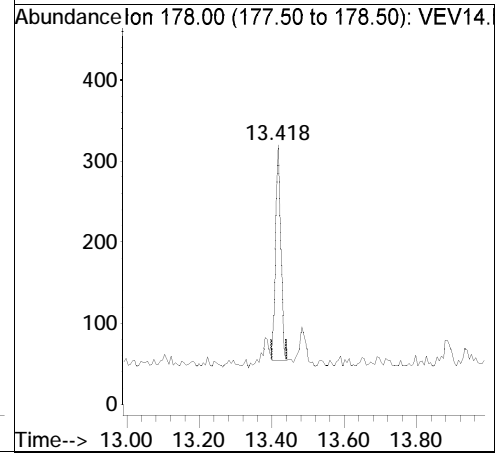


Raw

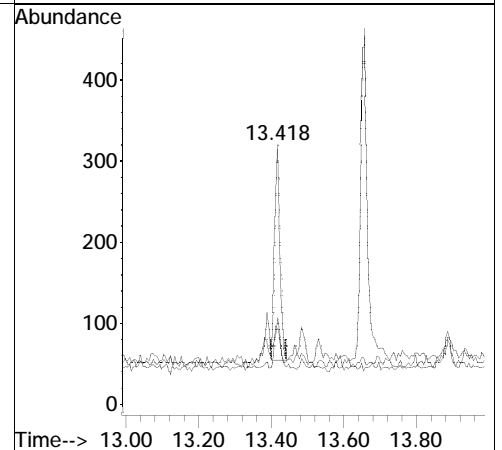
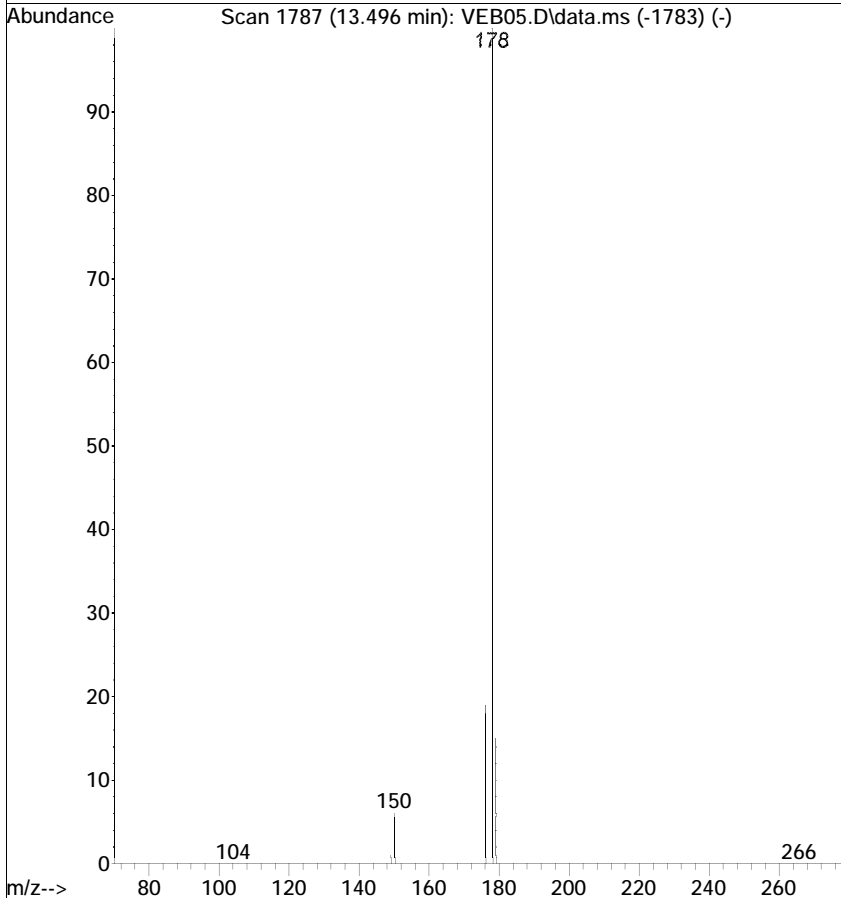


#16
 Anthracene
 Concen: 0.0043 ug/mL
 RT: 13.418 min Scan# 1775
 Delta R.T. -0.077 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

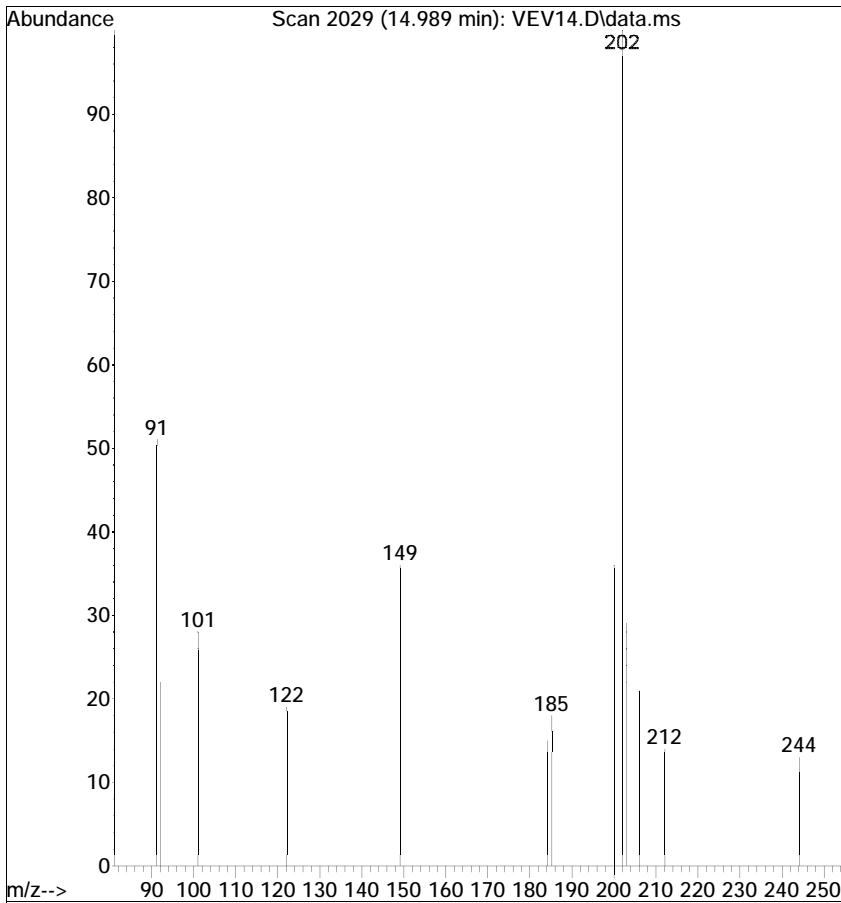
Tgt Ion	Resp	Lower	Upper
178	100		
179	33.4	0.0	34.4
176	29.4	0.0	39.5



Ref

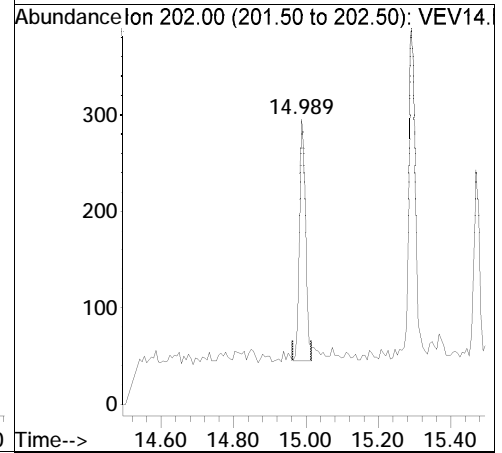


Raw

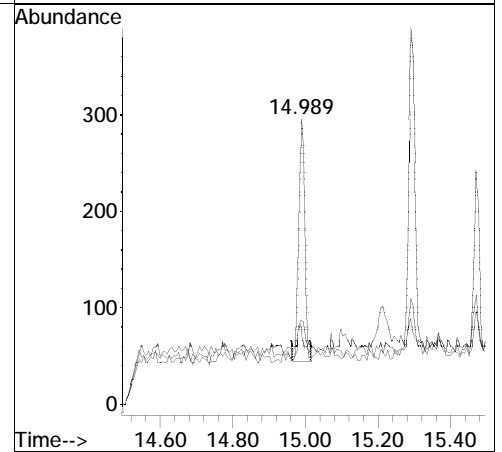
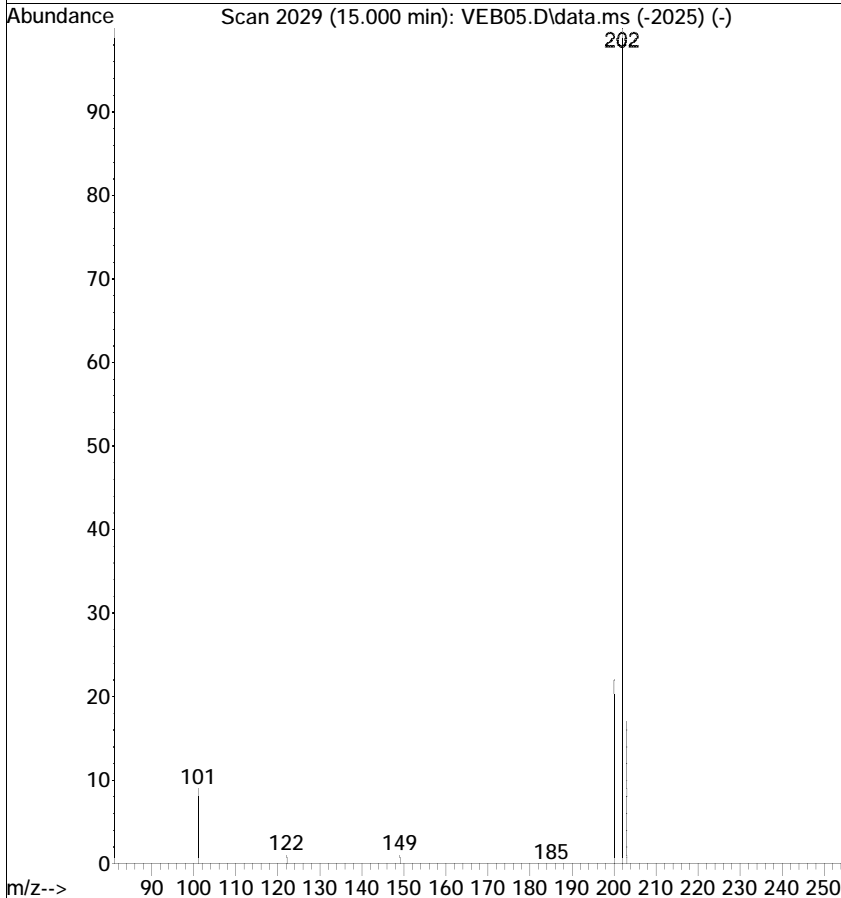


#17
 Fluoranthene
 Concen: 0.0042 ug/mL
 RT: 14.989 min Scan# 2029
 Delta R.T. -0.012 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

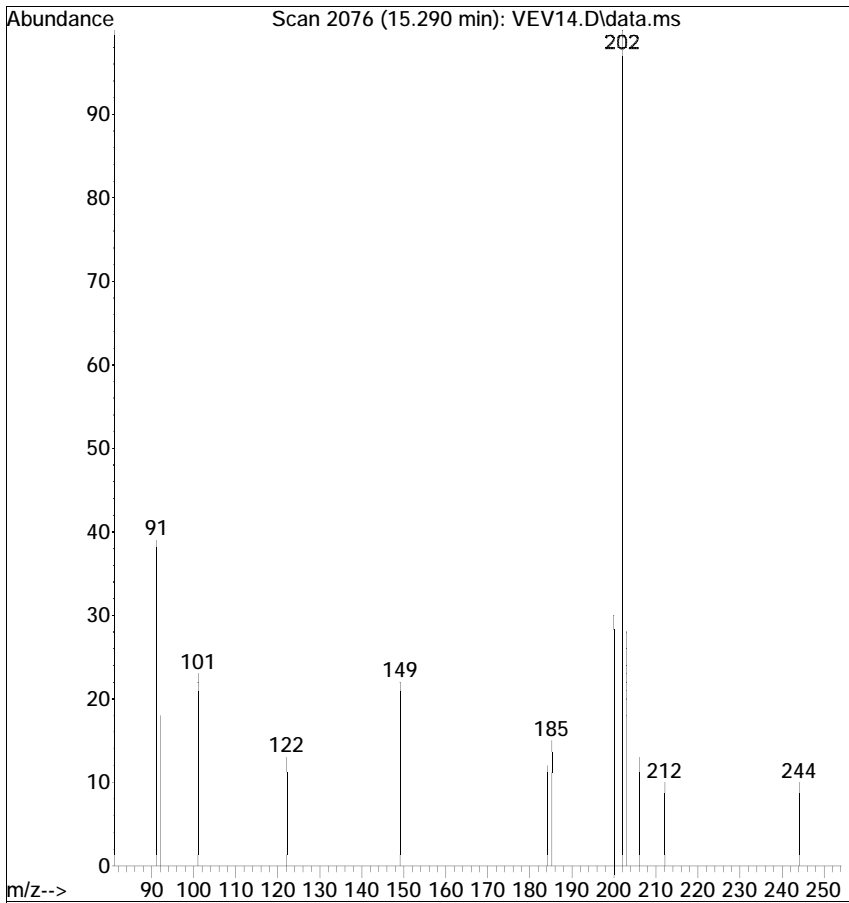
Tgt Ion	Resp	Lower	Upper
202	100		
101	28.1	0.0	21.1#
203	29.5	0.0	37.0



Ref

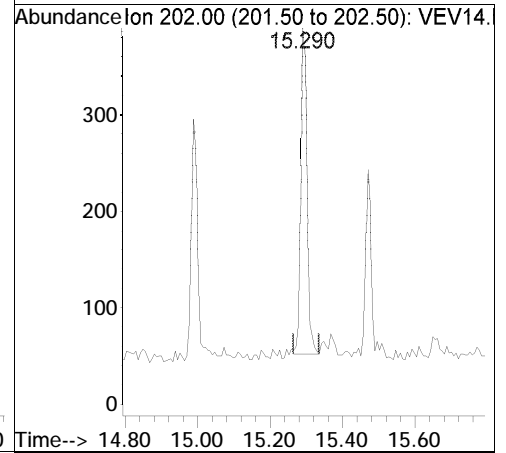


Raw

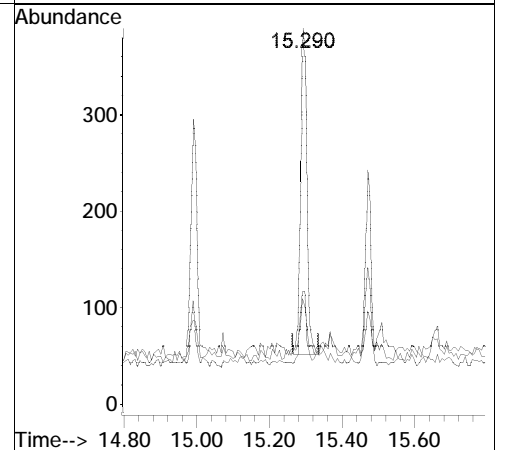
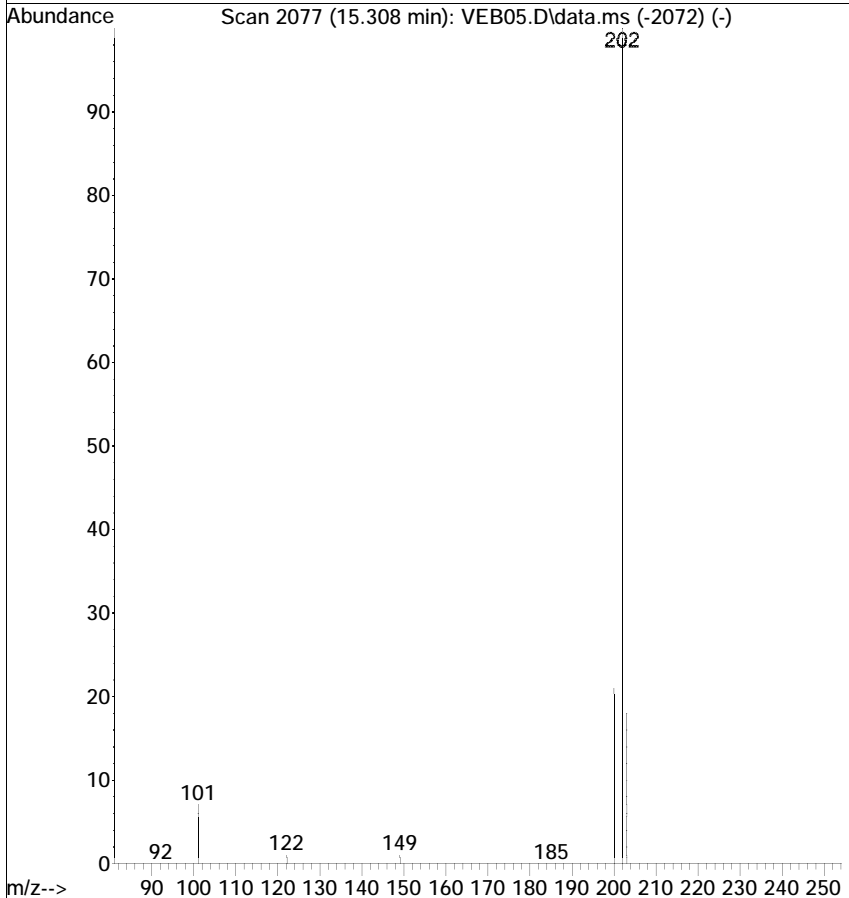


#19
 Pyrene
 Concen: 0.0057 ug/mL
 RT: 15.290 min Scan# 2076
 Delta R.T. -0.012 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

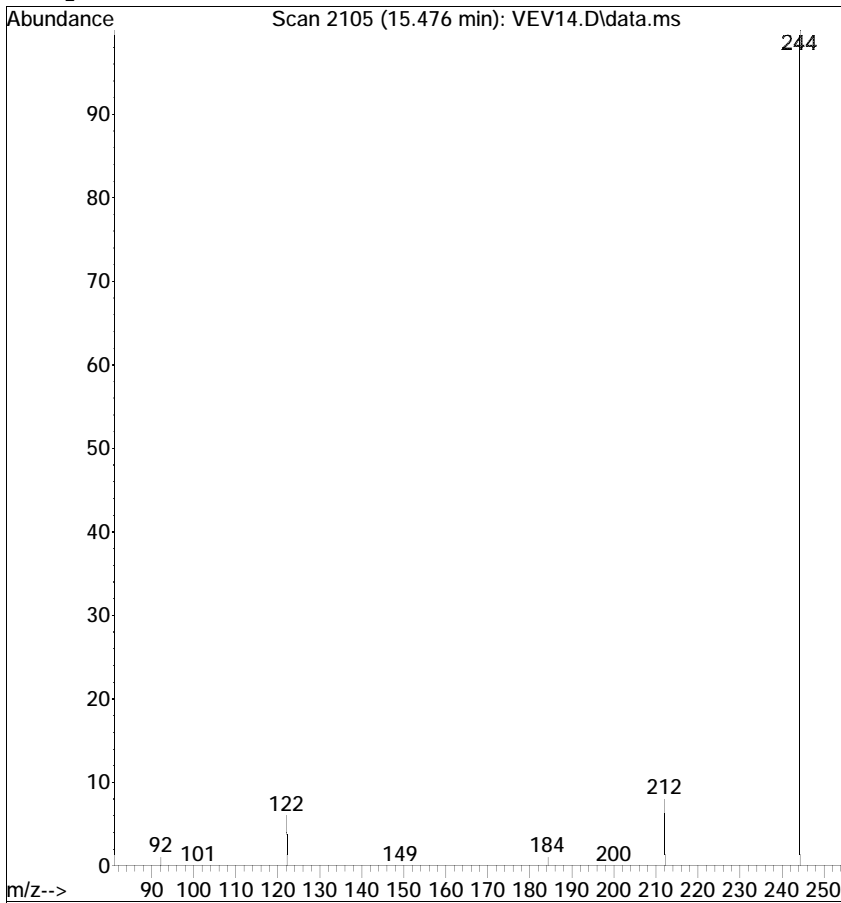
Tgt Ion	Ratio	Lower	Upper
202	100		
200	30.1	1.1	41.1
203	28.0	0.0	37.7



Ref

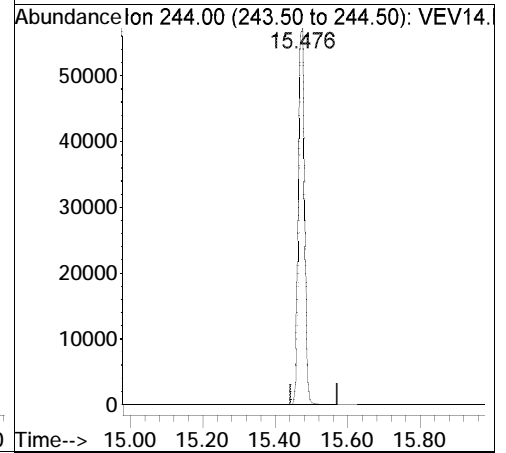


Raw

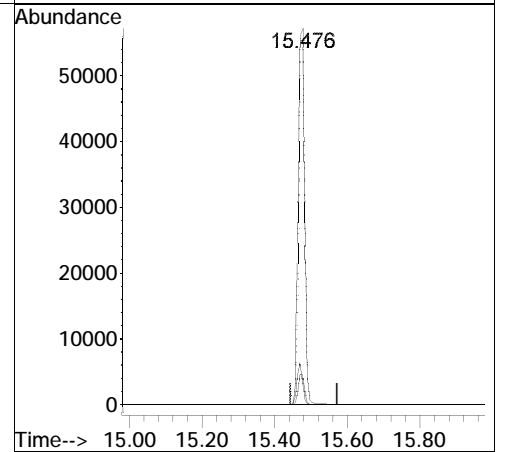
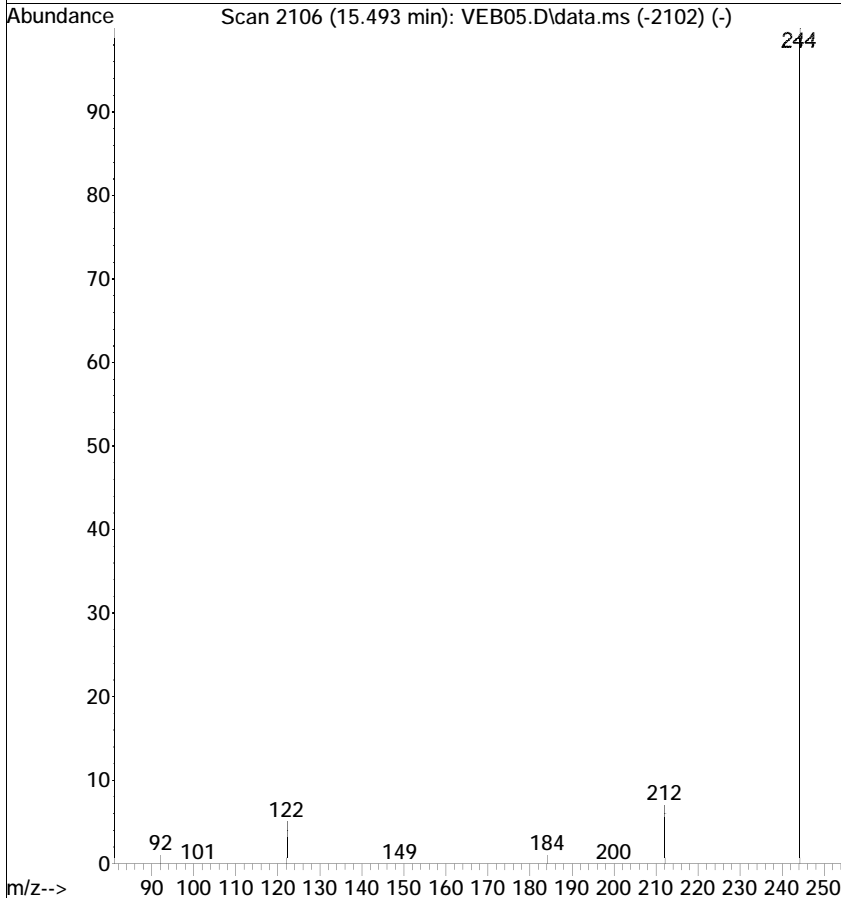


#20
 Terphenyl-d14
 Concen: 1.0974 ug/mL
 RT: 15.476 min Scan# 2105
 Delta R.T. -0.012 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

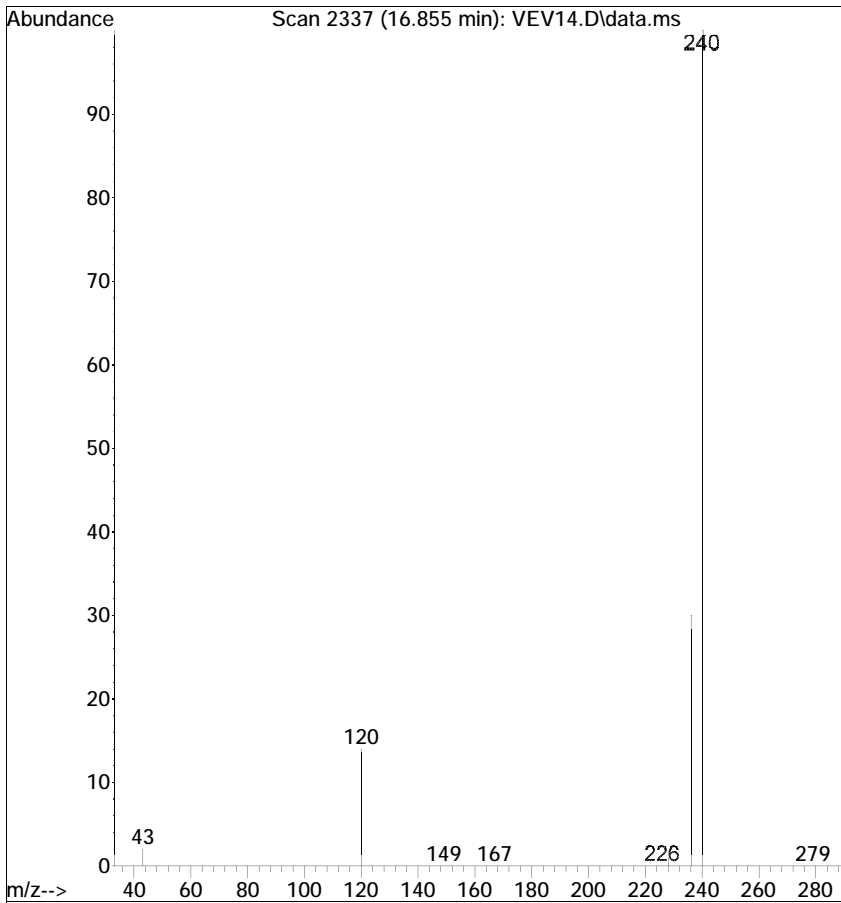
Tgt Ion	Resp	Lower	Upper
244	100		
122	5.8	0.0	25.0
212	8.1	0.0	31.4



Ref

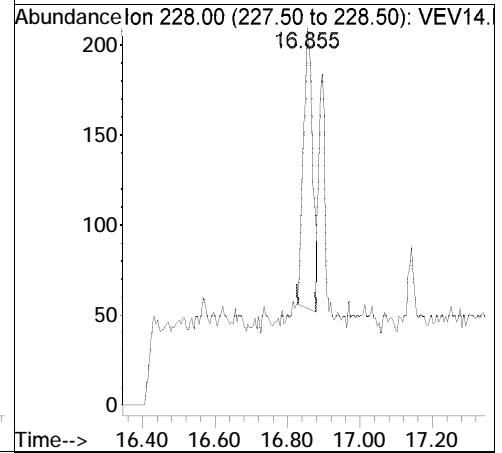


Raw

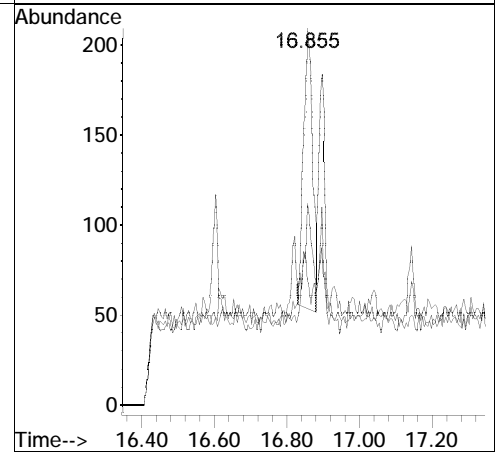
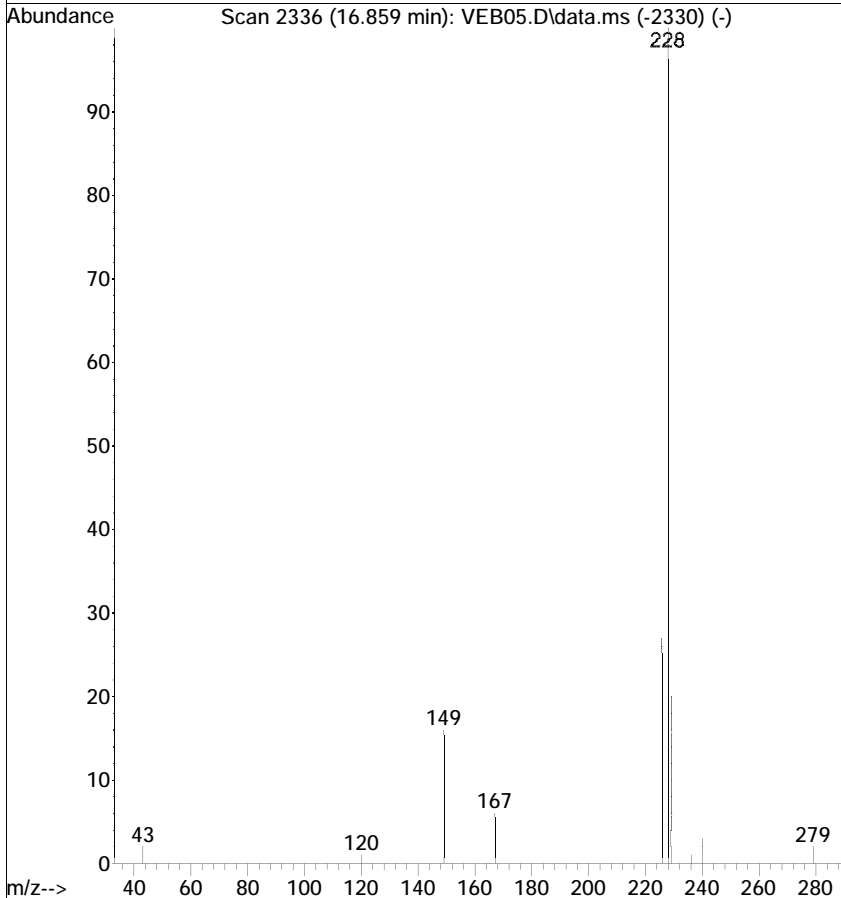


#21
 Benzo(a)anthracene
 Concen: 0.0042 ug/mL
 RT: 16.855 min Scan# 2337
 Delta R.T. 0.000 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

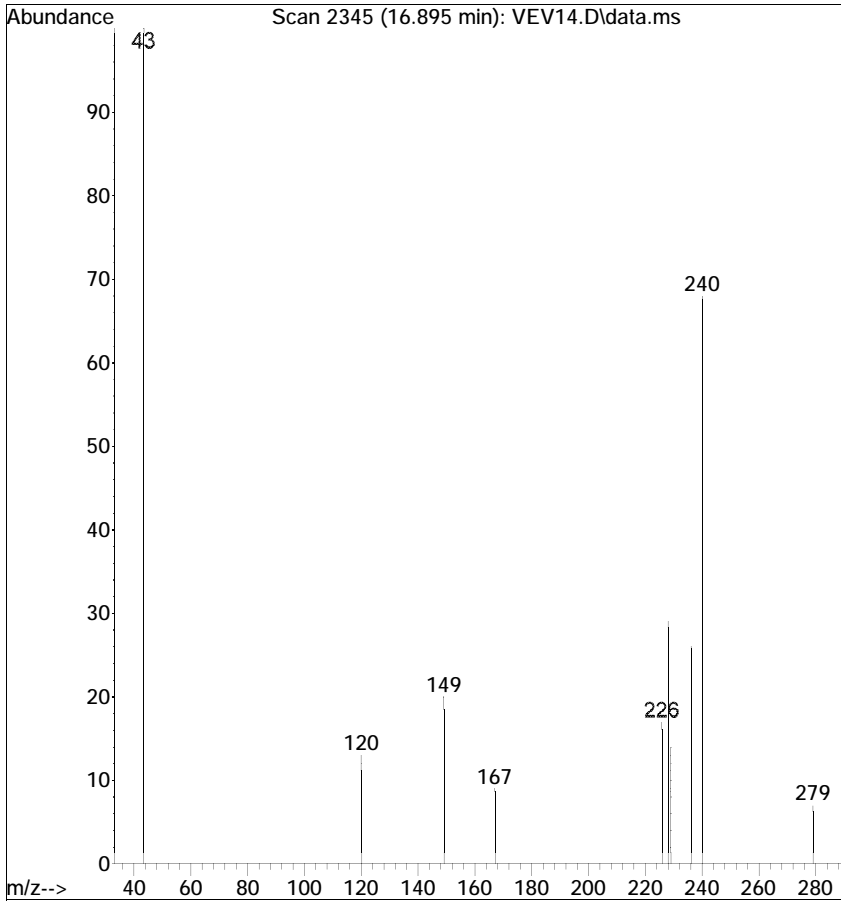
Tgt Ion	Ratio	Lower	Upper
228	100		
229	53.6	0.1	40.1#
226	34.0	9.3	49.3



Ref

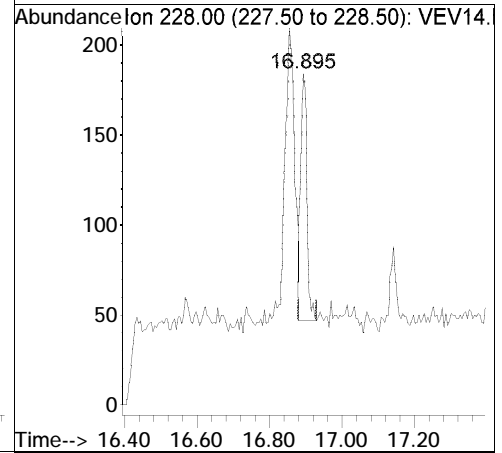


Raw

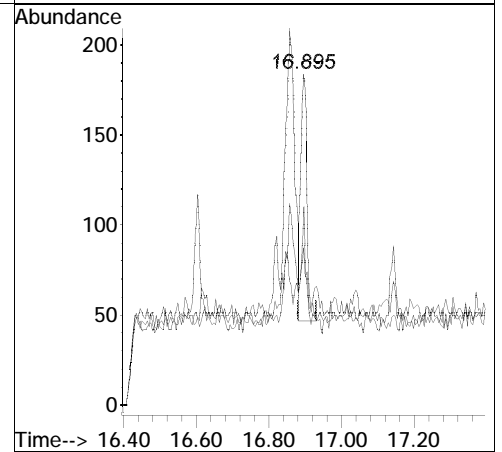
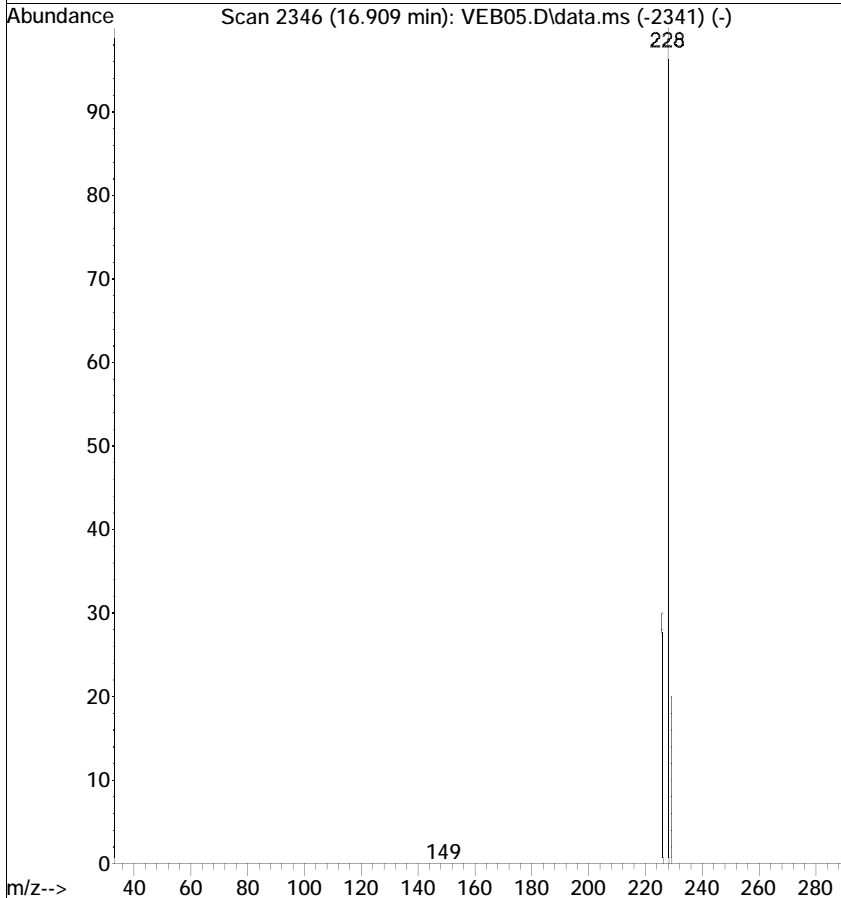


#22
 Chrysene
 Concen: 0.0026 ug/mL
 RT: 16.895 min Scan# 2345
 Delta R.T. -0.010 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

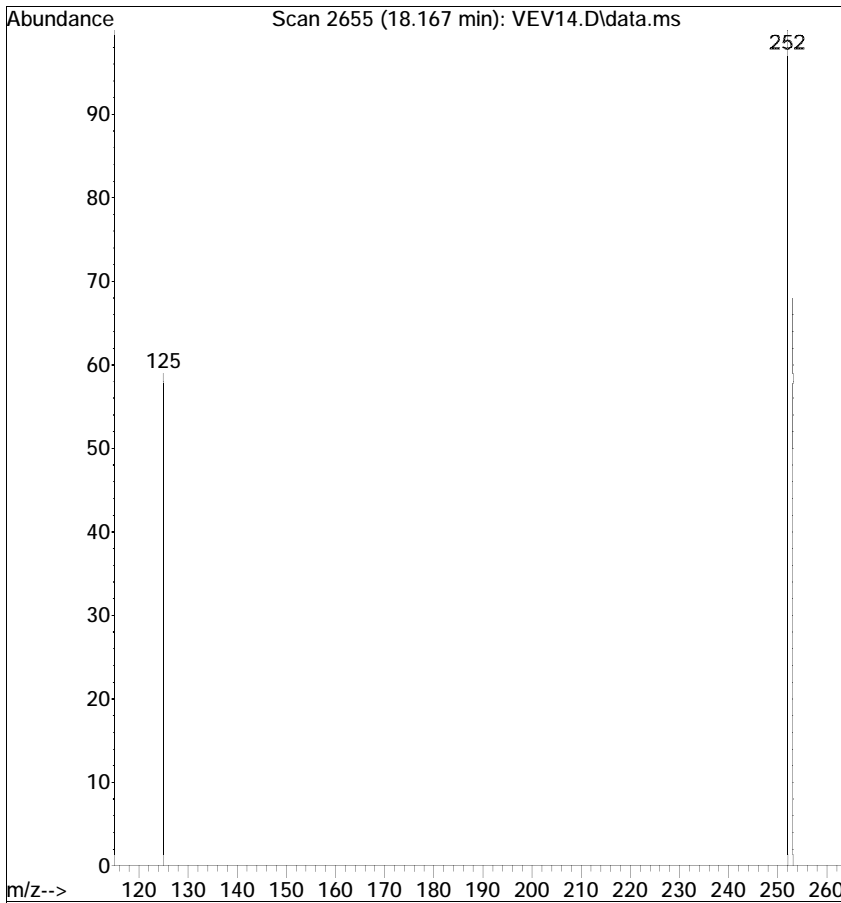
Tgt Ion	Ratio	Lower	Upper
228	100		
226	59.8	13.4	53.4#
229	47.3	0.8	40.8#



Ref

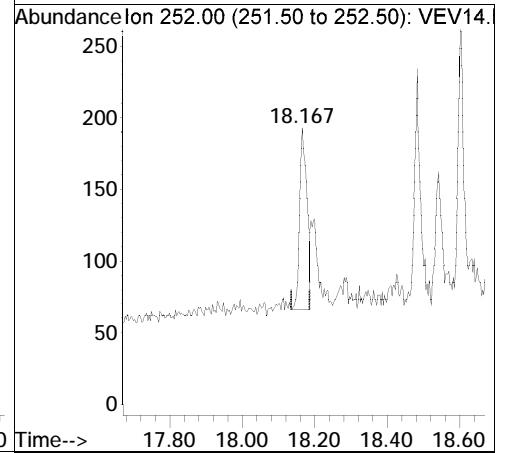


Raw

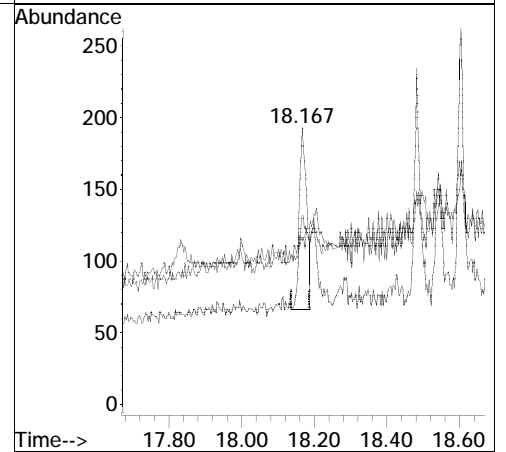
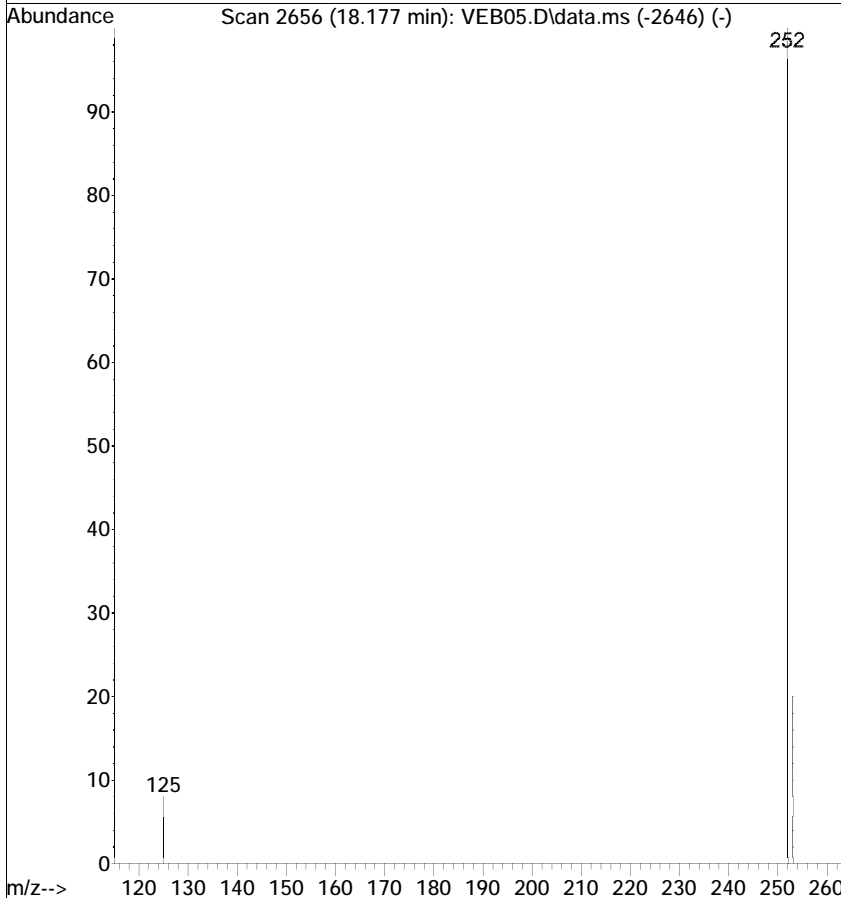


#24
 Benzo(b)fluoranthene
 Concen: 0.0033 ug/mL
 RT: 18.167 min Scan# 2655
 Delta R.T. -0.006 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

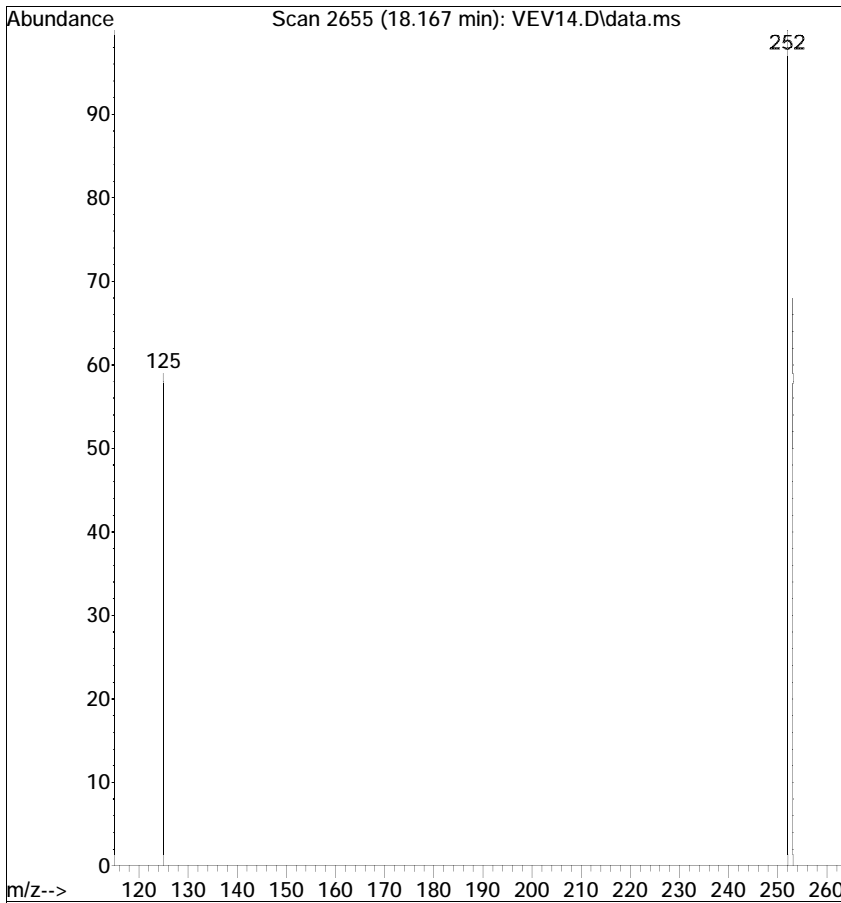
Tgt Ion	Ratio	Lower	Upper
252	100		
253	68.4	1.0	41.0#
125	59.1	0.0	20.9#



Ref

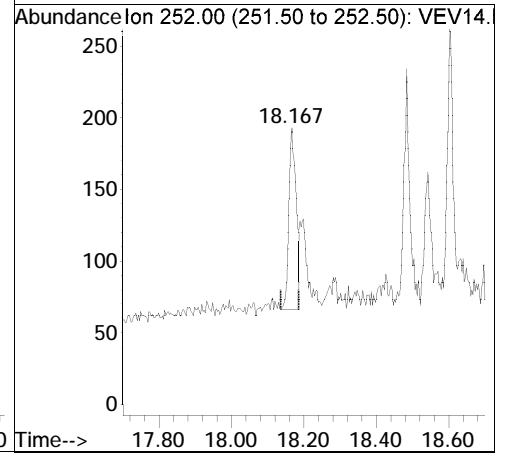


Raw

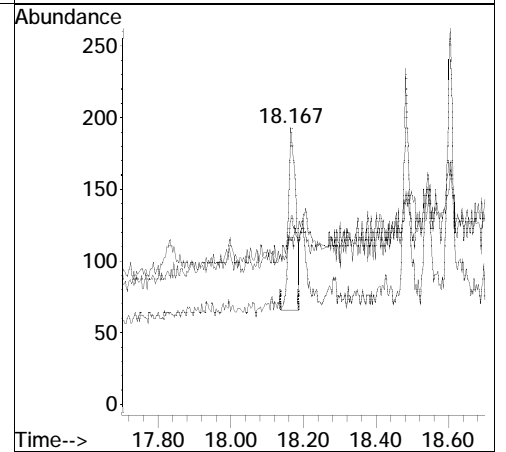
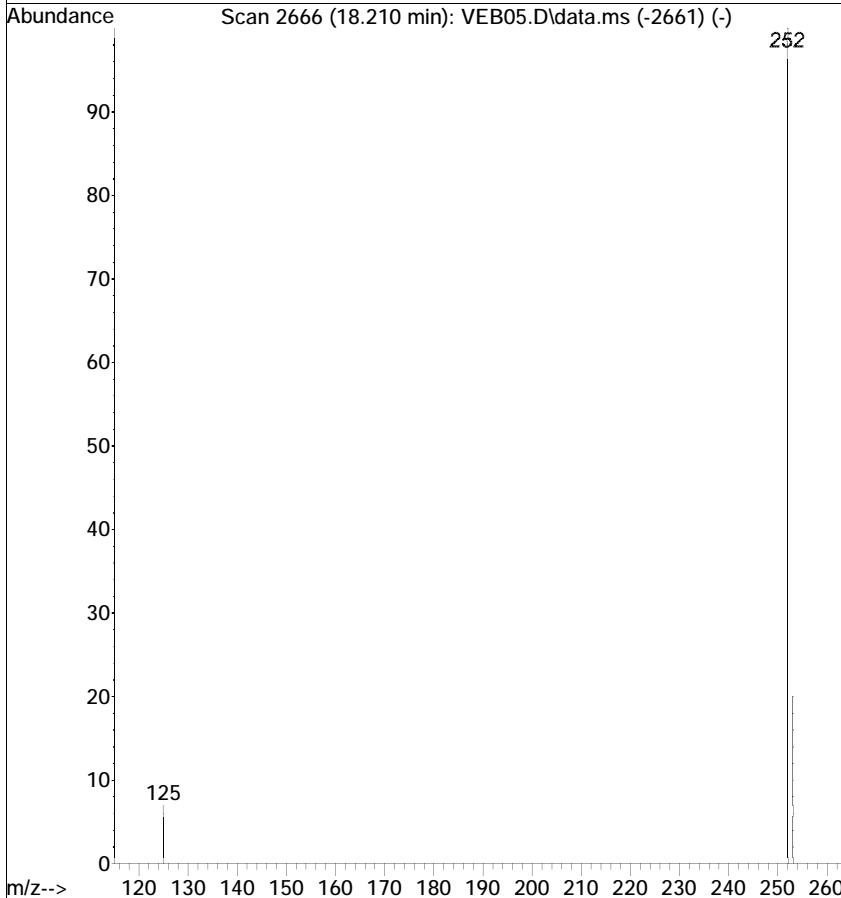


#25
 Benzo(k)fluoranthene
 Concen: 0.0029 ug/mL
 RT: 18.167 min Scan# 2655
 Delta R.T. -0.036 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

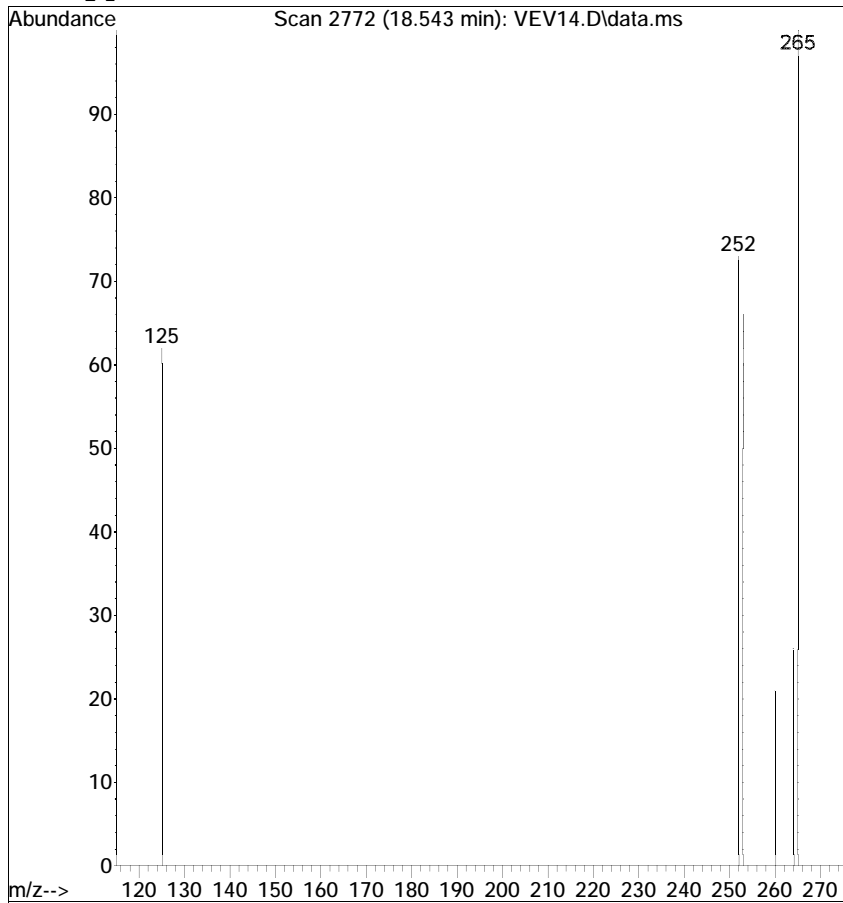
Tgt Ion	Ratio	Lower	Upper
252	100		
253	68.4	1.1	41.1#
125	59.1	0.0	21.1#



Ref

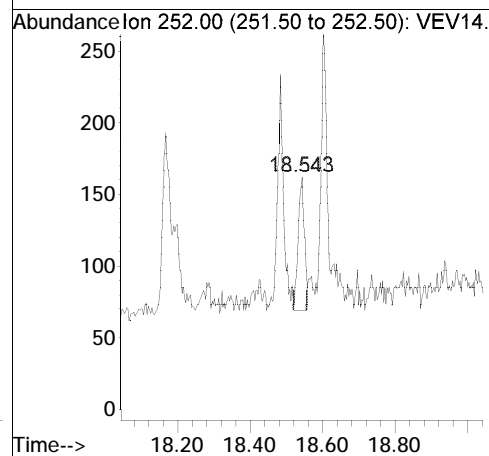


Raw

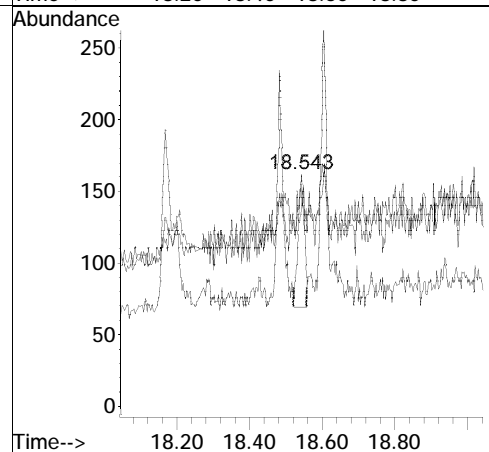
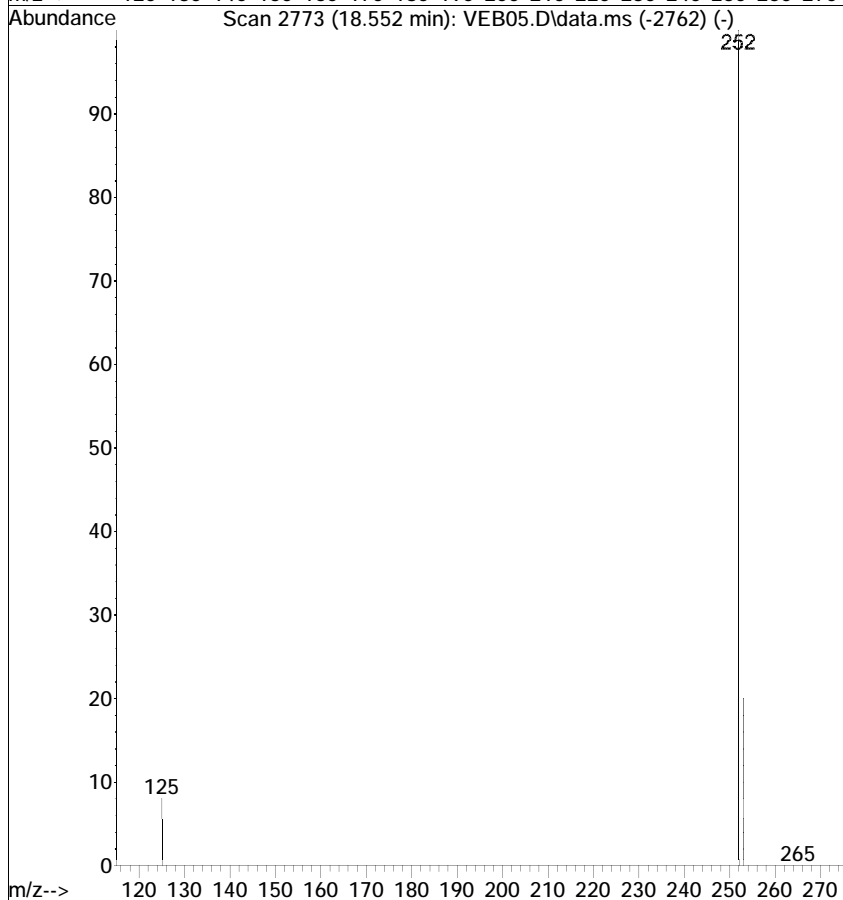


#26
 Benzo(a)pyrene
 Concen: 0.0022 ug/mL
 RT: 18.543 min Scan# 2772
 Delta R.T. -0.003 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

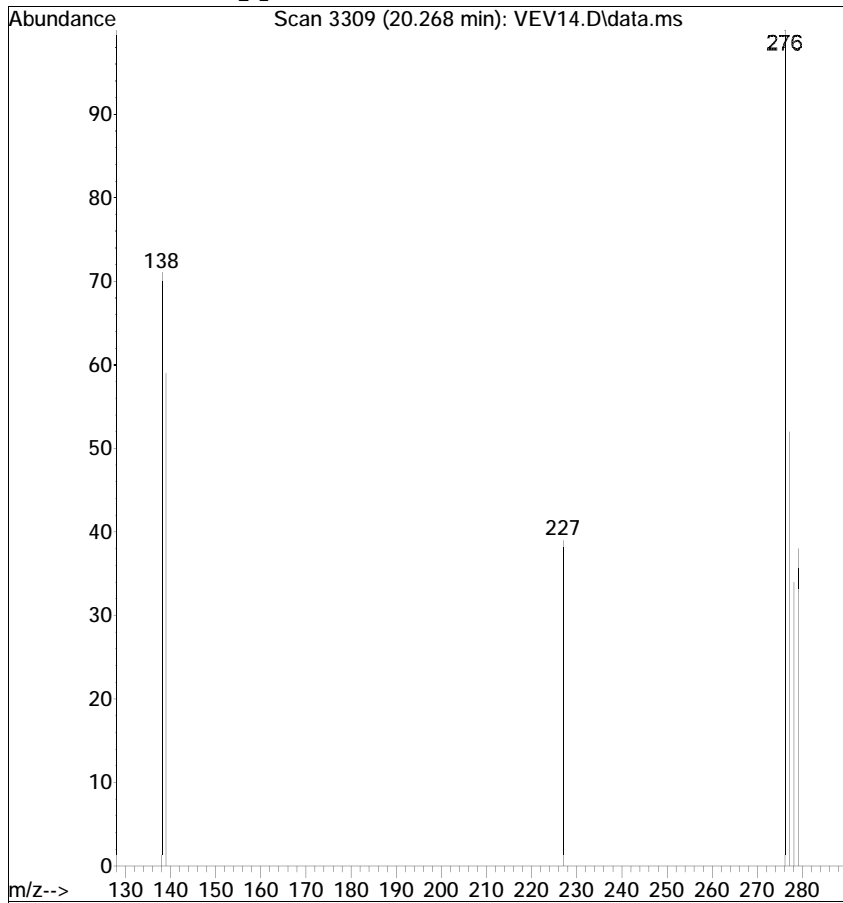
Tgt Ion	Resp	Lower	Upper
252	100		
253	91.4	3.4	43.4#
125	85.8	0.0	20.9#



Ref

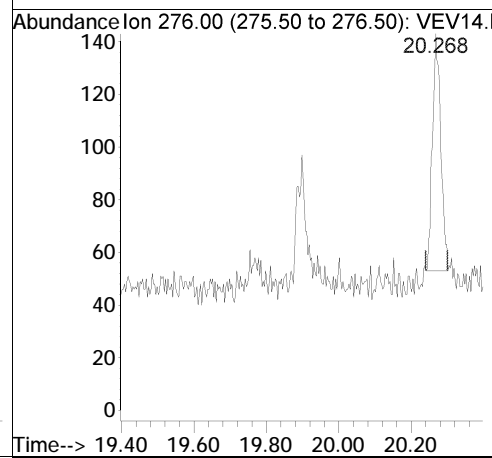


Raw

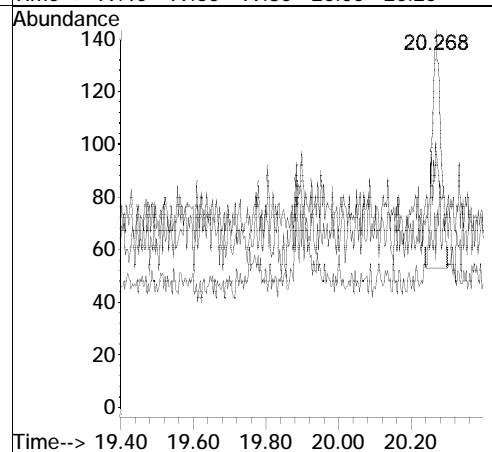
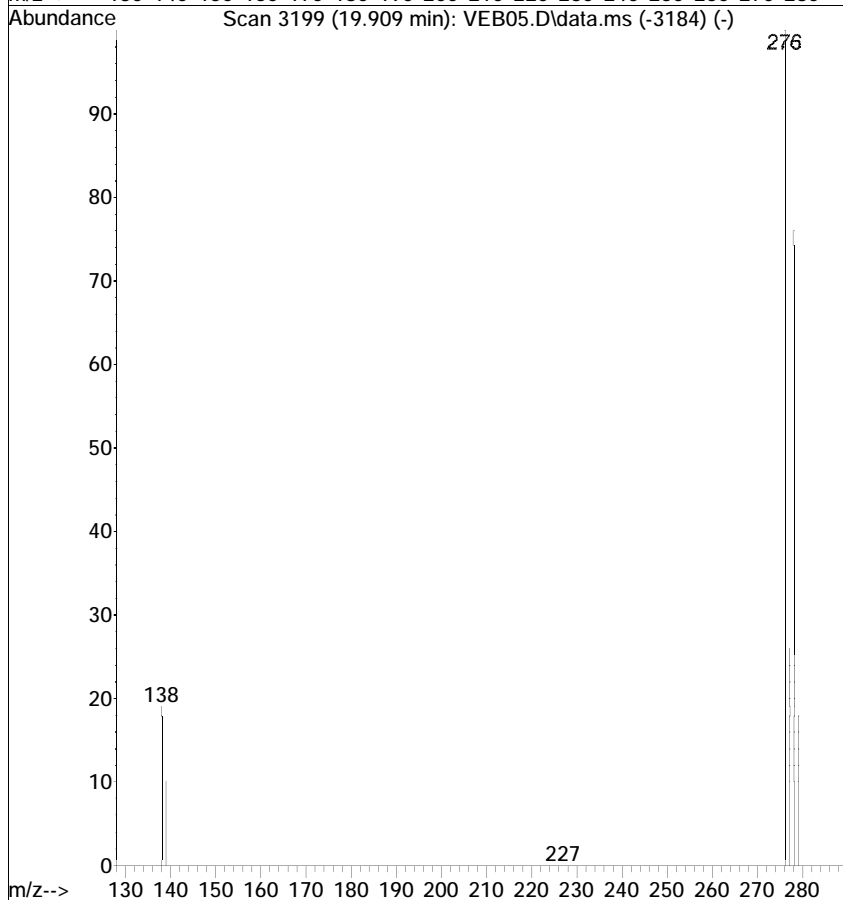


#27
 Indeno(1,2,3-cd)pyrene
 Concen: 0.0026 ug/mL
 RT: 20.268 min Scan# 3309
 Delta R.T. 0.367 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

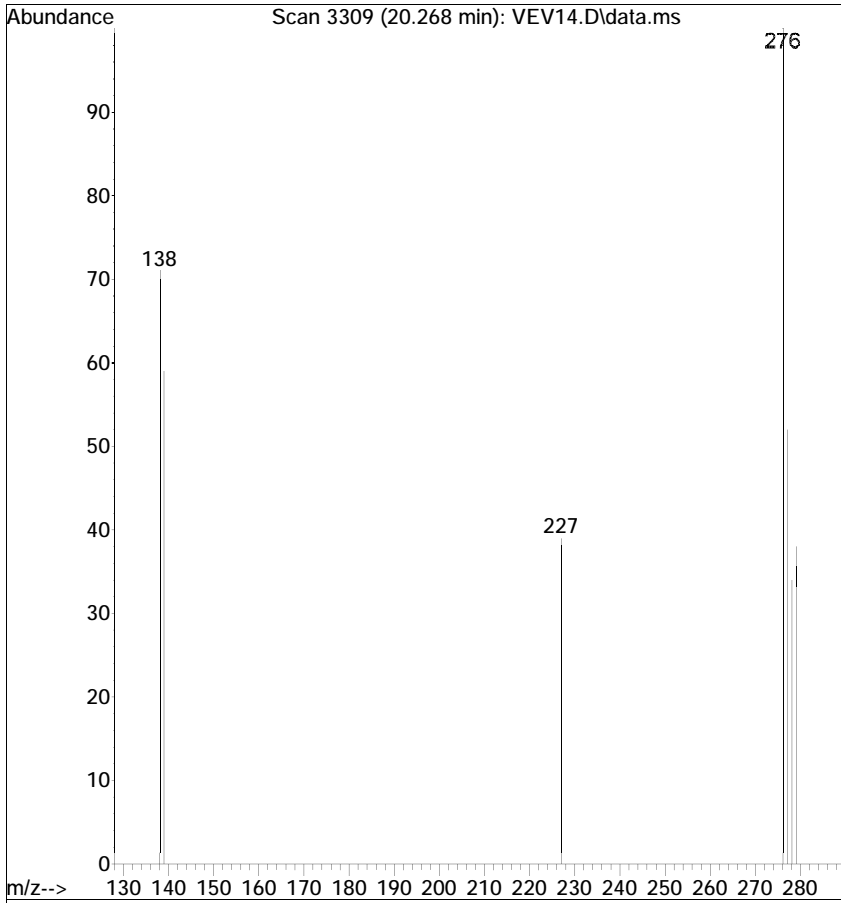
Tgt Ion	Resp	Lower	Upper
276	100		
138	70.6	0.0	23.1#
227	39.2	0.0	21.0#



Ref

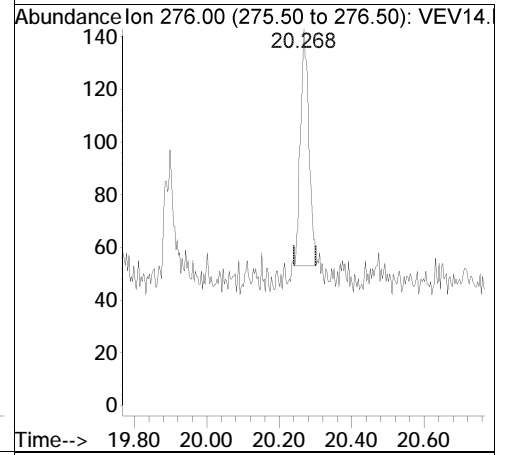


Raw

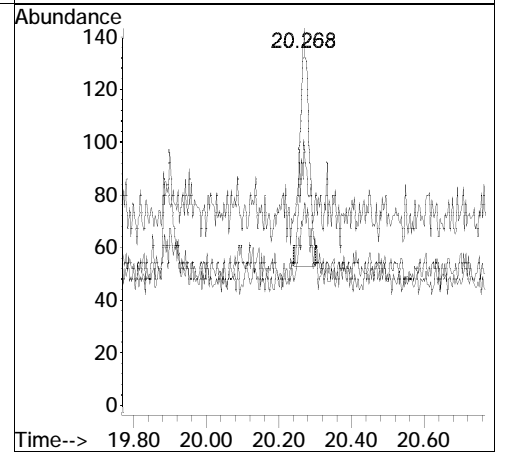
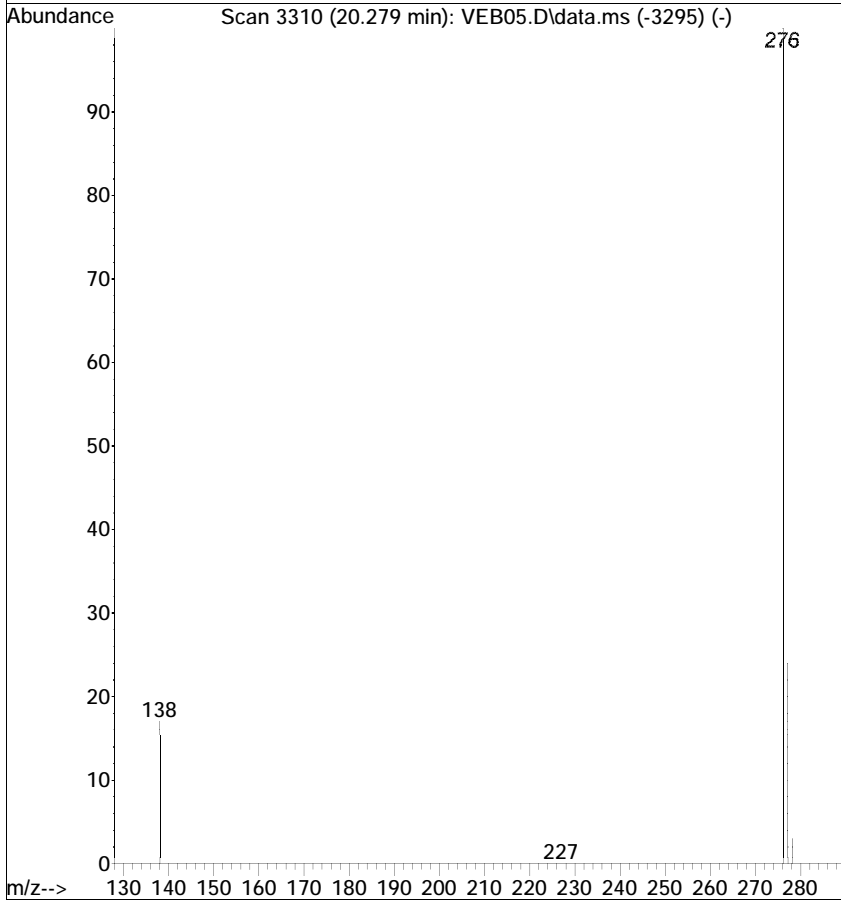


#29
 Benzo(g,h,i)perylene
 Concen: 0.0032 ug/mL
 RT: 20.268 min Scan# 3309
 Delta R.T. -0.003 min
 Lab File: VEV14.D
 Acq: 31 May 2018 8:02 pm

Tgt Ion	Resp	Lower	Upper
276	100		
138	70.6	0.0	22.1#
277	51.7	2.5	42.5#



Ref



Initial Calibration Raw Data

ENTHALPY DFTPP TUNE FOR 300092 MSSIM Soil
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 528189186007 File : veb07 Time : 11-MAY-2018 11:43
Caltype : DFTPP/PEM

Standards: S36307

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	111070	38.21	
68	< 2% of mass 69	0	0.00	
69		125579	100.00	
70	< 2% of mass 69	667	0.53	
127	40% - 60% of mass 198	129032	44.39	
197	< 1% of mass 198	0	0.00	
198		290666	100.00	
199	5% - 9% of mass 198	19536	6.72	
275	10% - 30% of mass 198	77037	26.50	
365	> 1% of mass 198	7306	2.51	
441	Present, < mass 443	36554	75.77	
442	> 40% and < 100% of mass 198	247488	85.15	
443	17% - 23% of mass 442	48245	19.49	

JW1 05/11/18 [Decafluorotriphenylphosphine]: Picked or reassigned peak.

JW1 05/11/18 [4,4'-DDT]: Picked or reassigned peak.

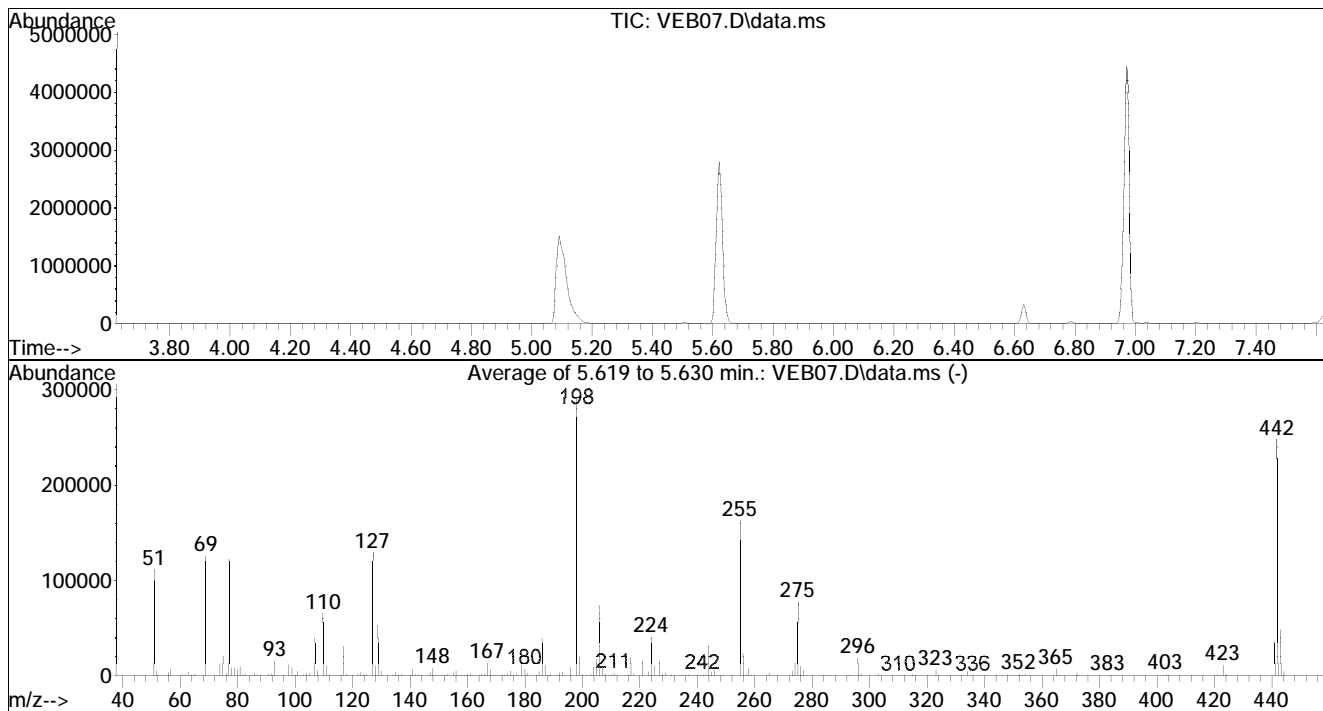
Decafluorotriphenylphosphine: **m**

Analyst: JW1 Date: 05/11/18 Reviewer: TKM Date: 05/11/18

Data Path : G:\csinput.net\DATA\051118\
 Data File : VEB07.D
 Acq On : 11 May 2018 11:43 am
 Operator :
 Sample : TUN,S36307
 Misc : DFTPP/PEM
 ALS Vial : 7 Sample Multiplier: 1

Integration File: normal.p

Method : C:\msdchem\1\METHODS\DFTPP03.M
 Title : MSBNA03 BNA DFTPP/PEM
 Last Update : Tue May 01 12:03:51 2018



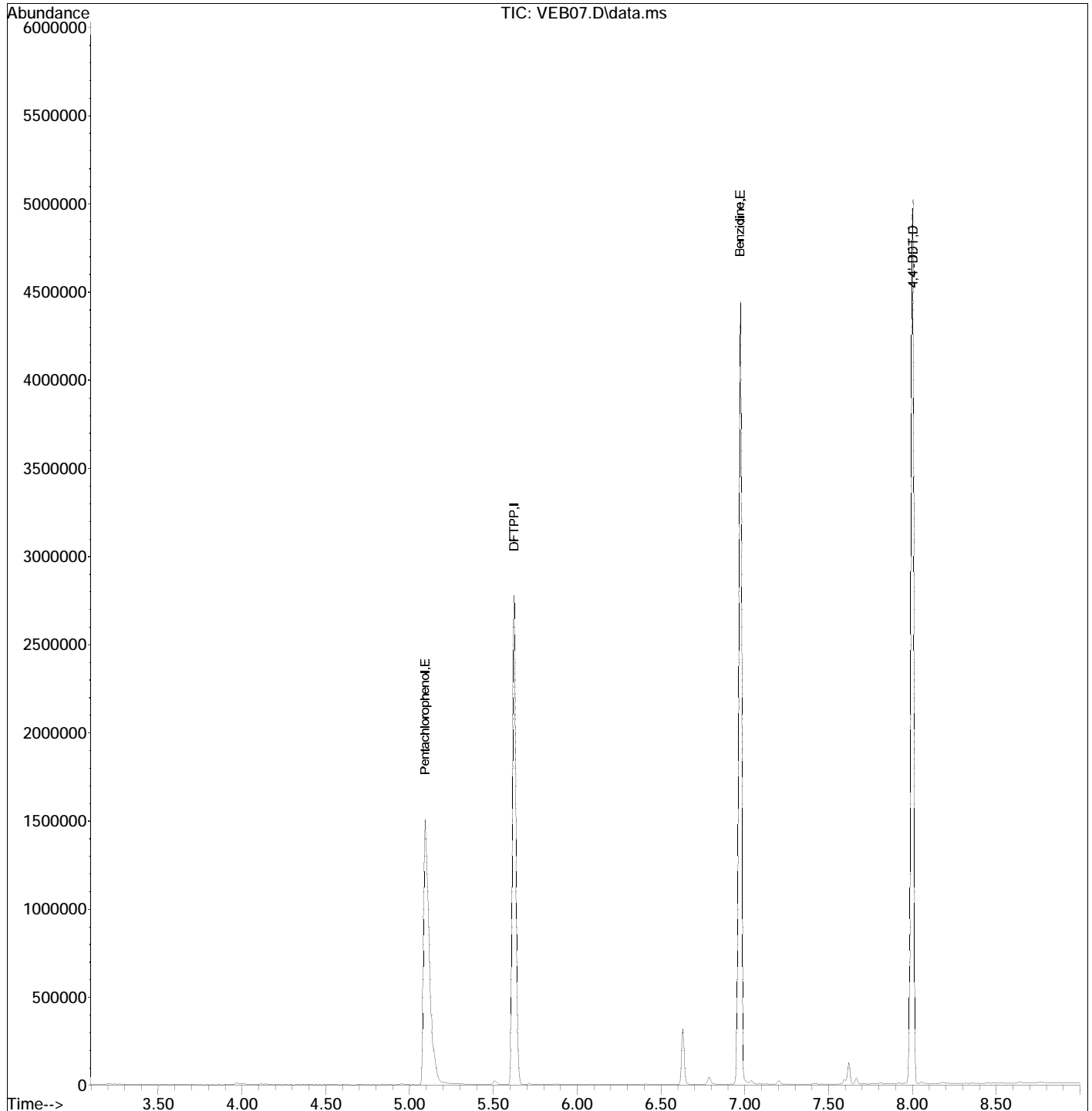
AutoFind: Scans 443, 444, 445; Background Corrected with Scan 437

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.2	111070	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.2	125579	PASS
70	69	0.00	2	0.5	667	PASS
127	198	40	60	44.4	129032	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	290666	PASS
199	198	5	9	6.7	19536	PASS
275	198	10	30	26.5	77037	PASS
365	198	1	100	2.5	7306	PASS
441	443	0.01	100	75.8	36554	PASS
442	198	40	100	85.1	247488	PASS
443	442	17	23	19.5	48245	PASS

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
Data File : VEB07.D
Acq On : 11 May 2018 11:43 am
Operator :
Sample : TUN,S36307
Misc : DFTPP/PEM
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 11 16:20:21 2018
Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
Quant Title : MSBNA03 BNA DFTPP/PEM
QLast Update : Tue May 01 12:03:51 2018
Response via : Continuing Cal File: G:\msbna03\043018\VDU08.D



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB07.D
 Acq On : 11 May 2018 11:43 am
 Operator :
 Sample : TUN,S36307
 Misc : DFTPP/PEM
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 11 16:20:21 2018
 Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
 Quant Title : MSBNA03 BNA DFTPP/PEM
 QLast Update : Tue May 01 12:03:51 2018
 Response via : Continuing Cal File: G:\msbna03\043018\VDU08.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	5.625	198	471171m	50.0000	ug/mL	0.16
4) 4,4'-DDT	8.002	235	1145334m	50.0000	ug/mL	0.19

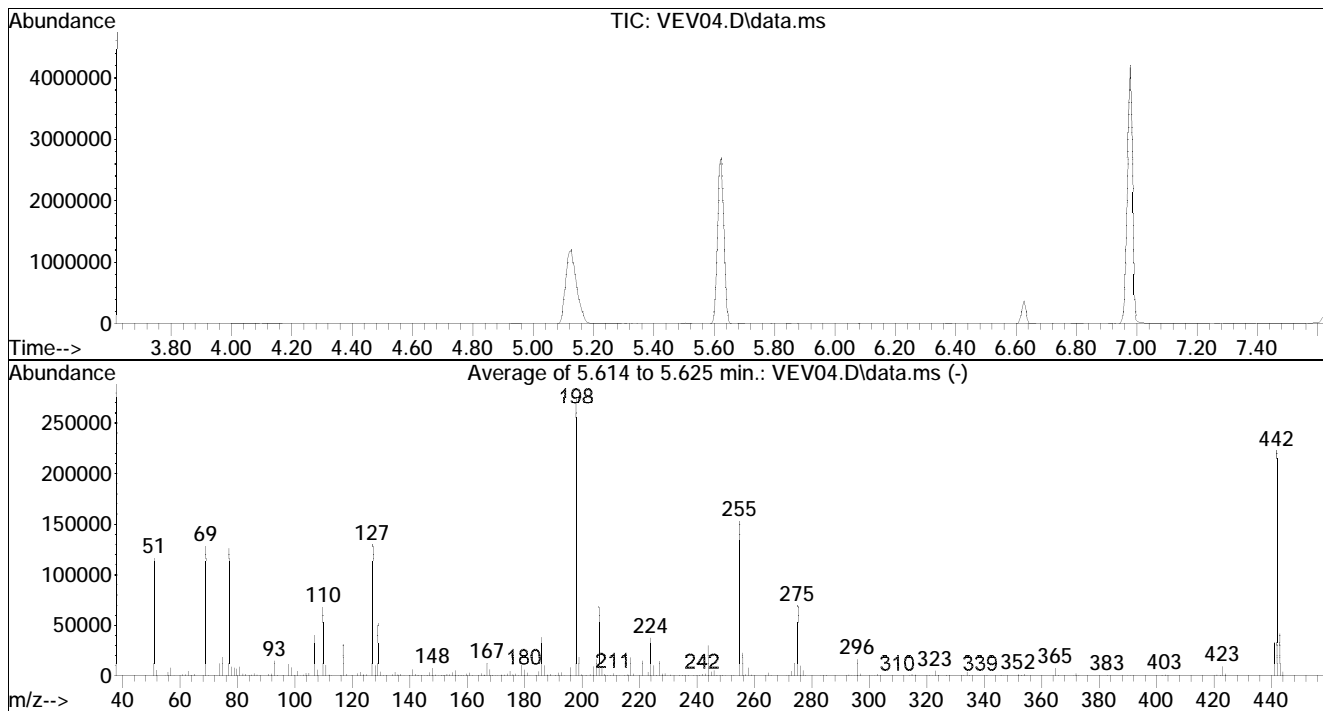
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
1) Pentachlorophenol	5.093	266	427784	109.3042	ug/mL	96
3) Benzidine	6.973	184	2174379	50.3152	ug/mL	95
5) 4,4'-DDE	7.202	246	2952	No CC lev	#	
6) 4,4'-DDD	7.619	235	29323	No CC lev		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : G:\csinput.net\DATA\053118\
 Data File : VEV04.D
 Acq On : 31 May 2018 3:01 pm
 Operator :
 Sample : TUN,S36307
 Misc : DFTPP/PEM
 ALS Vial : 4 Sample Multiplier: 1

Integration File: normal.p

Method : C:\msdchem\1\METHODS\DFTPP03.M
 Title : MSBNA03 BNA DFTPP/PEM
 Last Update : Mon May 14 18:51:55 2018



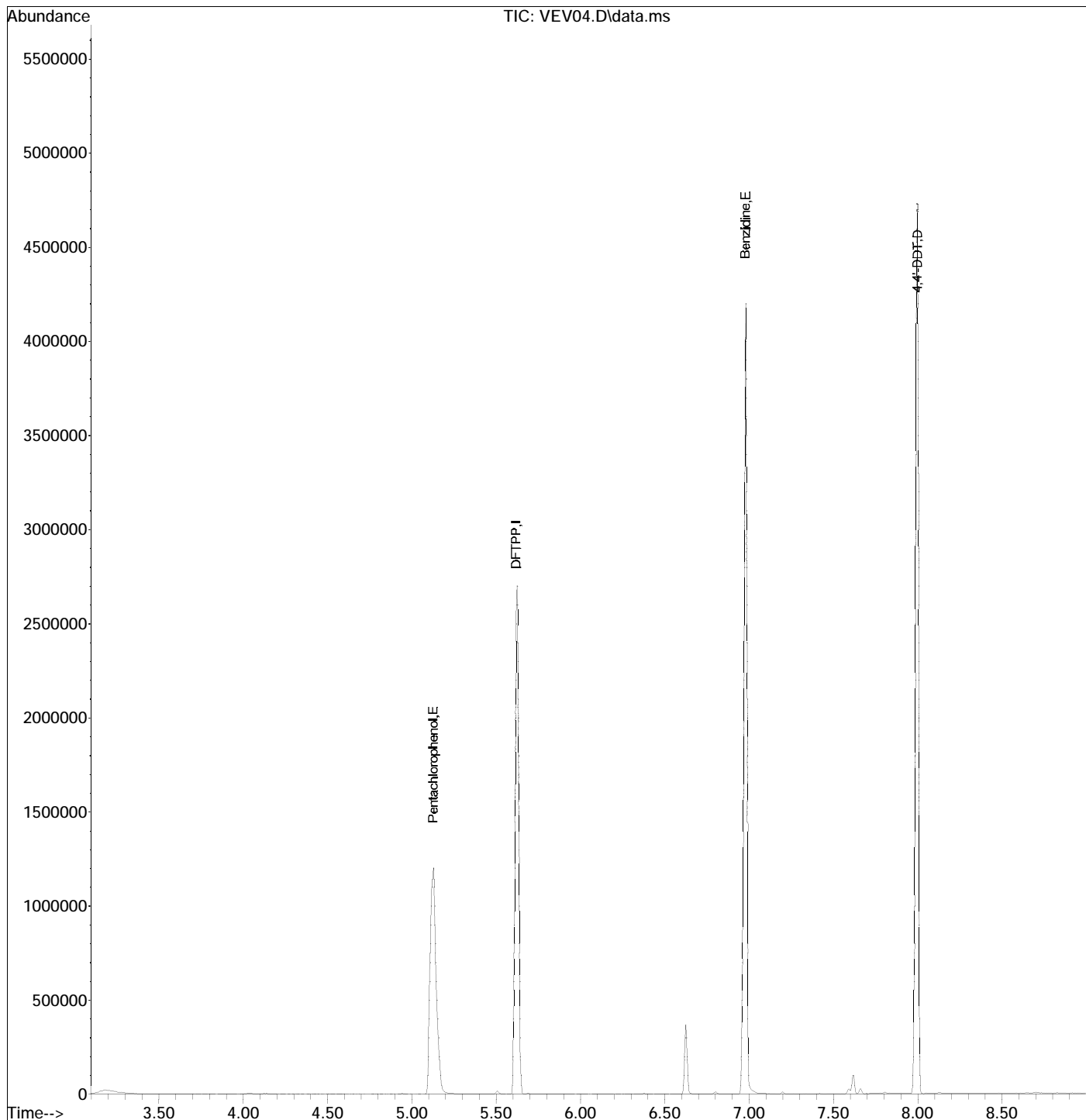
AutoFind: Scans 442, 443, 444; Background Corrected with Scan 436

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	42.4	116344	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	46.7	127912	PASS
70	69	0.00	2	0.5	576	PASS
127	198	40	60	47.3	129701	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	274090	PASS
199	198	5	9	6.7	18402	PASS
275	198	10	30	25.2	69138	PASS
365	198	1	100	2.7	7433	PASS
441	443	0.01	100	78.8	33634	PASS
442	198	40	100	81.2	222594	PASS
443	442	17	23	19.2	42669	PASS

Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\053118\
Data File : VEV04.D
Acq On : 31 May 2018 3:01 pm
Operator :
Sample : TUN,S36307
Misc : DFTPP/PEM
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 31 15:10:38 2018
Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
Quant Title : MSBNA03 BNA DFTPP/PEM
QLast Update : Mon May 14 18:51:55 2018
Response via : Continuing Cal File: G:\msbna03\051418\VEE15.D



Quantitation Report (Not Reviewed)

Data Path : G:\csinput.net\DATA\053118\
 Data File : VEV04.D
 Acq On : 31 May 2018 3:01 pm
 Operator :
 Sample : TUN,S36307
 Misc : DFTPP/PEM
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 31 15:10:38 2018
 Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
 Quant Title : MSBNA03 BNA DFTPP/PEM
 QLast Update : Mon May 14 18:51:55 2018
 Response via : Continuing Cal File: G:\msbna03\051418\VEE15.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	5.620	198	455391	50.0000	ug/mL	0.00
4) 4,4'-DDT	7.997	235	1087207	50.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
1) Pentachlorophenol	5.128	266	345726	79.4962	ug/mL	98
3) Benzidine	6.980	184	2016155	52.9774	ug/mL	95
5) 4,4'-DDE	7.197	246	1366	No CC lev	#	
6) 4,4'-DDD	7.620	235	23608	No CC lev		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

ENTHALPY DFTPP TUNE FOR 300092 MSSIM Soil
EPA 8270C

Inst : MSBNA03 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 528219529004 File : vf104 Time : 01-JUN-2018 14:01
Caltype : DFTPP/PEM

Standards: S36307

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	112874	42.16	
68	< 2% of mass 69	0	0.00	
69		124146	100.00	
70	< 2% of mass 69	775	0.62	
127	40% - 60% of mass 198	125165	46.75	
197	< 1% of mass 198	0	0.00	
198		267712	100.00	
199	5% - 9% of mass 198	18608	6.95	
275	10% - 30% of mass 198	69136	25.82	
365	> 1% of mass 198	6867	2.57	
441	Present, < mass 443	34784	76.12	
442	> 40% and < 100% of mass 198	229909	85.88	
443	17% - 23% of mass 442	45698	19.88	

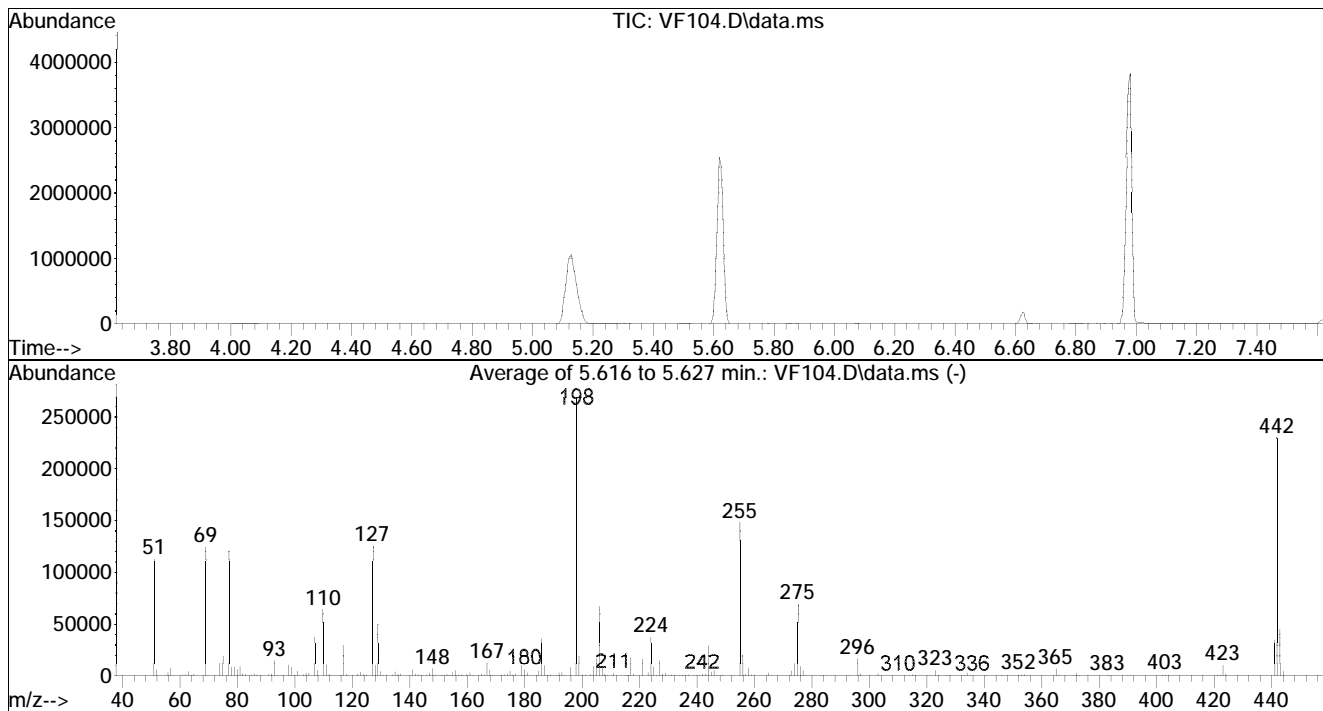
JW1 06/04/18 [4,4'-DDD]: Corrected automatically drawn baseline.

Analyst: JW1 Date: 06/04/18 Reviewer: LW Date: 06/04/18

Data Path : G:\csinput.net\DATA\060118\
 Data File : VF104.D
 Acq On : 1 Jun 2018 2:01 pm
 Operator :
 Sample : TUN,S36307
 Misc : DFTPP/PEM
 ALS Vial : 4 Sample Multiplier: 1

Integration File: normal.p

Method : C:\msdchem\1\METHODS\DFTPP03.M
 Title : MSBNA03 BNA DFTPP/PEM
 Last Update : Mon May 14 18:51:55 2018



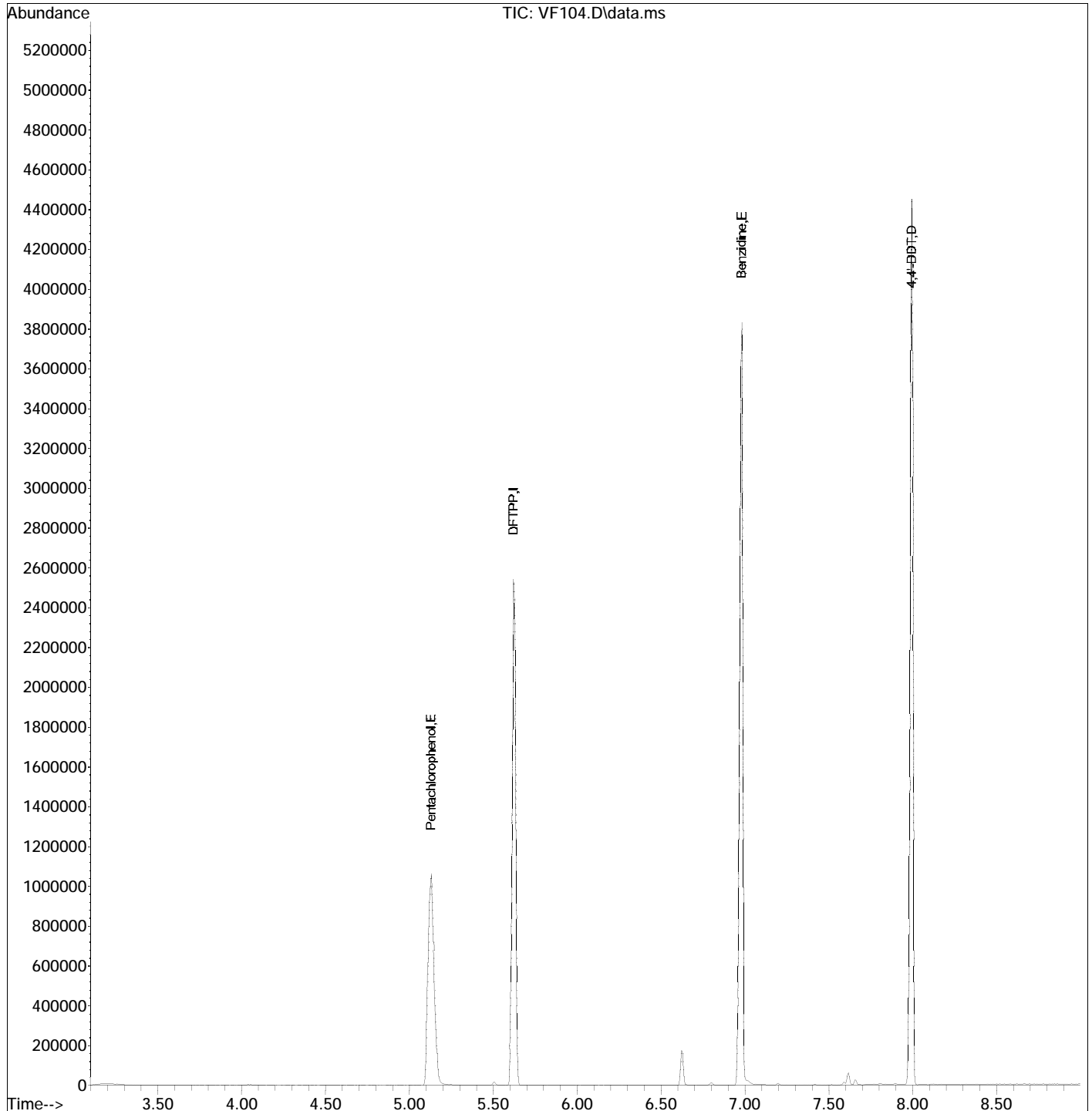
AutoFind: Scans 442, 443, 444; Background Corrected with Scan 435

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	42.2	112874	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	46.4	124146	PASS
70	69	0.00	2	0.6	775	PASS
127	198	40	60	46.8	125165	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	267712	PASS
199	198	5	9	7.0	18608	PASS
275	198	10	30	25.8	69136	PASS
365	198	1	100	2.6	6867	PASS
441	443	0.01	100	76.1	34784	PASS
442	198	40	100	85.9	229909	PASS
443	442	17	23	19.9	45698	PASS

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
Data File : VF104.D
Acq On : 1 Jun 2018 2:01 pm
Operator :
Sample : TUN,S36307
Misc : DFTPP/PEM
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 01 14:16:58 2018
Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
Quant Title : MSBNA03 BNA DFTPP/PEM
QLast Update : Mon May 14 18:51:55 2018
Response via : Continuing Cal File: G:\msbna03\051418\VEE15.D



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF104.D
 Acq On : 1 Jun 2018 2:01 pm
 Operator :
 Sample : TUN,S36307
 Misc : DFTPP/PEM
 ALS Vial : 4 Sample Multiplier: 1

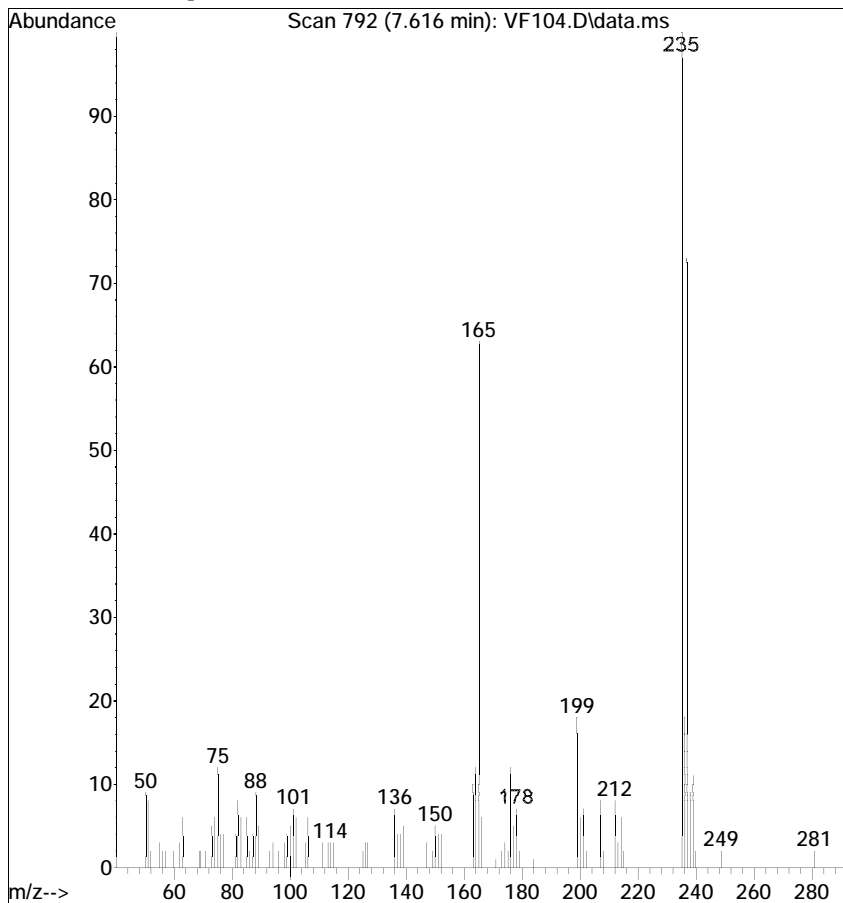
Quant Time: Jun 01 14:16:58 2018
 Quant Method : C:\msdchem\1\METHODS\DFTPP03.M
 Quant Title : MSBNA03 BNA DFTPP/PEM
 QLast Update : Mon May 14 18:51:55 2018
 Response via : Continuing Cal File: G:\msbna03\051418\VEE15.D

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
2) DFTPP	5.621	198	425541	50.0000	ug/mL	0.00
4) 4,4'-DDT	7.993	235	998291	50.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
1) Pentachlorophenol	5.130	266	303383	69.7599	ug/mL	95
3) Benzidine	6.982	184	1928422	54.2265	ug/mL	96
5) 4,4'-DDE	7.199	246	1037	No CC lev	#	
6) 4,4'-DDD	7.616	235	15416m	No CC lev		

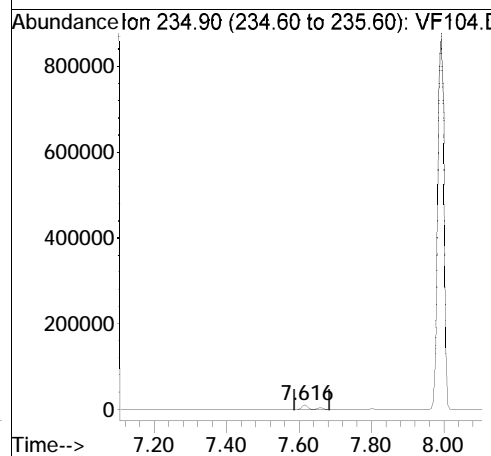
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Raw

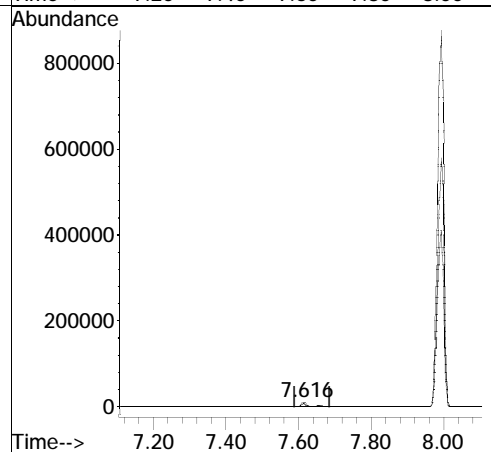
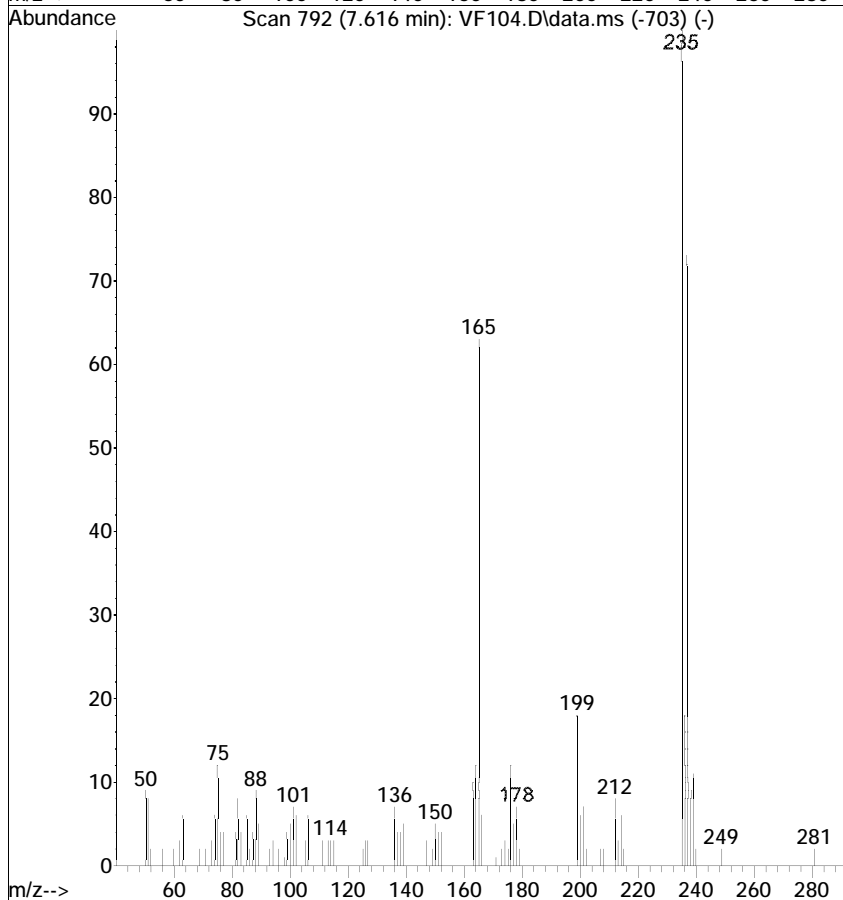


#6
 4,4'-DDD
 Concen: N.D. m
 RT: 7.616 min Scan# 792
 Delta R.T. 0.011 min
 Lab File: VF104.D
 Acq: 1 Jun 2018 2:01 pm

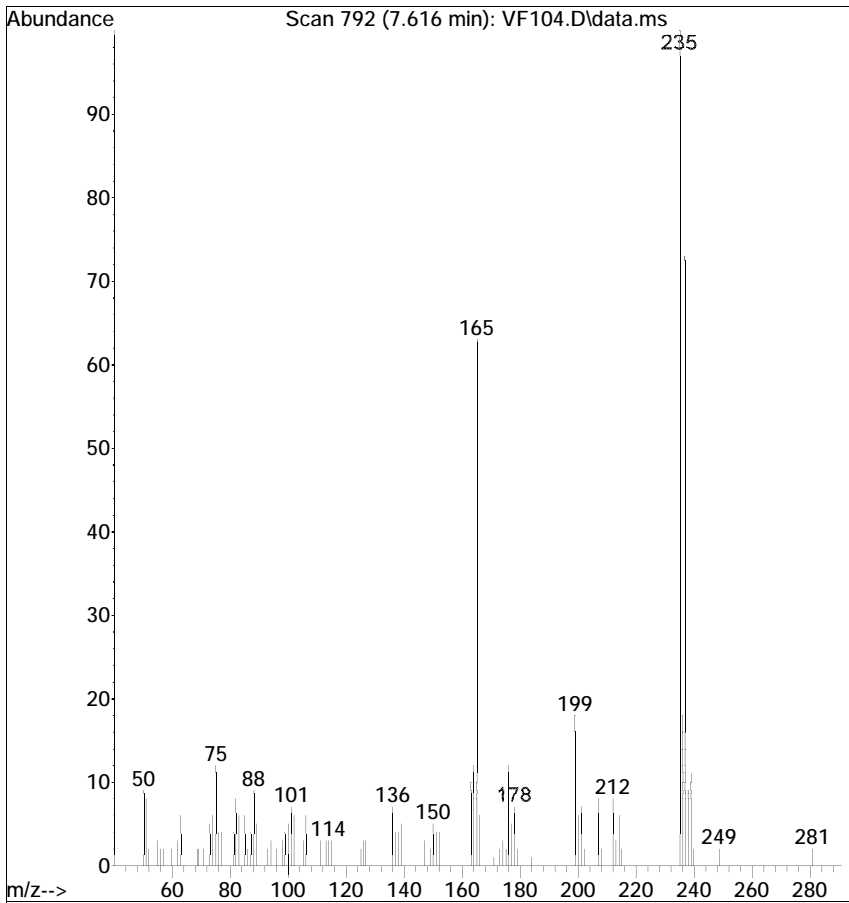
Tgt Ion	Resp	Lower	Upper
235	15416		
237	72.9	44.1	84.1
165	62.7	30.5	70.5



Ref

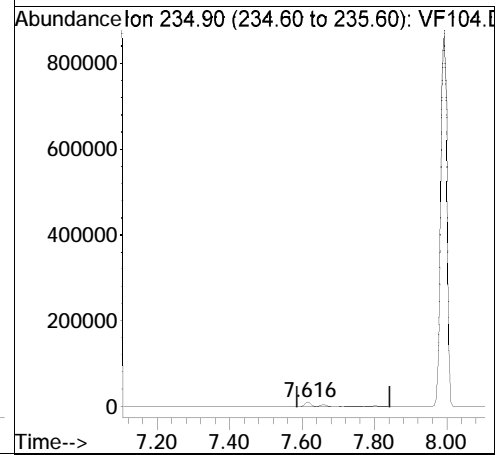


Raw

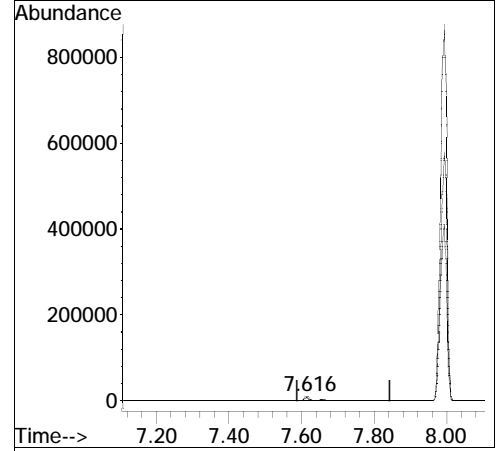
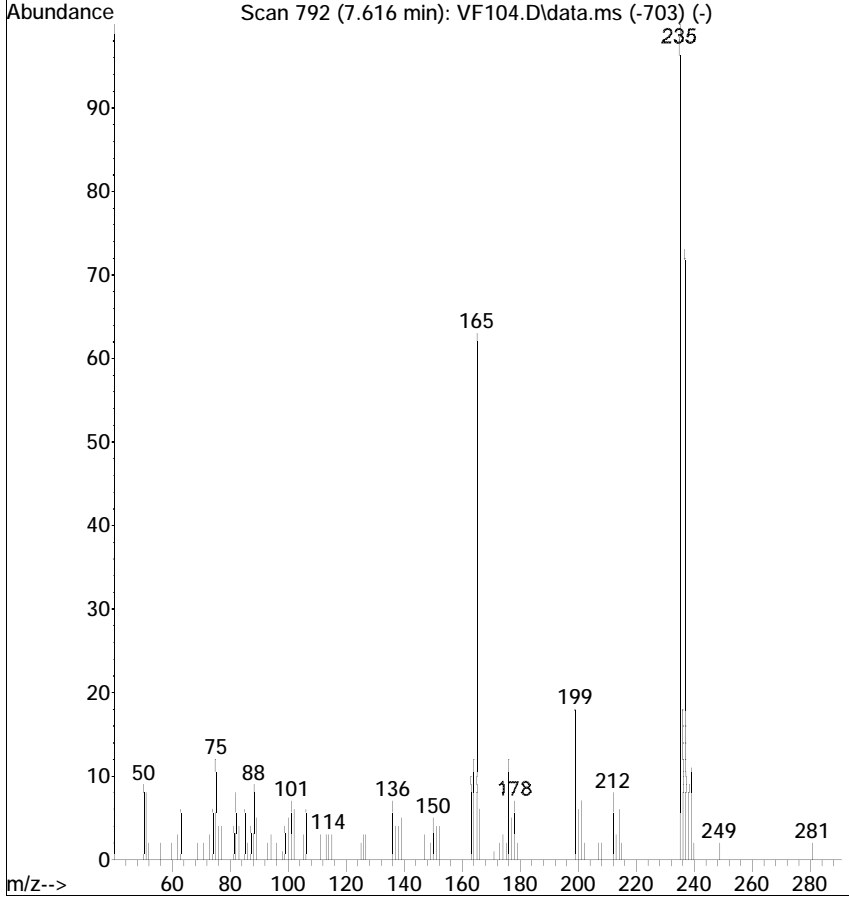


#6
 4,4'-DDD
 Concen: N.D.
 RT: 7.616 min Scan# 792
 Delta R.T. 0.011 min
 Lab File: VF104.D
 Acq: 1 Jun 2018 2:01 pm

Tgt Ion	Resp	Lower	Upper
235	19129		
237	72.9	44.1	84.1
165	62.7	30.5	70.5



Ref



ENTHALPY INITIAL CALIBRATION FOR 300092 MSSIM Soil: EPA 8270C-SIM

Inst : MSBNA03
 Calnum : 528189186001
 Units : ug/mL

Name : 3PAHSIM
 Date : 11-MAY-2018 12:02
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	veb08	528189186008	ICAL	11-MAY-2018 12:02	S36971
L2	veb09	528189186009	ICAL	11-MAY-2018 12:34	S36972
L3	veb10	528189186010	ICAL	11-MAY-2018 13:08	S36973
L4	veb11	528189186011	ICAL	11-MAY-2018 13:40	S36974
L5	veb12	528189186012	ICAL	11-MAY-2018 14:12	S36976
L6	veb13	528189186013	ICAL	11-MAY-2018 14:45	S36977
L7	veb14	528189186014	ICAL	11-MAY-2018 15:17	S36978

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r ² %RSD	Max %RSD	Min RF	Min r ²	Flg
Naphthalene	0.9309	0.9593	0.9775	0.9747	0.9430	0.8912	0.8908	AVRG		1.06590		0.9382	4	15	0.05	0.99	
Acenaphthylene	1.6081	1.6472	1.6759	1.6892	1.6573	1.5429	1.5049	AVRG		0.61807		1.6179	4	15	0.05	0.99	
Acenaphthene	0.9218	0.9535	0.9873	0.9877	0.9849	0.9161	0.9270	AVRG		1.04815		0.9541	3	15	0.05	0.99	
Fluorene	1.1744	1.2166	1.2535	1.2290	1.1967	1.1240	1.1008	AVRG		0.84389		1.1850	5	15	0.05	0.99	
Phenanthrene	0.9893	1.0001	1.0283	1.0273	0.9999	0.9087	0.9109	AVRG		1.01974		0.9806	5	15	0.05	0.99	
Anthracene	0.9811	0.9994	1.0239	1.0109	0.9819	0.9018	0.8967	AVRG		1.03006		0.9708	5	15	0.05	0.99	
Fluoranthene	1.1407	1.1541	1.1866	1.1836	1.1352	1.0251	1.0244	AVRG		0.89177		1.1214	6	15	0.05	0.99	
Pyrene	1.3486	1.3666	1.3972	1.3870	1.4018	1.2640	1.2723	AVRG		0.74171		1.3482	4	15	0.05	0.99	
Benzo(a)anthracene	1.2495	1.2430	1.2734	1.2935	1.2652	1.1310	1.1483	AVRG		0.81358		1.2291	5	15	0.05	0.99	
Chrysene	1.1114	1.1415	1.1963	1.2129	1.2146	1.0936	1.0886	AVRG		0.86861		1.1513	5	15	0.05	0.99	
Benzo(b)fluoranthene	1.2366	1.2524	1.2732	1.3173	1.2609	1.1568	1.1938	AVRG		0.80542		1.2416	4	15	0.05	0.99	
Benzo(k)fluoranthene	1.4264	1.4026	1.5105	1.4814	1.3485	1.3391	1.4312	AVRG		0.70425		1.4200	4	15	0.05	0.99	
Benzo(a)pyrene	1.0807	1.0909	1.1451	1.1967	1.1718	1.1043	1.1485	AVRG		0.88184		1.1340	4	15	0.05	0.99	
Indeno(1,2,3-cd)pyrene	1.1455	1.1766	1.2455	1.3118	1.3088	1.2674	1.3858	AVRG		0.79173		1.2631	7	15	0.05	0.99	
Dibenz(a,h)anthracene	0.8063	0.8173	0.8683	0.9193	0.9258	0.9174	1.0417	AVRG		1.11181		0.8994	9	15	0.05	0.99	
Benzo(g,h,i)perylene	0.9563	0.9696	1.0090	1.0676	1.0536	1.0046	1.0554	AVRG		0.98367		1.0166	4	15	0.05	0.99	
Nitrobenzene-d5	0.4025	0.4184	0.4335	0.4369	0.4325	0.4115	0.4195	AVRG		2.36897		0.4221	3	15	0.05	0.99	
2-Fluorobiphenyl	1.4635	1.4653	1.4934	1.4884	1.4329	1.3234	1.2965	AVRG		0.70257		1.4233	6	15	0.05	0.99	
Terphenyl-d14	1.0908	1.1058	1.1503	1.1543	1.1561	1.0722	1.0917	AVRG		0.89500		1.1173	3	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Naphthalene	0.1000	-1	0.2000	2	0.5000	4	1.0000	4	2.0000	1	5.0000	-5	10.000	-5
Acenaphthylene	0.1000	-1	0.2000	2	0.5000	4	1.0000	4	2.0000	2	5.0000	-5	10.000	-7
Acenaphthene	0.1000	-3	0.2000	0	0.5000	3	1.0000	4	2.0000	3	5.0000	-4	10.000	-3
Fluorene	0.1000	-1	0.2000	3	0.5000	6	1.0000	4	2.0000	1	5.0000	-5	10.000	-7
Phenanthrene	0.1000	1	0.2000	2	0.5000	5	1.0000	5	2.0000	2	5.0000	-7	10.000	-7
Anthracene	0.1000	1	0.2000	3	0.5000	5	1.0000	4	2.0000	1	5.0000	-7	10.000	-8
Fluoranthene	0.1000	2	0.2000	3	0.5000	6	1.0000	6	2.0000	1	5.0000	-9	10.000	-9
Pyrene	0.1000	0	0.2000	1	0.5000	4	1.0000	3	2.0000	4	5.0000	-6	10.000	-6
Benzo(a)anthracene	0.1000	2	0.2000	1	0.5000	4	1.0000	5	2.0000	3	5.0000	-8	10.000	-7
Chrysene	0.1000	-3	0.2000	-1	0.5000	4	1.0000	5	2.0000	6	5.0000	-5	10.000	-5
Benzo(b)fluoranthene	0.1000	0	0.2000	1	0.5000	3	1.0000	6	2.0000	2	5.0000	-7	10.000	-4
Benzo(k)fluoranthene	0.1000	0	0.2000	-1	0.5000	6	1.0000	4	2.0000	-5	5.0000	-6	10.000	1
Benzo(a)pyrene	0.1000	-5	0.2000	-4	0.5000	1	1.0000	6	2.0000	3	5.0000	-3	10.000	1
Indeno(1,2,3-cd)pyrene	0.1000	-9	0.2000	-7	0.5000	-1	1.0000	4	2.0000	4	5.0000	0	10.000	10
Dibenz(a,h)anthracene	0.1000	-10	0.2000	-9	0.5000	-3	1.0000	2	2.0000	3	5.0000	2	10.000	16
Benzo(g,h,i)perylene	0.1000	-6	0.2000	-5	0.5000	-1	1.0000	5	2.0000	4	5.0000	-1	10.000	4
Nitrobenzene-d5	0.1000	-5	0.2000	-1	0.5000	3	1.0000	3	2.0000	2	5.0000	-3	10.000	-1
2-Fluorobiphenyl	0.1000	3	0.2000	3	0.5000	5	1.0000	5	2.0000	1	5.0000	-7	10.000	-9
Terphenyl-d14	0.1000	-2	0.2000	-1	0.5000	3	1.0000	3	2.0000	3	5.0000	-4	10.000	-2

JW1 05/11/18 [1,4-Dioxane]: Corrected automatically drawn baseline in all levels.

Analyst: JW1

Date: 05/11/18

Reviewer: TKM

Date: 05/11/18

Instrument amount = a0 + response * a1 + response^2 * a2; AVRGE=Average response factor

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 MSSIM Soil
EPA 8270C-SIM

Inst : MSBNA03
Calnum : 528189186001

Name : 3PAHSIM
Cal Date : 11-MAY-2018

ICV 528189186015 (veb15 11-MAY-2018) stds: S36862

Analyte	Spiked	Quant	Units	%D	Max	Flags
Naphthalene	1.000	1.045	ug/mL	5	30	
Acenaphthylene	1.000	1.121	ug/mL	12	30	
Acenaphthene	1.000	1.048	ug/mL	5	20	
Fluorene	1.000	1.088	ug/mL	9	30	
Phenanthrene	1.000	1.095	ug/mL	9	30	
Anthracene	1.000	1.063	ug/mL	6	30	
Fluoranthene	1.000	1.092	ug/mL	9	20	
Pyrene	1.000	1.108	ug/mL	11	30	
Benzo(a)anthracene	1.000	1.046	ug/mL	5	30	
Chrysene	1.000	1.055	ug/mL	6	30	
Benzo(b)fluoranthene	1.000	0.9943	ug/mL	-1	30	
Benzo(k)fluoranthene	1.000	1.021	ug/mL	2	30	
Benzo(a)pyrene	1.000	1.089	ug/mL	9	20	
Indeno(1,2,3-cd)pyrene	1.000	1.038	ug/mL	4	30	
Dibenz(a,h)anthracene	1.000	1.041	ug/mL	4	30	
Benzo(g,h,i)perylene	1.000	1.114	ug/mL	11	30	

Analyst: JW1

Date: 05/11/18

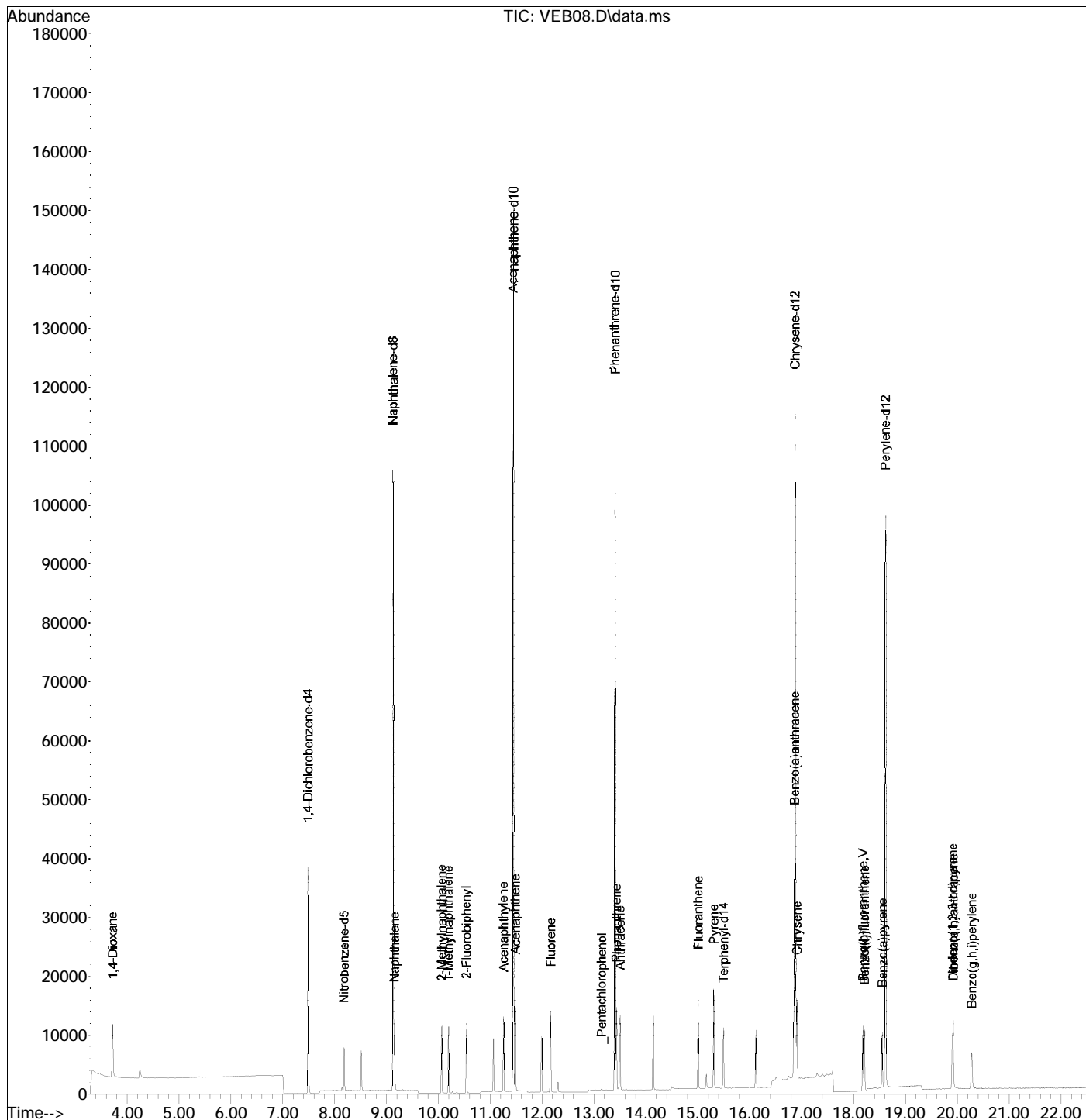
Reviewer: TKM

Date: 05/11/18

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB08.D
 Acq On : 11 May 2018 12:02 pm
 Operator :
 Sample : ICAL,S36971
 Misc : ICAL
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 11 14:34:19 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB08.D
 Acq On : 11 May 2018 12:02 pm
 Operator :
 Sample : ICAL,S36971
 Misc : ICAL
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 11 14:34:19 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.489	152	23674	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.126	136	83941	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.441	164	55867	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.400	188	97994	1.0000	ug/mL	0.00
18) Chrysene-d12	16.871	240	85754	1.0000	ug/mL	0.00
23) Perylene-d12	18.612	264	74995	1.0000	ug/mL	0.00

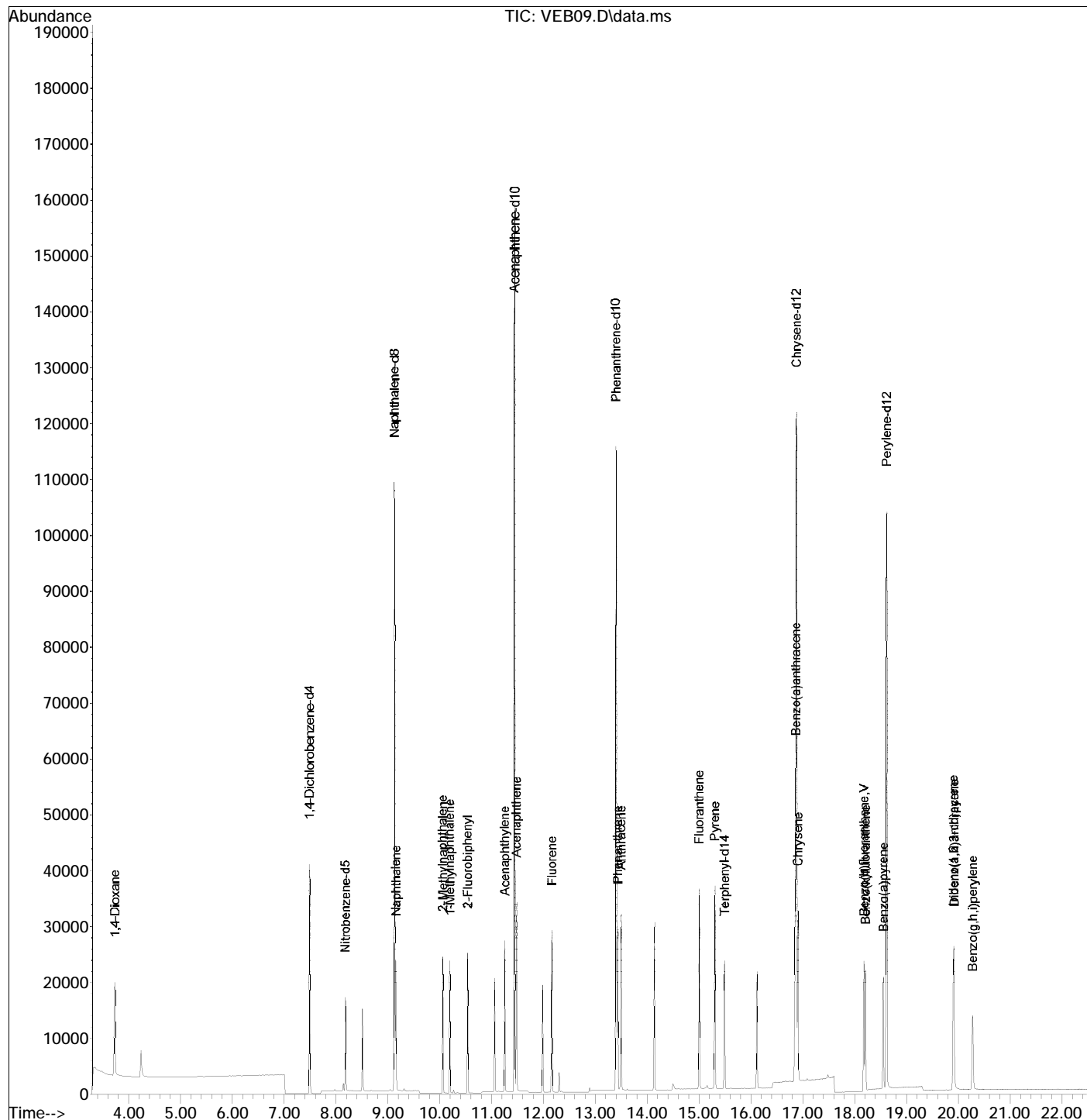
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.720	88	5412m	0.4915	ug/mL	
4) Nitrobenzene-d5	8.182	82	3379	0.1205	ug/mL	85
5) Naphthalene	9.154	128	7814	0.0985	ug/mL	99
6) 2-Methylnaphthalene	10.061	142	6082	0.0996	ug/mL	90
7) 1-Methylnaphthalene	10.193	142	5637	0.1033	ug/mL	94
9) 2-Fluorobiphenyl	10.538	172	8176	0.1016	ug/mL	98
10) Acenaphthylene	11.254	152	8984	0.0968	ug/mL	98
11) Acenaphthene	11.481	154	5150	0.0903	ug/mL	95
12) Fluorene	12.163	166	6561	0.0977	ug/mL	96
14) _Pentachlorophenol	13.145	266	136	1.0380	ug/mL	88
15) Phenanthrene	13.429	178	9695	0.1018	ug/mL	98
16) Anthracene	13.500	178	9614	0.1055	ug/mL	98
17) Fluoranthene	15.002	202	11178	0.1044	ug/mL	99
19) Pyrene	15.303	202	11565	0.0975	ug/mL	98
20) Terphenyl-d14	15.489	244	9354	0.1154	ug/mL	90
21) Benzo(a)anthracene	16.861	228	10715	0.1056	ug/mL	97
22) Chrysene	16.906	228	9531	0.1294	ug/mL	96
24) Benzo(b)fluoranthene	18.177	252	9274	0.1516	ug/mL	92
25) Benzo(k)fluoranthene	18.207	252	10697	0.1321	ug/mL	92
26) Benzo(a)pyrene	18.552	252	8105	0.1008	ug/mL	95
27) Indeno(1,2,3-cd)pyrene	19.907	276	8591	0.1028	ug/mL	# 43
28) Dibenz(a,h)anthracene	19.914	278	6047	0.1058	ug/mL	85
29) Benzo(g,h,i)perylene	20.274	276	7172	0.0989	ug/mL	# 91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB09.D
 Acq On : 11 May 2018 12:34 pm
 Operator :
 Sample : ICAL,S36972
 Misc : ICAL
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 11 14:35:31 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB09.D
 Acq On : 11 May 2018 12:34 pm
 Operator :
 Sample : ICAL,S36972
 Misc : ICAL
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 11 14:35:31 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.488	152	25517	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.126	136	89417	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.440	164	58768	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.395	188	104625	1.0000	ug/mL	0.00
18) Chrysene-d12	16.874	240	91111	1.0000	ug/mL	0.00
23) Perylene-d12	18.612	264	78969	1.0000	ug/mL	0.00

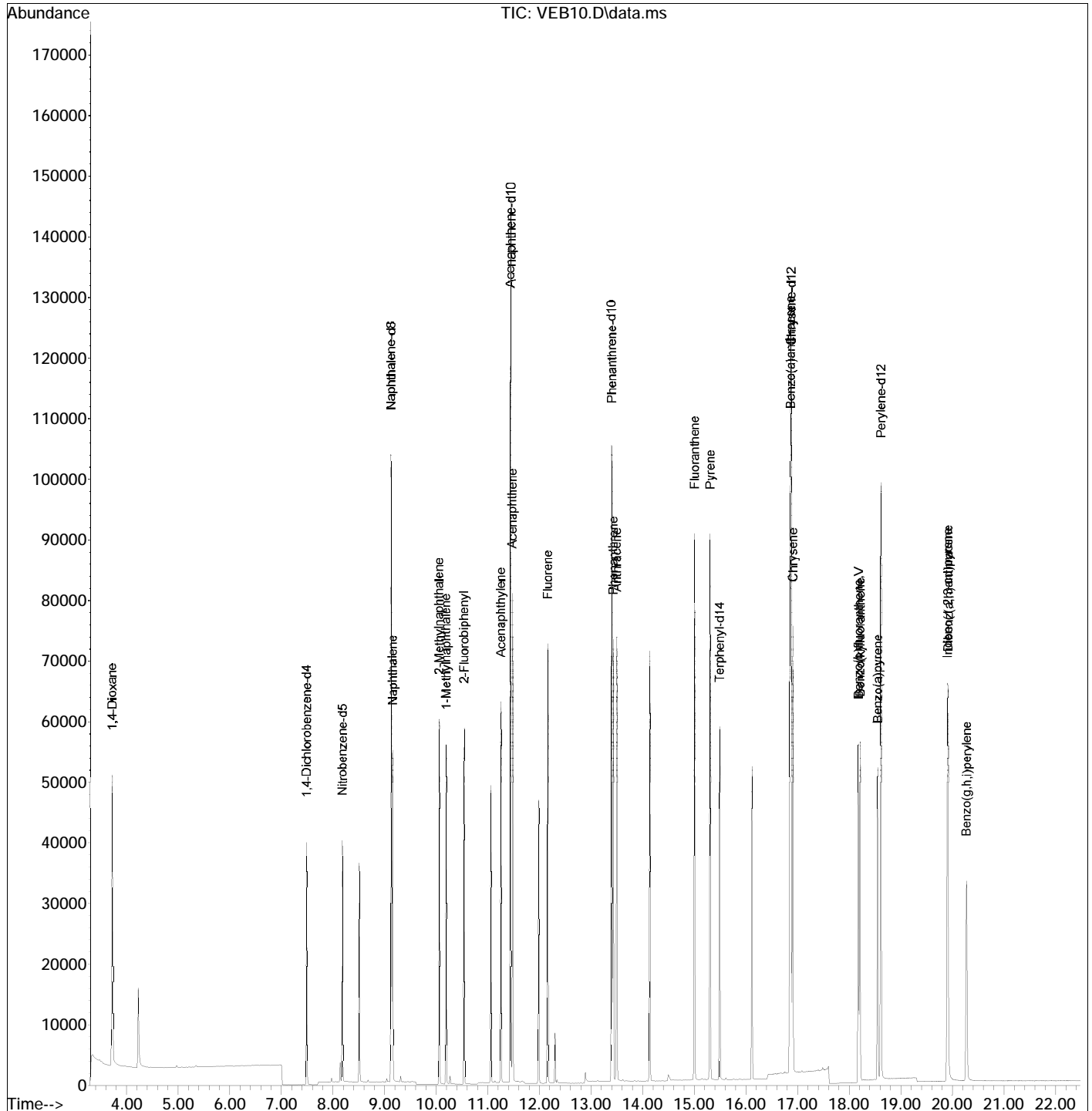
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.733	88	11921m	1.0045	ug/mL	
4) Nitrobenzene-d5	8.182	82	7482	0.2505	ug/mL	83
5) Naphthalene	9.154	128	17155	0.2031	ug/mL	98
6) 2-Methylnaphthalene	10.060	142	13045	0.2006	ug/mL	90
7) 1-Methylnaphthalene	10.191	142	11948	0.2055	ug/mL	95
9) 2-Fluorobiphenyl	10.536	172	17223	0.2034	ug/mL	98
10) Acenaphthylene	11.253	152	19360	0.1983	ug/mL	98
11) Acenaphthene	11.481	154	11207	0.1868	ug/mL	93
12) Fluorene	12.162	166	14299	0.2024	ug/mL	94
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.431	178	20927	0.2058	ug/mL	98
16) Anthracene	13.496	178	20912	0.2150	ug/mL	98
17) Fluoranthene	15.001	202	24149	0.2112	ug/mL	98
19) Pyrene	15.302	202	24903	0.1976	ug/mL	99
20) Terphenyl-d14	15.487	244	20151	0.2340	ug/mL	90
21) Benzo(a)anthracene	16.859	228	22650	0.2102	ug/mL	98
22) Chrysene	16.904	228	20800	0.2657	ug/mL	96
24) Benzo(b)fluoranthene	18.174	252	19780	0.2672	ug/mL	97
25) Benzo(k)fluoranthene	18.207	252	22153	0.2598	ug/mL	95
26) Benzo(a)pyrene	18.549	252	17229	0.2034	ug/mL	99
27) Indeno(1,2,3-cd)pyrene	19.903	276	18583	0.2111	ug/mL	# 51
28) Dibenz(a,h)anthracene	19.910	278	12908	0.2144	ug/mL	88
29) Benzo(g,h,i)perylene	20.273	276	15314	0.2005	ug/mL	# 91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB10.D
 Acq On : 11 May 2018 1:08 pm
 Operator :
 Sample : ICAL,S36973
 Misc : ICAL
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 11 14:39:05 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB10.D
 Acq On : 11 May 2018 1:08 pm
 Operator :
 Sample : ICAL,S36973
 Misc : ICAL
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 11 14:39:05 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.488	152	24591	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.126	136	84991	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.441	164	55162	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.401	188	100256	1.0000	ug/mL	0.00
18) Chrysene-d12	16.875	240	85776	1.0000	ug/mL	0.00
23) Perylene-d12	18.613	264	75389	1.0000	ug/mL	0.00

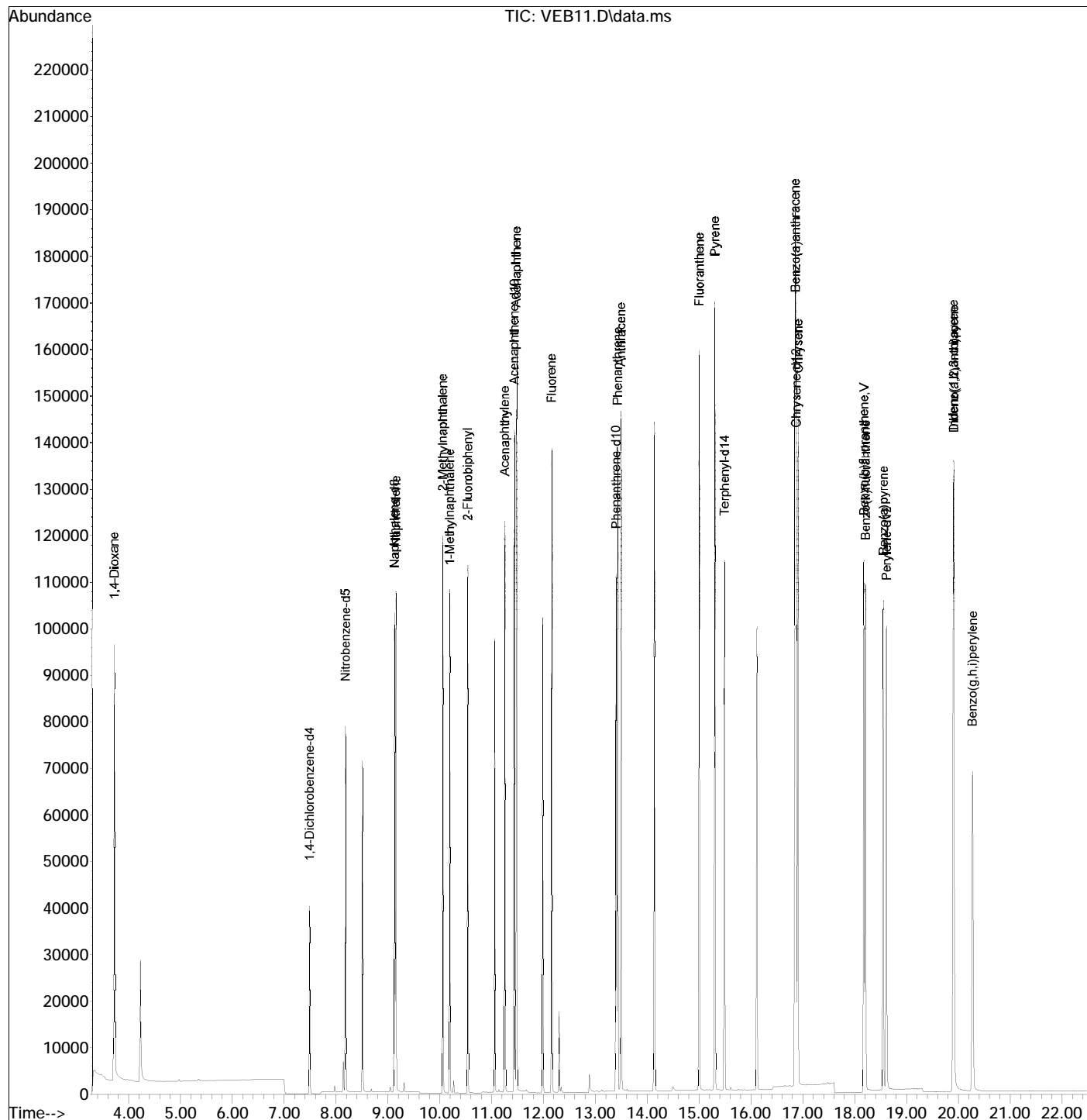
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.721	88	29808m	2.6063	ug/mL	
4) Nitrobenzene-d5	8.182	82	18423	0.6488	ug/mL	79
5) Naphthalene	9.154	128	41538	0.5174	ug/mL	98
6) 2-Methylnaphthalene	10.057	142	31498	0.5096	ug/mL	97
7) 1-Methylnaphthalene	10.193	142	28652	0.5186	ug/mL	91
9) 2-Fluorobiphenyl	10.538	172	41190	0.5183	ug/mL	99
10) Acenaphthylene	11.253	152	46224	0.5045	ug/mL	98
11) Acenaphthene	11.481	154	27231	0.4836	ug/mL	93
12) Fluorene	12.162	166	34574	0.5215	ug/mL	94
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.431	178	51547	0.5290	ug/mL	99
16) Anthracene	13.496	178	51328	0.5507	ug/mL	99
17) Fluoranthene	15.002	202	59482	0.5428	ug/mL	98
19) Pyrene	15.303	202	59922	0.5050	ug/mL	99
20) Terphenyl-d14	15.489	244	49332	0.6085	ug/mL	90
21) Benzo(a)anthracene	16.860	228	54615	0.5383	ug/mL	97
22) Chrysene	16.905	228	51305	0.6963	ug/mL	95
24) Benzo(b)fluoranthene	18.173	252	47993	0.6194	ug/mL	99
25) Benzo(k)fluoranthene	18.206	252	56936	0.6995	ug/mL	97
26) Benzo(a)pyrene	18.549	252	43164	0.5338	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.902	276	46947	0.5587	ug/mL	55
28) Dibenz(a,h)anthracene	19.909	278	32729	0.5694	ug/mL	90
29) Benzo(g,h,i)perylene	20.272	276	38035	0.5216	ug/mL	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB11.D
 Acq On : 11 May 2018 1:40 pm
 Operator :
 Sample : ICAL,S36974
 Misc : ICAL
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 11 14:40:37 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB11.D
 Acq On : 11 May 2018 1:40 pm
 Operator :
 Sample : ICAL,S36974
 Misc : ICAL
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 11 14:40:37 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.487	152	24449	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.126	136	85461	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.440	164	54736	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.394	188	100136	1.0000	ug/mL	0.00
18) Chrysene-d12	16.870	240	83859	1.0000	ug/mL	0.00
23) Perylene-d12	18.609	264	74427	1.0000	ug/mL	0.00

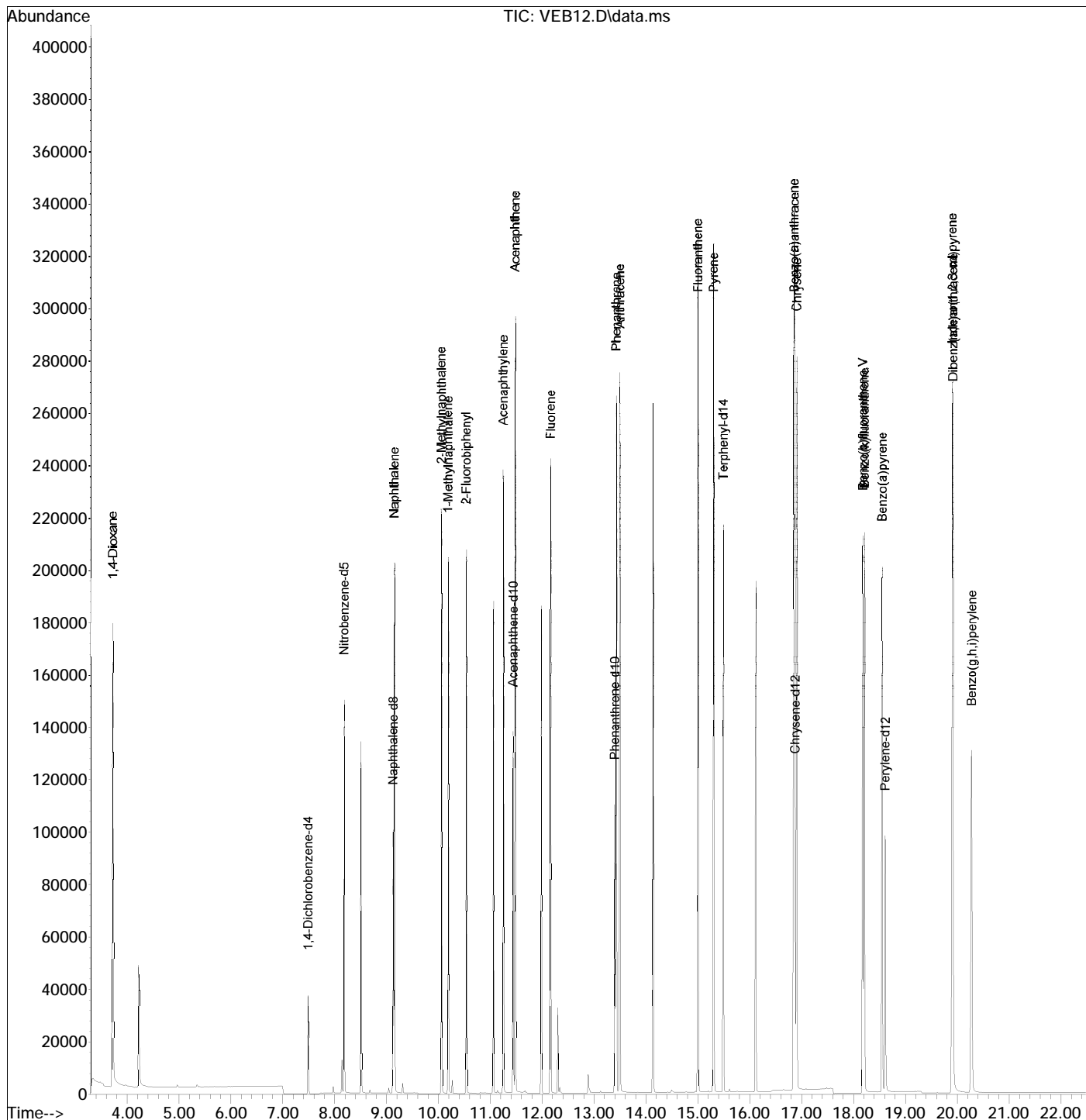
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.721	88	59620m	5.2433	ug/mL	
4) Nitrobenzene-d5	8.182	82	37334	1.3076	ug/mL	79
5) Naphthalene	9.154	128	83295	1.0318	ug/mL	99
6) 2-Methylnaphthalene	10.057	142	62102	0.9992	ug/mL	95
7) 1-Methylnaphthalene	10.192	142	56294	1.0132	ug/mL	91
9) 2-Fluorobiphenyl	10.538	172	81468	1.0332	ug/mL	98
10) Acenaphthylene	11.253	152	92462	1.0170	ug/mL	98
11) Acenaphthene	11.480	154	54065	0.9677	ug/mL	92
12) Fluorene	12.156	166	67270	1.0225	ug/mL	96
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.430	178	102869	1.0569	ug/mL	99
16) Anthracene	13.495	178	101230	1.0875	ug/mL	98
17) Fluoranthene	15.001	202	118522	1.0829	ug/mL	98
19) Pyrene	15.303	202	116312	1.0026	ug/mL	100
20) Terphenyl-d14	15.488	244	96799	1.2213	ug/mL	91
21) Benzo(a)anthracene	16.855	228	108470	1.0935	ug/mL	98
22) Chrysene	16.905	228	101711	1.4119	ug/mL	95
24) Benzo(b)fluoranthene	18.173	252	98045	1.2402	ug/mL	98
25) Benzo(k)fluoranthene	18.203	252	110255	1.3721	ug/mL	99
26) Benzo(a)pyrene	18.546	252	89066	1.1157	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.901	276	97636	1.1770	ug/mL	57
28) Dibenz(a,h)anthracene	19.908	278	68420	1.2058	ug/mL	90
29) Benzo(g,h,i)perylene	20.271	276	79457	1.1037	ug/mL	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB12.D
 Acq On : 11 May 2018 2:12 pm
 Operator :
 Sample : ICAL,S36976
 Misc : ICAL
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 11 14:41:23 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB12.D
 Acq On : 11 May 2018 2:12 pm
 Operator :
 Sample : ICAL,S36976
 Misc : ICAL
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 11 14:41:23 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.488	152	24076	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.126	136	83184	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.436	164	52908	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.395	188	97509	1.0000	ug/mL	0.00
18) Chrysene-d12	16.874	240	79359	1.0000	ug/mL	0.00
23) Perylene-d12	18.611	264	72873	1.0000	ug/mL	0.00

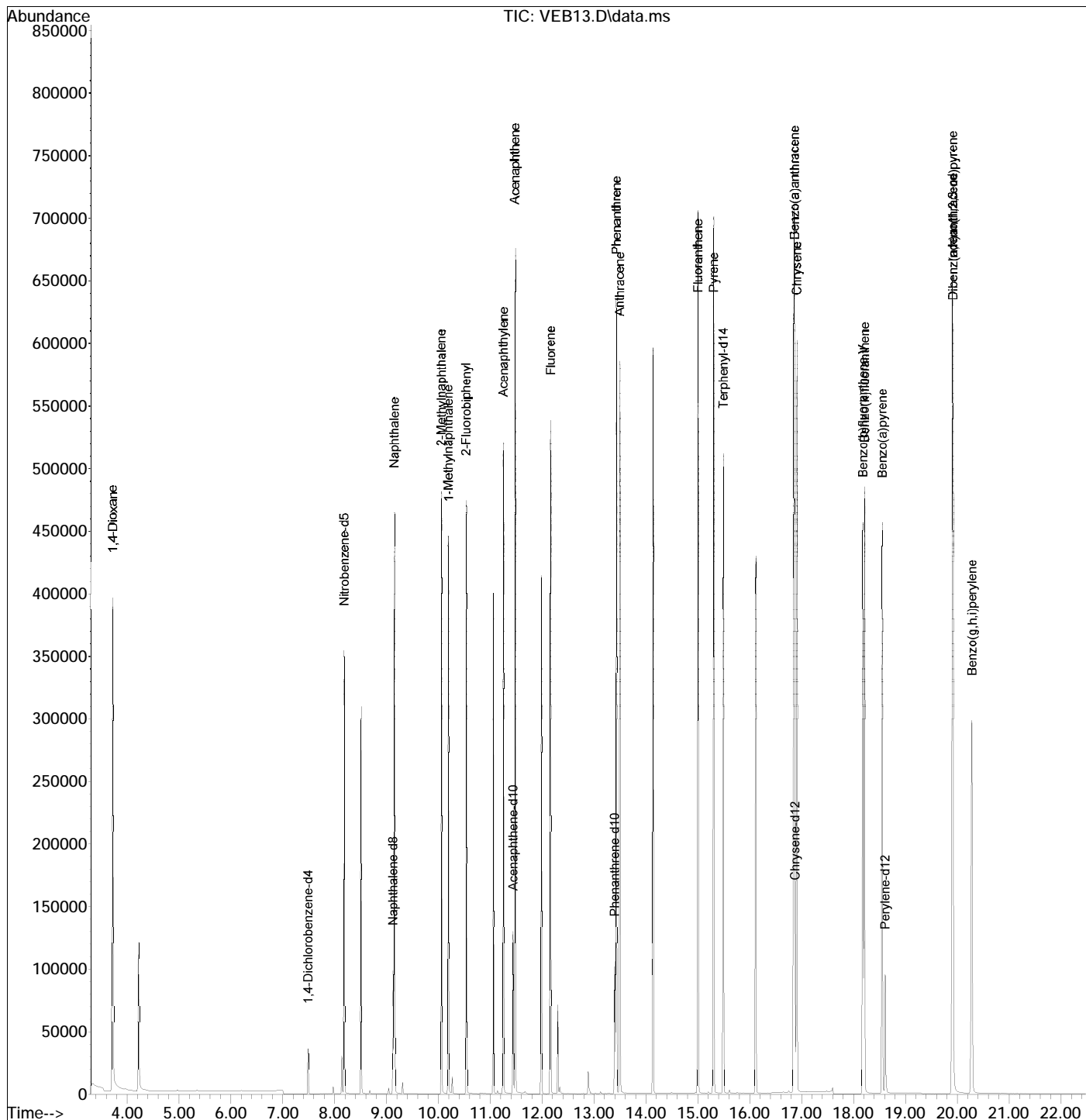
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.721	88	109700m	9.7970	ug/mL	
4) Nitrobenzene-d5	8.179	82	71952	2.5891	ug/mL	84
5) Naphthalene	9.150	128	156885	1.9965	ug/mL	99
6) 2-Methylnaphthalene	10.057	142	116481	1.9255	ug/mL	92
7) 1-Methylnaphthalene	10.188	142	105061	1.9428	ug/mL	99
9) 2-Fluorobiphenyl	10.534	172	151629	1.9894	ug/mL	97
10) Acenaphthylene	11.249	152	175369	1.9956	ug/mL	99
11) Acenaphthene	11.481	154	104221	1.9299	ug/mL	90
12) Fluorene	12.161	166	126627	1.9913	ug/mL	89
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.425	178	194991	2.0574	ug/mL	98
16) Anthracene	13.496	178	191493	2.1126	ug/mL	98
17) Fluoranthene	15.001	202	221377	2.0772	ug/mL	97
19) Pyrene	15.302	202	222498	2.0267	ug/mL	99
20) Terphenyl-d14	15.487	244	183501	2.4464	ug/mL	91
21) Benzo(a)anthracene	16.854	228	200813	2.1391	ug/mL	98
22) Chrysene	16.904	228	192778	2.8278	ug/mL	96
24) Benzo(b)fluoranthene	18.174	252	183769	2.3386	ug/mL	98
25) Benzo(k)fluoranthene	18.207	252	196544	2.4980	ug/mL	97
26) Benzo(a)pyrene	18.548	252	170787	2.1850	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.903	276	190751	2.3486	ug/mL	58
28) Dibenz(a,h)anthracene	19.909	278	134928	2.4286	ug/mL	90
29) Benzo(g,h,i)perylene	20.273	276	153552	2.1783	ug/mL	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB13.D
 Acq On : 11 May 2018 2:45 pm
 Operator :
 Sample : ICAL,S36977
 Misc : ICAL
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 11 15:09:04 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB13.D
 Acq On : 11 May 2018 2:45 pm
 Operator :
 Sample : ICAL,S36977
 Misc : ICAL
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 11 15:09:04 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.488	152	23750	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.125	136	80886	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.440	164	51315	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.399	188	96719	1.0000	ug/mL	0.00
18) Chrysene-d12	16.875	240	78424	1.0000	ug/mL	0.00
23) Perylene-d12	18.611	264	70500	1.0000	ug/mL	0.00

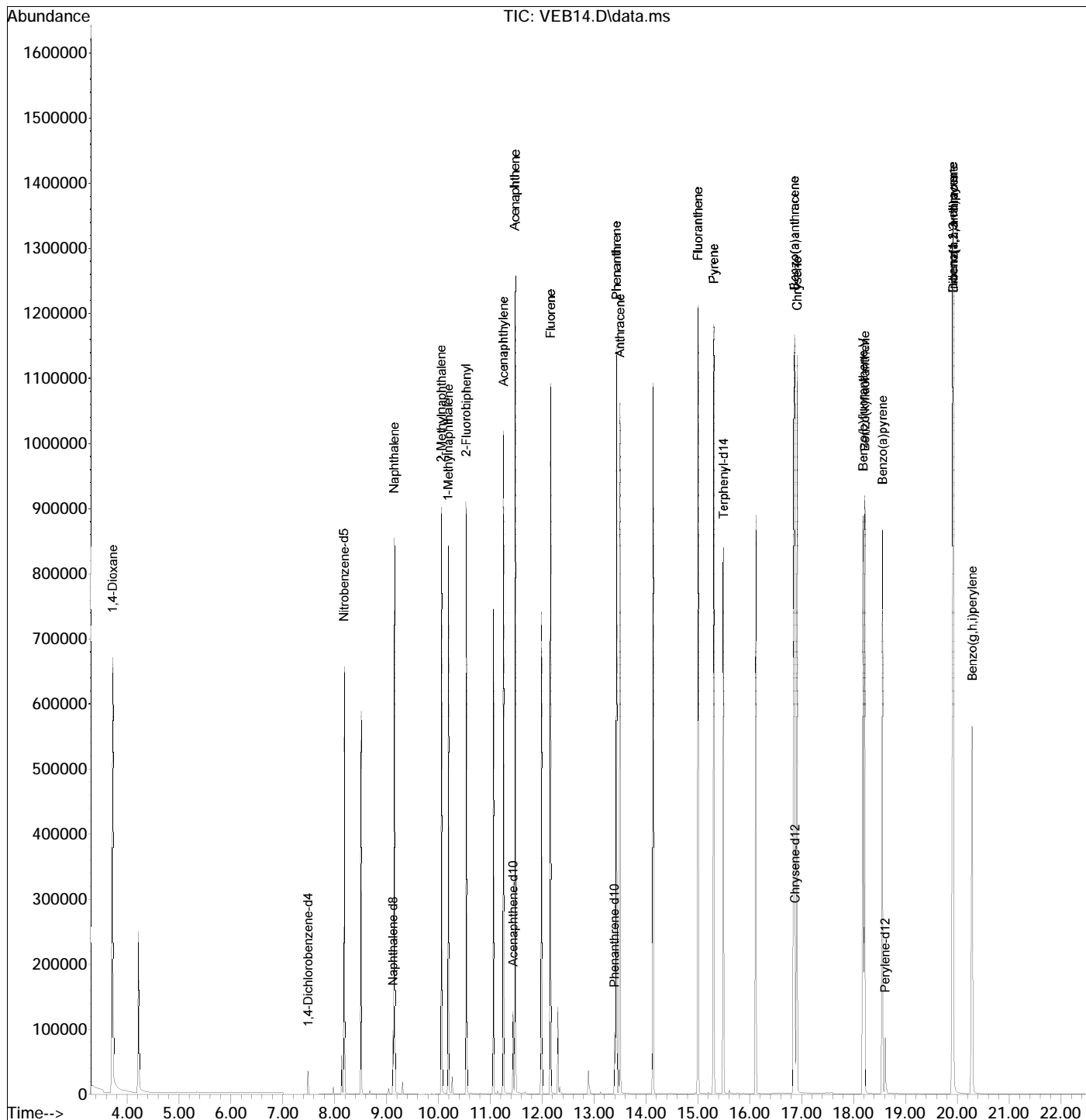
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.720	88	245965m	22.2681	ug/mL	
4) Nitrobenzene-d5	8.182	82	166443	6.1594	ug/mL	81
5) Naphthalene	9.153	128	360409	4.7168	ug/mL	99
6) 2-Methylnaphthalene	10.057	142	263352	4.4771	ug/mL	95
7) 1-Methylnaphthalene	10.192	142	242194	4.6058	ug/mL	90
9) 2-Fluorobiphenyl	10.538	172	339542	4.5931	ug/mL	99
10) Acenaphthylene	11.253	152	395866	4.6445	ug/mL	98
11) Acenaphthene	11.481	154	235057	4.4878	ug/mL	91
12) Fluorene	12.162	166	288385	4.6759	ug/mL	92
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.429	178	439430	4.6744	ug/mL	97
16) Anthracene	13.494	178	436114	4.8506	ug/mL	98
17) Fluoranthene	15.002	202	495721	4.6894	ug/mL	95
19) Pyrene	15.303	202	495653	4.5687	ug/mL	98
20) Terphenyl-d14	15.489	244	420416	5.6718	ug/mL	91
21) Benzo(a)anthracene	16.860	228	443505	4.7807	ug/mL	97
22) Chrysene	16.904	228	428808	6.3649	ug/mL	97
24) Benzo(b)fluoranthene	18.176	252	407789	5.3139	ug/mL	97
25) Benzo(k)fluoranthene	18.209	252	472049	6.2016	ug/mL	94
26) Benzo(a)pyrene	18.551	252	389259	5.1476	ug/mL	99
27) Indeno(1,2,3-cd)pyrene	19.906	276	446775	5.6859	ug/mL	56
28) Dibenz(a,h)anthracene	19.913	278	323388	6.0168	ug/mL	89
29) Benzo(g,h,i)perylene	20.280	276	354133	5.1930	ug/mL	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB14.D
 Acq On : 11 May 2018 3:17 pm
 Operator :
 Sample : ICAL,S36978
 Misc : ICAL
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 11 16:06:22 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB14.D
 Acq On : 11 May 2018 3:17 pm
 Operator :
 Sample : ICAL,S36978
 Misc : ICAL
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 11 16:06:22 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 11:25:03 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.488	152	23072	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.125	136	77491	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.440	164	49612	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.395	188	89778	1.0000	ug/mL	0.00
18) Chrysene-d12	16.875	240	72438	1.0000	ug/mL	0.00
23) Perylene-d12	18.611	264	64861	1.0000	ug/mL	0.00

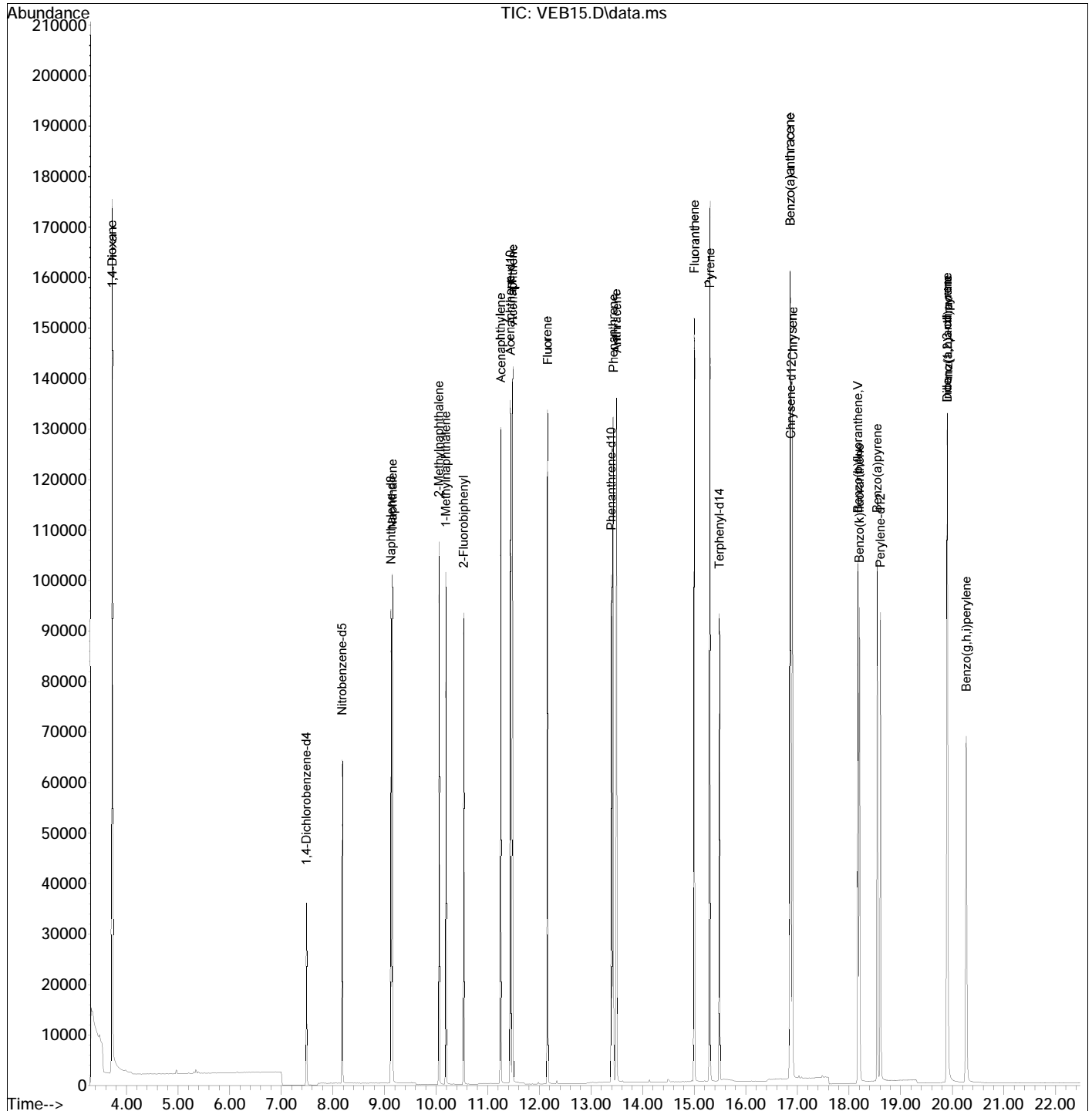
Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.721	88	468362m	43.6485	ug/mL	
4) Nitrobenzene-d5	8.185	82	325095	12.5575	ug/mL	79
5) Naphthalene	9.153	128	690255	9.4294	ug/mL	98
6) 2-Methylnaphthalene	10.061	142	504213	8.9474	ug/mL	88
7) 1-Methylnaphthalene	10.192	142	465714	9.2445	ug/mL	93
9) 2-Fluorobiphenyl	10.537	172	643211	8.9997	ug/mL	95
10) Acenaphthylene	11.253	152	746629	9.0606	ug/mL	98
11) Acenaphthene	11.480	154	459904	9.0820	ug/mL	93
12) Fluorene	12.162	166	546116	9.1587	ug/mL	93
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.431	178	817793	9.3718	ug/mL	95
16) Anthracene	13.496	178	805014	9.6458	ug/mL	95
17) Fluoranthene	15.001	202	919653	9.3723	ug/mL	93
19) Pyrene	15.308	202	921621	9.1971	ug/mL	96
20) Terphenyl-d14	15.494	244	790835	11.5508	ug/mL	93
21) Benzo(a)anthracene	16.860	228	831797	9.7072	ug/mL	98
22) Chrysene	16.910	228	788579	12.6724	ug/mL	97
24) Benzo(b)fluoranthene	18.180	252	774334	10.9264	ug/mL	92
25) Benzo(k)fluoranthene	18.214	252	928267	13.2555	ug/mL	91
26) Benzo(a)pyrene	18.554	252	744927	10.7074	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.913	276	898828	12.4336	ug/mL	# 52
28) Dibenz(a,h)anthracene	19.917	278	675660	13.6639	ug/mL	87
29) Benzo(g,h,i)perylene	20.283	276	684567	10.9112	ug/mL	90

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB15.D
 Acq On : 11 May 2018 3:50 pm
 Operator :
 Sample : ICV,S36862
 Misc : ICV
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 11 16:16:52 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\051118\
 Data File : VEB15.D
 Acq On : 11 May 2018 3:50 pm
 Operator :
 Sample : ICV,S36862
 Misc : ICV
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 11 16:16:52 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.488	152	22613	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.125	136	79960	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.436	164	50825	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.394	188	91722	1.0000	ug/mL	0.00
18) Chrysene-d12	16.870	240	80739	1.0000	ug/mL	0.00
23) Perylene-d12	18.609	264	69064	1.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.719	88	103111m	10.0599	ug/mL	
4) Nitrobenzene-d5	8.181	82	30540	0.9048	ug/mL	80
5) Naphthalene	9.153	128	78414	1.0453	ug/mL	98
6) 2-Methylnaphthalene	10.057	142	53754	0.9557	ug/mL	94
7) 1-Methylnaphthalene	10.188	142	50011	0.9721	ug/mL	97
9) 2-Fluorobiphenyl	10.533	172	66711	0.9222	ug/mL	99
10) Acenaphthylene	11.249	152	92164	1.1208	ug/mL	99
11) Acenaphthene	11.481	154	50793	1.0475	ug/mL	89
12) Fluorene	12.155	166	65511	1.0877	ug/mL	98
14) _Pentachlorophenol	0.000	266	0	N.D.		
15) Phenanthrene	13.430	178	98465	1.0947	ug/mL	99
16) Anthracene	13.495	178	94678	1.0633	ug/mL	98
17) Fluoranthene	15.001	202	112316	1.0920	ug/mL	97
19) Pyrene	15.302	202	120642	1.1083	ug/mL	100
20) Terphenyl-d14	15.488	244	77585	0.8600	ug/mL	91
21) Benzo(a)anthracene	16.855	228	103786	1.0458	ug/mL	98
22) Chrysene	16.905	228	98077	1.0551	ug/mL	95
24) Benzo(b)fluoranthene	18.173	252	85257	0.9943	ug/mL	97
25) Benzo(k)fluoranthene	18.202	252	100150	1.0212	ug/mL	98
26) Benzo(a)pyrene	18.546	252	85291	1.0890	ug/mL	97
27) Indeno(1,2,3-cd)pyrene	19.897	276	90524	1.0377	ug/mL	56
28) Dibenz(a,h)anthracene	19.904	278	64684	1.0413	ug/mL	90
29) Benzo(g,h,i)perylene	20.270	276	78233	1.1143	ug/mL	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Continuing Calibration Verification Raw Data

ENTHALPY CONTINUING CALIBRATION FOR 300092 MSSIM Soil
EPA 8270C-SIM

Inst : MSBNA03 Run Name : CCV IDF : 1.0
 Seqnum : 528218043005 File : vev05 Time : 31-MAY-2018 15:18
 Cal : 528189186001 Caldate : 11-MAY-2018
 Standards: S36976

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9382	0.9786	2.000	2.086	ug/mL	4	30	0.0500	
Acenaphthylene	1.6179	1.7266	2.000	2.134	ug/mL	7	30	0.0500	
Acenaphthene	0.9541	1.0210	2.000	2.140	ug/mL	7	20	0.0500	
Fluorene	1.1850	1.2597	2.000	2.126	ug/mL	6	30	0.0500	
Phenanthrene	0.9806	1.0554	2.000	2.153	ug/mL	8	30	0.0500	
Anthracene	0.9708	1.0322	2.000	2.127	ug/mL	6	30	0.0500	
Fluoranthene	1.1214	1.1536	2.000	2.058	ug/mL	3	20	0.0500	
Pyrene	1.3482	1.4460	2.000	2.145	ug/mL	7	30	0.0500	
Benzo(a)anthracene	1.2291	1.2899	2.000	2.099	ug/mL	5	30	0.0500	
Chrysene	1.1513	1.2310	2.000	2.139	ug/mL	7	30	0.0500	
Benzo(b)fluoranthene	1.2416	1.3125	2.000	2.114	ug/mL	6	30	0.0500	
Benzo(k)fluoranthene	1.4200	1.4491	2.000	2.041	ug/mL	2	30	0.0500	
Benzo(a)pyrene	1.1340	1.2002	2.000	2.117	ug/mL	6	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.2631	1.3333	2.000	2.111	ug/mL	6	30	0.0500	
Dibenz(a,h)anthracene	0.8994	0.9755	2.000	2.169	ug/mL	8	30	0.0500	
Benzo(g,h,i)perylene	1.0166	1.0544	2.000	2.074	ug/mL	4	30	0.0500	
Nitrobenzene-d5	0.4221	0.4760	2.000	2.255	ug/mL	13	30	0.0500	
2-Fluorobiphenyl	1.4233	1.4758	2.000	2.074	ug/mL	4	30	0.0500	
Terphenyl-d14	1.1173	1.1640	2.000	2.084	ug/mL	4	30	0.0500	

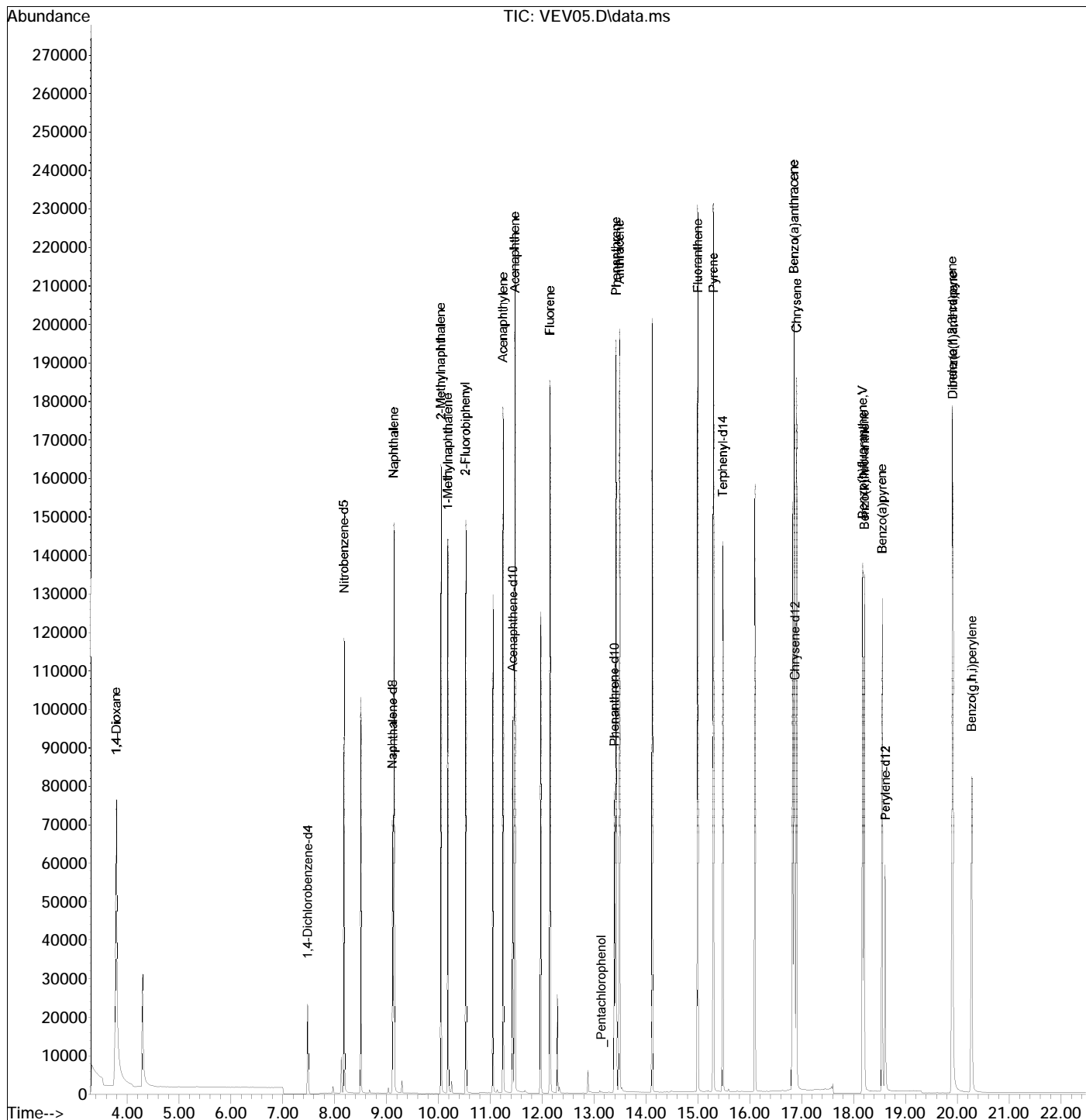
JW1 05/31/18 [1,4-Dioxane]: Corrected automatically drawn baseline.

Analyst: JW1 Date: 05/31/18 Reviewer: LW Date: 06/01/18

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\053118\
 Data File : VEV05.D
 Acq On : 31 May 2018 3:18 pm
 Operator :
 Sample : CCV,S36976
 Misc : CCV
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 31 15:45:33 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\053118\
 Data File : VEV05.D
 Acq On : 31 May 2018 3:18 pm
 Operator :
 Sample : CCV,S36976
 Misc : CCV
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 31 15:45:33 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.480	152	16954	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.118	136	59697	1.0000	ug/mL	0.00
8) Acenaphthene-d10	11.432	164	36547	1.0000	ug/mL	0.00
13) Phenanthrene-d10	13.389	188	67706	1.0000	ug/mL	0.00
18) Chrysene-d12	16.866	240	53331	1.0000	ug/mL	0.00
23) Perylene-d12	18.609	264	45412	1.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.789	88	91703m	11.9333	ug/mL	
4) Nitrobenzene-d5	8.178	82	56830	2.2552	ug/mL	84
5) Naphthalene	9.143	128	116842	2.0862	ug/mL	99
6) 2-Methylnaphthalene	10.048	142	85526	2.0367	ug/mL	96
7) 1-Methylnaphthalene	10.183	142	76959	2.0036	ug/mL	92
9) 2-Fluorobiphenyl	10.524	172	107874	2.0737	ug/mL	96
10) Acenaphthylene	11.244	152	126204	2.1343	ug/mL	99
11) Acenaphthene	11.472	154	74632	2.1404	ug/mL	94
12) Fluorene	12.148	166	92078	2.1261	ug/mL	97
14) _Pentachlorophenol	13.140	266	108	0.5747	ug/mL	93
15) Phenanthrene	13.419	178	142914	2.1525	ug/mL	98
16) Anthracene	13.490	178	139777	2.1265	ug/mL	98
17) Fluoranthene	14.995	202	156215	2.0575	ug/mL	97
19) Pyrene	15.297	202	154233	2.1450	ug/mL	99
20) Terphenyl-d14	15.476	244	124155	2.0836	ug/mL	90
21) Benzo(a)anthracene	16.851	228	137579	2.0988	ug/mL	98
22) Chrysene	16.900	228	131300	2.1385	ug/mL	95
24) Benzo(b)fluoranthene	18.170	252	119209	2.1143	ug/mL	98
25) Benzo(k)fluoranthene	18.203	252	131614	2.0411	ug/mL	97
26) Benzo(a)pyrene	18.546	252	109003	2.1167	ug/mL	96
27) Indeno(1,2,3-cd)pyrene	19.899	276	121097	2.1112	ug/mL	# 52
28) Dibenz(a,h)anthracene	19.906	278	88596	2.1691	ug/mL	90
29) Benzo(g,h,i)perylene	20.272	276	95767	2.0744	ug/mL	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

ENTHALPY CONTINUING CALIBRATION FOR 300092 MSSIM Soil
EPA 8270C-SIM

Inst : MSBNA03 Run Name : CCV IDF : 1.0
 Seqnum : 528219529005 File : vf105 Time : 01-JUN-2018 14:19
 Cal : 528189186001 Caldate : 11-MAY-2018
 Standards: S36973

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Min RF	Flags
Naphthalene	0.9382	0.9810	0.5000	0.5228	ug/mL	5	30	0.0500	
Acenaphthylene	1.6179	1.6955	0.5000	0.5240	ug/mL	5	30	0.0500	
Acenaphthene	0.9541	1.0073	0.5000	0.5279	ug/mL	6	20	0.0500	
Fluorene	1.1850	1.2741	0.5000	0.5376	ug/mL	8	30	0.0500	
Phenanthrene	0.9806	1.0513	0.5000	0.5360	ug/mL	7	30	0.0500	
Anthracene	0.9708	1.0337	0.5000	0.5324	ug/mL	6	30	0.0500	
Fluoranthene	1.1214	1.1640	0.5000	0.5190	ug/mL	4	20	0.0500	
Pyrene	1.3482	1.3949	0.5000	0.5173	ug/mL	3	30	0.0500	
Benzo(a)anthracene	1.2291	1.2755	0.5000	0.5189	ug/mL	4	30	0.0500	
Chrysene	1.1513	1.1781	0.5000	0.5117	ug/mL	2	30	0.0500	
Benzo(b)fluoranthene	1.2416	1.2798	0.5000	0.5154	ug/mL	3	30	0.0500	
Benzo(k)fluoranthene	1.4200	1.4705	0.5000	0.5178	ug/mL	4	30	0.0500	
Benzo(a)pyrene	1.1340	1.1419	0.5000	0.5035	ug/mL	1	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.2631	1.2588	0.5000	0.4983	ug/mL	0	30	0.0500	
Dibenz(a,h)anthracene	0.8994	0.9017	0.5000	0.5012	ug/mL	0	30	0.0500	
Benzo(g,h,i)perylene	1.0166	1.0080	0.5000	0.4958	ug/mL	-1	30	0.0500	
Nitrobenzene-d5	0.4221	0.4840	0.5000	0.5733	ug/mL	15	30	0.0500	
2-Fluorobiphenyl	1.4233	1.5081	0.5000	0.5298	ug/mL	6	30	0.0500	
Terphenyl-d14	1.1173	1.1094	0.5000	0.4965	ug/mL	-1	30	0.0500	

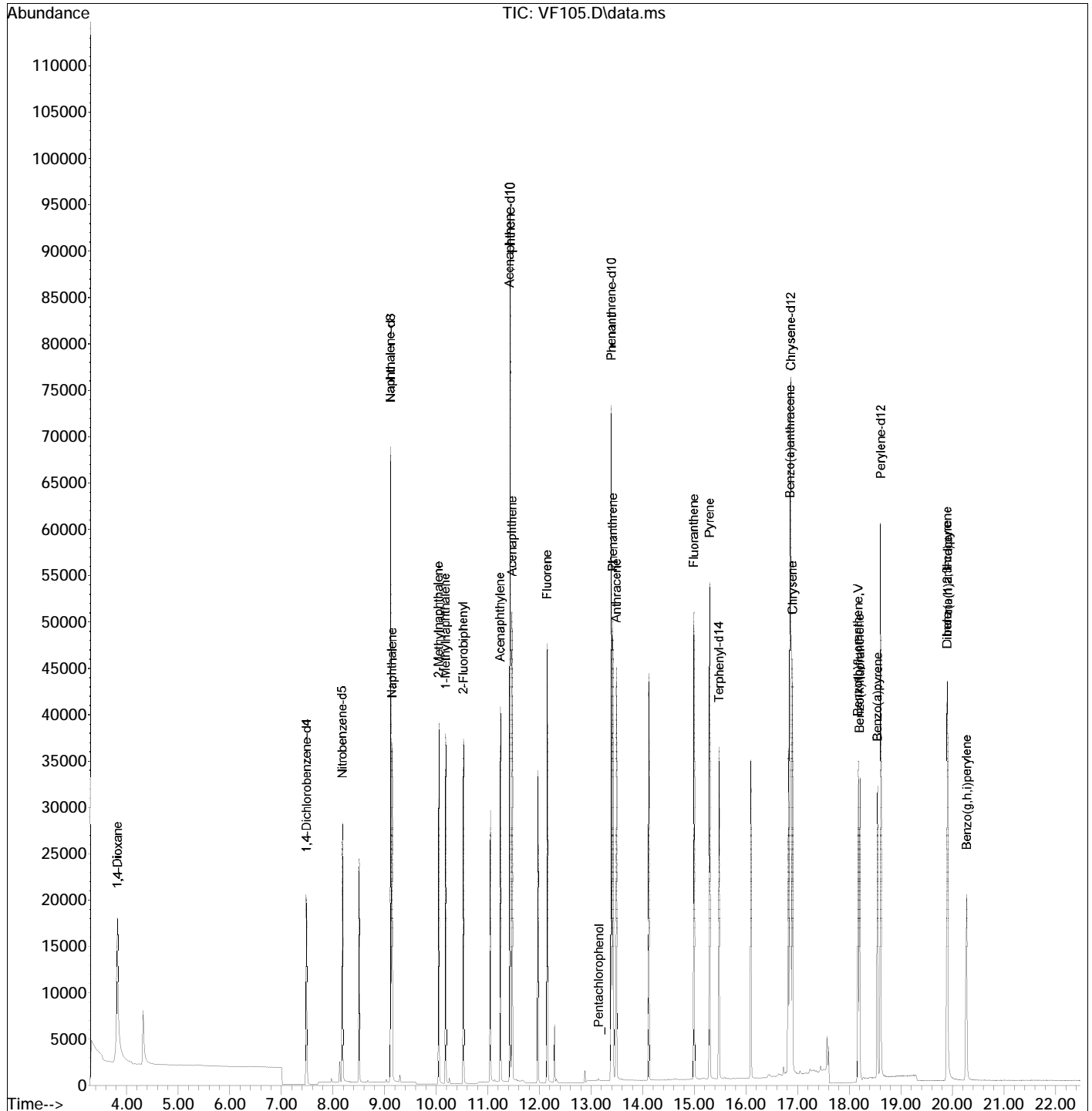
JW1 06/04/18 [1,4-Dioxane]: Corrected automatically drawn baseline.

Analyst: JW1 Date: 06/04/18 Reviewer: LW Date: 06/04/18

Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF105.D
 Acq On : 1 Jun 2018 2:19 pm
 Operator :
 Sample : CCV,S36973
 Misc : CCV
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 01 14:48:58 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : G:\msbna03\060118\
 Data File : VF105.D
 Acq On : 1 Jun 2018 2:19 pm
 Operator :
 Sample : CCV,S36973
 Misc : CCV
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 01 14:48:58 2018
 Quant Method : C:\msdchem\1\METHODS\3PAHSIM.M
 Quant Title : MSBNA03 BNASIM
 QLast Update : Fri May 11 16:08:48 2018
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc.	Units	Rel.RT
1) 1,4-Dichlorobenzene-d4	7.484	152	15595	1.0000	ug/mL	0.00
3) Naphthalene-d8	9.116	136	56739	1.0000	ug/mL	-0.01
8) Acenaphthene-d10	11.427	164	35535	1.0000	ug/mL	-0.01
13) Phenanthrene-d10	13.389	188	64536	1.0000	ug/mL	0.00
18) Chrysene-d12	16.865	240	53914	1.0000	ug/mL	0.00
23) Perylene-d12	18.606	264	46246	1.0000	ug/mL	0.00

Target Compounds	R.T.	QIon	Response	Conc.	Units	Qvalue
2) 1,4-Dioxane	3.824	88	21279m	3.0103	ug/mL	
4) Nitrobenzene-d5	8.179	82	13732	0.5733	ug/mL	86
5) Naphthalene	9.143	128	27830	0.5228	ug/mL	99
6) 2-Methylnaphthalene	10.049	142	20539	0.5146	ug/mL	94
7) 1-Methylnaphthalene	10.180	142	18951	0.5191	ug/mL	97
9) 2-Fluorobiphenyl	10.525	172	26796	0.5298	ug/mL	100
10) Acenaphthylene	11.240	152	30125	0.5240	ug/mL	99
11) Acenaphthene	11.472	154	17897	0.5279	ug/mL	91
12) Fluorene	12.149	166	22637	0.5376	ug/mL	99
14) _Pentachlorophenol	13.146	266	129	0.7201	ug/mL	91
15) Phenanthrene	13.419	178	33924	0.5360	ug/mL	99
16) Anthracene	13.490	178	33356	0.5324	ug/mL	98
17) Fluoranthene	14.989	202	37561	0.5190	ug/mL	98
19) Pyrene	15.297	202	37601	0.5173	ug/mL	99
20) Terphenyl-d14	15.476	244	29907	0.4965	ug/mL	93
21) Benzo(a)anthracene	16.851	228	34384	0.5189	ug/mL	97
22) Chrysene	16.895	228	31758	0.5117	ug/mL	96
24) Benzo(b)fluoranthene	18.167	252	29592	0.5154	ug/mL	98
25) Benzo(k)fluoranthene	18.200	252	34002	0.5178	ug/mL	96
26) Benzo(a)pyrene	18.543	252	26405	0.5035	ug/mL	96
27) Indeno(1,2,3-cd)pyrene	19.895	276	29108	0.4983	ug/mL	# 53
28) Dibenz(a,h)anthracene	19.899	278	20849	0.5012	ug/mL	90
29) Benzo(g,h,i)perylene	20.269	276	23308	0.4958	ug/mL	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 528189186

Instrument : MSBNA03 Begun : 05/11/18 09:06
 Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv6, bna_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	veb01	IB	IB			05/11/18 09:06	1.0		?t
003	veb03	IB	IB			05/11/18 10:15	1.0		?t
004	veb04	TUN	DFTPP/PEM			05/11/18 10:40	1.0	1	
005	veb05	CCV	RTCHECK			05/11/18 11:00	1.0	2	1:BZBF=2.3
006	veb06	TUN	DFTPP/PEM			05/11/18 11:28	1.0	1	t
007	veb07	TUN	DFTPP/PEM			05/11/18 11:43	1.0	1	
008	veb08	ICAL	ICAL			05/11/18 12:02	1.0	3	
009	veb09	ICAL	ICAL			05/11/18 12:34	1.0	4	
010	veb10	ICAL	ICAL			05/11/18 13:08	1.0	5	
011	veb11	ICAL	ICAL			05/11/18 13:40	1.0	6	
012	veb12	ICAL	ICAL			05/11/18 14:12	1.0	2	
013	veb13	ICAL	ICAL			05/11/18 14:45	1.0	7	
014	veb14	ICAL	ICAL			05/11/18 15:17	1.0	8	
015	veb15	ICV	ICV			05/11/18 15:50	1.0	9	
016	veb16	TUN	DFTPP/PEM			05/11/18 16:24	1.0	1	
017	veb17	CCV	CCV			05/11/18 16:42	1.0	6	
018	veb18	LOD	218623-089	Water	258368	05/11/18 17:21	1.0	10	
019	veb19	LOD	218623-088	Water	258368	05/11/18 17:53	1.0	10	
020	veb20	LOD	209076-102	Soil	258329	05/11/18 18:25	1.0	10	
021	veb21	LOD	209076-103	Soil	258329	05/11/18 18:58	1.0	10	
022	veb22	LOD	209076-104	Soil	258329	05/11/18 19:30	1.0	10	
023	veb23	BLANK	QC926890	Soil	258206	05/11/18 20:02	1.0	10	
024	veb24	LOQ	298551-006	Soil	258047	05/11/18 20:35	1.0	10	
025	veb25	LOQ	298551-001	Water	258124	05/11/18 21:08	1.0	10	
026	veb26	MDL	298632-001	Soil	258206	05/11/18 21:41	1.0	10	
027	veb27	BLANK	QC931341	Soil	259346	05/11/18 22:14	1.0	10	
028	veb28	LCS	QC931342	Soil	259346	05/11/18 22:47	1.0	10	
029	veb29	BLANK	QC931546	Water	259395	05/11/18 23:20	1.0	10	
030	veb30	BS	QC931547	Water	259395	05/11/18 23:54	1.0	10	spk
031	veb31	BSD	QC931548	Water	259395	05/12/18 00:27	1.0	10	
032	veb32	SAMPLE	299490-005	Soil	259346	05/12/18 01:01	50.0	10	
033	veb33	MSS	299573-002	Soil	259346	05/12/18 01:34	10.0	10	
034	veb34	SAMPLE	299651-001	Water	259395	05/12/18 02:07	1.0	10	
035	veb35	SAMPLE	299360-008	Water	259109	05/12/18 02:42	2.0	10	high NT
036	veb36	SAMPLE	299348-005	Water	259020	05/12/18 03:14	4.0	10	high NT
037	veb37	CCV	CCV			05/12/18 03:49	1.0	6	

JW1 05/11/18 : Chemstation crashed, run 2 was lost.

JW1 05/11/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

JW1 05/14/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 16 through 37.

Standards used: 1=S36307 2=S36976 3=S36971 4=S36972 5=S36973 6=S36974 7=S36977 8=S36978 9=S36862 10=S36018

Flags used: ?t=missing tune spk=5% spike rule t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 528218043

Instrument : MSBNA03 Begun : 05/31/18 10:03
 Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv6, bna_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vev01	IB	IB			05/31/18 10:03	1.0		?t
002	vev02	IB	IB			05/31/18 10:37	1.0		?t
003	vev03	TUN	DFTPP/PEM			05/31/18 11:03	1.0	1	t
004	vev04	TUN	DFTPP/PEM			05/31/18 15:01	1.0	1	
005	vev05	CCV	CCV			05/31/18 15:18	1.0	2	
006	vev06	SAMPLE	300081-001	Water	259999	05/31/18 15:50	1.0	3	
007	vev07	SAMPLE	300081-003	Water	259999	05/31/18 16:22	1.0	3	
008	vev08	LCS	QC933862	Water	259999	05/31/18 16:54	1.0	3	
009	vev09	MS	QC933863	Water	259999	05/31/18 17:25	1.0	3	
010	vev10	MSD	QC933864	Water	259999	05/31/18 17:57	1.0	3	
011	vev11	SAMPLE	300022-013	Water	259999	05/31/18 18:29	1.0	3	
012	vev12	SAMPLE	300022-014	Water	259999	05/31/18 19:01	1.0	3	
013	vev13	SAMPLE	300022-015	Water	259999	05/31/18 19:32	1.0	3	
014	vev14	BLANK	QC934136	Soil	260066	05/31/18 20:02	1.0	3	
015	vev15	LCS	QC934137	Soil	260066	05/31/18 20:33	1.0	3	
016	vev16	MSS	300022-008	Soil	260066	05/31/18 21:04	1.0	3	
017	vev17	MS	QC934138	Soil	260066	05/31/18 21:35	1.0	3	
018	vev18	MSD	QC934139	Soil	260066	05/31/18 22:06	1.0	3	
019	vev19	SAMPLE	300223-001	Soil	260066	05/31/18 22:37	1.0	3	
020	vev20	SAMPLE	300223-002	Soil	260066	05/31/18 23:08	1.0	3	
021	vev21	SAMPLE	300223-003	Soil	260066	05/31/18 23:39	1.0	3	
022	vev22	SAMPLE	300223-004	Soil	260066	06/01/18 00:10	1.0	3	
023	vev23	SAMPLE	300022-010	Soil	260066	06/01/18 00:41	1.0	3	
024	vev24	SAMPLE	300022-011	Soil	260066	06/01/18 01:13	1.0	3	
025	vev25	CCV	CCV			06/01/18 01:44	1.0	2	

JW1 06/01/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 25.

Standards used: 1=S36307 2=S36976 3=S36018

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 528219529

Instrument : MSBNA03 Begun : 06/01/18 10:49
 Method : EPA 8270C, EPA 8270C-SIM SOP Version : 8270-SIM_rv6, bna_rv14

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	vf101	IB	IB			06/01/18 10:49	1.0		?t
002	vf102	IB	IB			06/01/18 11:24	1.0		?t
003	vf103	TUN	DFTPP/PEM			06/01/18 11:53	1.0	1	
004	vf104	TUN	DFTPP/PEM			06/01/18 14:01	1.0	1	
005	vf105	CCV	CCV			06/01/18 14:19	1.0	2	
006	vf106	MS	QC934138	Soil	260066	06/01/18 14:57	1.0	3	
007	vf107	MSD	QC934139	Soil	260066	06/01/18 15:29	1.0	3	
008	vf108	SAMPLE	300022-016	Soil	260066	06/01/18 16:01	100.0	3	
009	vf109	SAMPLE	300226-001	Soil	260066	06/01/18 16:33	25.0	3	
010	vf110	SAMPLE	300022-012	Soil	260066	06/01/18 17:05	1.0	3	
011	vf111	SAMPLE	300047-001	Soil	260066	06/01/18 17:37	25.0	3	
012	vf112	SAMPLE	300047-002	Soil	260066	06/01/18 18:08	10.0	3	
013	vf113	SAMPLE	300092-001	Soil	260066	06/01/18 18:40	25.0	3	
014	vf114	SAMPLE	300022-011	Soil	260066	06/01/18 19:11	1.0	3	
015	vf115	CCV	CCV			06/01/18 19:42	1.0	4	

JW1 06/04/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S36307 2=S36973 3=S36018 4=S36976

Flags used: ?t=missing tune

Page 1 of 1

SAMPLE PREPARATION SUMMARY

Batch # : 260066		Analysis : 8270-SIM
Started By : ALE	Prep Date : 31-MAY-2018 11:33	Finished By : ALE
Method : 3550C	SOP Version : 8270-SIM_3550_rv6	Units : g
Spike #1 ID : S36715	Spike #2 ID : S36376	

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
300022-008		Soil	30.2	1	1	0.03311		1				8270-SIM	Transferred weight from SA2179
300022-010		Soil	30	1	1	0.03333		1				8270-SIM	Transferred weight from SA2182
300022-011		Soil	29.8	1	1	0.03356		1				8270-SIM	Transferred weight from SA2183
300022-012		Soil	29.69	1	1	0.03368		1				8270-SIM	Transferred weight from SA2184
300022-016		Soil	29.68	1	1	0.03369		1				8270-SIM	Transferred weight from SA2185
300047-001		Soil	30.09	1	1	0.03323		1				8270-SIM	Transferred weight from SA2186
300047-002		Soil	30.11	1	1	0.03321		1				8270-SIM	Transferred weight from SA2187
300092-001		Soil	30.12	1	1	0.0332		1				8270-SIM	See comment 1 below
300223-001		Soil	29.94	1	1	0.0334		1				8270-SIM	See comment 2 below
300223-002		Soil	30.33	1	1	0.03297		1				8270-SIM	See comment 2 below
300223-003		Soil	29.88	1	1	0.03347		1				8270-SIM	See comment 2 below
300223-004		Soil	30.32	1	1	0.03298		1				8270-SIM	See comment 2 below
300226-001		Soil	30.12	1	1	0.0332		1				8270-SIM	See comment 3 below
QC934136	BLANK	Soil	30	1	1	0.03333		1				8270-SIM	
QC934137	LCS	Soil	30	1	1	0.03333		1	1			8270-SIM	
QC934138	MS	Soil	30.35	1	1	0.03295		1	1			8270-SIM	Transferred weight from SA2180
QC934139	MSD	Soil	30.25	1	1	0.03306		1	1			8270-SIM	Transferred weight from SA2181

Comment 1: MIS-dry; Transferred weight from SA2188

Comment 2: Prepped 31-MAY-2018 12:05; A/O ALE

Comment 3: Prepped 01-JUN-2018 11:10; A/O ALE

JW1 06/01/18 : Ok to report 300223 without MS/D per MJD.

LW 06/01/18 : Paperwork for samples started 5-31-18, Blank and LCS reviewed

JW1 06/04/18 : Ok to report MS/D for 300022 with failures per MJD.

Analyst: JW1 Date: 06/01/18 Reviewer: LW Date: 06/04/18

LIMS Batch No: 260066
 LIMS Analysis: 8270-SIM
 Date Extracted: 5/31/18

Extraction Method:
 EPA 3550C Sonication
 Other _____

Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Cleanup (x if needed)	Comments
300022-008	C	transferred	✓ 1.0 □		MISS A/O ALE 1130 5/31/18
↓	10 B		✓ 1.0 □		RD1 5/31/18
	11 B		✓ 1.0 □		
	12 A		✓ 1.0 □		
5 ↓	16 B		✓ 1.0 □		
	300047-001 E		✓ 1.0 □		
↓	2 E		✓ 1.0 □		
300092-001	ABC		✓ 1.0 □		MS-dry
MR QC934136	N/A	30.00	✓ 1.0 □		
10 LCS	7 N/A	30.00	✓ 1.0 □		
MS	8 C	transferred	✓ 1.0 □		OK
MSD ↓	9 C		✓ 1.0 □		
300223-001	E	29.94	✓ 1.0 □		
↓	2	30.33	✓ 1.0 □		RD1 5/31/2018
15 ↓	3	29.88	✓ 1.0 □		
	4	30.32	✓ 1.0 □		
			□ 1.0 □		
			□ 1.0 □		
			□ 1.0 □		
20 ↓			□ 1.0 □		
			□ 1.0 □		
			□ 1.0 □		
			□ 1.0 □		
			□ 1.0 □		
			□ 1.0 □		

MS/MSD not included due to: insufficient volume, or other (reason)

Balance ID: B-15 Has been calibrated? Yes No

Baked, CH₂Cl₂-rinsed granular Na₂SO₄ used for QC & to dry samples

1.0 mL of surrogate solution was added to all samples

1.0 mL of matrix spiking solution was added to all spikes

≥100mL 1:1 CH₂Cl₂:Acetone was added to all:

CH₂Cl₂

Acetone

Solvent was added at (time)

sonicated 3 times w/ ≥100mL soxhlet extractors on at:

soxhlets off at:

Extracts filtered through baked, CH₂Cl₂-rinsed powdered Na₂SO₄

Concentrated to final volume at temperature (degrees C)

Used thermometer(s) #

Relinquished to BNA department

Mfg & Lot # / LIMS # / Time	Date/Initials
EM16128500	8-21-18/3-29-18 ALE 5/31/18
S36715B	
S36376A	
EM58068	
FC181319	
11:33/12:05/11:10	
N/A	
18B2156592	5-30-18
70 °C	
AC18852, AC18998, L91279	

[Signature] 5/31/18
 Extraction Chemist / Date

Continued from page 77

Continued on page 77

A/O R/R DO 6/4/18

Reviewed by / Date [Signature] 5/31/18

Standards



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31086 **Lot No.:** A0113030

Description : B/N Surrogate Mix (4/89 SOW)
Base Neutral Surrogate 5000µg/mL, Methylene Chloride, 5mL/ampul

Container Size : 5 mL **Pkg Amt:** > 5 mL

Expiration Date : July 31, 2021 **Storage:** 10°C or colder

Handling: Sonicate prior to use.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Nitrobenzene-d5	5,005.3 µg/mL	+/-	29.1012	µg/mL Gravimetric
	CAS # 4165-60-0 (Lot PR-24042)		+/-	222.3881	µg/mL Unstressed
	Purity 99%		+/-	244.3345	µg/mL Stressed
2	2-Fluorobiphenyl	5,002.8 µg/mL	+/-	29.0867	µg/mL Gravimetric
	CAS # 321-60-8 (Lot R30A016)		+/-	222.2770	µg/mL Unstressed
	Purity 99%		+/-	244.2125	µg/mL Stressed
3	p-Terphenyl-d14	5,003.8 µg/mL	+/-	29.0925	µg/mL Gravimetric
	CAS # 1718-51-0 (Lot PR-21037)		+/-	222.3214	µg/mL Unstressed
	Purity 99%		+/-	244.2613	µg/mL Stressed

Solvent: Methylene Chloride
CAS # 75-09-2
Purity 99%

5 µg/ml b/n surrogates-res SRC
HI_BNSURR in Methylene Chloride
ARG 11-SEP-15 5000 µg/mL
528055 I Expires: 30-JUL-15

APB 9/11/15

Tech Tips:

Due to the limited solubility of p-terphenyl-d14 in methanol, we do not recommend that this mixture be diluted in methanol. Note that 1,2-diphenylhydrazine is an unstable compound that will oxidize to azobenzene, thereby decreasing the concentration of 1,2-diphenylhydrazine over time. For accurate calibration results, it is recommended that the concentrations of 1,2-diphenylhydrazine and azobenzene be combined. Please contact the Restek Technical Service Team if you have any questions about this issue.

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage\ stability}^2 + U_{shipping\ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Certificate of Analysis

Description: 1,4-Dioxane, 1x1ml, methanol, 2000ug/ml

Catalog Number: CRM48367
Lot Number: LC16305V

Expiration: September 2018

Storage: Room Temperature

Instructions for Use:
This sample is ready to use.
No additional sample preparation
is necessary.

Analyte	CAS Number	Certified Conc. ug/mL	Uncertainty ug/mL	k
1,4-Dioxane	123-91-1	2000	+/- 58.2	2.00

1,4-Dioxane ICV standard @ SRC
CRM48367 in Methanol
KRL 02-JUN-16 2000 ug/mL
500050 A Expires: 30-SEP-18

KRL 6/2/16

Manufactured and certified by Sigma-Aldrich RTC, Inc.



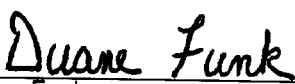
Page 1 of 2

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Notes:

- Certified value – based on a prepared to value and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.
- Expanded Uncertainty – Uncertainty values in this document are expressed as Expanded Uncertainty (U_{crn}) corresponding to the 95% confidence interval. U_{crn} is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a t-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.
- k: Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. Confidence interval = 95%
- Traceability: The standard was manufactured under an ISO/IEC certified quality system. The balance used to weight raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were performed gravimetrically. Additionally, individual analytes are traceable to NIST SMRs were available or other certified reference material as specified by each analyte.
- Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See instructions for minimum sub-sample size.

Certification Date: 9/25/2015
Form: CRM48367



Duane Funk
QC Manager

Manufactured and certified by Sigma-Aldrich RTC, Inc.



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SIGMA-ALDRICH®

Certificate of Composition

DESCRIPTION: CURTIS & TOMPKINS LTD

QUOTE 22121171 LOT NO.: LC21347V EXPIRATION DATE: Jun-2018

SOLVENT: BENZENE 50 %
 DICHLOROMETHANE 50 %

ANALYTE (1)	CAS NUMBER	PERCENT PURITY (2)	WEIGHT CONCENTRATION (3)	SUPELCO LOT NO
ACENAPHTHENE	83-32-9	99.2	200.0 +/- 1.00	LC09064
ACENAPHTHYLENE	208-96-8	99.9	200.0 +/- 1.00	LB84923
ANTHRACENE	120-12-7	99.9	200.0 +/- 1.00	LB96710
BENZO (A) ANTHRACENE	56-55-3	98.2 (a)	200.0 +/- 1.00	LC13241
BENZO (A) PYRENE	50-32-8	99.3 (a)	200.0 +/- 1.00	LC00512
BENZO (B) FLUORANTHENE	205-99-2	99.9	200.0 +/- 1.00	LC06886
BENZO (G,H,I) PERYLENE	191-24-2	99.3	200.0 +/- 1.00	LB92103
BENZO (K) FLUORANTHENE	207-08-9	99.9	200.0 +/- 1.00	LC01463
CHRYSENE	218-01-9	99.6	200.0 +/- 1.00	LB96893
DIBENZ (A,H) ANTHRACENE	53-70-3	99.9	200.0 +/- 1.00	LC13558
FLUORANTHENE	206-44-0	98.6	200.0 +/- 1.00	LB99099
FLUORENE	86-73-7	98.8	200.0 +/- 1.00	LC09063
INDENO (1,2,3-CD) PYRENE	193-39-5	99.8	200.0 +/- 1.00	LC14687
NAPHTHALENE	91-20-3	99.9	200.0 +/- 1.00	LB89929
NITROBENZENE-D5	4165-60-0	99.9	200.0 +/- 1.00	LB83753
P-TERPHENYL-D14	1718-51-0	99.9	200.0 +/- 1.00	LC16841
PHENANTHRENE	85-01-8	99.1	200.0 +/- 1.00	LB92396
PYRENE	129-00-0	91.6 (a)	200.0 +/- 1.00	LB70761
1-METHYLNAPHTHALENE	90-12-0	98.6	200.5 +/- 1.00	LC13481

- (1) Listed in alphabetical order.
- (2) Determined by capillary GC-FID, unless otherwise noted.
 - a) HPLC UV-254NM
- (3) NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is ug/ml +/- 0.5%, based upon balance and Class A volumetric glassware tolerances. Weights are corrected for analytes less than 98% pure.

Custom SIM IOV Standard 9 SRC
 CSTNSIMIOV-
 RM 01-JUL-15 200 ug/mL
 538387 K Expires: 30-JUN-18

RM MMB

Duane Funk

Duane Funk
 Quality Manager

SUPELCO[®]
 Solutions within.™

595 North Harrison Road
 Bellefonte, PA 16823-0048 USA
 Phone (814) 359-3441

Supelco warrants that its products conform to the information contained in this publication. Purchaser must determine the suitability of the product for its particular use. Please see the latest catalog or order invoice and packing slip for additional terms and conditions of sale.

Supelco is a Sigma-Aldrich Company. Sigma-Aldrich Corp. is a subsidiary of Merck KGaA, Darmstadt, Germany.

Certificate of Composition

DESCRIPTION: CURTIS & TOMPKINS LTD

QUOTE 22121171 LOT NO.: LC21347V EXPIRATION DATE: Jun-2018

SOLVENT: BENZENE 50 %
DICHLOROMETHANE 50 %

ANALYTE (1)	CAS NUMBER	PERCENT PURITY (2)	WEIGHT CONCENTRATION (3)	SUPELCO LOT NO
2-FLUOROBIPHENYL	321-60-8	99.9	200.0 +/- 1.00	LB99948
2-METHYLNAPHTHALENE	91-57-6	98.2	200.0 +/- 1.00	LB97828

- (1) Listed in alphabetical order.
- (2) Determined by capillary GC-FID, unless otherwise noted.
 - a) HPLC UV-254NM
- (3) NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is ug/ml +/- 0.5%, based upon balance and Class A volumetric glassware tolerances. Weights are corrected for analytes less than 98% pure.

Duane Funk

Duane Funk
Quality Manager

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CERTIFICATE OF ANALYSIS

Catalog No: APP-9-096-10X

Description: p-Dioxane Standard

Lot: 214121041

Solvent: Methanol

Hazards: **HIGHLY FLAMMABLE** - Refer to SDS for safety info

Date Certified: Dec 2, 2014

Expiration: Dec 2, 2024

Sample Size: 1 mL

Components: 1

Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO Guide 34 Scope of Accreditation: Yes



Danger 2

Component	CAS #	Purity % (MFG)	Prepared Concentration ¹ (µg/mL)	Certified Analyte Concentration ² (µg/mL)
p-Dioxane	123-91-1	99.0	1005	995

1,4-Dioxane ICV 1000µg/mL SRC
DIOXANEACC in Methanol
KKL 27-JUL-17 1000 µg/mL
S33970 B 1 Expires: 02-DEC-24

KKL 7/28/17

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

¹ All weights are traceable through NIST, Test No. 822-275872-11

² Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty associated with the gravimetric values reported on this certificate is ±0.24%. The CRM Uncertainty calculated for this product is ±5%. These values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values:

A comma (,) is used to separate units of one-thousand or greater.

A period (.) is used as a decimal place marker.

See reverse side for additional information

Certified By:

Larry Decker, Organic QC Manager



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01



ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31006 Lot No.: A0132304

Description : SV Internal Standard Mix
SV Internal Standard Mix 4,000 µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : October 31, 2023 Storage: 10°C or colder

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dichlorobenzene-d4	4,024.5 µg/mL	+/-	23.3988	µg/mL Gravimetric
	CAS # 3855-82-1 (Lot PR-18488)		+/-	181.2659	µg/mL Unstressed
	Purity 99%		+/-	201.1369	µg/mL Stressed
2	Naphthalene-d8	4,021.3 µg/mL	+/-	23.3802	µg/mL Gravimetric
	CAS # 1146-65-2 (Lot PR-20449)		+/-	181.1218	µg/mL Unstressed
	Purity 99%		+/-	200.9770	µg/mL Stressed
3	Acenaphthene-d10	4,038.8 µg/mL	+/-	23.4819	µg/mL Gravimetric
	CAS # 15067-26-2 (Lot PR-25444)		+/-	181.9100	µg/mL Unstressed
	Purity 99%		+/-	201.8516	µg/mL Stressed
4	Phenanthrene-d10	4,024.6 µg/mL	+/-	23.3994	µg/mL Gravimetric
	CAS # 1517-22-2 (Lot PR-27621)		+/-	181.2704	µg/mL Unstressed
	Purity 99%		+/-	201.1419	µg/mL Stressed
5	Chrysene-d12	4,025.4 µg/mL	+/-	23.4040	µg/mL Gravimetric
	CAS # 1719-03-5 (Lot PR-26960)		+/-	181.3064	µg/mL Unstressed
	Purity 99%		+/-	201.1819	µg/mL Stressed
6	Perylene-d12	4,029.7 µg/mL	+/-	23.4290	µg/mL Gravimetric
	CAS # 1520-96-3 (Lot PR-27342)		+/-	181.5001	µg/mL Unstressed
	Purity 99%		+/-	201.3968	µg/mL Stressed

sv internal standard at 40 SRC
SVOC IS
KKL 27-DEC-17 4000 ug/mL
S35573 I | Expires: 31-OCT-23

KKL 12/27/17

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

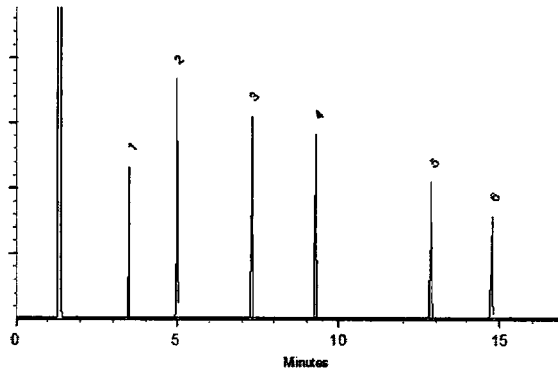
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Cyndee L. Crust
Cyndee L. Crust - Mix Technician

Date Mixed: 09-Nov-2017 **Balance:** B442140311

Justin Albertson
Justin Albertson - Operations Tech-ARM GC

Date Passed: 13-Nov-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31615 Lot No.: A0131612

Description : GC/MS Tuning Mixture
GC/MS Tuning Mixture 1,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : October 31, 2020 Storage: 10°C or colder

Handling: Contains carcinogen/reproductive toxin.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Pentachlorophenol	1,004.2 µg/mL (Lot 170717KJA)	+/-	5.8520	µg/mL Gravimetric
	CAS # 87-86-5		+/-	45.7352	µg/mL Unstressed
	Purity 99%		+/-	66.0395	µg/mL Stressed
2	DFTPP (Decafluorotriphenylphosphine)	1,007.8 µg/mL (Lot Q15B005)	+/-	5.8730	µg/mL Gravimetric
	CAS # 5074-71-5		+/-	45.8992	µg/mL Unstressed
	Purity 99%		+/-	66.2762	µg/mL Stressed
3	Benzidine	1,004.0 µg/mL (Lot 171707KJA)	+/-	5.8508	µg/mL Gravimetric
	CAS # 92-87-5		+/-	45.7261	µg/mL Unstressed
	Purity 99%		+/-	66.0263	µg/mL Stressed
4	4,4'-DDT	1,008.2 µg/mL (Lot S37912V)	+/-	5.8753	µg/mL Gravimetric
	CAS # 50-29-3		+/-	45.9174	µg/mL Unstressed
	Purity 99%		+/-	66.3025	µg/mL Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

GC/MS Tuning Mixture SRC
31615 in Methylene Chloride
KKL 22-JAN-18 1000 ug/mL
S35753 C | Expires: 31-OCT-20
KPL 1/22/18

Column:

30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

Carrier Gas:

hydrogen-constant pressure 10 psi.

Temp. Program:

75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:

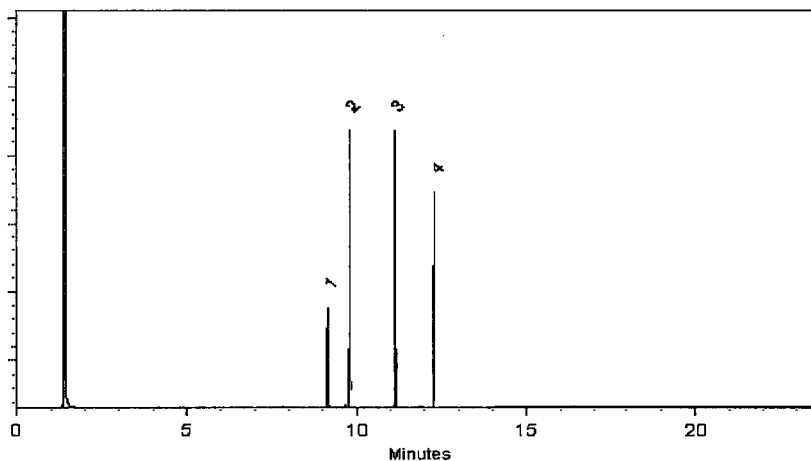
250°C

Det. Temp:

330°C

Det. Type:

FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Tom Suckar - Mix Technician

Date Mixed: 12-Oct-2017

Balance: 1128353505

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 17-Oct-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397



CERTIFICATE OF ANALYSIS

Catalog No: CLP-HC-BN-R
Description: Base/Neutral Composite Mixture
Lot: 217041352
Solvent: Acetonitrile (20%)
Benzene (40%)
Dichloromethane (40%)
Hazards: Refer to SDS for complete safety information

Date Certified: May 15, 2017
Expiration: Jun 15, 2019
Sample Size: 1 mL
Components: 44

Storage Condition: Freeze (<-10 °C)/Sonicate

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO Guide 34 Scope of Accreditation: Yes



Signal Word: Danger

Component	CAS #	Purity % (GC/MS)	Prepared Concentration ¹ (µg/mL)	Certified Analyte Concentration ² (µg/mL)
Acenaphthene	83-32-9	100.0	2010	2010
Acenaphthylene	208-96-8	98.2	2006	1970
Anthracene	120-12-7	99.6	2006	1998
Azobenzene	103-33-3	99.3	2002	1988
Benz(a)anthracene	56-55-3	99.9	2010	2008
Benzo(b)fluoranthene	205-99-2	100.0	2008	2008
Benzo(k)fluoranthene	207-08-9	100.0	2012	2012
Benzo(g,h,i)perylene	191-24-2	98.1	2002	1964
Benzo(a)pyrene	50-32-8	99.9	2000	1998
4-Bromophenyl phenyl ether	101-55-3	98.0	2004	1964
Benzyl butyl phthalate	85-68-7	98.4	2004	1972
bis(2-Chloroethoxy)methane	111-91-1	99.9	2008	2006
bis(2-Chloroethyl)ether	111-44-4	99.5	2008	1998
bis(2-Chloro-1-methylethyl)ether	108-60-1	100.0	2000	2000
2-Chloronaphthalene	91-58-7	98.0	2000	1960
4-Chlorophenyl phenyl ether	7005-72-3	98.2	2018	1982
Chrysene	218-01-9	99.8	2006	2002
Dibenz(a,h)anthracene	53-70-3	98.3	2008	1974
Di-n-butyl phthalate	84-74-2	98.4	2000	1968
1,2-Dichlorobenzene	95-50-1	99.2	2000	1984
1,3-Dichlorobenzene	541-73-1	98.8	2002	1978
1,4-Dichlorobenzene	106-46-7	100.0	2002	2002
Diethyl phthalate	84-66-2	99.9	2000	1998
Dimethyl phthalate	131-11-3	98.0	2004	1964
2,4-Dinitrotoluene	121-14-2	100.0	2000	2000
2,6-Dinitrotoluene	606-20-2	100.0	2002	2002
Di-n-octyl phthalate	117-84-0	99.1	2006	1988
bis(2-Ethylhexyl)phthalate	117-81-7	99.6	2000	1992
Fluoranthene	206-44-0	98.6	2000	1972
Fluorene	86-73-7	98.1	2004	1966
Hexachlorobenzene	118-74-1	99.2	2000	1984
Hexachlorobutadiene	87-68-3	98.0	2006	1966
Hexachlorocyclopentadiene	77-47-4	98.4	2000	1968
Hexachloroethane	67-72-1	100.0	2002	2002
Indeno(1,2,3-cd)pyrene	193-39-5	98.8	2004	1980
Isophorone	78-59-1	98.4	2000	1968
Naphthalene	91-20-3	98.4	2014	1982
Nitrobenzene	98-95-3	99.8	2002	1998
N-Nitrosodimethylamine	62-75-9	100.0	2000	2000
N-Nitroso-di-n-propylamine	621-64-7	99.5	2002	1992
N-Nitrosodiphenylamine	86-30-6	100.0	2000	2000
Phenanthrene	85-01-8	100.0	2006	2006
Pyrene	129-00-0	98.1	2004	1966
1,2,4-Trichlorobenzene	120-82-1	99.3	2004	1980

Base/Neutral Mix @ 2000 ug SRC
CLP-HC-BN-R in Other
KKL 09-JAN-18 2000 ug/mL
S35945 B | Expires: 15-JUN-19
KKL 1/9/18



CERTIFICATE OF ANALYSIS

Catalog No: CLP-HC-BN-R
Description: Base/Neutral Composite Mixture
Lot: 217041352
Solvent: Acetonitrile (20%)
Benzene (40%)
Dichloromethane (40%)

Date Certified: May 15, 2017
Expiration: Jun 15, 2019
Sample Size: 1 mL
Components: 44

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

¹ All weights are traceable through NIST, Test No. 822-275872-11

² Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the gravimetric values reported on this certificate is $\pm 0.24\%$. This value is the expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of $K=2$ is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

See reverse side for additional information

Certified By: _____

Larry Decker, Organic QC Manager



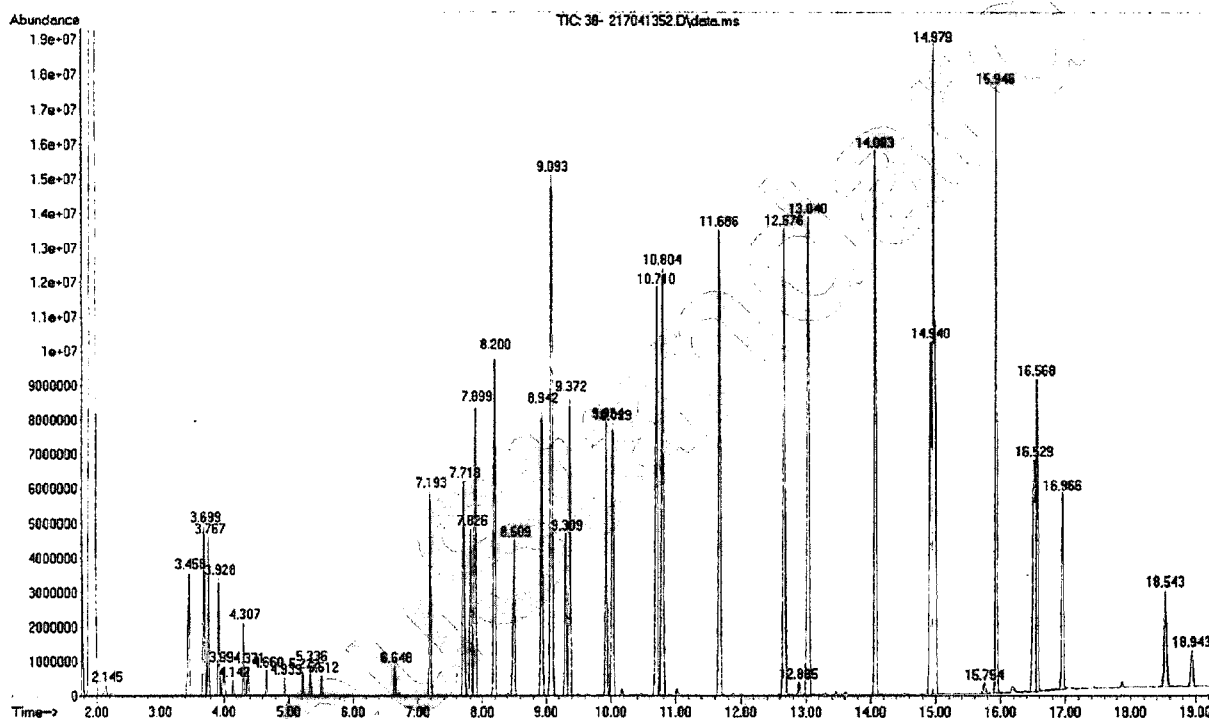
CERTIFICATE OF ANALYSIS

Catalog No: CLP-HC-BN-R
Description: Base/Neutral Composite Mixture
Lot: 217041352
Solvent: Acetonitrile (20%)
Benzene (40%)
Dichloromethane (40%)

Date Certified: May 15, 2017
Expiration: Jun 15, 2019
Sample Size: 1 mL
Components: 44

Chromatogram

File : C:\msdchem\1\data\05081701\38- 217041352.D
Operator : K.D. & D.C
Acquired : May 17 3:22 am using AcqMethod DECKER2014.M
Instrument : Jack MSD
Sample Name : CLP-EN-R
Misc Info : @2000ug/mL
Vial Number: 60





CERTIFICATE OF ANALYSIS

Catalog No: CLP-HC-BN-R
Description: Base/Neutral Composite Mixture
Lot: 217041352
Solvent: Acetonitrile (20%)
Benzene (40%)
Dichloromethane (40%)

Date Certified: May 15, 2017
Expiration: Jun 15, 2019
Sample Size: 1 mL
Components: 44

Raw Data

Data Path : C:\msdchem\1\data\05081701\
Data File : 38- 217041352.D
Acq On : 9 May 17 3:22 am
Operator : K.D. & D.C
Sample : CLP-BN-R
Misc : 82000ug/mL
ALS Vial : 60 Sample Multiplier: 1

Integration Parameters: autoint1.e
Integrator: ChemStation

Method : C:\msdchem\1\methods\DECKER2014_SVOC.M
Title : SVOC 2017 PT

Signal : TIC: 38- 217041352.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % MAX.	% of total
1	2.145	114	125	132	BV	298198	7535625	1.73%	0.144%
2	3.458	273	281	286	BB	3423877	59842562	13.49%	1.126%
3	3.699	303	309	313	BV	4701765	79917012	18.32%	1.529%
4	3.767	313	317	323	VB	4381649	69842849	15.78%	1.317%
5	3.928	331	337	340	BV	3193997	48456147	11.11%	0.927%
6	3.994	340	344	352	VB	836780	17808517	4.08%	0.341%
7	4.142	358	362	366	BB	449955	5952580	1.36%	0.114%
8	4.307	376	381	385	BV	1926702	27190418	6.23%	0.520%
9	4.371	385	389	394	VB	840639	11533255	2.64%	0.221%
10	4.660	418	423	430	BB	693502	8674351	1.99%	0.166%
11	4.939	453	456	462	BB	469365	6092777	1.40%	0.117%
12	5.222	483	490	495	BV	678369	9418195	2.16%	0.180%
13	5.336	495	503	511	PB	856962	11380068	2.61%	0.218%
14	5.512	520	524	530	BB	555191	7201213	1.65%	0.138%
15	6.648	653	659	663	BV	852086	11977819	2.75%	0.229%
16	7.193	717	723	731	BB	5672626	90276200	20.70%	1.728%
17	7.718	773	785	791	BV	5993427	128475567	29.46%	2.450%
18	7.826	791	798	802	VV	4676760	88297088	20.24%	1.690%
19	7.899	802	807	814	VB	8166658	153492702	35.19%	2.937%
20	8.200	834	843	850	BB	9747842	158031040	36.23%	3.024%
21	8.509	871	879	887	VB	4337195	98799943	22.65%	1.891%
22	8.942	923	930	938	BV	7974450	136372625	31.27%	2.610%
23	9.093	938	948	962	VB 4	14661873	307503377	70.50%	5.885%
24	9.309	967	974	977	BV	4688426	81728178	18.74%	1.564%
25	9.372	977	981	987	VB	8322432	142098307	32.58%	2.719%
26	9.934	1040	1048	1052	BV	7931737	130377575	29.89%	2.495%
27	10.029	1052	1059	1067	VB	7564113	151172288	34.66%	2.893%
28	10.710	1128	1140	1144	BV	11410882	235132301	53.91%	4.500%
29	10.804	1144	1151	1160	VV	11718659	235518811	54.00%	4.507%
30	11.686	1243	1256	1267	BB	13239814	242237943	55.54%	4.636%
31	12.676	1358	1373	1398	BB	13496125	312023993	71.54%	5.971%
32	12.885	1392	1398	1403	BB	372512	6423829	1.47%	0.123%
33	13.040	1405	1416	1429	BB	13556658	321712150	73.76%	6.157%
34	14.083	1530	1539	1551	BB	15301487	289634695	66.40%	5.543%
35	14.940	1629	1641	1643	BV	10205831	231168758	53.00%	4.424%
36	14.979	1643	1646	1654	VB 2	18112325	436168879	100.00%	8.347%
37	15.754	1731	1737	1748	BB	293091	5968117	1.37%	0.114%
38	15.946	1751	1760	1772	BB	16813711	277172246	63.55%	5.304%
39	16.529	1816	1829	1831	VV	6705226	187673154	43.03%	3.592%
40	16.568	1831	1834	1842	VB	9107491	175083349	40.14%	3.351%
41	16.966	1846	1881	1888	BV	5643480	118978534	27.28%	2.277%
42	18.543	2050	2068	2086	BV 2	2791890	76578105	17.56%	1.465%
43	18.943	2104	2115	2123	BV	1053095	26513508	6.08%	0.507%

Sum of corrected areas: 5225426630

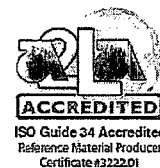


CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31283 Lot No.: A0131410
 Description : 1-Methylnaphthalene Standard
1-Methylnaphthalene Standard 1000 µg/mL, Methanol, 1mL /ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : September 30, 2023 Storage: 25°C nominal

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1-Methylnaphthalene CAS # 90-12-0 Purity 99% (Lot 525000-9)	998.0 µg/mL	+/- 7.0767 µg/mL	+/- 45.1327 µg/mL	Gravimetric
			+/- 50.0424 µg/mL		Unstressed
					Stressed

Solvent: Methanol
 CAS # 67-56-1
 Purity 99%

1-Methylnaphthalene SRC
 MENAP in Methanol
 KKL 27-DEC-17 1000 µg/mL
 S35947 D 1 Expires: 30-SEP-23
 K&L 12/27/17

Column:

30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

Carrier Gas:

hydrogen-constant pressure 10 psi.

Temp. Program:

75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:

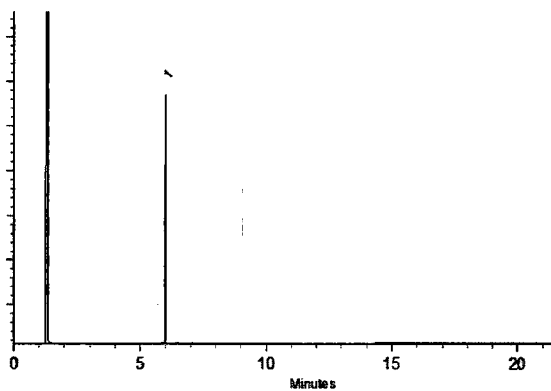
250°C

Det. Temp:

330°C

Det. Type:

FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Cyndee L. Crust
Cyndee L. Crust - Mix Technician

Date Mixed: 05-Oct-2017

Balance: B442140311

Justin A. Anderson
Justin A. Anderson - Operations Trainee GC

Date Passed: 06-Oct-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31285 Lot No.: A0128166

Description : 2-Methylnaphthalene Standard
2-Methylnaphthalene 1000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : May 31, 2023 Storage: 25°C nominal

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Methylnaphthalene CAS # 91-57-6 Purity 95% (Lot STBF0201V)	1,001.3 µg/mL	+/- 5.9474	µg/mL	Gravimetric
			+/- 45.1156	µg/mL	Unstressed
			+/- 50.0579	µg/mL	Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

2-methylnaphthalene r SRC
2-MENAP_R
KKL 27-DEC-17 1000 ug/mL
S35948 D 1 Expires: 31-MAY-23
KKL 12/27/17

Column:

30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

Carrier Gas:

hydrogen-constant pressure 10 psi.

Temp. Program:

75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:

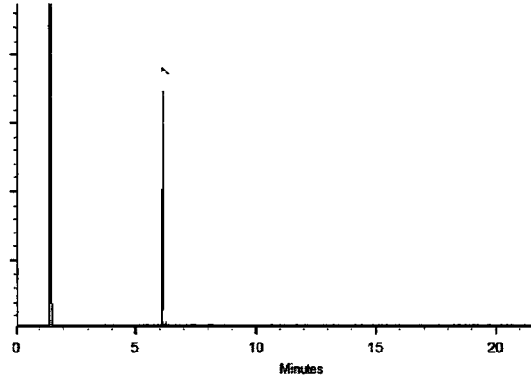
250°C

Det. Temp:

330°C

Det. Type:

FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Cathleen Soltis
Cathleen Soltis - Mix Technician

Date Mixed: 06-Jun-2017 Balance: B442140311

Justin Albertson
Justin Albertson - Operations Tech-AP&S GC

Date Passed: 08-Jun-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

TITLE mssvoa standards prep log PROJECT DATE

DATE

Continued from page

Analyst and Date: JW1 02/14/18

Standard Name: IS100PPM

Concentration: 100 ug/mL

LIMS Std. Ref #: S36018

Expiration Date: 8/14/2018

13 JW1 2/14/18

Rinsed 5 ml volumetric flask with DCM and partially filled with the same lot of solvent.

Rinsed syringe with solvent and then with the standard prior to use.

Added standards as listed below.

Brought to volume with the same solvent and inverted several times.

Transferred into 2ml amber vials.

Standards:	LIMS#	Conc (ug/mL)	Vol added (uL)	Final conc (ug/mL)
DCM lot# EM57251			4875	
SVOC IS	S35573	4000	125	100

RESTEK 31006 Lo# A0132304 Expire: 10/2023 SV Internal Standard Mix Sonication required. Mix is photosensitive. 4000 µg/mL each in Methylene Chloride Full label information for the chemical is provided on the outside package. JW1 2/14/18	112 Brewer Circle Edenbridge, PA 15821 814-353-2200 Made in USA For Labeling Use Only Warning 1 mL Store: 10°C or colder	8270 INTERNAL STD 100PPM f WRK IS100PPM in Methylene Chloride JW1 14-FEB-18 100 ug/mL S36018 D I Expires: 13-AUG-18 JW1 2/14/18
---	--	---

Final vol (uL) 5000

JW1 2/14/18

JW1 2/14/18

Continued to page

SIGNATURE

DATE

2/14/18

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2/14/18

PROPRIETARY INFORMATION

KKL

TITLE *MSSVOA Standards preplog* PROJECT

DATE

Continued from page

Analyst and Date: JW1 03/15/18

Standard Name: PEM/DFTPP

Concentration: 50ug/mL

LIMS Std. Ref #: S36307

Expiration Date: 9/11/2018

Rinsed 20 ml volumetric flask with DCM and partially filled with the same lot of solvent.
Rinsed syringe/s with solvent and then with the standard prior to use.
Added standards as listed below.
Brought to volume with the same solvent and inverted several times.
Transferred into a 40ml VOA vial.

Standards:	LIMS#	Conc (ug/mL)	Vol added (uL)	Final conc (ug/mL)
DCM lot#57291			19000	
31615	S35753	1000	1000	50
<p>DFTPP and PEM mix at 50ug/ WRK PEM/DFTPP in Methylene Chloride JW1 15-MAR-18 50 ug/mL S36307 B I Expires: 11-SEP-18 JW1 3/15/18</p>				
<p>RESTEK 100 Some One Bedford, PA 15013 941.361.1300 Made in USA Hazardous Use Only</p> <p>31615 Danger 1 mL Lot# A0131612 Expire: 10/2020 Store: 10°C or colder GC/MS Tuning Mixture Contains carcinogen/reproductive toxin. 1000 ug/mL each in Methylene Chloride Full information for use can be found on the outside package JW1 3/15/18</p>			Final vol (uL)	20000

JW1 3/15/18
JWB JW1 3/15/18

JW1 3/15/18

SIGNATURE 

DATE 3/15/18

DISCLOSED TO AND UNDERSTOOD BY
KEL

DATE 3/15/18

PROPRIETARY INFORMATION

Continued to page

TITLE

PROJECT 8270-SIM-DIOXANE Spiking Standard

Initials: RD1 Date Prepared: 20-MAR-18 8270-SIM/14-DIOXANE Spiking Standard


LIMS Name: SIMDIOXSPIKE Expires: 29-AUG-18 Standard # S 36376

F:\qc\forms\lab\recipe_simdioxspike.doc, v2, 3/15/17

1. Rinsed a 100mL class A volumetric flask with MeOH (lot# FC176576) 3 times and dried with N2(g).

2. Partially filled flask with MeOH (same lot number)

3. Added 0.30 mL of DIOXANEACC (S# 34651 EXP: 09-APR-25)
Calculation: $(0.3 \text{ mL}/100\text{mL}) * (1,000 \mu\text{g}/1.0\text{mL}) = 3.0 \mu\text{g}/\text{mL}$

	AccuStandard APP-9-096-10X p-Dioxane 1000 µg/mL in MeOH Lot: 215041146 Exp: Apr 09, 2025	125 Market Street • New Haven, CT 06513 • USA Tel. 203-786-5290 • www.accustandard.com	FOR LABORATORY USE ONLY H225 H336 H370 H320 H315 H311 H332 H301 H351 H360, H350 P338 P360 P331 P233 P262
	1 mL 1 comp(s) Storage: Ambient (>5 °C)	Signal Word Danger	
	<i>RD1 3/20/2018</i>		
	No sticker available		

4. Added 0.050 mL CLP-HC-BN-R (S# 32885 EXP: 29-AUG-18)
Calculation: $(0.5\text{mL}/100\text{mL}) * (2000 \mu\text{g}/1.0\text{mL}) = 1.0 \mu\text{g}/\text{mL}$

No sticker available

5. Added 0.10 mL MENAP (S# 35383 EXP: 30-SEP-23)
Calculation: $(0.1\text{mL}/100\text{mL}) * (10000 \mu\text{g}/1.0\text{mL}) = 1.0 \mu\text{g}/\text{mL}$

No sticker available

6. Added 0.10 mL 2-MENAP_R (S# 34350 EXP: 31-MAY-23)
Calculation: $(0.1\text{mL}/100\text{mL}) * (10000 \mu\text{g}/1.0\text{mL}) = 1.0 \mu\text{g}/\text{mL}$

No sticker available

SIM +1 and 2 menap@ 1ug/mL WR
SIMDIOXSPIKE in Methanol
RD1 20-MAR-18 1-3 ug/mL
S36376 E 1 Expires: 29-AUG-18

7. Brought up to volume with MeOH (same lot number)
8. Inverted 3x to mix and transferred to (5) 20mL scintillation vials.
9. Stored in freezer at < -10°C.

RD1 3/20/2018

d to page

SIGNATURE <i>Rita Doto</i>	DATE 3/20/2018
DISCLOSED TO AND UNDERSTOOD BY	DATE
PROPRIETARY INFORMATION	



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31006 Lot No.: A0133788
 Description : SV Internal Standard Mix
SV Internal Standard Mix 4,000 µg/mL, Methylene Chloride, 1mL/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : November 30, 2023 Storage: 10°C or colder
 Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

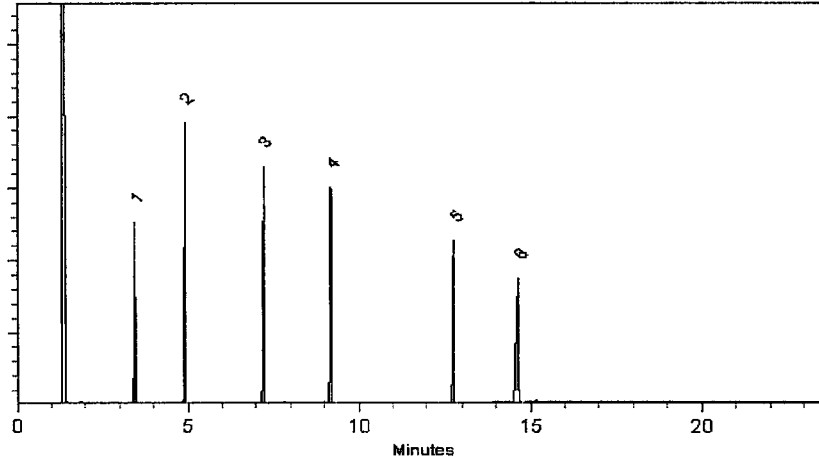
Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	1,4-Dichlorobenzene-d4 CAS # 3855-82-1 (Lot PR-18488) Purity 99%	4,006.4 µg/mL	+/- 23.2936	µg/mL	Gravimetric	
			+/- 180.4507	µg/mL	Unstressed	
			+/- 200.2323	µg/mL	Stressed	
2	Naphthalene-d8 CAS # 1146-65-2 (Lot PR-20449) Purity 99%	4,012.1 µg/mL	+/- 23.3267	µg/mL	Gravimetric	
			+/- 180.7074	µg/mL	Unstressed	
			+/- 200.5172	µg/mL	Stressed	
3	Acenaphthene-d10 CAS # 15067-26-2 (Lot PR-25443) Purity 98%	3,975.5 µg/mL	+/- 23.1137	µg/mL	Gravimetric	
			+/- 179.0575	µg/mL	Unstressed	
			+/- 198.6864	µg/mL	Stressed	
4	Phenanthrene-d10 CAS # 1517-22-2 (Lot PR-27621) Purity 99%	4,034.5 µg/mL	+/- 23.4569	µg/mL	Gravimetric	
			+/- 181.7163	µg/mL	Unstressed	
			+/- 201.6367	µg/mL	Stressed	
5	Chrysene-d12 CAS # 1719-03-5 (Lot PR-27952) Purity 99%	4,016.6 µg/mL	+/- 23.3529	µg/mL	Gravimetric	
			+/- 180.9101	µg/mL	Unstressed	
			+/- 200.7421	µg/mL	Stressed	
6	Perylene-d12 CAS # 1520-96-3 (Lot PR-27342) Purity 99%	4,014.5 µg/mL	+/- 23.3406	µg/mL	Gravimetric	
			+/- 180.8155	µg/mL	Unstressed	
			+/- 200.6371	µg/mL	Stressed	

sv internal standard at 40 SRC
 SVOC IS 4000 ug/mL
 JW1 05-APR-18 Expires: 30-NOV-23
 S36585 D 1

JW1 4/5/18

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rbx-5 (cat.#10223)
Carrier Gas:
hydrogen-constant pressure 10 psi.
Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)
Inj. Temp:
250°C
Det. Temp:
330°C
Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Dawn Brown

Dawn Brownson - Mix Technician

Date Mixed: 28-Dec-2017

Balance: 1128360905

Diane Shaffer

Diane Shaffer - Operations Tech-ARM QC

Date Passed: 04-Jan-2018

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/ μ ECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage\ stability}^2 + U_{shipping\ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

TITLE MSSVOA Standards Preplog PROJECT

DATE

Continued from page

Analyst and Date: JW1 04/05/18

Standard Name: IS100PPM

Concentration: 100 ug/mL

LIMS Std. Ref #: S36596

Expiration Date: 10/2/2018

Rinsed 5 ml volumetric flask with DCM and partially filled with the same lot of solvent.

Rinsed syringe with solvent and then with the standard prior to use.

Added standards as listed below.

Brought to volume with the same solvent and inverted several times.

Transferred into 2ml amber vials.

Standards:	LIMS#	Conc (ug/mL)	Vol added (uL)	Final conc (ug/mL)
DCM lot# EM57291			4875	
SVOC IS	S36585	4000	125	100
			Final vol (uL)	5000

RESTEK 100 Series, SV 3100
31006 Made in USA
Warning 1 mL
Lot# A0133788
Expire: 11/2023 Store: 10°C or colder
SV Internal Standard Mix
Sonication required. Mix is photosensitive.
4000 µg/mL each in Methylene Chloride
Full label information for this standard is provided on the outside package.
JW1 4/5/18

JW1 4/5/18

8270 INTERNAL STD 100PPM f WRK
IS100PPM in Methylene Chloride
JW1 05-APR-18 100 ug/mL
S36596 D | Expires: 02-OCT-18

JW1 4/5/18

JW1
4/5/18

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4/5/18

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4/05/18

PROPRIETARY INFORMATION

TITLE

PROJECT 8270SIMSUR

DATE

Continued from page

Initials: RD1 Date Prepared: 4/16/2018 8270-SIM/14-DIOXANE Surrogate Standard

LIMS Name: 8270SIMSUR Expires: 13-OCT-18 Standard # S 36715
F:\qc\forms\lab\recipe_8270SIMSUR.doc, v4, 1/11/18

1. Rinsed a ~~1000mL~~ ^{500mL} class A volumetric flask with CH₂Cl₂ (lot# EM58068) 3 times and dried with N₂(g).
2. Then rinsed with MeOH (lot# FC177145) 3 times and dried with N₂(g).
3. Partially filled flask with MeOH (same lot number) FC177145
4. Added ~~0.2mL~~ ^{0.1mL} of HI_BNSURR (S# 35413 EXP: 31-AUG-23)
Calculation: (0.2 mL * 5,000µg/mL)/1,000mL = 1.0 µg/mL

No sticker available

5. Brought up to volume with MeOH (same lot number)
6. Inverted 3x to mix and transferred to (4) 250mL amber bottles.
7. Stored in freezer at < -10°C

BNSURR @1ug/mL WRK
8270SIMSUR in Methanol
RD1 16-APR-18 1 ug/ml
S36715 D 1 Expires: 13-OCT-18
RD1 4/16/2018

RD1 4/16/18

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DATE

4/16/2018

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PROPRIETARY INFORMATION

TITLE MSSVOA Standard Preply PROJECT

DATE

Continued from page

Analyst and Date: JW1 4/30/18

Standard Name: SIMICVB

Concentration: 1.0/10/1.0 ug/ml

LIMS Std. Ref #: S36862

Expiration Date: 6/30/2018

Rinsed 5 ml volumetric flask with DCM and partially filled with the same lot of solvent.

Rinsed syringes with solvent and then with the standard prior to use.

Added standards as listed below.

Brought to volume with the same solvent and inverted several times.

Transferred into 2ml amber vials.

*** Internal Standard volume is not included in the final volume calculation.

Standards:	LIMS#	Conc (ug/mL)	Vol added (uL)	Final conc (ug/mL)
DCM lot# EM58068			4950	
CRM48367 (Dioxane)*	S30060	2000	25	10
CSTMSIMICV- (PAHs)***	S30327	200	25	1
IS100PPM **	S36596	100	50	1
*see page 98 BK3318 for std label				
** see page 179 BK3739 for std prep				
*** see page 166 BK3739 for std prep				
			Final vol (uL)	5000

SIM 2nd source std at 1/1 WRK
SIMICVB in Methylene Chloride
JW1 30-APR-18 1-10 ug/mL
S36862 D | Expires: 30-JUN-18

JW1 4/30/18

JW1 4/30/18

JW1 4/30/18

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4/30/18

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PROPRIETARY INFORMATION

TITLE MSSVOA STANDARD PREPLOG

PROJECT

DATE

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RESTEK 115 Beaver Creek, Bellefonte, PA 16823, USA
 31285 Warning 1 mL
 Lot# A0128166
 Expire: 05/2023 Store: 25°C nominal
 2-Methylnaphthalene Standard
 Scintillation required. Mix is photosensitive.
 1000 µg/mL each in Methylene Chloride
 Full label information for the chemical is provided on the outside package

Analyst and Date: DTN 5/9/18

Standard Name: PAHBSTOCK20/100

Concentration: 20/100ug/ml

LIMS Std. Ref #: S36970

Expiration Date: 11/6/2018

RESTEK 115 Beaver Creek, Bellefonte, PA 16823, USA
 31283 Danger 1 mL
 Lot# A0131410
 Expire: 05/2023 Store: 25°C nominal
 1-Methylnaphthalene Standard
 1000 µg/mL each in Methanol
 Full label information for the chemical is provided on the outside package

Rinsed 10 ml volumetric flask with DCM and partially filled with the same lot of solvent.
 Rinsed syringe/s with solvent and then with the standard prior to use.
 Added standards as listed below.
 Brought to volume with the same solvent and inverted several times.
 Transferred into a scintillation vial.

Standards:	LIMS#	Conc (ug/mL)	Vol added (uL)	Final conc (ug/mL)
DCM lot# EM58068			8460	
CLP-HC-BN-R ****	S35945	2000	100	20
MENAP *	S35947	1000	200	20
2-MENAP_R **	S35948	1000	200	20
DIOXANEACC	S33970	1000	1000	100
HI_BNSURR ***	S28055	5000	40	20
* see pg.104 BK3502 for std label				
** see pg.124 BK3739 for std label				
*** see pg.70 BK3502 for std label				
**** see pg.149 BK3502 for std label				

Final vol (uL) 10000

DTN 5/9/18

AccuStandard 125 Market Street • New Haven, CT 06513 • USA
 Tel. 203-786-5290 • www.accustandard.com
 APP-9-096-10X 1 mL
 p-Dioxane
 1000 µg/mL in MeOH
 Lot: 214121041 1 comp(s)
 Exp: Dec 02, 2024 Storage: Ambient (>5 °C)

FOR LABORATORY USE ONLY

H225 H336 H370 H320
 H315 H311 H332 H301
 H351 H360, H350 P338
 P360 P331 P233 P262

PAH by SIM Stock B solutio WRK
 PAHBSTOCK20/100
 DTN 09-MAY-18 20-100 ug/mL
 S36970 A 1 Expires: 05-NOV-18

DTN 5/9/18

Signal

AccuStandard 125 Market Street • New Haven, CT 06513 • USA
 Tel. 203-786-5290 • www.accustandard.com
 CLP-HC-BN-R 1 mL
 Base/Neutral Composite Mixture
 2.0 mg/mL in Benzene:Dichloromethane:AcCN (2:2:1)
 Lot: 217041352 44 comp(s)
 Exp: Jun 15, 2019 Storage: Freeze (<-10 °C)/Sonicate

FOR LABORATORY USE ONLY

H225 H315 H335 H332
 H302 H350 H360, H350
 P338 P360 P331 P233
 P262 P202 P264 P284

Signal Word Danger

SIGNATURE *[Signature]* 5/9/18

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PROPRIETARY INFORMATION

DTN 5/9/18

TITLE MSSVOA STANDARD PREPLOG

PROJECT

DATE

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Analyst and Date: DTN 05/09/18

ICAL set: PAHSIM_B ICAL set

Some standards were prepped directly in 2ml amber vials. Some were prepped in scintillation vials then transferred into 2ml amber vials.

Rinsed syringe/s with the same solvent and then with the standard prior to use.

Added standards as listed below.

*** Internal Standard volume is not included in the final volume calculation.

Standard	LIMS#	Conc (ug/mL)	Comment
DCM lot# EM56176			
PAHBSTOCK20/100	S36970	20	see p.192 BK3739 for std prep
IS100PPM	S36596	100	see p.179 BK3739 for std prep

Std Name: SIMICAL-B1 S36971 0.1/0.5/1.0 ug/mL Exp: 10/2/2018

DCM	1492.5
S36970	7.5
S36596	15
final vol (uL)	1500

PAHDIOX ICAL STD at 0.1/0 WRK
SIMICAL-B1
DTN 09-MAY-18 0.100-1 ug/mL
S36971 B 1 Expires: 02-OCT-18

DTN 5/9/18

DTN 5/9/18

Std Name: SIMICAL-B2 S36972 0.2/1.0/1.0 ug/mL Exp: 10/2/2018

DCM	1485
S36970	15
S36596	15
final vol (uL)	1500

PAHDIOX ICAL STD at 0.2/1. WRK
SIMICAL-B2
DTN 09-MAY-18 0.200-1 ug/mL
S36972 B 1 Expires: 02-OCT-18

DTN 5/9/18

Std Name: SIMICAL-B3 S36973 0.5/2.5/1.0 ug/mL Exp: 10/2/2018

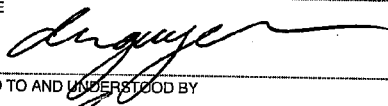
DCM	4387.5
S36970	112.5
S36596	45
final vol (uL)	4500

PAHDIOX ICAL STD at 0.5/2. WRK
SIMICAL-B3
DTN 09-MAY-18 0.500-2.50 ug/mL
S36973 D 1 Expires: 02-OCT-18

DTN 5/9/18

DTN 5/9/18

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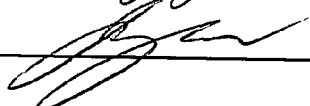


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5/9/18

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PROPRIETARY INFORMATION

TITLE MSSVOA STANDARD PREPLOG PROJECT DATE

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5 Analyst and Date: ~~KKL 09/29/2016~~ DTN 05/09/18
Con't

Std Name: **SIMICAL-B4** S36974 1.0/5.0/1.0 ug/mL Exp: 10/2/2018

DCM	4275
S36970	225
S36596	45
final vol (uL)	4500

PAHDIOX ICAL STD at 1.0/5. WRK
SIMICAL-B4
DTN 09-MAY-18 1-5 ug/mL
S36974 D 1 Expires: 02-OCT-18

DTN 5/9/18

15 Std Name: **SIMICAL-B5** S36976 2.0/10/1.0 ug/mL Exp: 10/2/2018

DCM	4050
S36970	450
S36596	45
final vol (uL)	4500

PAHDIOX ICAL STD at 2.0/10 WRK
SIMICAL-B5
DTN 09-MAY-18 1-10 ug/mL
S36976 D 1 Expires: 02-OCT-18

DTN 5/9/18

25 Std Name: **SIMICAL-B6** S36977 5.0/25/1.0 ug/mL Exp: 10/2/2018

DCM	1125
S36970	375
S36596	15
final vol (uL)	1500

PAHDIOX ICAL STD at 5.0/25 WRK
SIMICAL-B6
DTN 09-MAY-18 1-25 ug/mL
S36977 B 1 Expires: 02-OCT-18

DTN 5/9/18

35 Std Name: **SIMICAL-B7** S36978 10/50/1.0 ug/mL Exp: 10/2/2018

DCM	750
S36970	750
S36596	15
final vol (uL)	1500

PAHDIOX ICAL STD at 10/50/ WRK
SIMICAL-B7
DTN 09-MAY-18 1-50 ug/mL
S36978 B 1 Expires: 02-OCT-18

DTN 5/9/18

DTN 5/9/18

DTN 5/9/18

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5/9/18

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DATE 5/9/18

PROPRIETARY INFORMATION



Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 300092

ANALYTICAL REPORT

PCBs

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 1035225322.01
Location : RFS Corp Yard
Level : IV

Sample ID
RFS-B180-DU01

Lab ID
300092-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____

Mike Dahlquist
Project Manager
mike.dahlquist@enthalpy.com
(510) 204-2225 Ext 13101

Date: 06/11/2018

CA ELAP# 2896, NELAP# 4044-001

**CASE NARRATIVE
PCBS (EPA 8082)**

Laboratory number: 300092
Client: Tetra Tech EMI
Project: 1035225322.01
Location: RFS Corp Yard
Request Date: 05/25/18
Samples Received: 05/25/18

This data package contains sample and QC results for one soil sample, requested for the above referenced project on 05/25/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

PCBs (EPA 8082):

All samples underwent sulfuric acid cleanup using EPA Method 3665A.

All samples underwent sulfur cleanup using the copper option in EPA Method 3660B.

Matrix spikes were not performed for this analysis in batch 260198 due to insufficient sample amount.

RFS-B180-DU01 (lab # 300092-001) was diluted due to the color of the sample extract.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY



Formerly Curtis & Tompkins Labs

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Project No: 103S225322.01
Project Name: RFS B180 Trawl
Project P. O. No: _____

Sampler: J BRADDERSEN
Report To: J BRADDERSEN
Company: TECH TEEH

EDD Format: Report Level II III IV Telephone: 415-497-9060

Turnaround Time: RUSH Standard Email: Jason.Braddersen@tetra-tech.com

Page 1 of 1
Chain of Custody # _____

C&T LOGIN # 700092

ANALYTICAL REQUEST	CHEMICAL PRESERVATIVE			
	HCl	H2SO4	HNO3	NaOH
ISM PAPER / 100 SENSITIVITY	X			
CAM 17 METALS 6010	X			
MERCURY TPT1	X			
PAT SIM 8170	X			
PLB ROEL + SCHLETT EXT	X			

Lab No.	Sample ID.	SAMPLING		MATRIX		# of Containers	CHEMICAL PRESERVATIVE											
		Date Collected	Time Collected	Water	Solid		HCl	H2SO4	HNO3	NaOH	None							
	<u>RFS-15180-DU01</u>	<u>5/25/18</u>	<u>1130</u>		<u>X</u>	<u>3</u>												

Notes:	RELINQUISHED BY: <u>[Signature]</u> DATE: <u>5/25/18</u> TIME: <u>1235</u>	RECEIVED BY: <u>[Signature]</u> DATE: <u>5/25/18</u> TIME: <u>12:35</u>
SAMPLE RECEIPT <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Cold <input type="checkbox"/> On Ice <input checked="" type="checkbox"/> Ambient	DATE: _____ TIME: _____	DATE: _____ TIME: _____
	DATE: _____ TIME: _____	DATE: _____ TIME: _____

SAMPLE RECEIPT CHECKLIST



Section 1: Login # 300092 Client: Tetra Tech
 Date Received: 5-25-18 Project: RFS B180

Section 2: Samples received in a cooler? Yes, how many? _____ No (skip Section 3 below)
 If no cooler Sample Temp (°C): _____ using IR Gun # A, or B
 Samples received on ice directly from the field. Cooling process had begun
 If in cooler: Date Opened 5-25-18 By (print) sp (sign) sp
 Shipping info (if applicable) _____
 Are custody seals present? No, or Yes. If yes, where? on cooler, on samples, on package
 Date: _____ How many _____ Signature, Initials, None
 Were custody seals intact upon arrival? Yes No N/A

Section 3: Important : Notify PM if temperature exceeds 6°C or arrive frozen.

Packing in cooler: (if other, describe) _____
 Bubble Wrap, Foam blocks, Bags, None, Cloth material, Cardboard, Styrofoam, Paper towels
 Samples received on ice directly from the field. Cooling process had begun
 Type of ice used : Wet, Blue/Gel, None Temperature blank(s) included? Yes, No
 Temperature measured using Thermometer ID: _____, or IR Gun # A B
 Cooler Temp (°C): #1: _____, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	X		
Were Method 5035 sampling containers present?		X	
If YES, what time were they transferred to freezer?			
Did all bottles arrive unbroken/unopened?	X		
Are there any missing / extra samples?		X	
Are samples in the appropriate containers for indicated tests?	X		
Are sample labels present, in good condition and complete?	X		
Does the container count match the COC?	X		
Do the sample labels agree with custody papers?	X		
Was sufficient amount of sample sent for tests requested?	X		
Did you change the hold time in LIMS for unpreserved VOAs?			X
Did you change the hold time in LIMS for preserved terracores?			X
Are bubbles > 6mm absent in VOA samples?			X
Was the client contacted concerning this sample delivery?		X	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (if N/A, skip the rest of section 5)			X
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			
pH strip lot# _____, pH strip lot# _____, pH strip lot# _____			
Preservative added:			
<input type="checkbox"/> H2SO4 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HCL lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HNO3 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> NaOH lot# _____ added to samples _____ on/at _____			

Section 6:
 Explanations/Comments: _____

Date Logged in 5-25-18 By (print) sp (sign) sp
 Date Labeled 5-25-18 By (print) sp (sign) sp

Results & QC Summary

Polychlorinated Biphenyls (PCBs)			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3540C
Project#:	1035225322.01	Analysis:	EPA 8082
Field ID:	RFS-B180-DU01	Batch#:	260198
Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	ug/Kg	Prepared:	06/06/18
Basis:	dry	Analyzed:	06/07/18
Diln Fac:	2.000		

Moisture: 9%

Analyte	Result	RL	MDL
Aroclor-1016	ND	23	8.2
Aroclor-1221	ND	46	22
Aroclor-1232	ND	23	11
Aroclor-1242	ND	23	9.9
Aroclor-1248	ND	23	11
Aroclor-1254	ND	23	8.4
Aroclor-1260	31	23	5.3

Surrogate	%REC	Limits
Decachlorobiphenyl	139	26-153

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

Batch QC Report

Polychlorinated Biphenyls (PCBs)			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3540C
Project#:	1035225322.01	Analysis:	EPA 8082
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC934675	Batch#:	260198
Matrix:	Miscell.	Prepared:	06/05/18
Units:	ug/Kg	Analyzed:	06/06/18

Analyte	Result	RL	MDL
Aroclor-1016	ND	20	7.1
Aroclor-1221	ND	40	19
Aroclor-1232	ND	20	9.3
Aroclor-1242	ND	20	8.6
Aroclor-1248	ND	20	9.1
Aroclor-1254	ND	20	7.3
Aroclor-1260	ND	20	4.6

Surrogate	%REC	Limits
Decachlorobiphenyl	57	26-153

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

Batch QC Report

Polychlorinated Biphenyls (PCBs)			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3540C
Project#:	1035225322.01	Analysis:	EPA 8082
Matrix:	Miscell.	Batch#:	260198
Units:	ug/Kg	Prepared:	06/05/18
Diln Fac:	1.000	Analyzed:	06/06/18

Type: BS Lab ID: QC934676

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	500.0	450.4	90	56-152
Aroclor-1260	500.0	492.6	99	52-165

Surrogate	%REC	Limits
Decachlorobiphenyl	93	26-153

Type: BSD Lab ID: QC934677

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	500.0	406.9	81	56-152	10	48
Aroclor-1260	500.0	445.3	89	52-165	10	39

Surrogate	%REC	Limits
Decachlorobiphenyl	82	26-153

RPD= Relative Percent Difference

Confirmation Report for 300092 PCBS Soil
Enthalpy Analytical - Berkeley

Units: ug/Kg

Lab ID	Client ID	Analyte	Result	Confirmation	RPD	%D
300092-001	RFS-B180-DU01	Aroclor-1260	30.85	37.48	19	22

ENTHALPY INITIAL CALIBRATION FOR 300092 PCBS Soil: EPA 8082

Inst : GC06
 Calnum : 208052389001
 Units : pg/uL

Name : ar-1660-036ical
 Date : 05-FEB-2018 17:04

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	036_010	208052389010	PCB100_20	05-FEB-2018 17:04	S35531 (10X)
L2	036_011	208052389011	PCB25_5	05-FEB-2018 17:32	S35530
L3	036_012	208052389012	PCB100_20	05-FEB-2018 18:00	S35531
L4	036_013	208052389013	PCB250_50	05-FEB-2018 18:28	S35532
L5	036_014	208052389014	PCB500_100	05-FEB-2018 18:56	S35533
L6	036_015	208052389015	PCB750_150	05-FEB-2018 19:24	S35534
L7	036_016	208052389016	PCB1000_200	05-FEB-2018 19:52	S35535

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	Type	X	a0	a1	a2	Avg	r ² %RSD	MnR ²	MxRSD	Flg
Aroclor-1016 Peak # 1	A	282.90	291.08	289.43	265.67	243.03	229.75	251.58	AVRG	R		0.00378		264.78	9	.99	20	
Aroclor-1016 Peak # 2	A	210.20	251.00	254.55	269.98	263.84	267.94	318.73	AVRG	R		0.00381		262.32	12	.99	20	
Aroclor-1016 Peak # 3	A	113.80	159.36	153.85	182.74	183.92	150.30	167.32	AVRG	R		0.00630		158.76	15	.99	20	
Aroclor-1016 Peak # 4	A	84.400	92.960	90.850	87.316	83.868	81.732	94.195	AVRG	R		0.01138		87.903	6	.99	20	
Aroclor-1016 Peak # 5	A	101.60	113.44	120.12	122.02	119.84	116.58	134.68	AVRG	R		0.00845		118.33	8	.99	20	
Aroclor-1260 Peak # 1	A	399.30	429.04	443.94	404.82	393.37	372.70	423.47	AVRG	R		0.00244		409.52	6	.99	20	
Aroclor-1260 Peak # 2	A	356.50	392.56	435.74	380.26	404.48	395.41	434.26	AVRG	R		0.00250		399.89	7	.99	20	
Aroclor-1260 Peak # 3	A	214.90	259.24	266.34	229.84	240.17	220.97	250.42	AVRG	R		0.00416		240.27	8	.99	20	
Aroclor-1260 Peak # 4	A	491.70	534.48	542.12	510.65	487.88	480.28	537.55	AVRG	R		0.00195		512.10	5	.99	20	
Aroclor-1260 Peak # 5	A	238.90	267.20	273.19	266.00	263.18	261.05	295.54	AVRG	R		0.00375		266.44	6	.99	20	
Decachlorobiphenyl	A	10557	10577	9093.1	7760.6	6861.5	6362.9	6838.2	LINR	R	-4.5323	1.53E-4		8292.8	0.996	.99	20	
Aroclor-1016 Peak # 1	B	285.30	311.44	314.11	302.82	290.80	280.69	318.60	AVRG	R		0.00333		300.54	5	.99	20	
Aroclor-1016 Peak # 2	B	66.500	116.36	275.59	314.24	355.51	377.74	429.59	QUAD	A	-1949.5	274.789	0.153745	276.50	0.999	.99	20	
Aroclor-1016 Peak # 3	B	105.70	170.88	203.32	231.67	228.89	224.18	238.34	LINR	R	10.1612	0.00424		200.43	0.999	.99	20	
Aroclor-1016 Peak # 4	B	115.90	108.12	119.12	116.10	101.30	101.51	110.35	AVRG	R		0.00906		110.34	6	.99	20	
Aroclor-1016 Peak # 5	B	128.30	205.64	187.52	191.65	176.76	180.78	207.09	AVRG	R		0.00548		182.53	15	.99	20	
Aroclor-1260 Peak # 1	B	238.90	336.24	369.81	343.21	336.33	328.14	324.08	AVRG	R		0.00307		325.24	13	.99	20	
Aroclor-1260 Peak # 2	B	212.60	273.44	388.92	351.97	391.43	400.69	414.36	LINR	R	15.0715	0.00242		347.63	0.999	.99	20	
Aroclor-1260 Peak # 3	B	245.00	264.60	287.09	246.66	265.76	258.26	289.20	AVRG	R		0.00377		265.22	7	.99	20	
Aroclor-1260 Peak # 4	B	388.10	447.56	484.31	387.15	480.64	478.11	516.62	AVRG	R		0.00220		454.64	11	.99	20	
Aroclor-1260 Peak # 5	B	227.10	268.56	289.09	287.70	291.76	299.93	353.79	AVRG	R		0.00347		288.27	13	.99	20	
Decachlorobiphenyl	B	9744.5	10065	9051.9	8006.1	7473.2	7071.8	7661.3	AVRG	R		1.18E-4		8439.1	14	.99	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Aroclor-1016 Peak # 1	A	10.000	7	25.000	10	100.00	9	250.00	0	500.00	-8	750.00	-13	1000.0	-5
Aroclor-1016 Peak # 2	A	10.000	-20	25.000	-4	100.00	-3	250.00	3	500.00	1	750.00	2	1000.0	22
Aroclor-1016 Peak # 3	A	10.000	-28	25.000	0	100.00	-3	250.00	15	500.00	16	750.00	-5	1000.0	5
Aroclor-1016 Peak # 4	A	10.000	-4	25.000	6	100.00	3	250.00	-1	500.00	-5	750.00	-7	1000.0	7
Aroclor-1016 Peak # 5	A	10.000	-14	25.000	-4	100.00	2	250.00	3	500.00	1	750.00	-1	1000.0	14
Aroclor-1260 Peak # 1	A	10.000	-2	25.000	5	100.00	8	250.00	-1	500.00	-4	750.00	-9	1000.0	3
Aroclor-1260 Peak # 2	A	10.000	-11	25.000	-2	100.00	9	250.00	-5	500.00	1	750.00	-1	1000.0	9
Aroclor-1260 Peak # 3	A	10.000	-11	25.000	8	100.00	11	250.00	-4	500.00	0	750.00	-8	1000.0	4
Aroclor-1260 Peak # 4	A	10.000	-4	25.000	4	100.00	6	250.00	0	500.00	-5	750.00	-6	1000.0	5
Aroclor-1260 Peak # 5	A	10.000	-10	25.000	0	100.00	3	250.00	0	500.00	-1	750.00	-2	1000.0	11
Decachlorobiphenyl	A	2.0000	-165	5.0000	-29	20.000	16	50.000	10	100.00	0	150.00	-6	200.00	2
Aroclor-1016 Peak # 1	B	10.000	-5	25.000	4	100.00	5	250.00	1	500.00	-3	750.00	-7	1000.0	6
Aroclor-1016 Peak # 2	B	10.000	-5	25.000	-30	100.00	2	250.00	3	500.00	2	750.00	-2	1000.0	1
Aroclor-1016 Peak # 3	B	10.000	46	25.000	13	100.00	-4	250.00	2	500.00	-1	750.00	-4	1000.0	2
Aroclor-1016 Peak # 4	B	10.000	5	25.000	-2	100.00	8	250.00	5	500.00	-8	750.00	-8	1000.0	0
Aroclor-1016 Peak # 5	B	10.000	-30	25.000	13	100.00	3	250.00	5	500.00	-3	750.00	-1	1000.0	13
Aroclor-1260 Peak # 1	B	10.000	-27	25.000	3	100.00	14	250.00	6	500.00	3	750.00	1	1000.0	0
Aroclor-1260 Peak # 2	B	10.000	102	25.000	26	100.00	9	250.00	-9	500.00	-2	750.00	-1	1000.0	2
Aroclor-1260 Peak # 3	B	10.000	-8	25.000	0	100.00	8	250.00	-7	500.00	0	750.00	-3	1000.0	9
Aroclor-1260 Peak # 4	B	10.000	-15	25.000	-2	100.00	7	250.00	-15	500.00	6	750.00	5	1000.0	14
Aroclor-1260 Peak # 5	B	10.000	-21	25.000	-7	100.00	0	250.00	0	500.00	1	750.00	4	1000.0	23
Decachlorobiphenyl	B	2.0000	15	5.0000	19	20.000	7	50.000	-5	100.00	-11	150.00	-16	200.00	-9

JC1 02/06/18 : Corrected automatically drawn baseline in all levels.

Analyst: JC1 Date: 02/06/18 Reviewer: EAH Date: 02/06/18

X=A: Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); X=R: Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression; QUAD=Quadratic regression

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 PCBS Soil
EPA 8082

Inst : GC06
Calnum : 208052389001

Name : ar-1660-036ical
Cal Date : 05-FEB-2018

ICV 208052389018 (036_018 05-FEB-2018) stds: S35527

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Aroclor-1016	A	250.0	250.6	pg/uL	0	15	
Aroclor-1260	A	250.0	256.5	pg/uL	3	15	
Aroclor-1016	B	250.0	268.0	pg/uL	7	15	
Aroclor-1260	B	250.0	258.9	pg/uL	4	15	

Analyst: JC1

Date: 02/06/18

Reviewer: EAH

Date: 02/06/18

ENTHALPY INITIAL CALIBRATION FOR 300092 PCBS Soil: EPA 8082

Inst : GC16
 Calnum : 238128692001
 Units : pg/ul

Name : ar-1660-089ical
 Date : 30-MAR-2018 19:52
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	089_015	238128692015	PCB100_20	30-MAR-2018 19:52	S35531 (10X)
L2	089_016	238128692016	PCB25_5	30-MAR-2018 20:21	S35530
L3	089_017	238128692017	PCB100_20	30-MAR-2018 20:50	S35531
L4	089_018	238128692018	PCB250_50	30-MAR-2018 21:19	S35532
L5	089_019	238128692019	PCB500_100	30-MAR-2018 21:48	S35533
L6	089_020	238128692020	PCB750_150	30-MAR-2018 22:17	S35534
L7	089_021	238128692021	PCB1000_200	30-MAR-2018 22:46	S35535

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r ² %RSD	MnR ²	MxRSD	Flg
Aroclor-1016 Peak # 1	A	679.40	789.96	705.88	608.90	512.66	491.00	541.09	AVRG		0.00162		618.41	18	.99	20	
Aroclor-1016 Peak # 2	A	996.20	975.72	908.08	845.78	688.95	680.03	765.33	AVRG		0.00119		837.16	16	.99	20	
Aroclor-1016 Peak # 3	A	395.10	477.32	449.42	446.03	368.21	350.77	408.47	AVRG		0.00242		413.62	11	.99	20	
Aroclor-1016 Peak # 4	A	292.70	373.00	285.04	290.64	224.59	213.26	230.51	LINR	-25.092	0.00456		272.82	0.993	.99	20	
Aroclor-1016 Peak # 5	A	416.00	459.48	413.80	376.22	325.47	316.06	358.19	AVRG		0.00263		380.75	14	.99	20	
Aroclor-1260 Peak # 1	A	1418.3	1563.3	1393.6	1283.3	1043.2	992.03	1084.5	AVRG		7.97E-4		1254.0	17	.99	20	
Aroclor-1260 Peak # 2	A	1188.8	1303.0	1218.3	1151.2	981.64	968.46	1100.6	AVRG		8.85E-4		1130.3	11	.99	20	
Aroclor-1260 Peak # 3	A	773.10	680.84	662.84	631.02	540.51	518.45	584.21	AVRG		0.00159		627.28	14	.99	20	
Aroclor-1260 Peak # 4	A	1435.4	1640.9	1596.6	1510.0	1299.4	1267.9	1416.7	AVRG		6.89E-4		1452.4	10	.99	20	
Aroclor-1260 Peak # 5	A	616.60	745.12	758.94	737.52	636.02	638.00	734.32	AVRG		0.00144		695.22	9	.99	20	
Decachlorobiphenyl	A	15055	16866	15661	14208	11706	10998	11734	AVRG		7.27E-5		13747	17	.99	20	
Aroclor-1016 Peak # 1	B	539.60	585.24	522.62	466.69	383.78	389.31	510.23	AVRG		0.00206		485.35	16	.99	20	
Aroclor-1016 Peak # 2	B	1346.1	1485.2	1413.0	1335.3	1264.4	1354.1	1739.5	AVRG		7.04E-4		1419.7	11	.99	20	
Aroclor-1016 Peak # 3	B	611.10	699.56	667.49	595.89	532.14	533.13	673.75	AVRG		0.00162		616.15	11	.99	20	
Aroclor-1016 Peak # 4	B	386.80	461.72	419.46	379.02	320.48	315.08	384.44	AVRG		0.00262		381.00	14	.99	20	
Aroclor-1016 Peak # 5	B	535.10	634.68	637.10	599.48	507.52	520.48	635.83	AVRG		0.00172		581.46	10	.99	20	
Aroclor-1260 Peak # 1	B	1158.3	1302.6	1175.2	1118.7	1039.2	1123.4	1329.4	AVRG		8.49E-4		1178.1	9	.99	20	
Aroclor-1260 Peak # 2	B	1246.7	1356.9	1252.5	1306.9	1241.9	1430.3	1764.3	AVRG		7.29E-4		1371.4	14	.99	20	
Aroclor-1260 Peak # 3	B	775.40	871.32	791.24	735.36	667.23	729.20	881.87	AVRG		0.00128		778.80	10	.99	20	
Aroclor-1260 Peak # 4	B	1324.2	1485.2	1460.2	1508.9	1460.6	1571.5	1832.3	AVRG		6.58E-4		1520.4	10	.99	20	
Aroclor-1260 Peak # 5	B	743.20	932.84	881.53	846.42	794.54	880.11	1089.6	AVRG		0.00113		881.17	13	.99	20	
Decachlorobiphenyl	B	19919	22003	21308	21937	19441	18908	20577	AVRG		4.86E-5		20585	6	.99	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Aroclor-1016 Peak # 1	A	10.000	10	25.000	28	100.00	14	250.00	-2	500.00	-17	750.00	-21	1000.0	-13
Aroclor-1016 Peak # 2	A	10.000	19	25.000	17	100.00	8	250.00	1	500.00	-18	750.00	-19	1000.0	-9
Aroclor-1016 Peak # 3	A	10.000	-4	25.000	15	100.00	9	250.00	8	500.00	-11	750.00	-15	1000.0	-1
Aroclor-1016 Peak # 4	A	10.000	-217	25.000	-30	100.00	5	250.00	23	500.00	-3	750.00	-6	1000.0	3
Aroclor-1016 Peak # 5	A	10.000	9	25.000	21	100.00	9	250.00	-1	500.00	-15	750.00	-17	1000.0	-6
Aroclor-1260 Peak # 1	A	10.000	13	25.000	25	100.00	11	250.00	2	500.00	-17	750.00	-21	1000.0	-14
Aroclor-1260 Peak # 2	A	10.000	5	25.000	15	100.00	8	250.00	2	500.00	-13	750.00	-14	1000.0	-3
Aroclor-1260 Peak # 3	A	10.000	23	25.000	9	100.00	6	250.00	1	500.00	-14	750.00	-17	1000.0	-7
Aroclor-1260 Peak # 4	A	10.000	-1	25.000	13	100.00	10	250.00	4	500.00	-11	750.00	-13	1000.0	-2
Aroclor-1260 Peak # 5	A	10.000	-11	25.000	7	100.00	9	250.00	6	500.00	-9	750.00	-8	1000.0	6
Decachlorobiphenyl	A	2.0000	10	5.0000	23	20.000	14	50.000	3	100.00	-15	150.00	-20	200.00	-15
Aroclor-1016 Peak # 1	B	10.000	11	25.000	21	100.00	8	250.00	-4	500.00	-21	750.00	-20	1000.0	5
Aroclor-1016 Peak # 2	B	10.000	-5	25.000	5	100.00	0	250.00	-6	500.00	-11	750.00	-5	1000.0	23
Aroclor-1016 Peak # 3	B	10.000	-1	25.000	14	100.00	8	250.00	-3	500.00	-14	750.00	-13	1000.0	9
Aroclor-1016 Peak # 4	B	10.000	2	25.000	21	100.00	10	250.00	-1	500.00	-16	750.00	-17	1000.0	1
Aroclor-1016 Peak # 5	B	10.000	-8	25.000	9	100.00	10	250.00	3	500.00	-13	750.00	-10	1000.0	9
Aroclor-1260 Peak # 1	B	10.000	-2	25.000	11	100.00	0	250.00	-5	500.00	-12	750.00	-5	1000.0	13
Aroclor-1260 Peak # 2	B	10.000	-9	25.000	-1	100.00	-9	250.00	-5	500.00	-9	750.00	4	1000.0	29
Aroclor-1260 Peak # 3	B	10.000	0	25.000	12	100.00	2	250.00	-6	500.00	-14	750.00	-6	1000.0	13
Aroclor-1260 Peak # 4	B	10.000	-13	25.000	-2	100.00	-4	250.00	-1	500.00	-4	750.00	3	1000.0	21
Aroclor-1260 Peak # 5	B	10.000	-16	25.000	6	100.00	0	250.00	-4	500.00	-10	750.00	0	1000.0	24
Decachlorobiphenyl	B	2.0000	-3	5.0000	7	20.000	4	50.000	7	100.00	-6	150.00	-8	200.00	0

JC1 04/05/18 : Corrected automatically drawn baseline in all levels.

Analyst: JC1

Date: 04/05/18

Reviewer: EAH

Date: 04/05/18

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 PCBS Soil
EPA 8082

Inst : GC16 Name : ar-1660-089ical
Calnum : 238128692001 Cal Date : 30-MAR-2018

ICV 238128692023 (089_023 30-MAR-2018) stds: S35527

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Aroclor-1016	A	250.0	224.8	pg/ul	-10	15	
Aroclor-1260	A	250.0	222.4	pg/ul	-11	15	
Aroclor-1016	B	250.0	211.9	pg/ul	-15	15	
Aroclor-1260	B	250.0	214.6	pg/ul	-14	15	

Analyst: JC1 Date: 04/02/18 Reviewer: EAH Date: 04/05/18

ENTHALPY CONTINUING CALIBRATION FOR 300092 PCBS Soil
EPA 8082

Inst : GC06 Run Name : PCB500_100 IDF : 1.0
 Seqnum : 208228032011 File : 158_011 Time : 07-JUN-2018 13:58
 Cal : 208052389001 Caldate : 05-FEB-2018
 Standards: S36140

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	445.5	pg/uL	-11	15	
Aroclor-1260	A			500.0	441.7	pg/uL	-12	15	
Decachlorobiphenyl	A	8292.8	6263.9	100.0	91.30	pg/uL	-9	15	
Aroclor-1016	B			500.0	407.6	pg/uL	-18	15	c- ***
Aroclor-1260	B			500.0	425.0	pg/uL	-15	15	
Decachlorobiphenyl	B	8439.1	7798.4	100.0	92.41	pg/uL	-8	15	

JC1 06/07/18 : Corrected automatically drawn baseline.

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

--low bias c=CCV

ENTHALPY CONTINUING CALIBRATION FOR 300092 PCBS Soil
EPA 8082

Inst : GC06 Run Name : PCB500_100 IDF : 1.0
 Seqnum : 208228032016 File : 158_016 Time : 07-JUN-2018 17:07
 Cal : 208052389001 Caldate : 05-FEB-2018
 Standards: S36140

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	513.6	pg/uL	3	15	
Aroclor-1260	A			500.0	583.2	pg/uL	17	15	c+ ***
Decachlorobiphenyl	A	8292.8	8231.0	100.0	121.4	pg/uL	21	15	c+
Aroclor-1016	B			500.0	517.3	pg/uL	3	15	
Aroclor-1260	B			500.0	523.0	pg/uL	5	15	
Decachlorobiphenyl	B	8439.1	10437	100.0	123.7	pg/uL	24	15	c+

JC1 06/07/18 : Corrected automatically drawn baseline.

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

+ = high bias c = CCV

ENTHALPY CONTINUING CALIBRATION FOR 300092 PCBS Soil
EPA 8082

Inst : GC16 Run Name : PCB250_50 IDF : 1.0
 Seqnum : 238226583007 File : 157_007 Time : 06-JUN-2018 16:39
 Cal : 238128692001 Caldate : 30-MAR-2018
 Standards: S36139

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			250.0	273.0	pg/ul	9	15	
Aroclor-1260	A			250.0	281.8	pg/ul	13	15	
Decachlorobiphenyl	A	13747	15159	50.00	55.14	pg/ul	10	15	
Aroclor-1016	B			250.0	262.0	pg/ul	5	15	
Aroclor-1260	B			250.0	268.2	pg/ul	7	15	
Decachlorobiphenyl	B	20585	21925	50.00	53.25	pg/ul	7	15	

JC1 06/06/18 : Corrected automatically drawn baseline.

Analyst: JC1 Date: 06/06/18 Reviewer: EAH Date: 06/07/18

ENTHALPY CONTINUING CALIBRATION FOR 300092 PCBS Soil
EPA 8082

Inst : GC16 Run Name : PCB250_50 IDF : 1.0
 Seqnum : 238226583019 File : 157_019 Time : 06-JUN-2018 22:40
 Cal : 238128692001 Caldate : 30-MAR-2018
 Standards: S36139

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			250.0	280.4	pg/ul	12	15	
Aroclor-1260	A			250.0	288.6	pg/ul	15	15	
Decachlorobiphenyl	A	13747	15773	50.00	57.37	pg/ul	15	15	
Aroclor-1016	B			250.0	278.3	pg/ul	11	15	
Aroclor-1260	B			250.0	286.1	pg/ul	14	15	
Decachlorobiphenyl	B	20585	24962	50.00	60.63	pg/ul	21	15	c+

JC1 06/07/18 : Corrected automatically drawn baseline.

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

+=high bias c=CCV

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 208052389

Instrument : GC06
 Method : EPA 8082

Begun : 02/05/18 09:09
 SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	036_001	X	HEX			02/05/18 09:09	1.0	
002	036_002	X	HEX			02/05/18 09:37	1.0	
003	036_003	CCV	PCB500_100			02/05/18 10:05	1.0	1
004	036_004	CCV	AR2154_250			02/05/18 10:33	1.0	2
005	036_005	X	PRIMER			02/05/18 14:44	1.0	
006	036_006	X	HEX			02/05/18 15:12	1.0	
007	036_007	X	HEX			02/05/18 15:40	1.0	
008	036_008	X	HEX			02/05/18 16:08	1.0	
009	036_009	IB	CALIB			02/05/18 16:36	1.0	
010	036_010	ICAL	PCB100_20			02/05/18 17:04	1.0	3
011	036_011	ICAL	PCB25_5			02/05/18 17:32	1.0	4
012	036_012	ICAL	PCB100_20			02/05/18 18:00	1.0	3
013	036_013	ICAL	PCB250_50			02/05/18 18:28	1.0	5
014	036_014	ICAL	PCB500_100			02/05/18 18:56	1.0	6
015	036_015	ICAL	PCB750_150			02/05/18 19:24	1.0	7
016	036_016	ICAL	PCB1000_200			02/05/18 19:52	1.0	8
017	036_017	X	HEX			02/05/18 20:20	1.0	
018	036_018	ICV	ULTRA_1660			02/05/18 20:48	1.0	9
019	036_019	X	HEX			02/05/18 21:16	1.0	

JC1 02/06/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 208228032

Instrument : GC06
 Method : EPA 8082

Begun : 06/07/18 08:32
 SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	158_001	X	HEX			06/07/18 08:32	1.0	
002	158_002	CCV	PCB500_100			06/07/18 09:00	1.0	1
003	158_003	CCV	AR2154_500			06/07/18 09:28	1.0	2
004	158_004	CCV	AR1242_250			06/07/18 11:09	1.0	3
005	158_005	SAMPLE	300249-005	Water	260194	06/07/18 11:37	1.0	
007	158_007	SAMPLE	300249-008	Water	260194	06/07/18 12:06	1.0	
008	158_008	SAMPLE	300370-001	Water	260194	06/07/18 12:34	1.0	
009	158_009	SAMPLE	300289-001	Water	260194	06/07/18 13:02	1.0	
010	158_010	SAMPLE	300289-002	Water	260194	06/07/18 13:30	1.0	
011	158_011	CCV	PCB500_100			06/07/18 13:58	1.0	1
012	158_012	CCV	AR1242_250			06/07/18 14:26	1.0	3
013	158_013	CCV	AR2154_500			06/07/18 14:54	1.0	2
014	158_014	SAMPLE	300092-001	Soil	260198	06/07/18 16:04	5.0	
015	158_015	SAMPLE	300092-001	Soil	260198	06/07/18 16:39	2.0	
016	158_016	CCV	PCB500_100			06/07/18 17:07	1.0	1

JC1 06/07/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 238128692

Instrument : GC16
 Method : EPA 8082

Begun : 03/30/18 08:52
 SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	089_001	X	HEX			03/30/18 08:52	1.0		
002	089_002	CCV	PCB250_50			03/30/18 09:21	1.0	1	
003	089_003	CCV	AR2154_500			03/30/18 09:50	1.0	2	
004	089_004	SAMPLE	298044-037	Soil	257898	03/30/18 11:39	100.0		diluted (client history), 9:PCB1254#5=4400
005	089_005	SAMPLE	298044-013	Soil	257927	03/30/18 12:08	100.0		diluted (client history), 5:PCB1016#4=7900
006	089_006	X	HEX			03/30/18 12:58	1.0		
007	089_007	X	HEX			03/30/18 14:27	1.0		
008	089_008	CCV	PCB500_100			03/30/18 14:56	1.0	3	
009	089_009	CCV	AR2154_500			03/30/18 15:25	1.0	2	
010	089_010	X	PRIMER			03/30/18 17:27	1.0		
011	089_011	X	HEX			03/30/18 17:56	1.0		
012	089_012	X	HEX			03/30/18 18:25	1.0		
013	089_013	X	HEX			03/30/18 18:54	1.0		
014	089_014	IB	CALIB			03/30/18 19:23	1.0		
015	089_015	ICAL	PCB100_20			03/30/18 19:52	1.0	4	
016	089_016	ICAL	PCB25_5			03/30/18 20:21	1.0	5	
017	089_017	ICAL	PCB100_20			03/30/18 20:50	1.0	4	
018	089_018	ICAL	PCB250_50			03/30/18 21:19	1.0	1	
019	089_019	ICAL	PCB500_100			03/30/18 21:48	1.0	6	
020	089_020	ICAL	PCB750_150			03/30/18 22:17	1.0	7	
021	089_021	ICAL	PCB1000_200			03/30/18 22:46	1.0	8	
022	089_022	X	HEX			03/30/18 23:15	1.0		
023	089_023	ICV	ULTRA_1660			03/30/18 23:44	1.0	9	
024	089_024	X	HEX			03/31/18 00:13	1.0		

JC1 04/02/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Standards used: 1=S35532 2=S35873 3=S36140 4=S35531 5=S35530 6=S35533 7=S35534 8=S35535 9=S35527

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 238226583

Instrument : GC16
 Method : EPA 8082

Begun : 06/06/18 08:23
 SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	157_001	X	HEX			06/06/18 08:23	1.0	
002	157_002	CCV	PCB250_50			06/06/18 08:52	1.0	1
003	157_003	CCV	AR2154_500			06/06/18 09:21	1.0	2
004	157_004	BLANK	QC934666	Water	260194	06/06/18 15:12	1.0	
005	157_005	BS	QC934667	Water	260194	06/06/18 15:41	1.0	
006	157_006	BSD	QC934668	Water	260194	06/06/18 16:10	1.0	
007	157_007	CCV	PCB250_50			06/06/18 16:39	1.0	1
008	157_008	CCV	AR2154_500			06/06/18 17:08	1.0	2
009	157_009	BLANK	QC934745	Soil	260217	06/06/18 17:50	1.0	
010	157_010	LCS	QC934746	Soil	260217	06/06/18 18:19	1.0	
011	157_011	MSS	300276-001	Soil	260217	06/06/18 18:48	1.0	
012	157_012	MS	QC934747	Soil	260217	06/06/18 19:17	1.0	
013	157_013	MSD	QC934748	Soil	260217	06/06/18 19:46	1.0	
014	157_014	BLANK	QC934675	Miscell.	260198	06/06/18 20:15	1.0	
015	157_015	BS	QC934676	Miscell.	260198	06/06/18 20:44	1.0	
016	157_016	BSD	QC934677	Miscell.	260198	06/06/18 21:13	1.0	
017	157_017	SAMPLE	300410-001	Soil	260217	06/06/18 21:42	1.0	
018	157_018	SAMPLE	300410-002	Soil	260217	06/06/18 22:11	1.0	
019	157_019	CCV	PCB250_50			06/06/18 22:40	1.0	1
020	157_020	CCV	AR2154_500			06/06/18 23:09	1.0	2
021	157_021	SAMPLE	300276-002	Soil	260217	06/06/18 23:38	1.0	
022	157_022	SAMPLE	300276-003	Soil	260217	06/07/18 00:07	1.0	
023	157_023	SAMPLE	300276-004	Soil	260217	06/07/18 00:36	1.0	
024	157_024	SAMPLE	300276-005	Soil	260217	06/07/18 01:05	1.0	
025	157_025	SAMPLE	300276-006	Soil	260217	06/07/18 01:34	1.0	
026	157_026	SAMPLE	300276-007	Soil	260217	06/07/18 02:03	1.0	
027	157_027	CCV	PCB250_50			06/07/18 02:32	1.0	1
028	157_028	CCV	AR2154_500			06/07/18 03:01	1.0	3

JC1 06/07/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

SAMPLE PREPARATION SUMMARY

Batch # : 260198
 Started By : ALE
 Method : 3540C
 Spike #1 ID : S37127

Prep Date : 05-JUN-2018 13:22
 SOP Version : Soxhlet_3540_rv9
 Spike #2 ID : S36375

Analysis : PCB
 Finished By : JCT
 Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
300092-001		Soil	9.54	10	1	1.048		.5				PCB	See comment 1 below
300228-003		Miscell.	5.74	10	1	1.742		.5				PCB	entire sample used
300268-001		Soil	9.51	10	1	1.052		.5				PCB	See comment 1 below
300268-002		Soil	9.67	10	1	1.034		.5				PCB	See comment 1 below
300297-001		Miscell.	2.56	10	1	3.906		.5				PCB	entire sample used
300297-002		Miscell.	.93	10	1	10.75		.5				PCB	entire sample used
QC934675	BLANK	Miscell.	5	10	1	2.0		.5				PCB	
QC934676	BS	Miscell.	5	10	1	2.0		.5	.5			PCB	
QC934677	BSD	Miscell.	5	10	1	2.0		.5	.5			PCB	

Comment 1: Prepped 06-JUN-2018 13:20; ALO ARG MIS PER SOP

JC1 06/07/18 : Matrix spikes were not performed for this analysis in batch 260198 due to insufficient sample amount.

Analyst: JC1

Date: 06/07/18

Reviewer: EAH

Date: 06/07/18

REPORTING SUMMARY FOR 300092 PCBS Soil

Sample ID	Analyte	Inst ID	Ch	Date & Time
300092-001	Aroclor-1016	GC06	A	06/07/18 16:39
300092-001	Aroclor-1221	GC06	A	06/07/18 16:39
300092-001	Aroclor-1232	GC06	A	06/07/18 16:39
300092-001	Aroclor-1242	GC06	A	06/07/18 16:39
300092-001	Aroclor-1248	GC06	A	06/07/18 16:39
300092-001	Aroclor-1254	GC06	A	06/07/18 16:39
300092-001	Aroclor-1260	GC06	B	06/07/18 16:39
300092-001	Decachlorobiphenyl	GC06	A	06/07/18 16:39
QC934675	Aroclor-1016	GC16	A	06/06/18 20:15
QC934675	Aroclor-1221	GC16	A	06/06/18 20:15
QC934675	Aroclor-1232	GC16	A	06/06/18 20:15
QC934675	Aroclor-1242	GC16	A	06/06/18 20:15
QC934675	Aroclor-1248	GC16	A	06/06/18 20:15
QC934675	Aroclor-1254	GC16	A	06/06/18 20:15
QC934675	Aroclor-1260	GC16	A	06/06/18 20:15
QC934675	Decachlorobiphenyl	GC16	A	06/06/18 20:15
QC934676	Aroclor-1016	GC16	A	06/06/18 20:44
QC934676	Aroclor-1260	GC16	A	06/06/18 20:44
QC934676	Decachlorobiphenyl	GC16	A	06/06/18 20:44
QC934677	Aroclor-1016	GC16	A	06/06/18 21:13
QC934677	Aroclor-1260	GC16	A	06/06/18 21:13
QC934677	Decachlorobiphenyl	GC16	A	06/06/18 21:13

Sample Raw Data

Polychlorinated Biphenyls (PCBs)

Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3540C
Project#:	1035225322.01	Analysis:	EPA 8082
Field ID:	RFS-B180-DU01	Batch#:	260198
Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	ug/Kg	Prepared:	06/06/18
Basis:	dry	Analyzed:	06/07/18
Diln Fac:	2.000		

Moisture: 9%

Analyte	Result	RL	MDL
Aroclor-1016	ND	23	8.2
Aroclor-1221	ND	46	22
Aroclor-1232	ND	23	11
Aroclor-1242	ND	23	9.9
Aroclor-1248	ND	23	11
Aroclor-1254	ND	23	8.4
Aroclor-1260	31	23	5.3

Surrogate	%REC	Limits
Decachlorobiphenyl	139	26-153

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

ENTHALPY SAMPLE USER REPORT FOR EPA 8082

Inst : GC06 Lab ID : 300092-001 Client ID : RFS-B180-DU01
 Seqnum : 208228032015 Matrix : Soil Acct : TTEMI (MJD)
 File : 158_015 Batch : 260198 Time : 07-JUN-2018 16:39
 Cal : 208052389001 Caldate : 05-FEB-2018
 IDF : 2.0 Raw Units : pg/uL Units : ug/Kg

9.54 g --> 10.0 ml = 1.048 ml/g PDF

Analyte	Ch	Raw	Result	Conf	RPD	RL	Blank	Flags
Aroclor-1016	A	1.270	ND	11 J	121%	21		u
Aroclor-1016 Peak # 1	A	0	ND	1.62				
Aroclor-1016 Peak # 2	A	0.4689	0.98	ND				
Aroclor-1016 Peak # 3	A	0.8378	1.76	21.72	170%			
Aroclor-1016 Peak # 4	A	0	ND	17.06				
Aroclor-1016 Peak # 5	A	5.045	10.58	13.39	23%			
Aroclor-1221	A		ND			42		u
Aroclor-1232	A		ND			21		u
Aroclor-1242	A		ND			21		u
Aroclor-1248	A		ND			21		u
Aroclor-1254	A		ND			21		u
Aroclor-1260	B	13.39	28	34	19%	21		u
Aroclor-1260 Peak # 1	B	33.22	69.64 [omit]	84.34 [omit]	19%			
Aroclor-1260 Peak # 2	B	39.40	82.61 [omit]	92.68 [omit]	11%			
Aroclor-1260 Peak # 3	B	8.830	18.51	27.90	40%			
Aroclor-1260 Peak # 4	B	14.31	30.01	30.41	1%			
Aroclor-1260 Peak # 5	B	17.03	35.69	44.00	21%			

Surrogate	Ch	Raw	Spiked	Result	%Rec	Limits	Flags
Decachlorobiphenyl	A	34.66	52.41	72.67	139	26-153	>c+ u

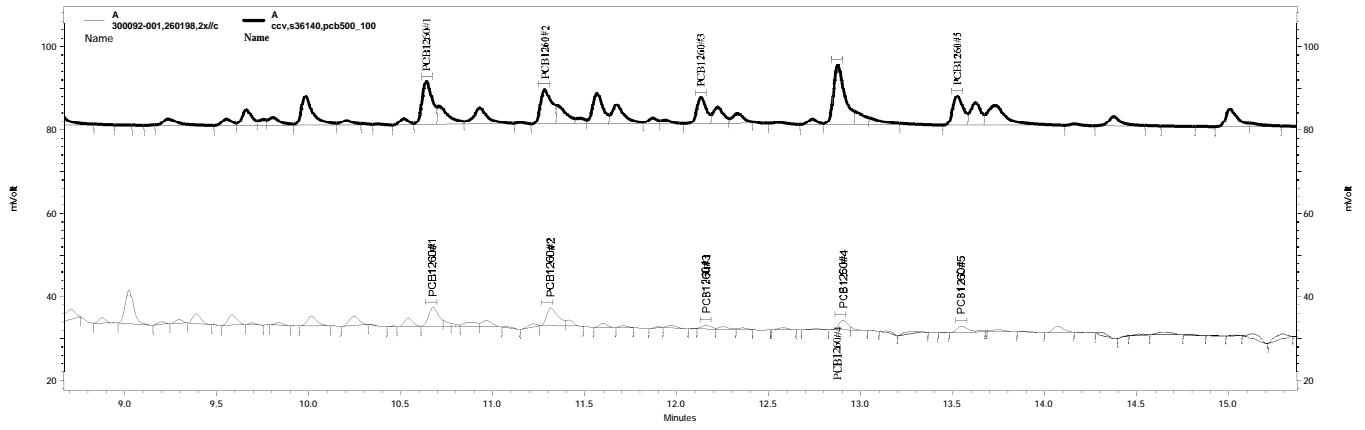
06/07/18 : Was diluted due to the color of the sample extract.

JC1 06/07/18 : Corrected automatically drawn baseline.

JC1 06/07/18 [Aroclor-1260 B]: Lower result was reported for better CCV recovery.

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

+ = high bias > = closing c = CCV u = use



— \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015, A

— \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\143-002, A

Sample Name: 300092-001,260198,2x//c
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 4:39:07 PM
 Analysis Date: 6/7/2018 5:05:22 PM
 Sample Amount: 1

GC06
PCB - ECD Instrument Results
 Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.457	3.447	159492	26.266
PCB1016#1		4.950		0.000 BDL
PCB1016#2	5.940	5.960	123	0.469
PCB1016#3	6.230	6.250	133	0.838
PCB1016#4		6.690		0.000 BDL
PCB1016#5	7.190	7.177	597	5.045
PCB1260#1	10.677	10.667	16475	40.230
PCB1260#2	11.317	11.297	17678	44.207
PCB1260#3	12.163	12.157	3198	13.310
PCB1260#4	12.907	12.890	7429	14.507
PCB1260#5	13.547	13.547	5592	20.988
Decachlorobiphenyl	16.137	16.137	256208	34.664

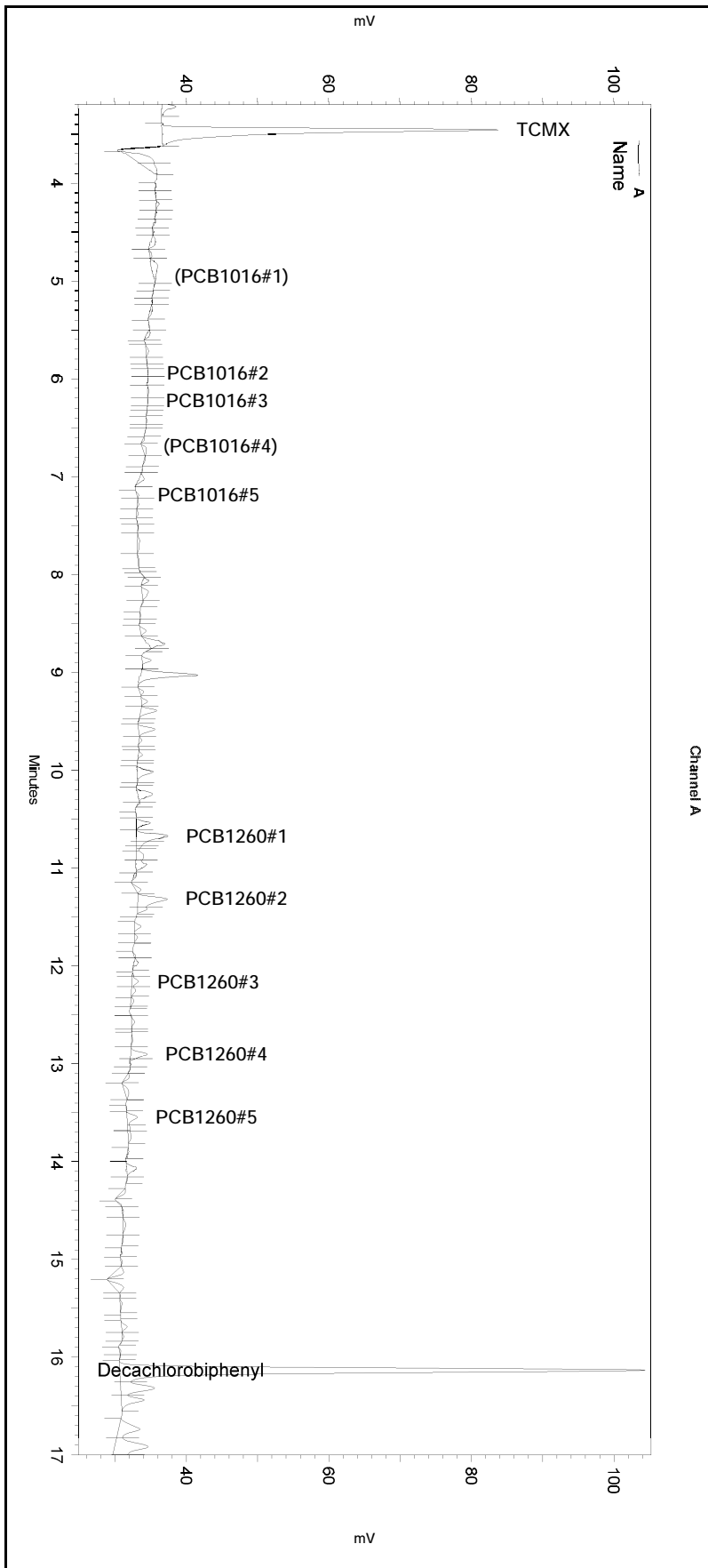
GC06
PCB - ECD Instrument Results
 Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.470	2.493	167827	26.982
PCB1016#1	3.767	3.763	232	0.772
PCB1016#2		4.601		0.000 BDL
PCB1016#3	4.760	4.787	47	10.361
PCB1016#4	5.263	5.283	898	8.138
PCB1016#5	5.930	5.947	1166	6.388
PCB1260#1	9.063	9.070	10804	33.218
PCB1260#2	9.667	9.680	10066	39.404
PCB1260#3	10.580	10.590	2342	8.830
PCB1260#4	11.240	11.247	6507	14.312
PCB1260#5	11.890	11.903	4908	17.025
Decachlorobiphenyl	14.810	14.823	321349	38.079

Sample Name: 300092-001,260198,2x//c
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 4:39:07 PM
 Analysis Date: 6/7/2018 5:05:22 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

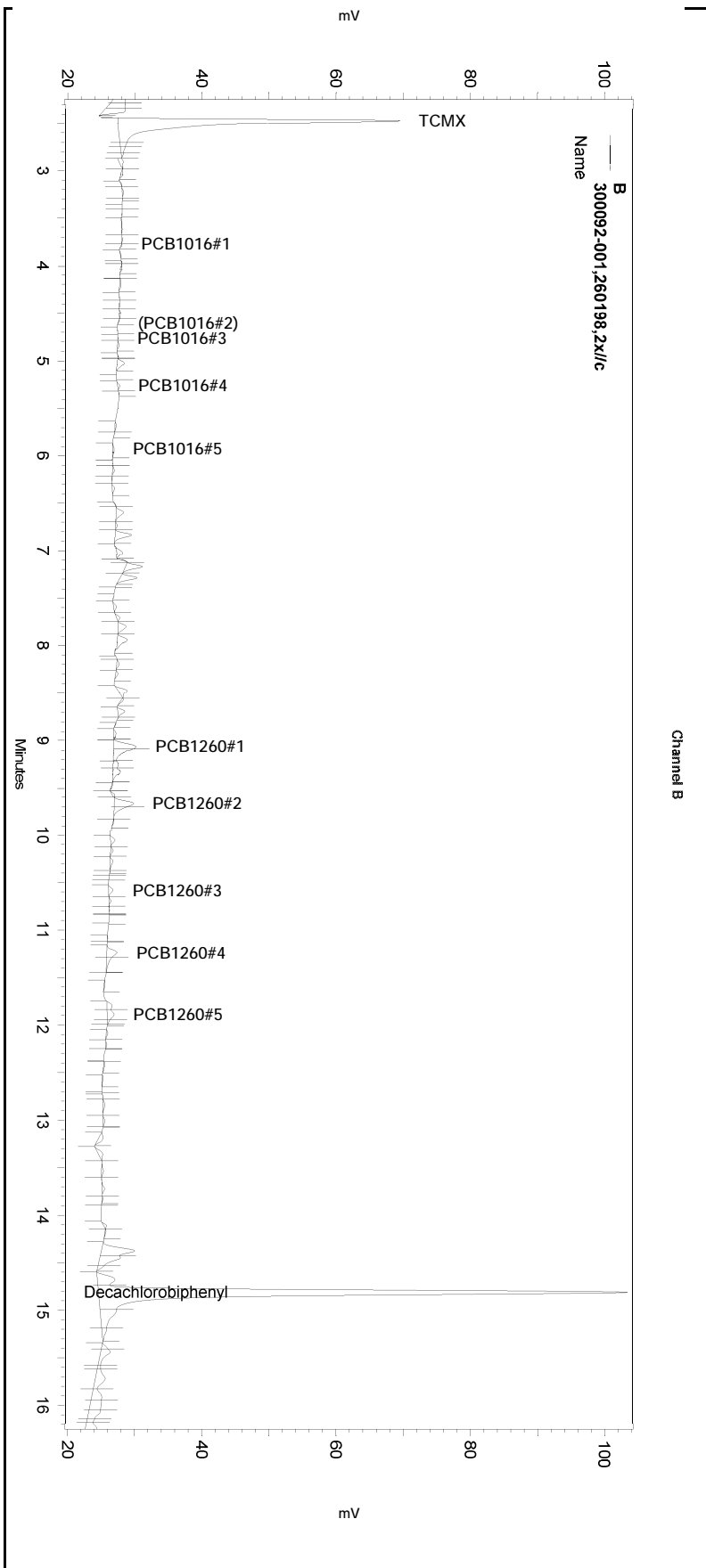
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	3.62	0	0
Yes	Valley to Valley	3.931	15.919	0
Yes	Manual Baseline	10.479	11.037	0
Yes	Split Peak	10.731	0	0
Yes	Manual Baseline	11.258	11.462	0
Yes	Manual Baseline	12.064	12.434	0
Yes	Split Peak	12.944	0	0
Yes	Manual Baseline	13.485	13.815	0
Yes	Reset Baseline	16.556	0	0

Sample Name: 300092-001,260198,2x//c
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 4:39:07 PM
 Analysis Date: 6/7/2018 5:05:22 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	2.438	2.868	0
Yes	Valley to Valley	3.063	14.228	0
Yes	Manual Baseline	8.989	9.437	0
Yes	Split Peak	9.085	0	0
Yes	Split Peak	9.701	0	0
Yes	Manual Baseline	10.523	10.842	0
Yes	Split Peak	11.286	0	0
Yes	Manual Baseline	11.75	12.008	0
Yes	Split Peak	11.939	0	0
Yes	Reset Baseline	15.327	0	0

Sample Name: 300092-001,260198,2x//c
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
Instrument: GC06 Vial: 16 Operator: lms2k3\pest3
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
Run Date: 6/7/2018 4:39:07 PM
Analysis Date: 6/7/2018 5:03:05 PM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.457	3.447	192302	31.669
PCB1016#1		4.950		0.000 BDL
PCB1016#2	5.940	5.960	3988	15.203
PCB1016#3	6.230	6.250	4386	27.627
PCB1016#4		6.690		0.000 BDL
PCB1016#5	7.190	7.177	1606	13.573
PCB1260#1	10.677	10.667	38947	95.104
PCB1260#2	11.317	11.297	38349	95.900
PCB1260#3	12.163	12.157	16770	69.796
PCB1260#4	12.907	12.890	38179	74.555
PCB1260#5	13.547	13.547	24676	92.615
Decachlorobiphenyl	16.137	16.137	290154	39.857

GC06

PCB - ECD Instrument Results

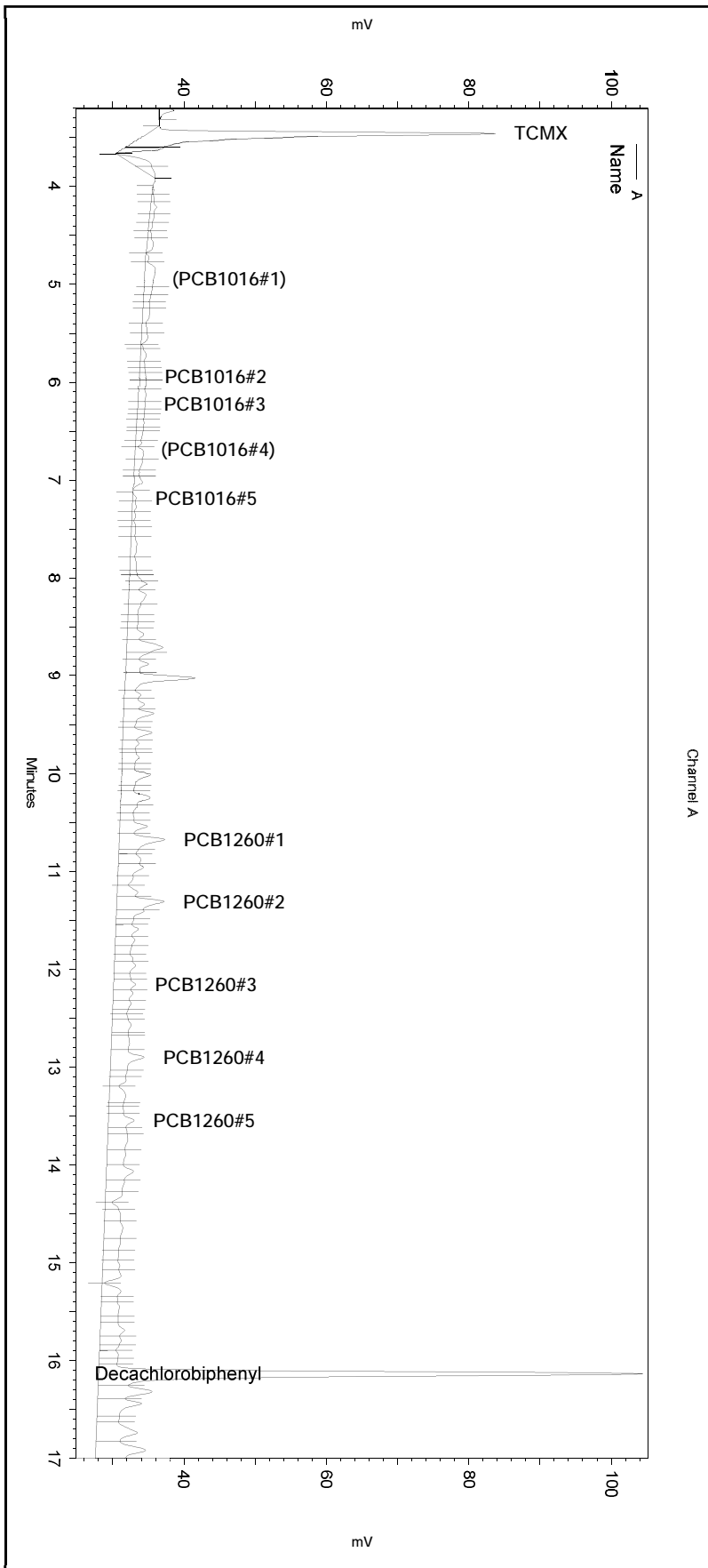
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.470	2.493	214109	34.422
PCB1016#1	3.767	3.763	7606	25.308
PCB1016#2		4.601		0.000 BDL
PCB1016#3	4.760	4.787	3176	23.632
PCB1016#4	5.263	5.283	998	9.044
PCB1016#5	5.930	5.947	1290	7.067
PCB1260#1	9.063	9.070	28581	87.876
PCB1260#2	9.667	9.680	23290	71.369
PCB1260#3	10.580	10.590	2480	9.351
PCB1260#4	11.240	11.247	11767	25.882
PCB1260#5	11.890	11.903	13154	45.630
Decachlorobiphenyl	14.810	14.823	333356	39.501

Sample Name: 300092-001,260198,2x//c
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 Vial: 16 Operator: lims2k3\pest3
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 4:39:07 PM
 Analysis Date: 6/7/2018 5:03:05 PM
 Sample Amount: 1



---< General Method Parameters >-----

No items selected for this section

---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

Manual Integration Fixes

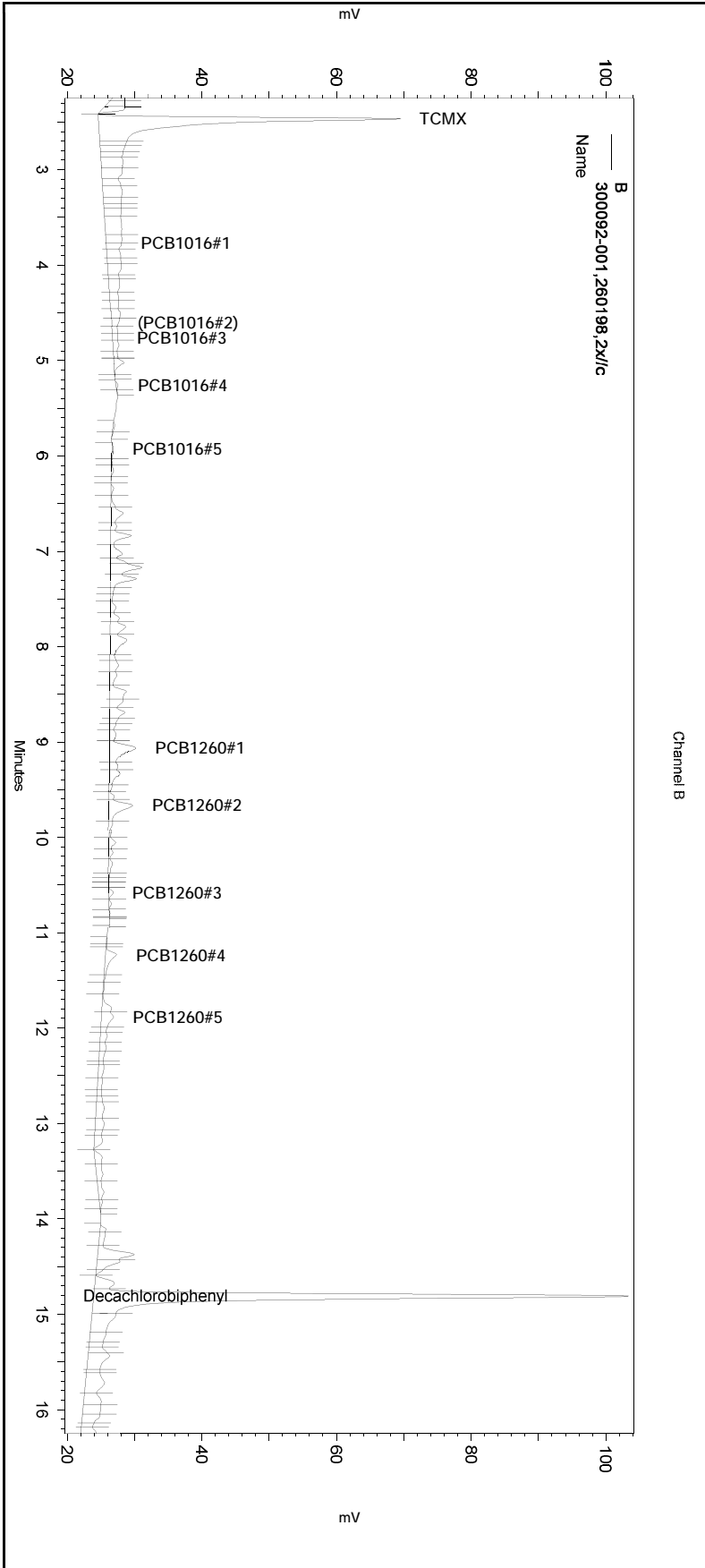
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 Data File: C:\Documents and Settings\All Users\Application Data\ChromatographySystem\Recovery Data\Instrument.10112\158-015_DC01.tmp

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Channel A

Sample Name: 300092-001,260198,2x//c
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 Vial: 16 Operator: lims2k3\pest3
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 4:39:07 PM
 Analysis Date: 6/7/2018 5:03:05 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

 Data File: C:\Documents and Settings\All Users\Application Data\ChromatographySystem\Recovery Data\Instrument.10112\158-015_DC01.tmp

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

QC Raw Data

Batch QC Report

Polychlorinated Biphenyls (PCBs)			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3540C
Project#:	1035225322.01	Analysis:	EPA 8082
Matrix:	Miscell.	Batch#:	260198
Units:	ug/Kg	Prepared:	06/05/18
Diln Fac:	1.000	Analyzed:	06/06/18

Type: BS Lab ID: QC934676

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	500.0	450.4	90	56-152
Aroclor-1260	500.0	492.6	99	52-165

Surrogate	%REC	Limits
Decachlorobiphenyl	93	26-153

Type: BSD Lab ID: QC934677

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	500.0	406.9	81	56-152	10	48
Aroclor-1260	500.0	445.3	89	52-165	10	39

Surrogate	%REC	Limits
Decachlorobiphenyl	82	26-153

RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 300092 PCBS Soil
EPA 8082

Type : BS
 Inst : GC16
 Seqnum : 238226583015.3
 File : 157_015
 IDF : 1.0
 Lab ID : QC934676
 Matrix : Miscell.
 Batch : 260198
 Time : 06-JUN-2018 20:44
 Cal : 238128692001
 Units : ug/Kg

Type : BSD
 Inst : GC16
 Seqnum : 238226583016.3
 File : 157_016
 IDF : 1.0
 Lab ID : QC934677
 Matrix : Miscell.
 Batch : 260198
 Time : 06-JUN-2018 21:13
 Cal : 238128692001

BS: 5.00 g --> 10.0 ml = 2.0 ml/g PDF
 BSD: 5.00 g --> 10.0 ml = 2.0 ml/g PDF

Analyte	Spiked	BS Raw	BS Result	Ch	%Rec	BSD Raw	BSD Result	Ch	%Rec	Limits	RPD	Lim	Flags
Aroclor-1016	500.0	225.2	450.4	A	90	203.5	406.9	A	81	56-152	10	48	u
Aroclor-1016 Peak # 1		215.7	431.4	A		196.1	392.1	A					
Aroclor-1016 Peak # 2		227.9	455.8	A		214.2	428.4	A					
Aroclor-1016 Peak # 3		226.7	453.4	A		200.4	400.8	A					
Aroclor-1016 Peak # 4		217.3	434.7	A		186.6	373.2	A					
Aroclor-1016 Peak # 5		238.4	476.9	A		220.0	440.1	A					
Aroclor-1260	500.0	246.3	492.6	A	99	222.6	445.3	A	89	52-165	10	39	u
Aroclor-1260 Peak # 1		232.2	464.5	A		214.6	429.2	A					
Aroclor-1260 Peak # 2		199.8	399.6	A		177.8	355.6	A					
Aroclor-1260 Peak # 3		267.5	534.9	A		245.0	490.0	A					
Aroclor-1260 Peak # 4		279.8	559.6	A		254.5	509.1	A					
Aroclor-1260 Peak # 5		252.3	504.6	A		221.2	442.5	A					
Decachlorobiphenyl	100.0	46.26	92.53	A	93	40.92	81.83	A	82	26-153			u

JC1 06/07/18 : Corrected automatically drawn baseline. [general version]

JC1 06/07/18 [TCMX A]: Recovery well within limits despite instrument bias [general version]

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

u=use

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015
Sample Name: **bs,qc934676,260198**
Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 8:44:33 PM
Analysis Date: 6/7/2018 10:48:13 AM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.163	4.147	608885	50.369
PCB1016#1	5.810	5.797	133385	215.689
PCB1016#2	6.883	6.873	190787	227.899
PCB1016#3	7.187	7.180	93761	226.686
PCB1016#4	7.643	7.634	53149	217.347
PCB1016#5	8.153	8.147	90787	238.444
PCB1260#1	11.717	11.717	291216	232.226
PCB1260#2	12.370	12.370	225821	199.793
PCB1260#3	13.223	13.220	167767	267.450
PCB1260#4	13.967	13.967	406358	279.781
PCB1260#5	14.620	14.627	175396	252.289
Decachlorobiphenyl	17.213	17.210	635980	46.264

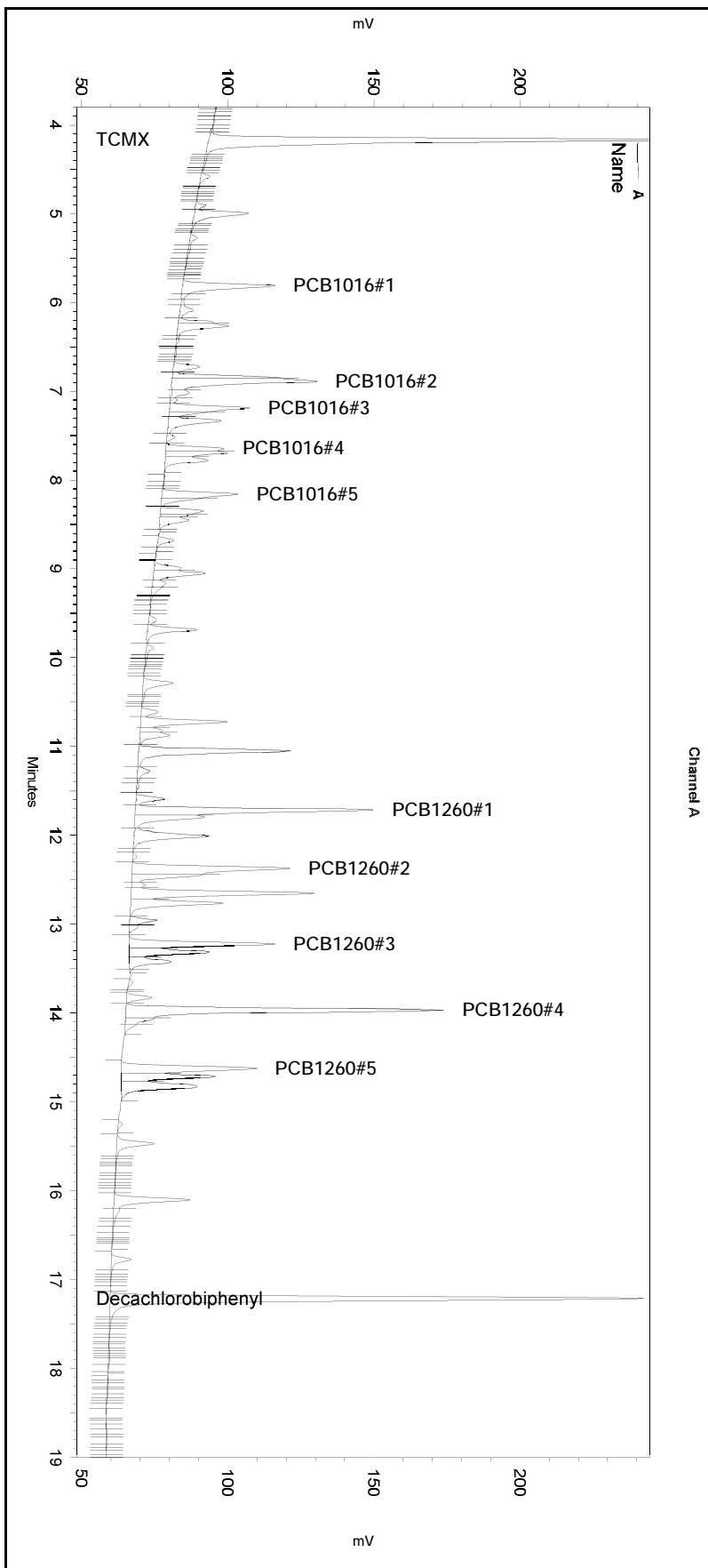
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.277	4.260	1148089	54.567
PCB1016#1	5.927	5.913	113001	232.822
PCB1016#2	6.947	6.933	344352	242.558
PCB1016#3	7.177	7.160	151719	246.236
PCB1016#4	7.747	7.733	85809	225.221
PCB1016#5	8.510	8.497	132905	228.572
PCB1260#1	11.833	11.820	279087	236.893
PCB1260#2	12.483	12.470	275423	200.837
PCB1260#3	13.437	13.423	197698	253.849
PCB1260#4	14.093	14.083	427998	281.502
PCB1260#5	14.780	14.770	208626	236.761
Decachlorobiphenyl	17.777	17.763	928603	45.111

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015
 Sample Name: **bs,qc934676,260198**
 Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 8:44:33 PM
 Analysis Date: 6/7/2018 10:48:13 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

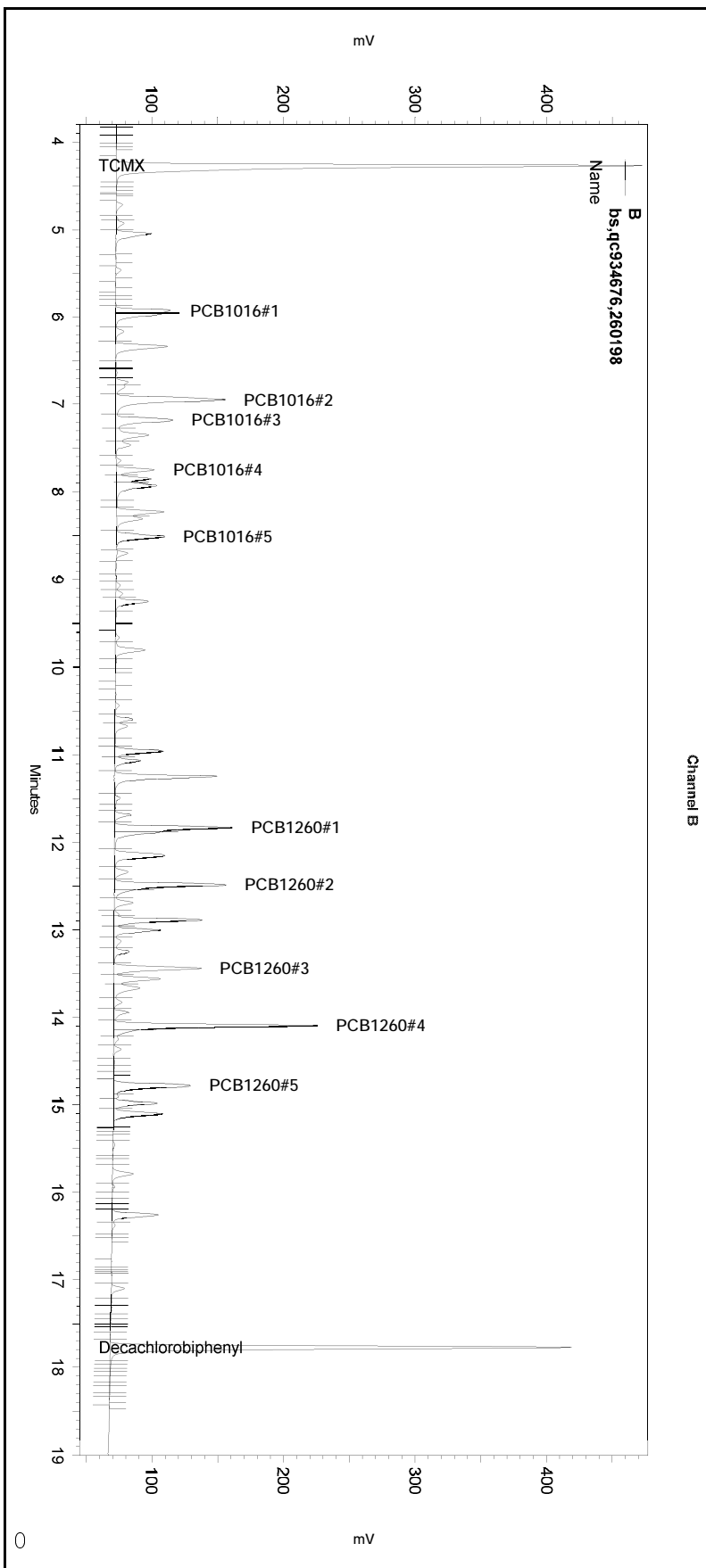
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	7.916	0	0
Yes	Reset Baseline	7.927	0	0
Yes	Reset Baseline	8.581	0	0
Yes	Reset Baseline	13.569	0	0
Yes	Reset Baseline	14.243	0	0
Yes	Reset Baseline	14.994	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015
 Sample Name: **bs,qc934676,260198**
 Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 8:44:33 PM
 Analysis Date: 6/7/2018 10:48:13 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.955	0	0
Yes	Reset Baseline	8.656	0	0
Yes	Split Peak	12.54	0	0
Yes	Split Peak	14.148	0	0
Yes	Manual Baseline	14.705	15.252	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015
Sample Name: **bs,qc934676,260198**
Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 8:44:33 PM
Analysis Date: 6/7/2018 10:47:22 AM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.163	4.147	608885	50.369
PCB1016#1	5.810	5.797	133385	215.689
PCB1016#2	6.883	6.873	191212	228.407
PCB1016#3	7.187	7.180	94441	228.330
PCB1016#4	7.643	7.634	54229	222.273
PCB1016#5	8.153	8.147	93583	245.788
PCB1260#1	11.717	11.717	291251	232.254
PCB1260#2	12.370	12.370	226040	199.986
PCB1260#3	13.223	13.220	171047	272.679
PCB1260#4	13.967	13.967	411737	283.484
PCB1260#5	14.620	14.627	176553	253.954
Decachlorobiphenyl	17.213	17.210	635980	46.264

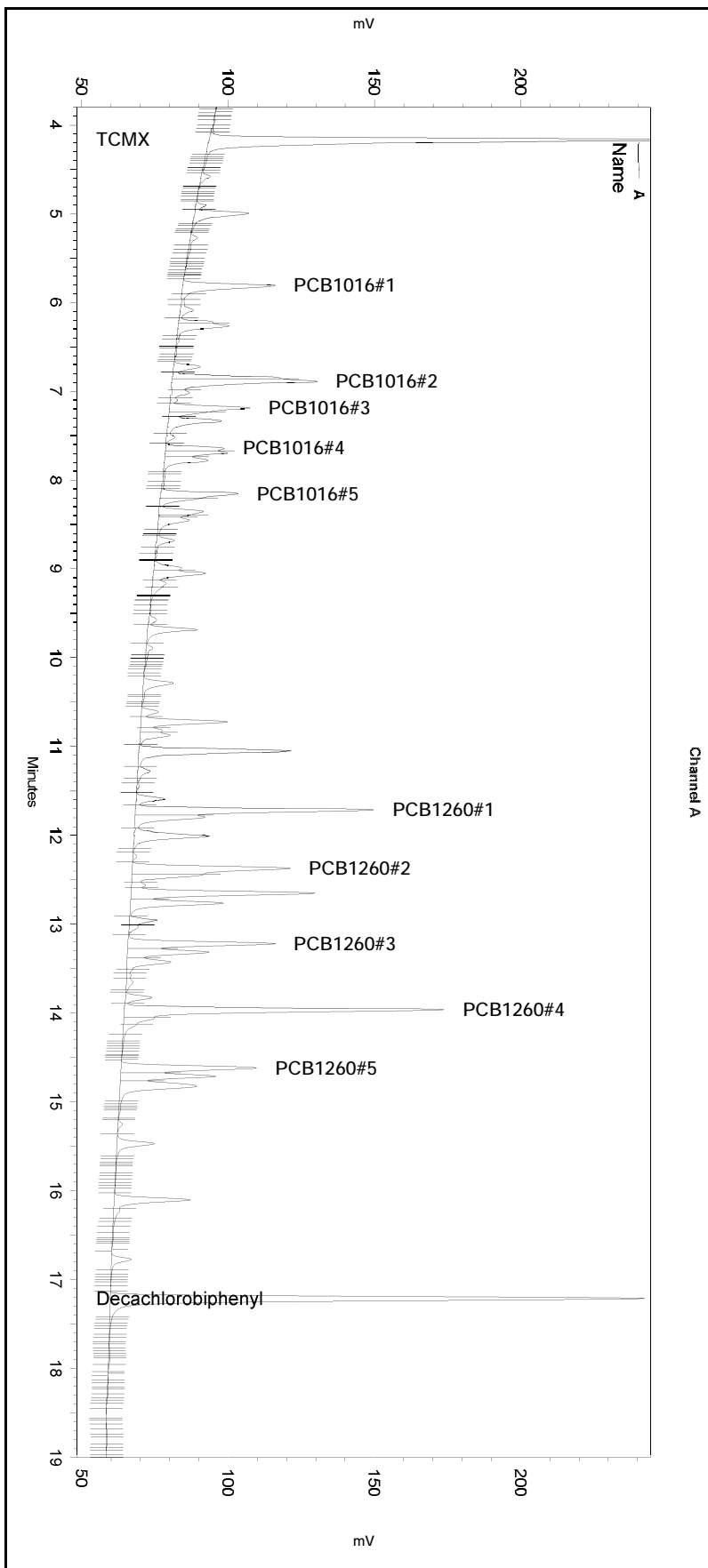
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.277	4.260	1148089	54.567
PCB1016#1	5.927	5.913	215154	443.294
PCB1016#2	6.947	6.933	348574	245.532
PCB1016#3	7.177	7.160	155177	251.849
PCB1016#4	7.747	7.733	89286	234.347
PCB1016#5	8.510	8.497	144094	247.816
PCB1260#1	11.833	11.820	279087	236.893
PCB1260#2	12.483	12.470	310933	226.731
PCB1260#3	13.437	13.423	197698	253.849
PCB1260#4	14.093	14.083	463640	304.944
PCB1260#5	14.780	14.770	194478	220.705
Decachlorobiphenyl	17.777	17.763	928603	45.111

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015
 Sample Name: **bs,qc934676,260198**
 Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 8:44:33 PM
 Analysis Date: 6/7/2018 10:47:22 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

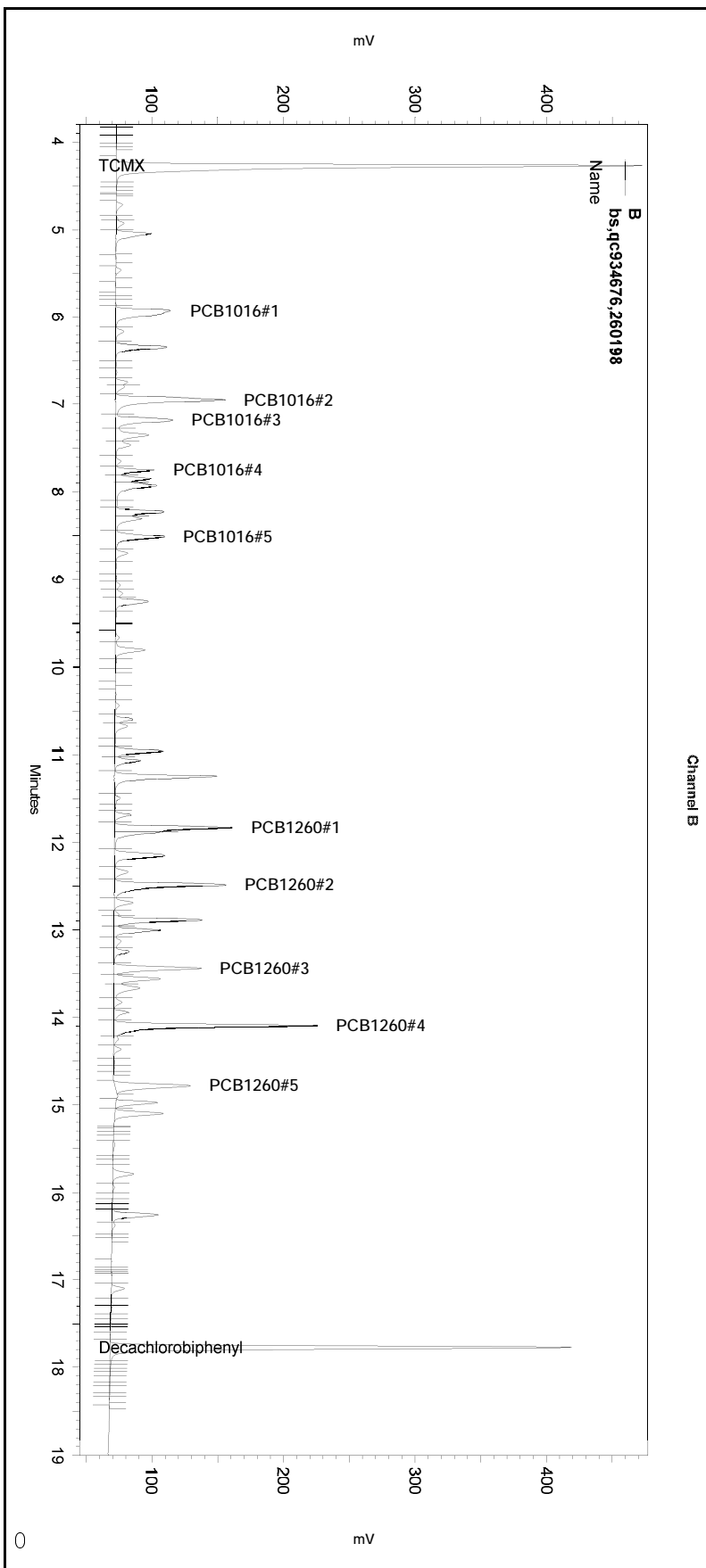
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
No	Reset Baseline	7.916	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015
 Sample Name: **bs,qc934676,260198**
 Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 8:44:33 PM
 Analysis Date: 6/7/2018 10:47:22 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016
Sample Name: **bsd,qc934677,260198**
Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 9:13:34 PM
Analysis Date: 6/7/2018 10:49:10 AM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.147	4.147	565396	46.772
PCB1016#1	5.793	5.797	121252	196.069
PCB1016#2	6.867	6.873	179321	214.203
PCB1016#3	7.170	7.180	82893	200.410
PCB1016#4	7.627	7.634	46405	186.584
PCB1016#5	8.137	8.147	83778	220.036
PCB1260#1	11.700	11.717	269104	214.593
PCB1260#2	12.353	12.370	200989	177.823
PCB1260#3	13.207	13.220	153682	244.996
PCB1260#4	13.950	13.967	369680	254.528
PCB1260#5	14.607	14.627	153810	221.240
Decachlorobiphenyl	17.197	17.210	562484	40.917

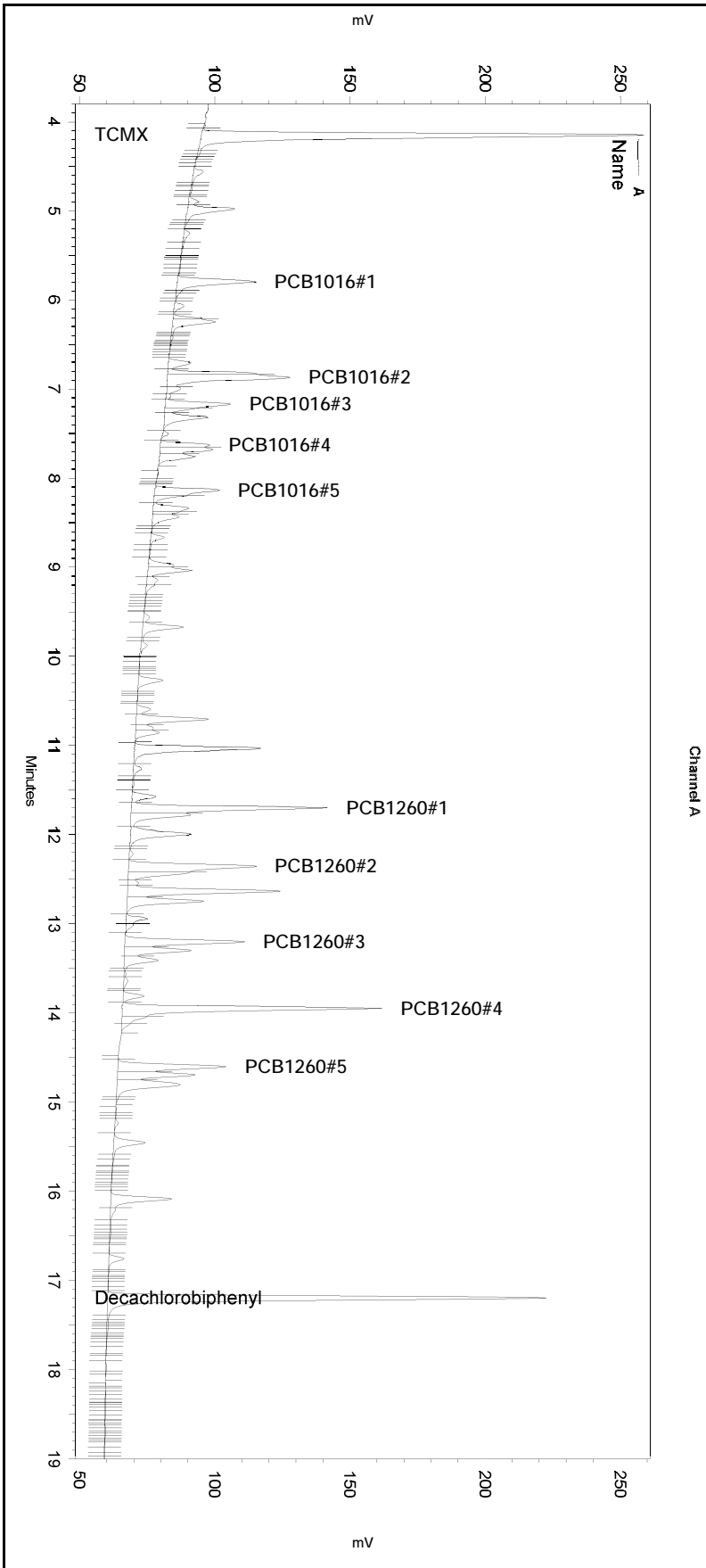
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.257	4.260	1062001	50.475
PCB1016#1	5.910	5.913	87025	179.303
PCB1016#2	6.930	6.933	317601	223.715
PCB1016#3	7.160	7.160	140732	228.405
PCB1016#4	7.730	7.733	79358	208.289
PCB1016#5	8.493	8.497	117956	202.863
PCB1260#1	11.817	11.820	257831	218.850
PCB1260#2	12.467	12.470	240170	175.131
PCB1260#3	13.420	13.423	176855	227.086
PCB1260#4	14.077	14.083	380432	250.217
PCB1260#5	14.763	14.770	183982	208.793
Decachlorobiphenyl	17.760	17.763	808265	39.265

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016
 Sample Name: **bsd,qc934677,260198**
 Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 9:13:34 PM
 Analysis Date: 6/7/2018 10:49:10 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

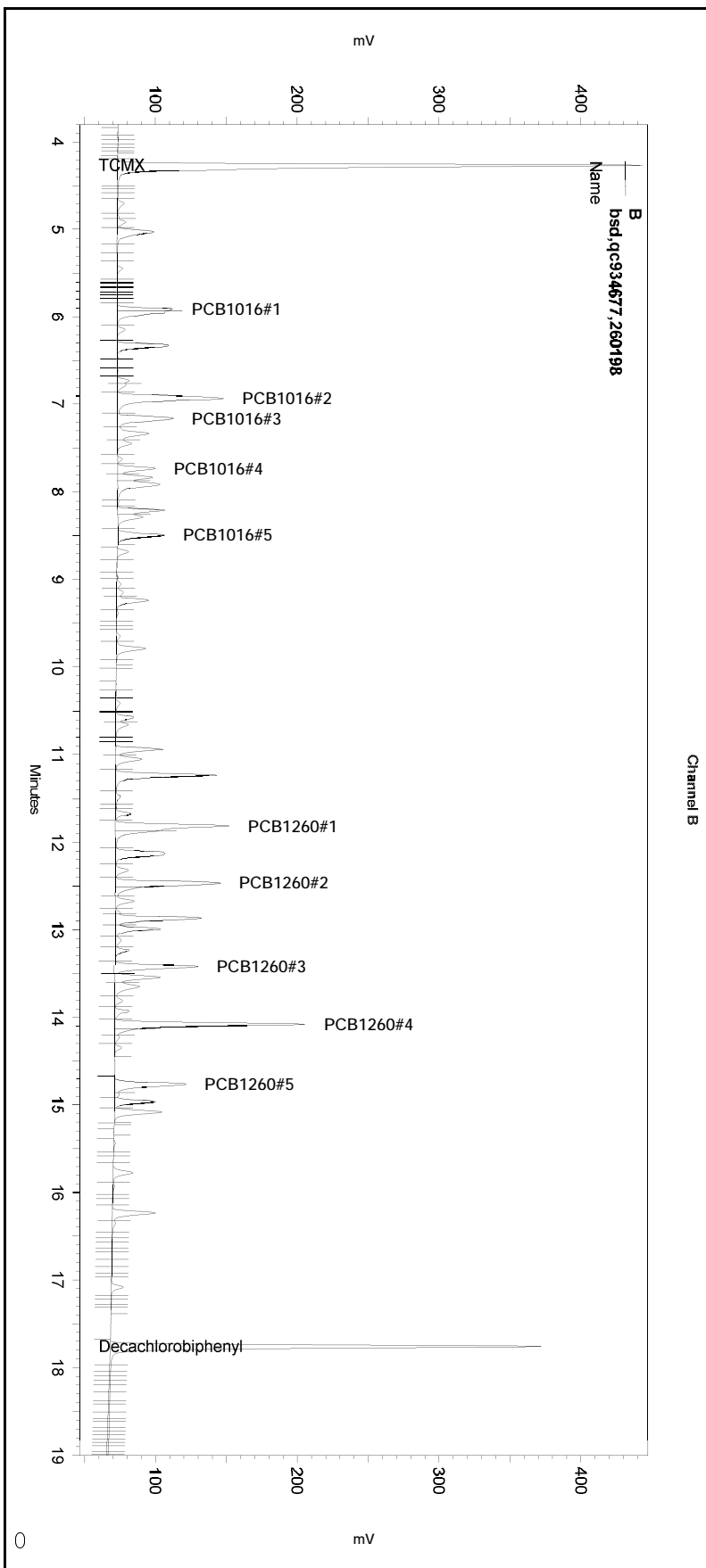
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	7.456	0	0
Yes	Reset Baseline	7.864	0	0
Yes	Reset Baseline	14.235	0	0
Yes	Reset Baseline	15.029	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016
 Sample Name: **bsd,qc934677,260198**
 Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 9:13:34 PM
 Analysis Date: 6/7/2018 10:49:10 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.927	0	0
Yes	Reset Baseline	8.606	0	0
Yes	Split Peak	12.515	0	0
Yes	Split Peak	14.134	0	0
Yes	Reset Baseline	14.448	0	0
Yes	Manual Baseline	14.669	15.228	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016
Sample Name: **bsd,qc934677,260198**
Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 9:13:34 PM
Analysis Date: 6/7/2018 10:48:22 AM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.147	4.147	565396	46.772
PCB1016#1	5.793	5.797	121252	196.069
PCB1016#2	6.867	6.873	181385	216.668
PCB1016#3	7.170	7.180	86130	208.236
PCB1016#4	7.627	7.634	47797	192.934
PCB1016#5	8.137	8.147	83778	220.036
PCB1260#1	11.700	11.717	269859	215.195
PCB1260#2	12.353	12.370	202271	178.957
PCB1260#3	13.207	13.220	156117	248.878
PCB1260#4	13.950	13.967	376047	258.912
PCB1260#5	14.607	14.627	154766	222.615
Decachlorobiphenyl	17.197	17.210	562484	40.917

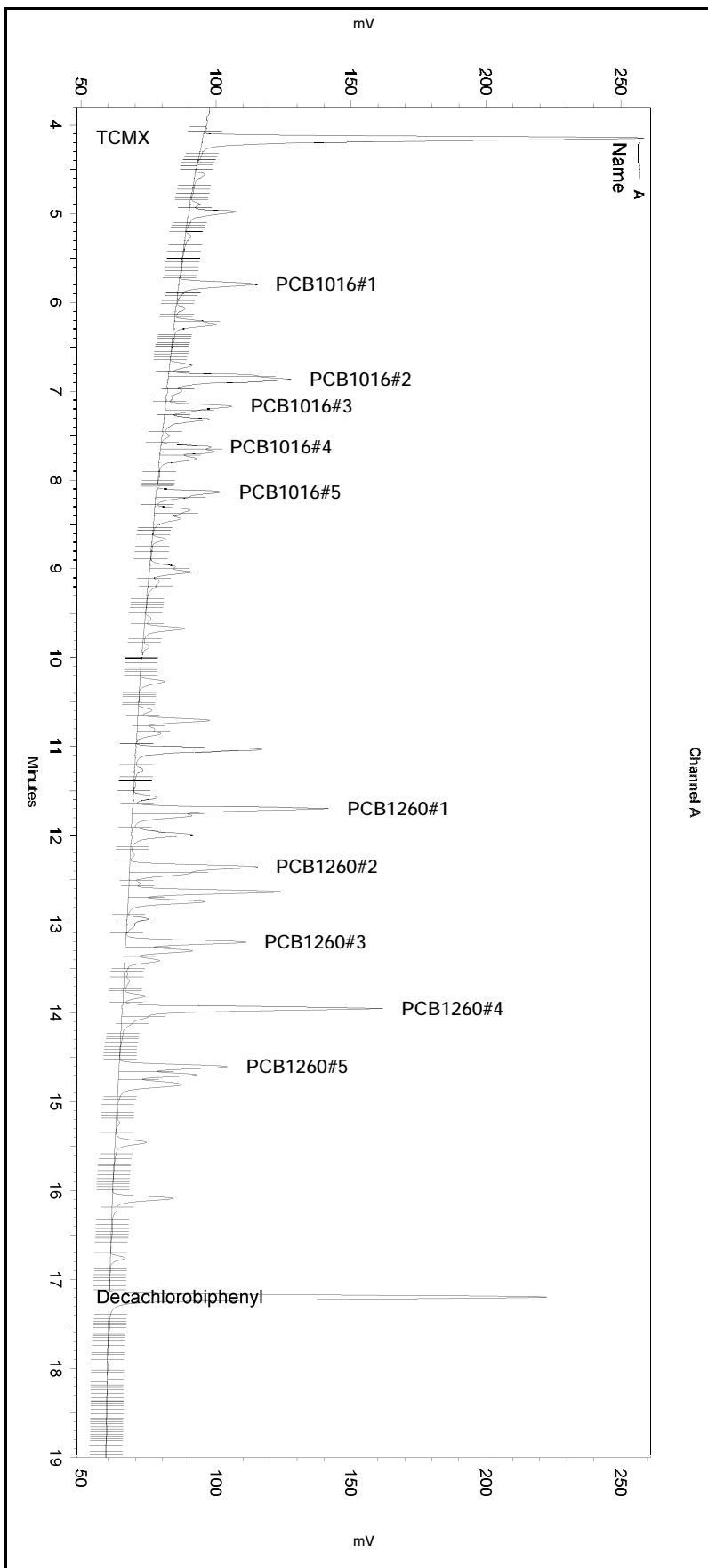
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.257	4.260	1062001	50.475
PCB1016#1	5.910	5.913	202725	417.686
PCB1016#2	6.930	6.933	321052	226.146
PCB1016#3	7.160	7.160	143512	232.917
PCB1016#4	7.730	7.733	82863	217.488
PCB1016#5	8.493	8.497	130806	224.963
PCB1260#1	11.817	11.820	258637	219.534
PCB1260#2	12.467	12.470	282340	205.881
PCB1260#3	13.420	13.423	178843	229.639
PCB1260#4	14.077	14.083	413856	272.200
PCB1260#5	14.763	14.770	170952	194.006
Decachlorobiphenyl	17.760	17.763	808265	39.265

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016
 Sample Name: **bsd,qc934677,260198**
 Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 9:13:34 PM
 Analysis Date: 6/7/2018 10:48:22 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

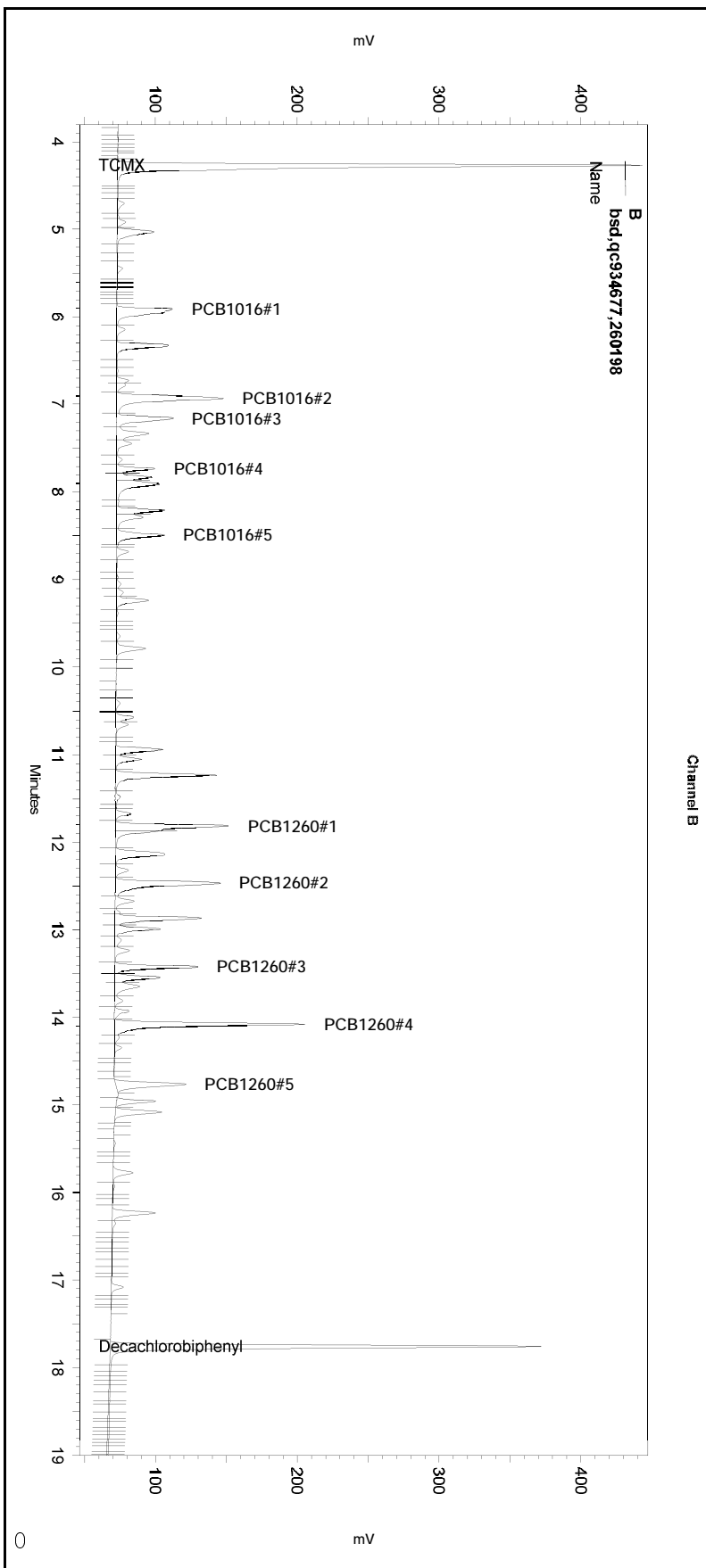
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016
 Sample Name: **bsd,qc934677,260198**
 Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 9:13:34 PM
 Analysis Date: 6/7/2018 10:48:22 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Batch QC Report

Polychlorinated Biphenyls (PCBs)			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3540C
Project#:	1035225322.01	Analysis:	EPA 8082
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC934675	Batch#:	260198
Matrix:	Miscell.	Prepared:	06/05/18
Units:	ug/Kg	Analyzed:	06/06/18

Analyte	Result	RL	MDL
Aroclor-1016	ND	20	7.1
Aroclor-1221	ND	40	19
Aroclor-1232	ND	20	9.3
Aroclor-1242	ND	20	8.6
Aroclor-1248	ND	20	9.1
Aroclor-1254	ND	20	7.3
Aroclor-1260	ND	20	4.6

Surrogate	%REC	Limits
Decachlorobiphenyl	57	26-153

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

ENTHALPY BLANK USER REPORT FOR 300092 PCBS Soil
EPA 8082

Inst : GC16 Lab ID : QC934675
 Seqnum : 238226583014.3 Matrix : Miscell.
 File : 157_014 Batch : 260198 Time : 06-JUN-2018 20:15
 Cal : 238128692001 Caldate : 30-MAR-2018
 IDF : 1.0 Raw Units : pg/ul Units : ug/Kg

5.00 g --> 10.0 ml = 2.0 ml/g PDF

Analyte	Ch	Raw	Result	Conf	RPD	RL	Flags
Aroclor-1016	A	-4.744	ND	ND	-210%	20	u
Aroclor-1016 Peak # 1	A	0.6306	1.26	0.47	91%		
Aroclor-1016 Peak # 2	A	0.6833	1.37	0.10	172%		
Aroclor-1016 Peak # 3	A	0	ND	0.10			
Aroclor-1016 Peak # 4	A	-25.04	ND	0.44	-204%		
Aroclor-1016 Peak # 5	A	0.007879	0.02	0.01	78%		
Aroclor-1221	A		ND			40	u
Aroclor-1232	A		ND			20	u
Aroclor-1242	A		ND			20	u
Aroclor-1248	A		ND			20	u
Aroclor-1254	A		ND			20	u
Aroclor-1260	A	0.09688	ND	ND	56%	20	u
Aroclor-1260 Peak # 1	A	0.1675	0.33	0.85	87%		
Aroclor-1260 Peak # 2	A	0.1991	0.40	0.34	15%		
Aroclor-1260 Peak # 3	A	0.1100	0.22	0.16	32%		
Aroclor-1260 Peak # 4	A	0.0006885	0.00	0.13	196%		
Aroclor-1260 Peak # 5	A	0.007192	0.01	0.24	177%		

Surrogate	Ch	Raw	Spiked	Result	%Rec	Limits	Flags
Decachlorobiphenyl	A	28.42	100.0	56.84	57	26-153	u

JC1 06/07/18 : Corrected automatically drawn baseline. [general version]

JC1 06/07/18 [TCMX A]: Recovery well within limits despite instrument bias [general version]

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

u=use

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014
Sample Name: **mb,qc934675,260198**
Instrument: GC16 (Offline) Vial: 34 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 8:15:33 PM
Analysis Date: 6/7/2018 10:47:00 AM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.157	4.147	579923	47.973
PCB1016#1	5.783	5.797	390	0.631
PCB1016#2	6.873	6.873	572	0.683
PCB1016#3		7.180		0.000 BDL
PCB1016#4	7.640	7.634	11	0.000
PCB1016#5	8.157	8.147	3	0.008
PCB1260#1	11.720	11.717	210	0.167
PCB1260#2	12.347	12.370	225	0.199
PCB1260#3	13.220	13.220	69	0.110
PCB1260#4	13.980	13.967	1	0.001
PCB1260#5	14.627	14.627	5	0.007
Decachlorobiphenyl	17.207	17.210	390699	28.421

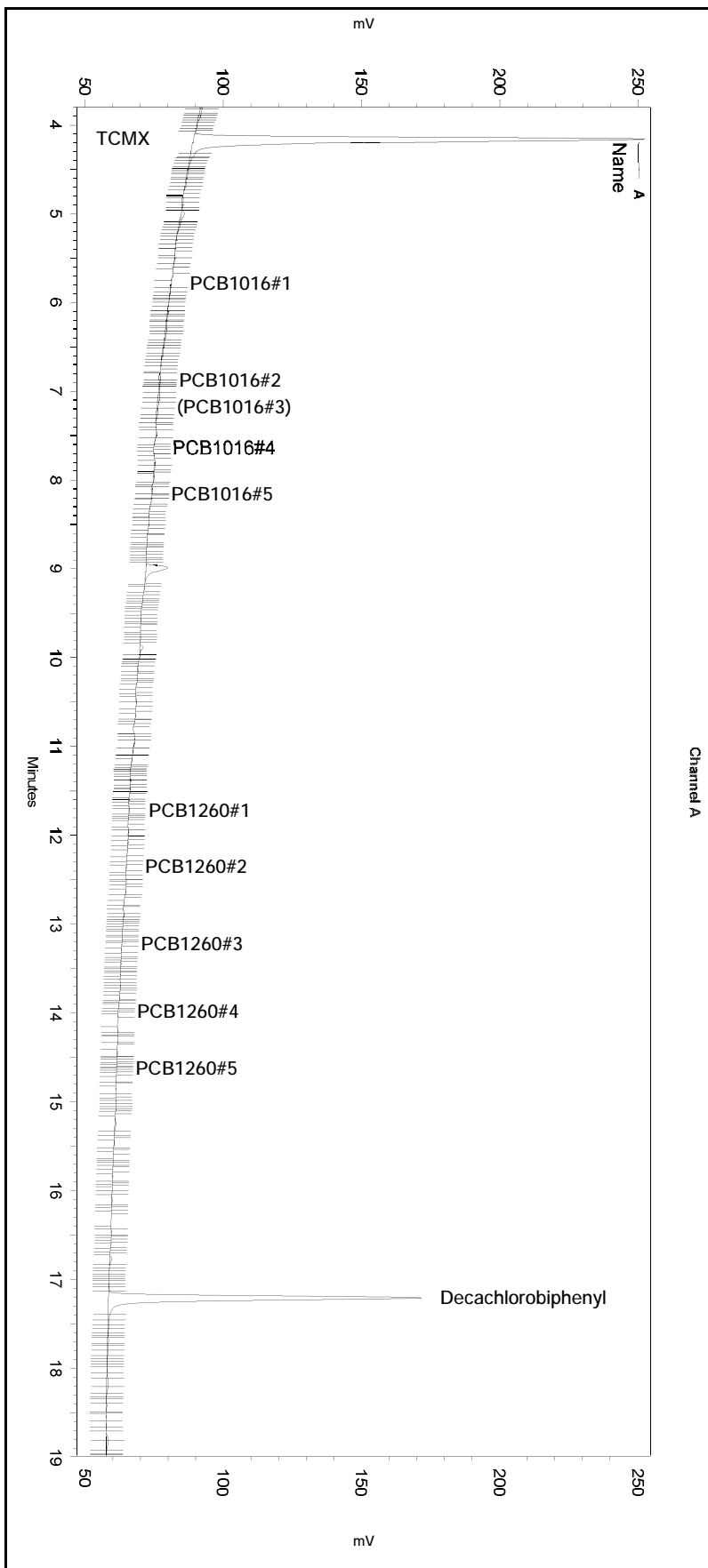
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.267	4.260	1065908	50.661
PCB1016#1	5.917	5.913	114	0.235
PCB1016#2	6.903	6.933	74	0.052
PCB1016#3	7.170	7.160	30	0.049
PCB1016#4	7.757	7.733	83	0.218
PCB1016#5	8.500	8.497	2	0.003
PCB1260#1	11.823	11.820	503	0.427
PCB1260#2	12.480	12.470	234	0.171
PCB1260#3	13.417	13.423	62	0.080
PCB1260#4	14.090	14.083	100	0.066
PCB1260#5	14.793	14.770	105	0.119
Decachlorobiphenyl	17.767	17.763	530767	25.784

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014
 Sample Name: **mb,qc934675,260198**
 Instrument: GC16 (Offline) Vial: 34 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 8:15:33 PM
 Analysis Date: 6/7/2018 10:47:00 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

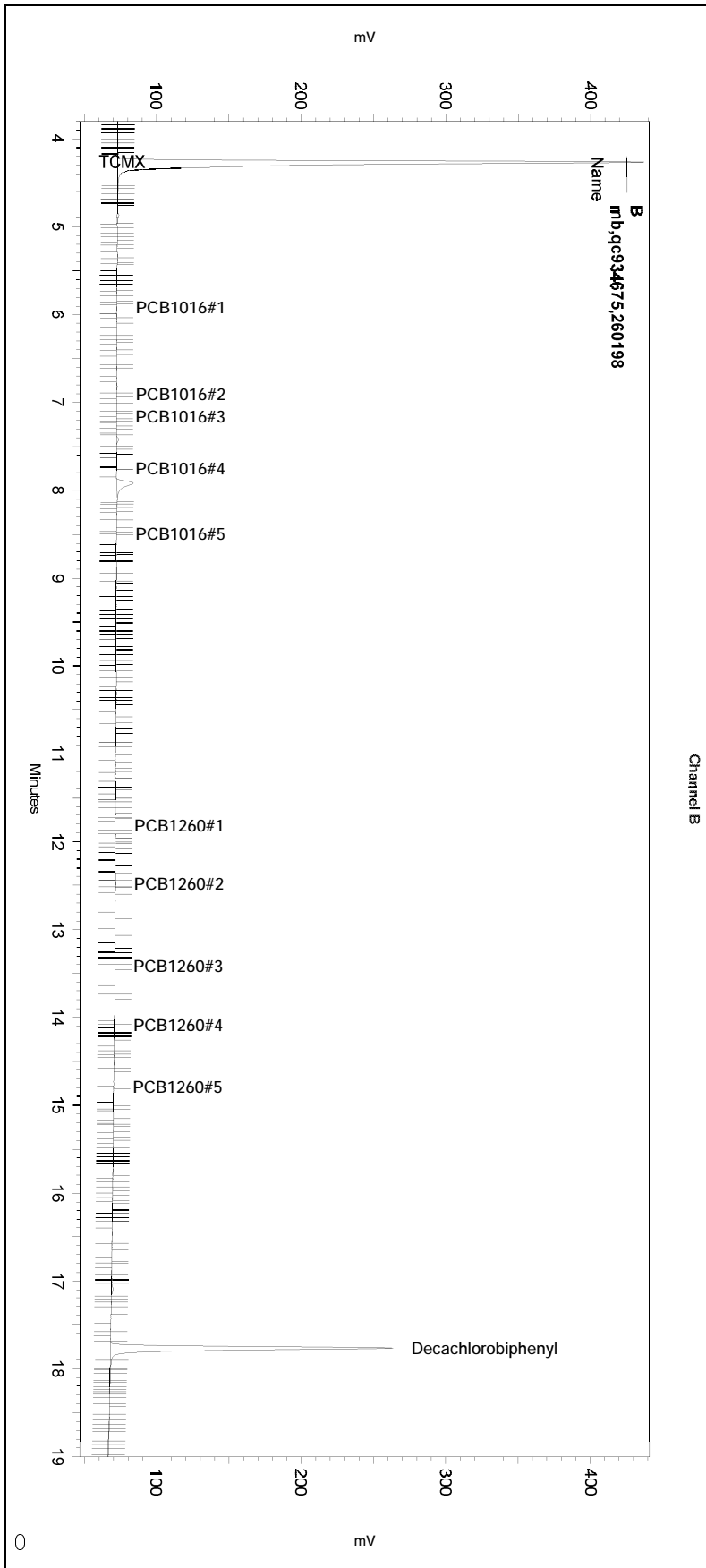
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Valley to Valley	7.408	16.679	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014
 Sample Name: **mb,qc934675,260198**
 Instrument: GC16 (Offline) Vial: 34 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 8:15:33 PM
 Analysis Date: 6/7/2018 10:47:00 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Valley to Valley	4.78	17.204	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014
Sample Name: **mb,qc934675,260198**
Instrument: GC16 (Offline) Vial: 34 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 8:15:33 PM
Analysis Date: 6/7/2018 10:46:49 AM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.157	4.147	579923	47.973
PCB1016#1	5.783	5.797	390	0.631
PCB1016#2	6.873	6.873	576	0.688
PCB1016#3		7.180		0.000 BDL
PCB1016#4	7.640	7.634	13	0.000
PCB1016#5	8.157	8.147	1495	3.926
PCB1260#1	11.720	11.717	2292	1.828
PCB1260#2	12.347	12.370	2195	1.942
PCB1260#3	13.220	13.220	1174	1.872
PCB1260#4	13.980	13.967	10	0.007
PCB1260#5	14.627	14.627	214	0.308
Decachlorobiphenyl	17.207	17.210	390699	28.421

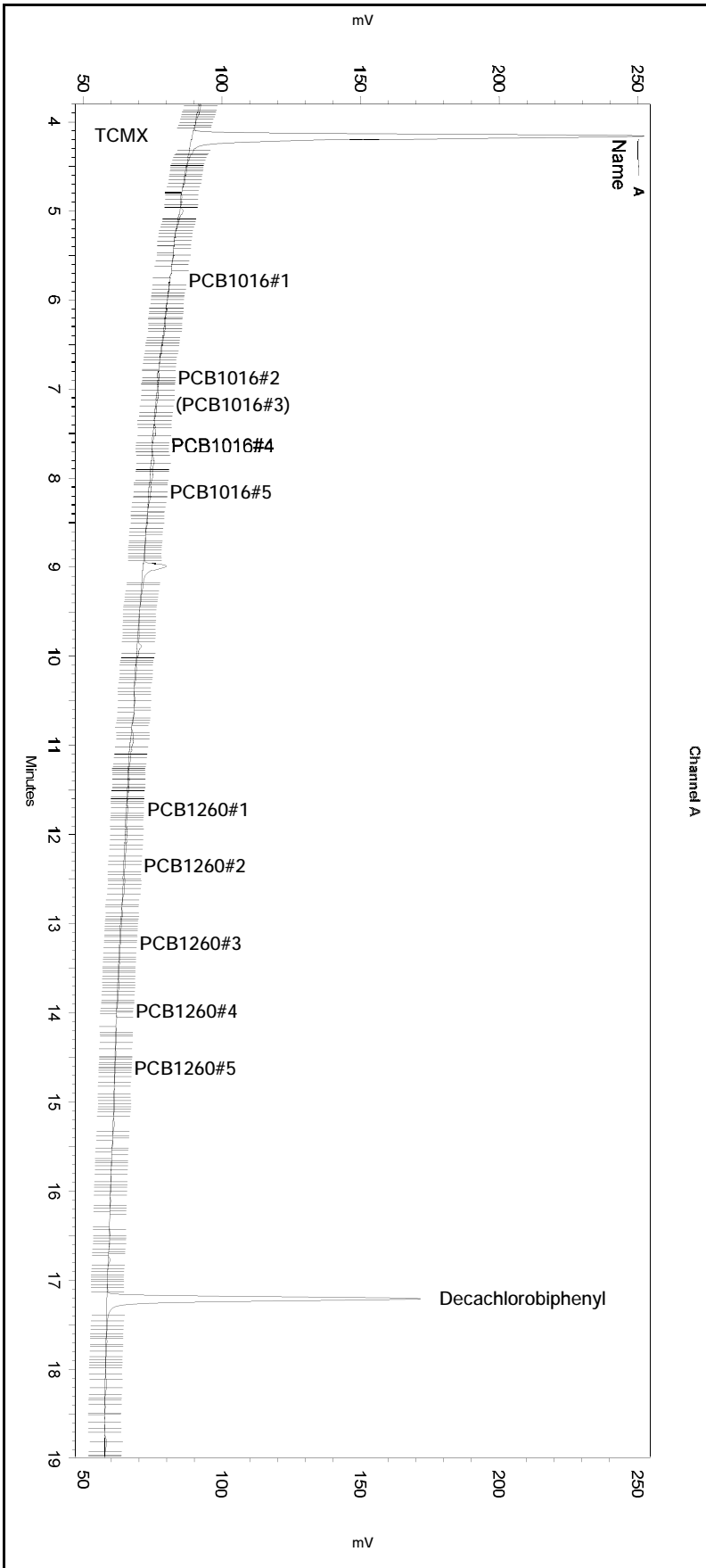
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.267	4.260	1067053	50.715
PCB1016#1	5.917	5.913	853	1.757
PCB1016#2	6.903	6.933	548	0.386
PCB1016#3	7.170	7.160	198	0.321
PCB1016#4	7.757	7.733	83	0.218
PCB1016#5	8.500	8.497	6	0.010
PCB1260#1	11.823	11.820	846	0.718
PCB1260#2	12.480	12.470	951	0.693
PCB1260#3	13.417	13.423	78	0.100
PCB1260#4	14.090	14.083	284	0.187
PCB1260#5	14.793	14.770	105	0.119
Decachlorobiphenyl	17.767	17.763	530767	25.784

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014
 Sample Name: **mb,qc934675,260198**
 Instrument: GC16 (Offline) Vial: 34 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 8:15:33 PM
 Analysis Date: 6/7/2018 10:46:49 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

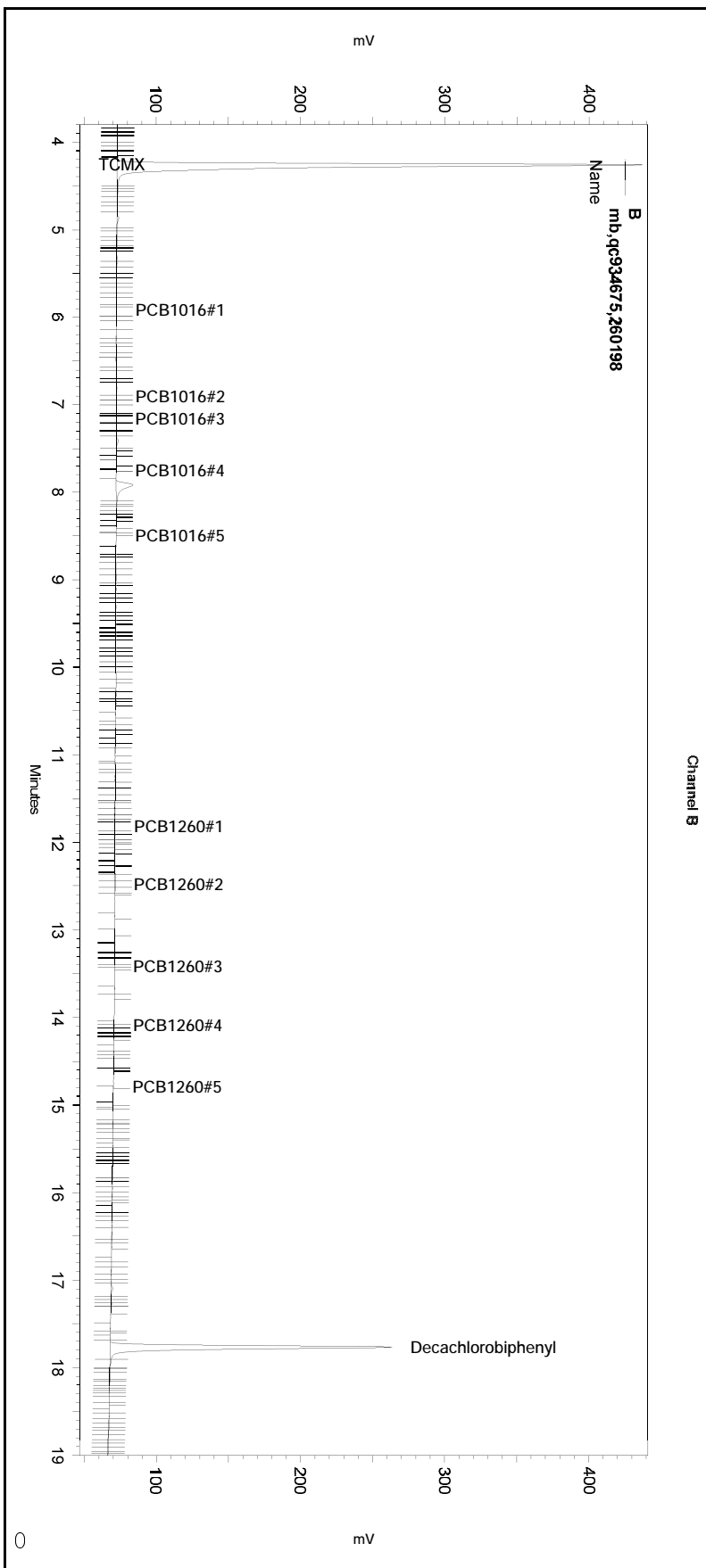
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014
 Sample Name: **mb,qc934675,260198**
 Instrument: GC16 (Offline) Vial: 34 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 8:15:33 PM
 Analysis Date: 6/7/2018 10:46:49 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-014

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Initial Calibration Raw Data

ENTHALPY INITIAL CALIBRATION FOR 300092 PCBS Soil: EPA 8082

Inst : GC06
 Calnum : 208052389001
 Units : pg/uL

Name : ar-1660-036ical
 Date : 05-FEB-2018 17:04

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	036_010	208052389010	PCB100_20	05-FEB-2018 17:04	S35531 (10X)
L2	036_011	208052389011	PCB25_5	05-FEB-2018 17:32	S35530
L3	036_012	208052389012	PCB100_20	05-FEB-2018 18:00	S35531
L4	036_013	208052389013	PCB250_50	05-FEB-2018 18:28	S35532
L5	036_014	208052389014	PCB500_100	05-FEB-2018 18:56	S35533
L6	036_015	208052389015	PCB750_150	05-FEB-2018 19:24	S35534
L7	036_016	208052389016	PCB1000_200	05-FEB-2018 19:52	S35535

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	Type	X	a0	a1	a2	Avg	r ² %RSD	MnR ²	MxRSD	Flg
Aroclor-1016 Peak # 1	A	282.90	291.08	289.43	265.67	243.03	229.75	251.58	AVRG	R		0.00378		264.78	9	.99	20	
Aroclor-1016 Peak # 2	A	210.20	251.00	254.55	269.98	263.84	267.94	318.73	AVRG	R		0.00381		262.32	12	.99	20	
Aroclor-1016 Peak # 3	A	113.80	159.36	153.85	182.74	183.92	150.30	167.32	AVRG	R		0.00630		158.76	15	.99	20	
Aroclor-1016 Peak # 4	A	84.400	92.960	90.850	87.316	83.868	81.732	94.195	AVRG	R		0.01138		87.903	6	.99	20	
Aroclor-1016 Peak # 5	A	101.60	113.44	120.12	122.02	119.84	116.58	134.68	AVRG	R		0.00845		118.33	8	.99	20	
Aroclor-1260 Peak # 1	A	399.30	429.04	443.94	404.82	393.37	372.70	423.47	AVRG	R		0.00244		409.52	6	.99	20	
Aroclor-1260 Peak # 2	A	356.50	392.56	435.74	380.26	404.48	395.41	434.26	AVRG	R		0.00250		399.89	7	.99	20	
Aroclor-1260 Peak # 3	A	214.90	259.24	266.34	229.84	240.17	220.97	250.42	AVRG	R		0.00416		240.27	8	.99	20	
Aroclor-1260 Peak # 4	A	491.70	534.48	542.12	510.65	487.88	480.28	537.55	AVRG	R		0.00195		512.10	5	.99	20	
Aroclor-1260 Peak # 5	A	238.90	267.20	273.19	266.00	263.18	261.05	295.54	AVRG	R		0.00375		266.44	6	.99	20	
Decachlorobiphenyl	A	10557	10577	9093.1	7760.6	6861.5	6362.9	6838.2	LINR	R	-4.5323	1.53E-4		8292.8	0.996	.99	20	
Aroclor-1016 Peak # 1	B	285.30	311.44	314.11	302.82	290.80	280.69	318.60	AVRG	R		0.00333		300.54	5	.99	20	
Aroclor-1016 Peak # 2	B	66.500	116.36	275.59	314.24	355.51	377.74	429.59	QUAD	A	-1949.5	274.789	0.153745	276.50	0.999	.99	20	
Aroclor-1016 Peak # 3	B	105.70	170.88	203.32	231.67	228.89	224.18	238.34	LINR	R	10.1612	0.00424		200.43	0.999	.99	20	
Aroclor-1016 Peak # 4	B	115.90	108.12	119.12	116.10	101.30	101.51	110.35	AVRG	R		0.00906		110.34	6	.99	20	
Aroclor-1016 Peak # 5	B	128.30	205.64	187.52	191.65	176.76	180.78	207.09	AVRG	R		0.00548		182.53	15	.99	20	
Aroclor-1260 Peak # 1	B	238.90	336.24	369.81	343.21	336.33	328.14	324.08	AVRG	R		0.00307		325.24	13	.99	20	
Aroclor-1260 Peak # 2	B	212.60	273.44	388.92	351.97	391.43	400.69	414.36	LINR	R	15.0715	0.00242		347.63	0.999	.99	20	
Aroclor-1260 Peak # 3	B	245.00	264.60	287.09	246.66	265.76	258.26	289.20	AVRG	R		0.00377		265.22	7	.99	20	
Aroclor-1260 Peak # 4	B	388.10	447.56	484.31	387.15	480.64	478.11	516.62	AVRG	R		0.00220		454.64	11	.99	20	
Aroclor-1260 Peak # 5	B	227.10	268.56	289.09	287.70	291.76	299.93	353.79	AVRG	R		0.00347		288.27	13	.99	20	
Decachlorobiphenyl	B	9744.5	10065	9051.9	8006.1	7473.2	7071.8	7661.3	AVRG	R		1.18E-4		8439.1	14	.99	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Aroclor-1016 Peak # 1	A	10.000	7	25.000	10	100.00	9	250.00	0	500.00	-8	750.00	-13	1000.0	-5
Aroclor-1016 Peak # 2	A	10.000	-20	25.000	-4	100.00	-3	250.00	3	500.00	1	750.00	2	1000.0	22
Aroclor-1016 Peak # 3	A	10.000	-28	25.000	0	100.00	-3	250.00	15	500.00	16	750.00	-5	1000.0	5
Aroclor-1016 Peak # 4	A	10.000	-4	25.000	6	100.00	3	250.00	-1	500.00	-5	750.00	-7	1000.0	7
Aroclor-1016 Peak # 5	A	10.000	-14	25.000	-4	100.00	2	250.00	3	500.00	1	750.00	-1	1000.0	14
Aroclor-1260 Peak # 1	A	10.000	-2	25.000	5	100.00	8	250.00	-1	500.00	-4	750.00	-9	1000.0	3
Aroclor-1260 Peak # 2	A	10.000	-11	25.000	-2	100.00	9	250.00	-5	500.00	1	750.00	-1	1000.0	9
Aroclor-1260 Peak # 3	A	10.000	-11	25.000	8	100.00	11	250.00	-4	500.00	0	750.00	-8	1000.0	4
Aroclor-1260 Peak # 4	A	10.000	-4	25.000	4	100.00	6	250.00	0	500.00	-5	750.00	-6	1000.0	5
Aroclor-1260 Peak # 5	A	10.000	-10	25.000	0	100.00	3	250.00	0	500.00	-1	750.00	-2	1000.0	11
Decachlorobiphenyl	A	2.0000	-165	5.0000	-29	20.0000	16	50.0000	10	100.00	0	150.00	-6	200.00	2
Aroclor-1016 Peak # 1	B	10.000	-5	25.000	4	100.00	5	250.00	1	500.00	-3	750.00	-7	1000.0	6
Aroclor-1016 Peak # 2	B	10.000	-5	25.000	-30	100.00	2	250.00	3	500.00	2	750.00	-2	1000.0	1
Aroclor-1016 Peak # 3	B	10.000	46	25.000	13	100.00	-4	250.00	2	500.00	-1	750.00	-4	1000.0	2
Aroclor-1016 Peak # 4	B	10.000	5	25.000	-2	100.00	8	250.00	5	500.00	-8	750.00	-8	1000.0	0
Aroclor-1016 Peak # 5	B	10.000	-30	25.000	13	100.00	3	250.00	5	500.00	-3	750.00	-1	1000.0	13
Aroclor-1260 Peak # 1	B	10.000	-27	25.000	3	100.00	14	250.00	6	500.00	3	750.00	1	1000.0	0
Aroclor-1260 Peak # 2	B	10.000	102	25.000	26	100.00	9	250.00	-9	500.00	-2	750.00	-1	1000.0	2
Aroclor-1260 Peak # 3	B	10.000	-8	25.000	0	100.00	8	250.00	-7	500.00	0	750.00	-3	1000.0	9
Aroclor-1260 Peak # 4	B	10.000	-15	25.000	-2	100.00	7	250.00	-15	500.00	6	750.00	5	1000.0	14
Aroclor-1260 Peak # 5	B	10.000	-21	25.000	-7	100.00	0	250.00	0	500.00	1	750.00	4	1000.0	23
Decachlorobiphenyl	B	2.0000	15	5.0000	19	20.0000	7	50.0000	-5	100.00	-11	150.00	-16	200.00	-9

JC1 02/06/18 : Corrected automatically drawn baseline in all levels.

Analyst: JC1 Date: 02/06/18 Reviewer: EAH Date: 02/06/18

X=A: Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); X=R: Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression; QUAD=Quadratic regression

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 PCBS Soil
EPA 8082

Inst : GC06
Calnum : 208052389001

Name : ar-1660-036ical
Cal Date : 05-FEB-2018

ICV 208052389018 (036_018 05-FEB-2018) stds: S35527

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Aroclor-1016	A	250.0	250.6	pg/uL	0	15	
Aroclor-1260	A	250.0	256.5	pg/uL	3	15	
Aroclor-1016	B	250.0	268.0	pg/uL	7	15	
Aroclor-1260	B	250.0	258.9	pg/uL	4	15	

Analyst: JC1

Date: 02/06/18

Reviewer: EAH

Date: 02/06/18

Sample Name: ical,s35531,pcb100_20,10x
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-010
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 12 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:04:16 PM
 Analysis Date: 2/6/2018 9:14:54 AM
 Sample Amount: 1

GC06
PCB - ECD Instrument Results
 Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.773	3.776	13503	2.000 CAL
PCB1016#1	5.340	5.347	2829	10.000 CAL
PCB1016#2	6.380	6.387	2102	10.000 CAL
PCB1016#3	6.670	6.680	1138	10.000 CAL
PCB1016#4	7.120	7.130	844	10.000 CAL
PCB1016#5	7.623	7.630	1016	10.000 CAL
PCB1260#1	11.150	11.150	3993	10.000 CAL
PCB1260#2	11.797	11.797	3565	10.000 CAL
PCB1260#3	12.650	12.650	2149	10.000 CAL
PCB1260#4	13.393	13.390	4917	10.000 CAL
PCB1260#5	14.040	14.040	2389	10.000 CAL
Decachlorobiphenyl	16.647	16.640	21113	2.000 CAL

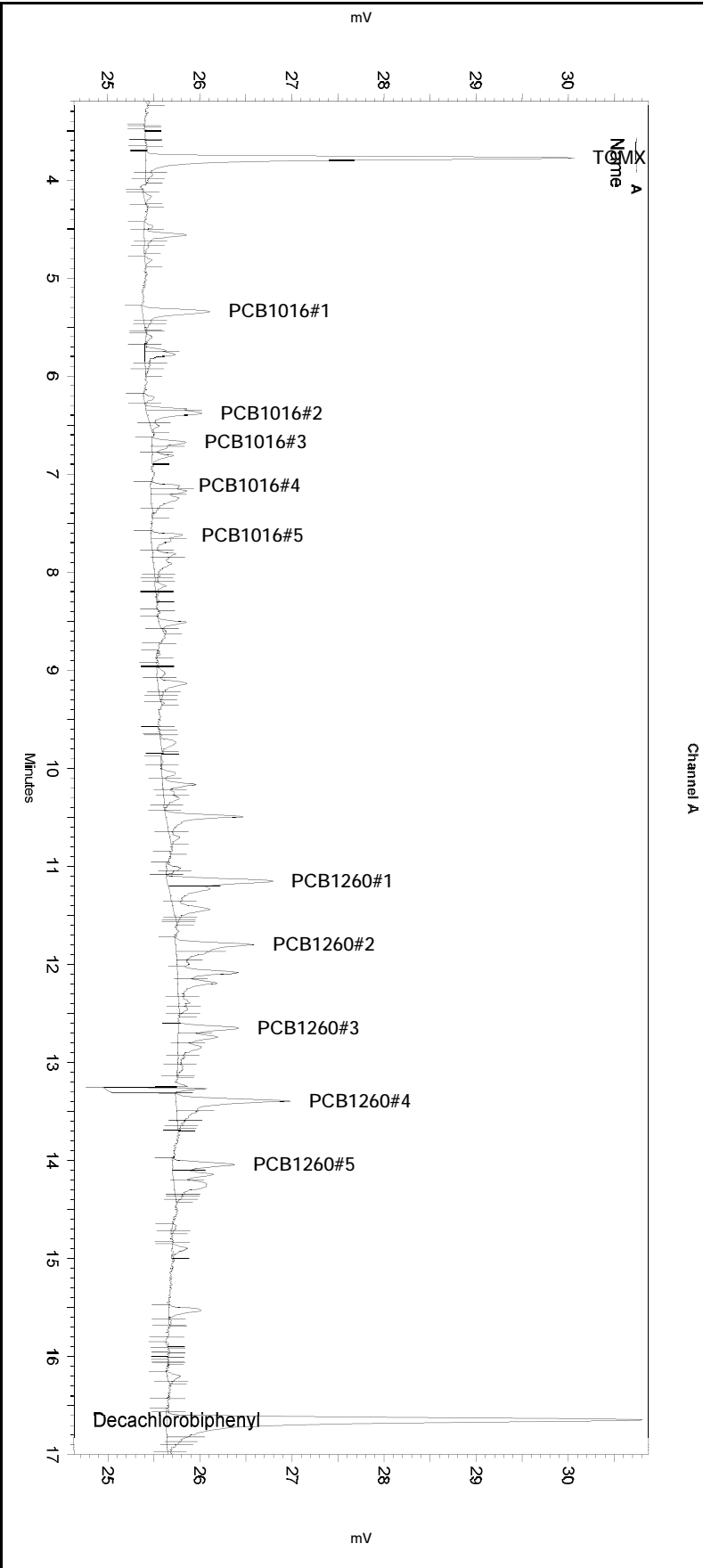
GC06
PCB - ECD Instrument Results
 Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.950	2.950	11231	2.000 CAL
PCB1016#1	4.343	4.350	2853	10.000 CAL
PCB1016#2	5.240	5.237	665	10.000 CAL
PCB1016#3	5.440	5.437	1057	10.000 CAL
PCB1016#4	5.967	5.960	1159	10.000 CAL
PCB1016#5	6.657	6.657	1283	10.000 CAL
PCB1260#1	9.867	9.850	2389	10.000 CAL
PCB1260#2	10.483	10.470	2126	10.000 CAL
PCB1260#3	11.397	11.397	2450	10.000 CAL
PCB1260#4	12.057	12.053	3881	10.000 CAL
PCB1260#5	12.720	12.723	2271	10.000 CAL
Decachlorobiphenyl	15.673	15.673	19489	2.000 CAL

Sample Name: ical,s35531,pcb100_20,10x
 Data File: \\kraken\gdrive\lezchrom\Projects\GC06\Data\2018\036-010
 Sequence File: \\kraken\gdrive\lezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 12 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\lezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:04:16 PM
 Analysis Date: 2/6/2018 9:14:54 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

=====					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Width	0	0	0.2	
Yes	Threshold	0	0	50	
Yes	Integration Off	0	2.1	0	
Yes	Shoulder Sensitivity	3	18	0	

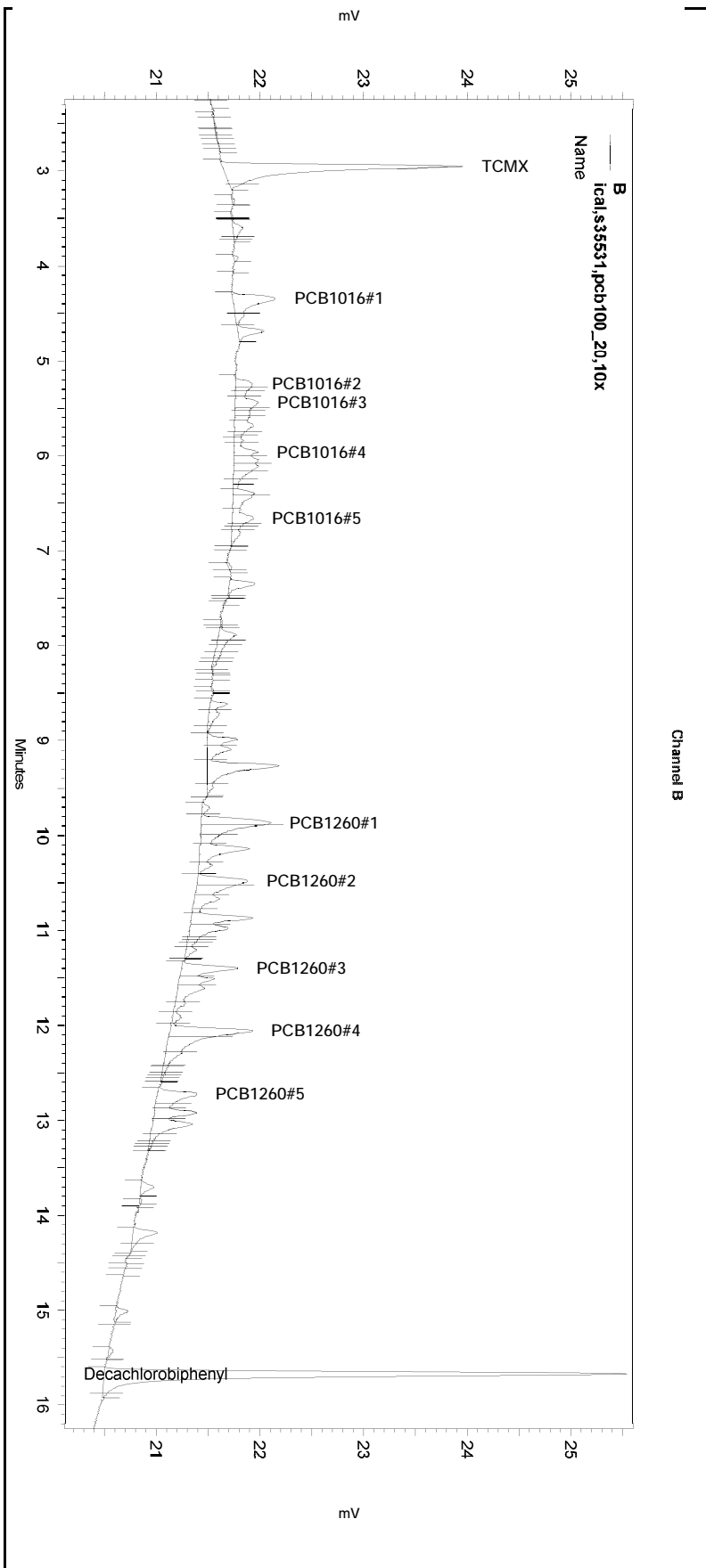
Manual Integration Fixes

 Data File: \\kraken\gdrive\lezchrom\Projects\GC06\Data\2018\036-010

=====					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Reset Baseline	4.037	0	0	
Yes	Manual Baseline	11.72	12.537	0	
Yes	Manual Baseline	13.322	13.701	0	

Sample Name: ical,s35531,pcb100_20,10x
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-010
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 12 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:04:16 PM
 Analysis Date: 2/6/2018 9:14:54 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-010

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	5.144	6.964	0
Yes	Split Peak	5.275	0	0
Yes	Split Peak	5.482	0	0
Yes	Split Peak	9.883	0	0
Yes	Manual Baseline	10.405	11.3	0
Yes	Split Peak	12.119	0	0
Yes	Reset Baseline	15.932	0	0

Sample Name: ical,s35531,pcb100_20,10x
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-010
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: 12 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 5:04:16 PM
Analysis Date: 2/6/2018 8:29:36 AM
Sample Amount: 1

GC06
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.773	3.776	13746	0.000
PCB1016#1	5.340	5.347	2829	9.036
PCB1016#2	6.380	6.387	2102	6.304
PCB1016#3	6.670	6.680	1138	5.810
PCB1016#4	7.120	7.130	844	7.419
PCB1016#5	7.623	7.630	1016	5.605
PCB1260#1	11.150	11.150	3993	4.381
PCB1260#2	11.797	11.797	3360	6.106
PCB1260#3	12.650	12.650	2149	7.065
PCB1260#4	13.393	13.390	10636	15.636
PCB1260#5	14.040	14.040	2389	6.807
Decachlorobiphenyl	16.647	16.640	21113	0.000

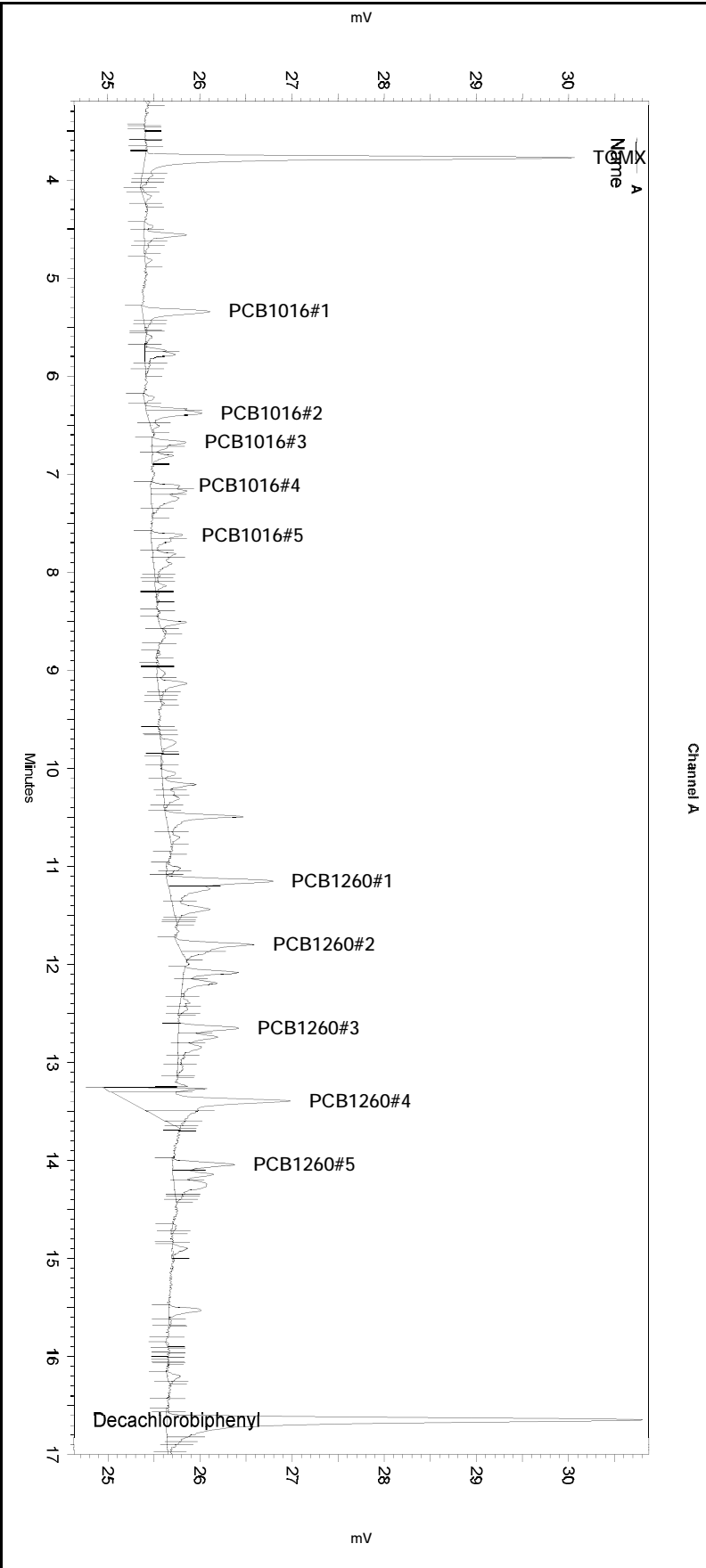
GC06
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.950	2.950	11231	1.550
PCB1016#1	4.343	4.350	2853	8.218
PCB1016#2	5.240	5.237	883	20.556
PCB1016#3	5.440	5.437	656	2.572
PCB1016#4	5.967	5.960	731	5.156
PCB1016#5	6.657	6.657	794	3.805
PCB1260#1	9.867	9.850	4694	11.283
PCB1260#2	10.483	10.470	2043	26.787
PCB1260#3	11.397	11.397	2450	8.096
PCB1260#4	12.057	12.053	6129	12.058
PCB1260#5	12.720	12.723	2271	6.499
Decachlorobiphenyl	15.673	15.673	19635	0.657

Sample Name: ical,s35531,pcb100_20,10x
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-010
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 12 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:04:16 PM
 Analysis Date: 2/6/2018 8:29:36 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

=====					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Width	0	0	0.2	
Yes	Threshold	0	0	50	
Yes	Integration Off	0	2.1	0	
Yes	Shoulder Sensitivity	3	18	0	

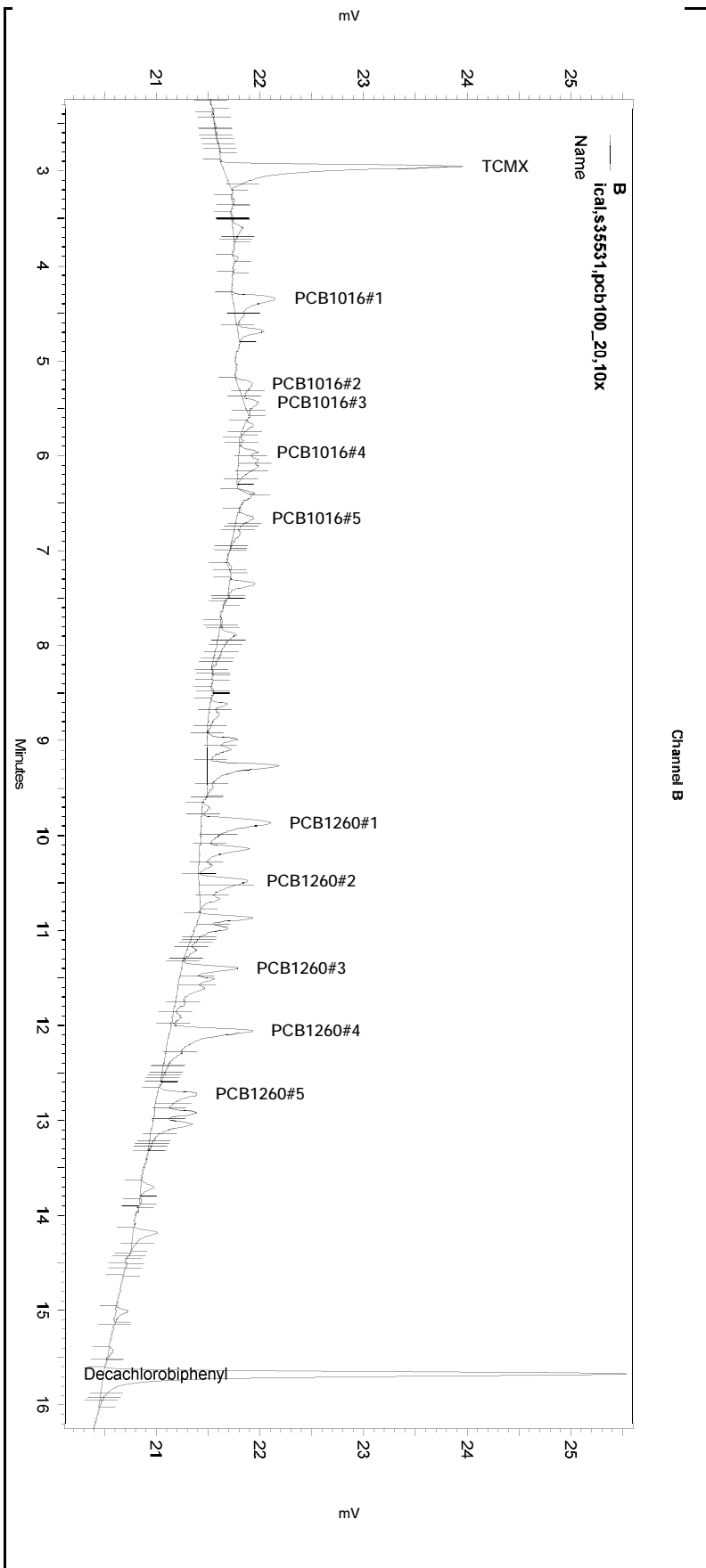
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-010

=====					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
None					

Sample Name: ical,s35531,pcb100_20,10x
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-010
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 12 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:04:16 PM
 Analysis Date: 2/6/2018 8:29:36 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-010

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
None					

Sample Name: ical,s35530,pcb25_5
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 5:32:16 PM
Analysis Date: 2/6/2018 9:15:03 AM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.773	3.776	33008	5.000 CAL
PCB1016#1	5.340	5.347	7277	25.000 CAL
PCB1016#2	6.380	6.387	6275	25.000 CAL
PCB1016#3	6.673	6.680	3984	25.000 CAL
PCB1016#4	7.123	7.130	2324	25.000 CAL
PCB1016#5	7.623	7.630	2836	25.000 CAL
PCB1260#1	11.147	11.150	10726	25.000 CAL
PCB1260#2	11.793	11.797	9814	25.000 CAL
PCB1260#3	12.650	12.650	6481	25.000 CAL
PCB1260#4	13.390	13.390	13362	25.000 CAL
PCB1260#5	14.040	14.040	6680	25.000 CAL
Decachlorobiphenyl	16.643	16.640	52883	5.000 CAL

GC06

PCB - ECD Instrument Results

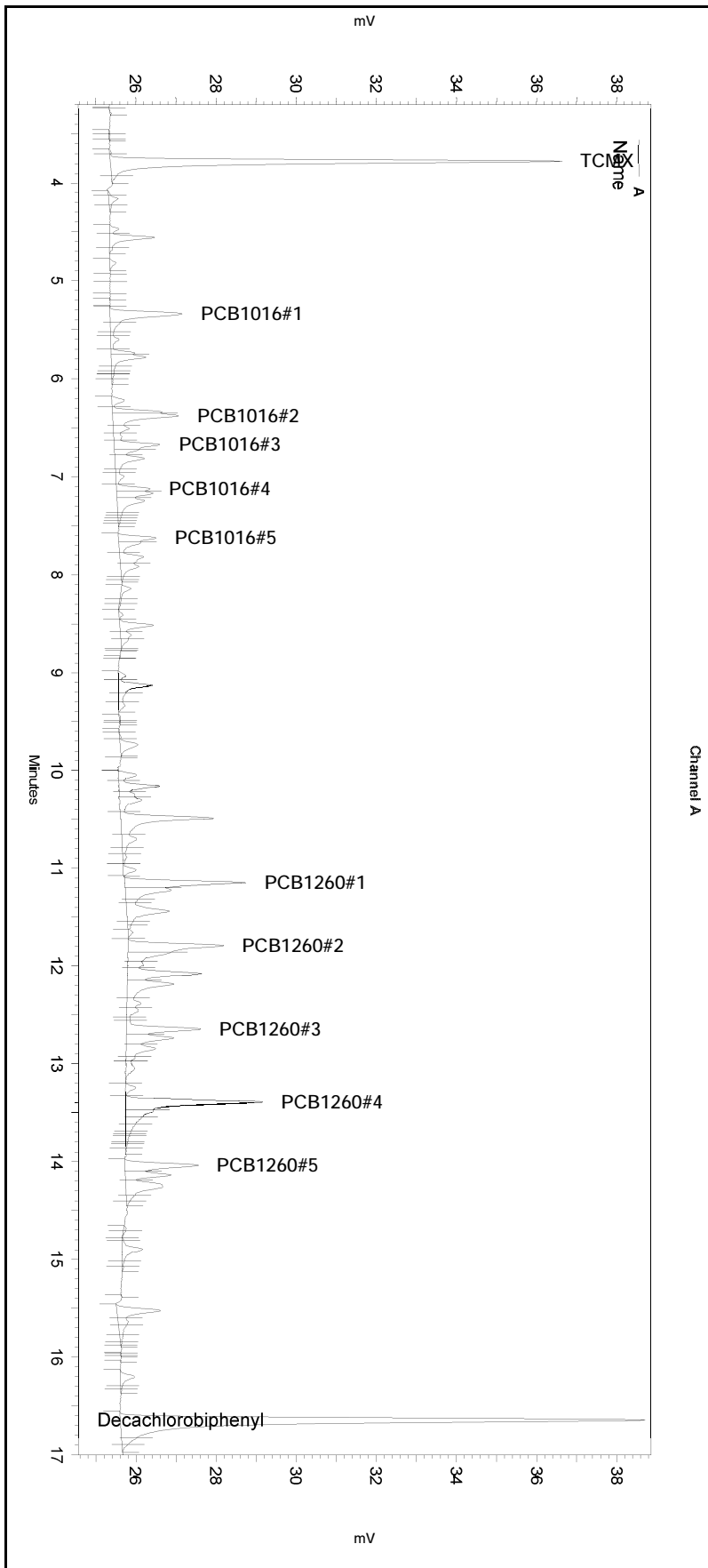
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.950	2.950	28537	5.000 CAL
PCB1016#1	4.347	4.350	7786	25.000 CAL
PCB1016#2	5.240	5.237	2909	25.000 CAL
PCB1016#3	5.440	5.437	4272	25.000 CAL
PCB1016#4	5.957	5.960	2703	25.000 CAL
PCB1016#5	6.657	6.657	5141	25.000 CAL
PCB1260#1	9.867	9.850	8406	25.000 CAL
PCB1260#2	10.473	10.470	6836	25.000 CAL
PCB1260#3	11.393	11.397	6615	25.000 CAL
PCB1260#4	12.057	12.053	11189	25.000 CAL
PCB1260#5	12.720	12.723	6714	25.000 CAL
Decachlorobiphenyl	15.670	15.673	50324	5.000 CAL

Sample Name: ical,s35530,pcb25_5
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:32:16 PM
 Analysis Date: 2/6/2018 9:15:03 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

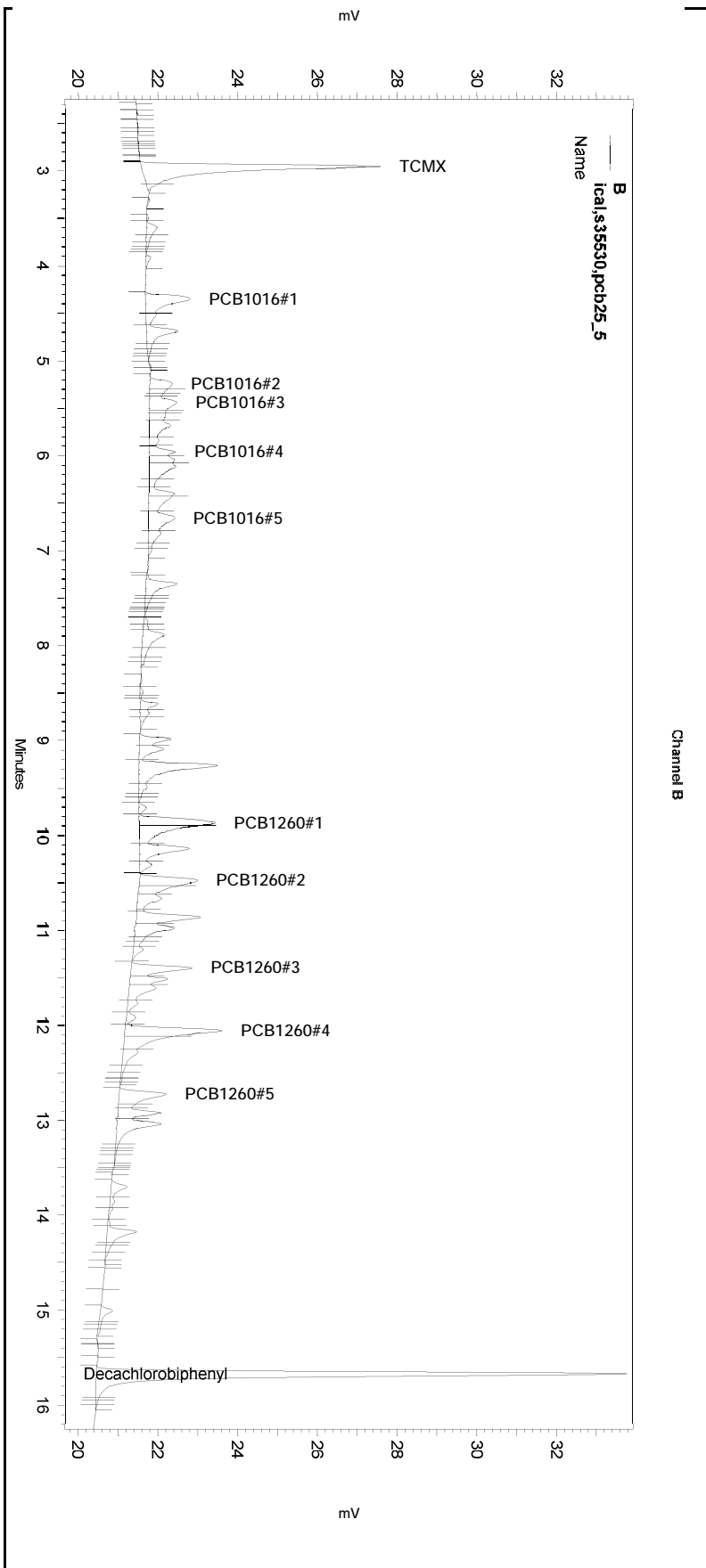
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Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Width	0	0	0.2	
Yes	Threshold	0	0	50	
Yes	Integration Off	0	2.1	0	
Yes	Shoulder Sensitivity	3	18	0	

Manual Integration Fixes

=====					
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Reset Baseline	4.013	0	0	
Yes	Reset Baseline	8.071	0	0	
Yes	Manual Baseline	11.075	11.72	0	

Sample Name: ical,s35530,pcb25_5
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:32:16 PM
 Analysis Date: 2/6/2018 9:15:03 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	5.132	7.076	0
Yes	Reset Baseline	5.888	0	0
Yes	Reset Baseline	7.04	0	0
Yes	Split Peak	9.895	0	0
Yes	Manual Baseline	10.394	11.319	0
Yes	Split Peak	10.527	0	0
Yes	Split Peak	12.117	0	0
Yes	Reset Baseline	16.082	0	0

Sample Name: ical,s35530,pcb25_5
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 5:32:16 PM
Analysis Date: 2/6/2018 8:29:45 AM
Sample Amount: 1

GC06
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.773	3.776	33775	2.959
PCB1016#1	5.340	5.347	7277	23.244
PCB1016#2	6.380	6.387	6275	18.820
PCB1016#3	6.673	6.680	3984	20.339
PCB1016#4	7.123	7.130	2324	20.427
PCB1016#5	7.623	7.630	2875	15.862
PCB1260#1	11.147	11.150	10814	18.372
PCB1260#2	11.793	11.797	9814	17.836
PCB1260#3	12.650	12.650	6481	21.308
PCB1260#4	13.390	13.390	13362	19.643
PCB1260#5	14.040	14.040	6680	19.034
Decachlorobiphenyl	16.643	16.640	52883	3.258

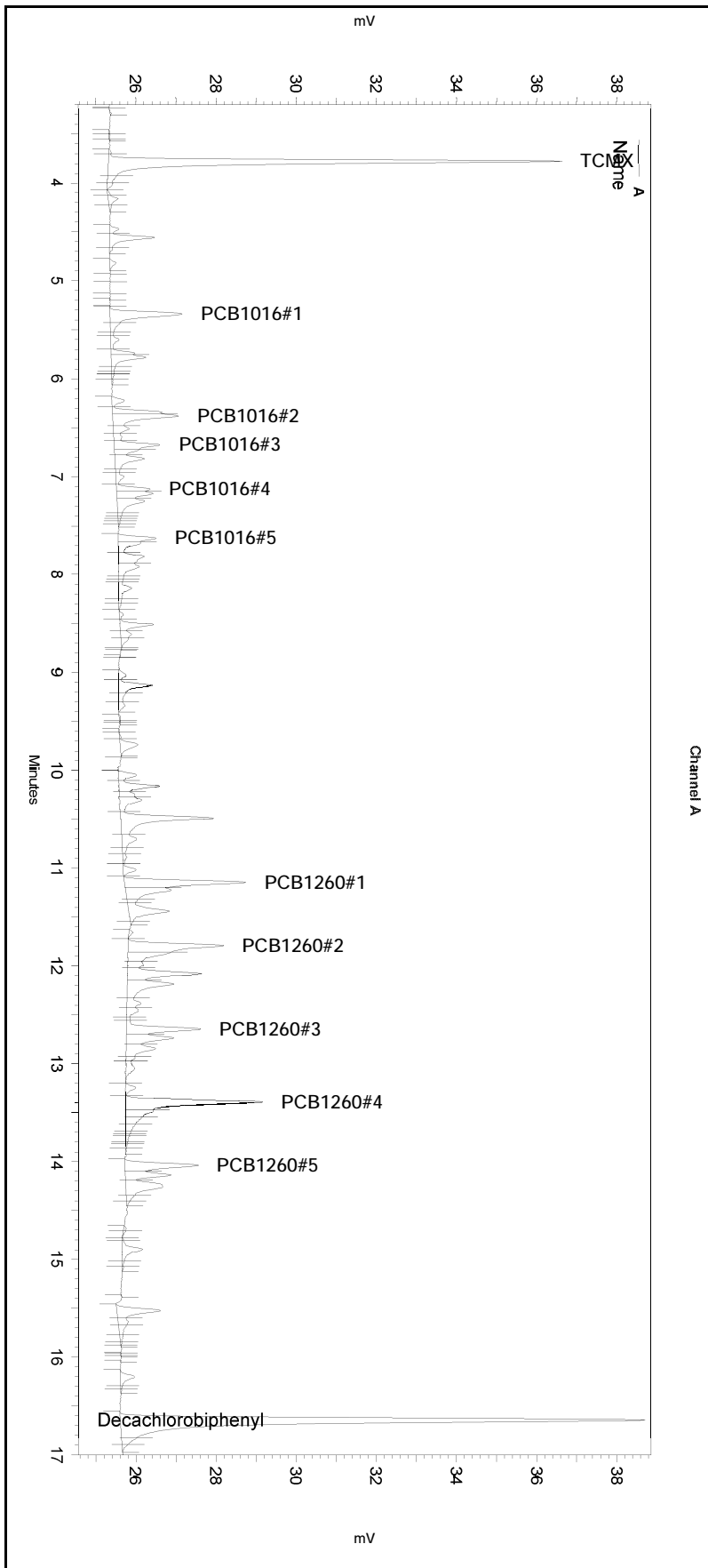
GC06
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.950	2.950	28537	3.939
PCB1016#1	4.347	4.350	7786	22.427
PCB1016#2	5.240	5.237	3104	25.411
PCB1016#3	5.440	5.437	4463	17.497
PCB1016#4	5.957	5.960	2842	20.047
PCB1016#5	6.657	6.657	5445	26.093
PCB1260#1	9.867	9.850	14730	35.406
PCB1260#2	10.473	10.470	10083	43.819
PCB1260#3	11.393	11.397	6615	21.860
PCB1260#4	12.057	12.053	16719	32.893
PCB1260#5	12.720	12.723	6714	19.213
Decachlorobiphenyl	15.670	15.673	50535	4.397

Sample Name: ical,s35530,pcb25_5
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:32:16 PM
 Analysis Date: 2/6/2018 8:29:45 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

=====					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Width	0	0	0.2	
Yes	Threshold	0	0	50	
Yes	Integration Off	0	2.1	0	
Yes	Shoulder Sensitivity	3	18	0	

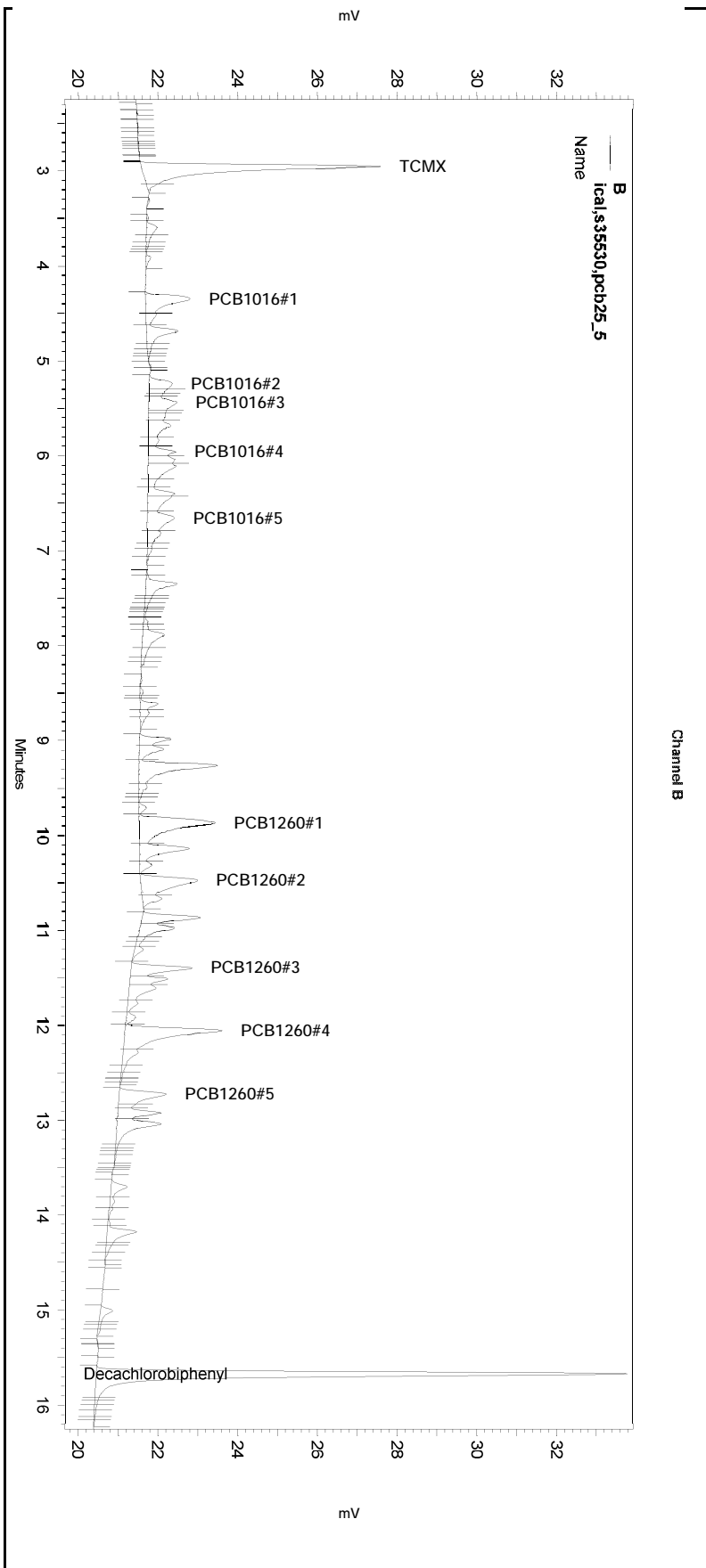
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011

=====					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
None					

Sample Name: ical,s35530,pcb25_5
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 5:32:16 PM
 Analysis Date: 2/6/2018 8:29:45 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-011

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
None					

Sample Name: ical,s35531,pcb100_20
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: 14 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 6:00:15 PM
Analysis Date: 2/6/2018 9:15:13 AM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.790	3.776	127412	20.000 CAL
PCB1016#1	5.357	5.347	28943	100.000 CAL
PCB1016#2	6.397	6.387	25455	100.000 CAL
PCB1016#3	6.690	6.680	15385	100.000 CAL
PCB1016#4	7.140	7.130	9085	100.000 CAL
PCB1016#5	7.640	7.630	12012	100.000 CAL
PCB1260#1	11.163	11.150	44394	100.000 CAL
PCB1260#2	11.810	11.797	43574	100.000 CAL
PCB1260#3	12.663	12.650	26634	100.000 CAL
PCB1260#4	13.407	13.390	54212	100.000 CAL
PCB1260#5	14.057	14.040	27319	100.000 CAL
Decachlorobiphenyl	16.660	16.640	181862	20.000 CAL

GC06

PCB - ECD Instrument Results

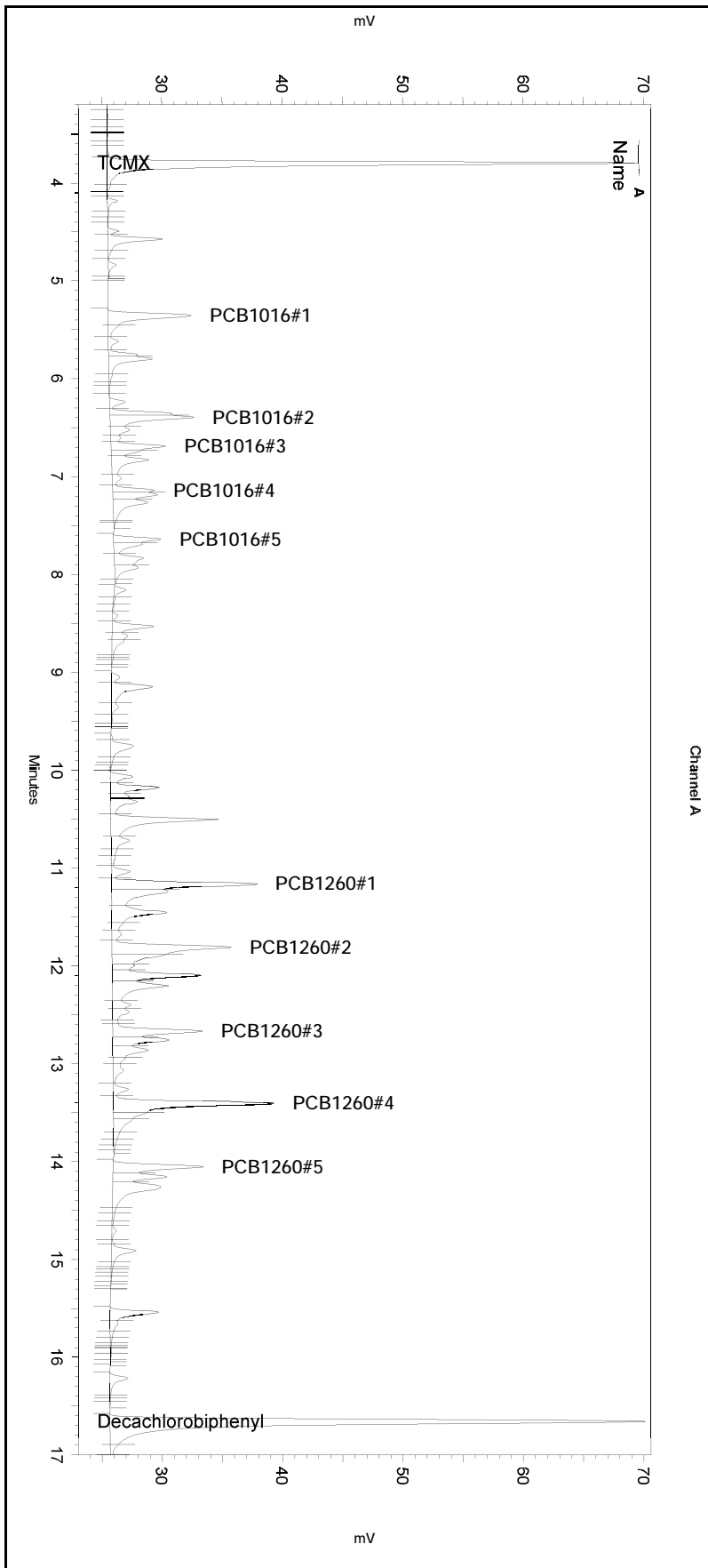
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.967	2.950	120275	20.000 CAL
PCB1016#1	4.363	4.350	31411	100.000 CAL
PCB1016#2	5.257	5.237	27559	100.000 CAL
PCB1016#3	5.457	5.437	20332	100.000 CAL
PCB1016#4	5.973	5.960	11912	100.000 CAL
PCB1016#5	6.667	6.657	18752	100.000 CAL
PCB1260#1	9.880	9.850	36981	100.000 CAL
PCB1260#2	10.490	10.470	38892	100.000 CAL
PCB1260#3	11.413	11.397	28709	100.000 CAL
PCB1260#4	12.070	12.053	48431	100.000 CAL
PCB1260#5	12.737	12.723	28909	100.000 CAL
Decachlorobiphenyl	15.683	15.673	181037	20.000 CAL

Sample Name: ical,s35531,pcb100_20
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 14 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:00:15 PM
 Analysis Date: 2/6/2018 9:15:13 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

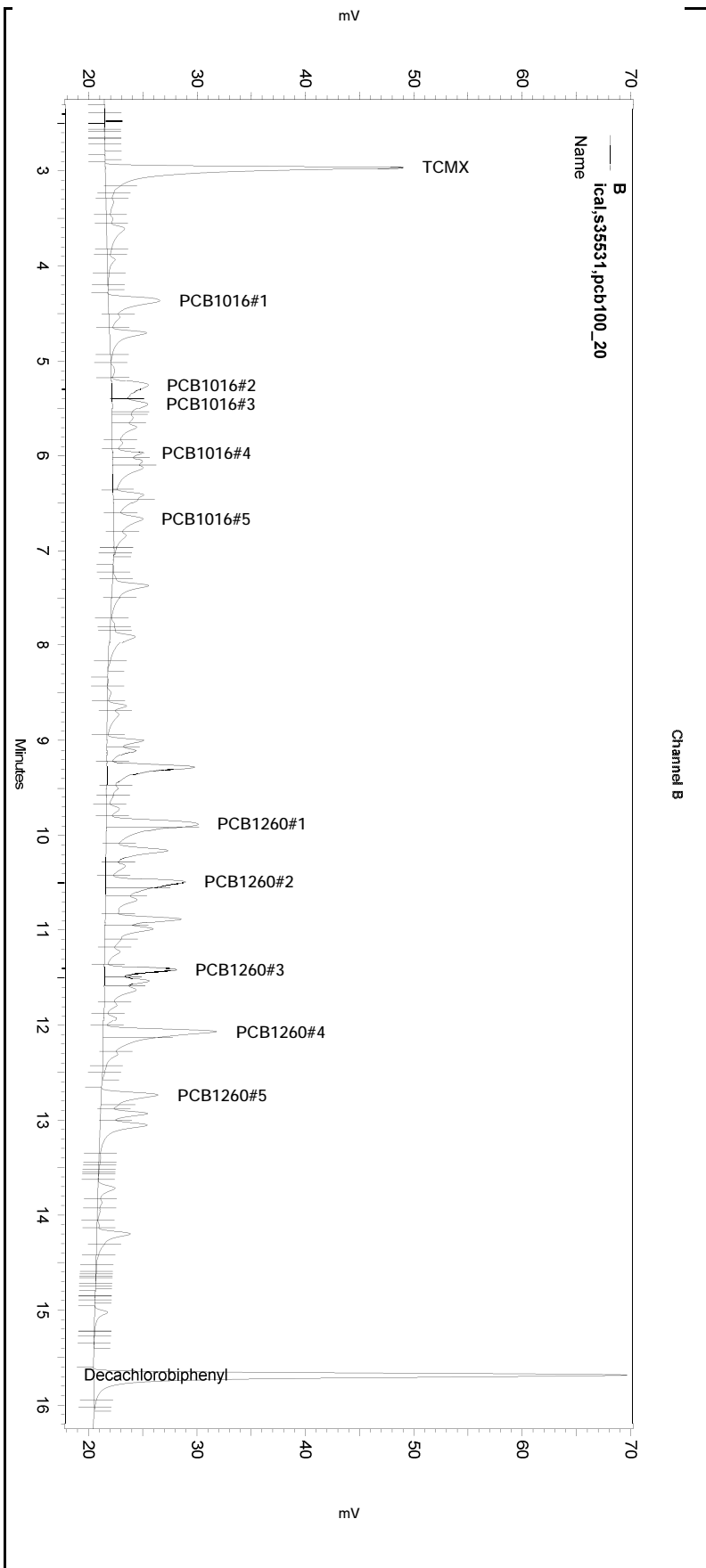
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Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Width	0	0	0.2	
Yes	Threshold	0	0	50	
Yes	Integration Off	0	2.1	0	
Yes	Shoulder Sensitivity	3	18	0	

Manual Integration Fixes

=====					
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Reset Baseline	8.092	0	0	
Yes	Reset Baseline	13.92	0	0	

Sample Name: ical,s35531,pcb100_20
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 14 Operator: pest 1. Analyst (lirms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:00:15 PM
 Analysis Date: 2/6/2018 9:15:13 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	5.013	7.062	0
Yes	Reset Baseline	5.165	0	0
Yes	Split Peak	5.538	0	0
Yes	Reset Baseline	6.349	0	0
Yes	Reset Baseline	7.107	0	0
Yes	Split Peak	9.908	0	0
Yes	Split Peak	10.553	0	0
Yes	Split Peak	12.132	0	0
Yes	Reset Baseline	12.582	0	0
Yes	Reset Baseline	16.064	0	0

Sample Name: ical,s35531,pcb100_20
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: 14 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 6:00:15 PM
Analysis Date: 2/6/2018 8:29:54 AM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.790	3.776	127412	19.522
PCB1016#1	5.357	5.347	28943	92.448
PCB1016#2	6.397	6.387	25455	76.346
PCB1016#3	6.690	6.680	15385	78.544
PCB1016#4	7.140	7.130	9085	79.855
PCB1016#5	7.640	7.630	12137	66.961
PCB1260#1	11.163	11.150	44974	88.440
PCB1260#2	11.810	11.797	44653	81.152
PCB1260#3	12.663	12.650	28070	92.289
PCB1260#4	13.407	13.390	56578	83.173
PCB1260#5	14.057	14.040	28868	82.258
Decachlorobiphenyl	16.660	16.640	181862	21.720

GC06

PCB - ECD Instrument Results

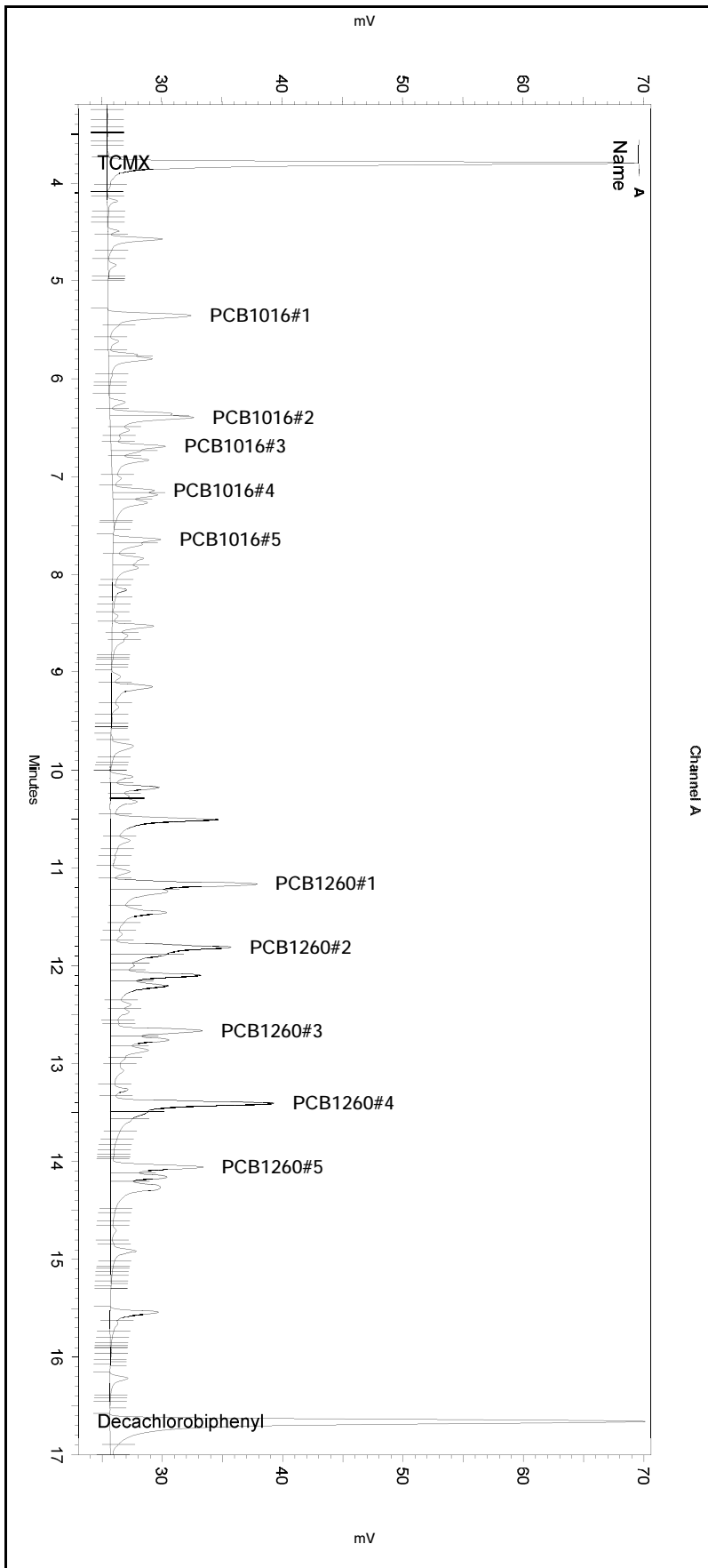
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.967	2.950	120275	16.600
PCB1016#1	4.363	4.350	31995	92.160
PCB1016#2	5.257	5.237	31697	87.909
PCB1016#3	5.457	5.437	26532	104.020
PCB1016#4	5.973	5.960	14294	100.829
PCB1016#5	6.667	6.657	24331	116.597
PCB1260#1	9.880	9.850	69659	167.435
PCB1260#2	10.490	10.470	56565	142.287
PCB1260#3	11.413	11.397	30250	99.963
PCB1260#4	12.070	12.053	73382	144.371
PCB1260#5	12.737	12.723	30818	88.188
Decachlorobiphenyl	15.683	15.673	181979	20.307

Sample Name: ical,s35531,pcb100_20
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 14 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:00:15 PM
 Analysis Date: 2/6/2018 8:29:54 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

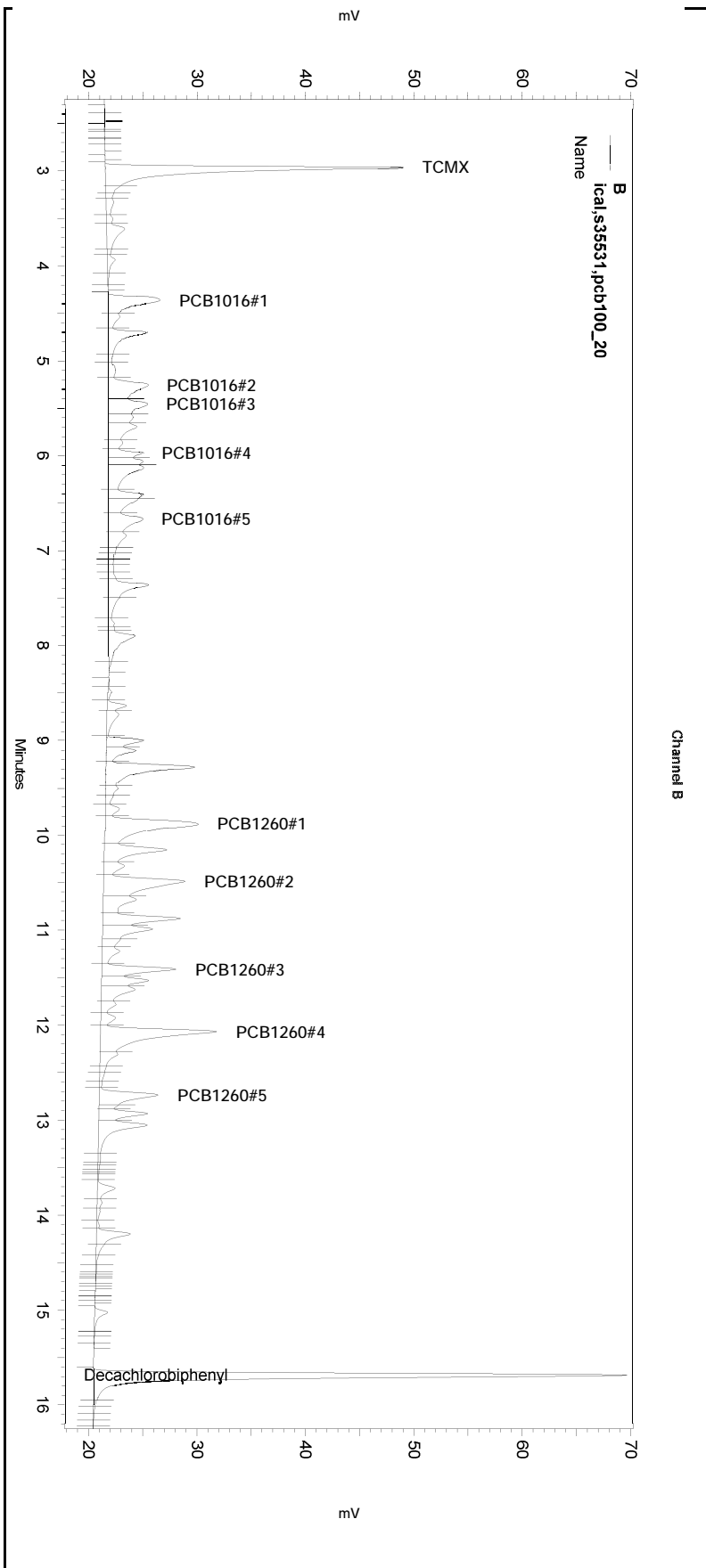
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sample Name: ical,s35531,pcb100_20
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 14 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:00:15 PM
 Analysis Date: 2/6/2018 8:29:54 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-012

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
None					

Sample Name: ical,s35532,pcb250_50
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 6:28:15 PM
Analysis Date: 2/6/2018 9:15:24 AM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.780	3.776	293828	50.000 CAL
PCB1016#1	5.347	5.347	66418	250.000 CAL
PCB1016#2	6.387	6.387	67494	250.000 CAL
PCB1016#3	6.680	6.680	45686	250.000 CAL
PCB1016#4	7.130	7.130	21829	250.000 CAL
PCB1016#5	7.630	7.630	30505	250.000 CAL
PCB1260#1	11.153	11.150	101206	250.000 CAL
PCB1260#2	11.800	11.797	95065	250.000 CAL
PCB1260#3	12.657	12.650	57461	250.000 CAL
PCB1260#4	13.397	13.390	127663	250.000 CAL
PCB1260#5	14.047	14.040	66501	250.000 CAL
Decachlorobiphenyl	16.647	16.640	388028	50.000 CAL

GC06

PCB - ECD Instrument Results

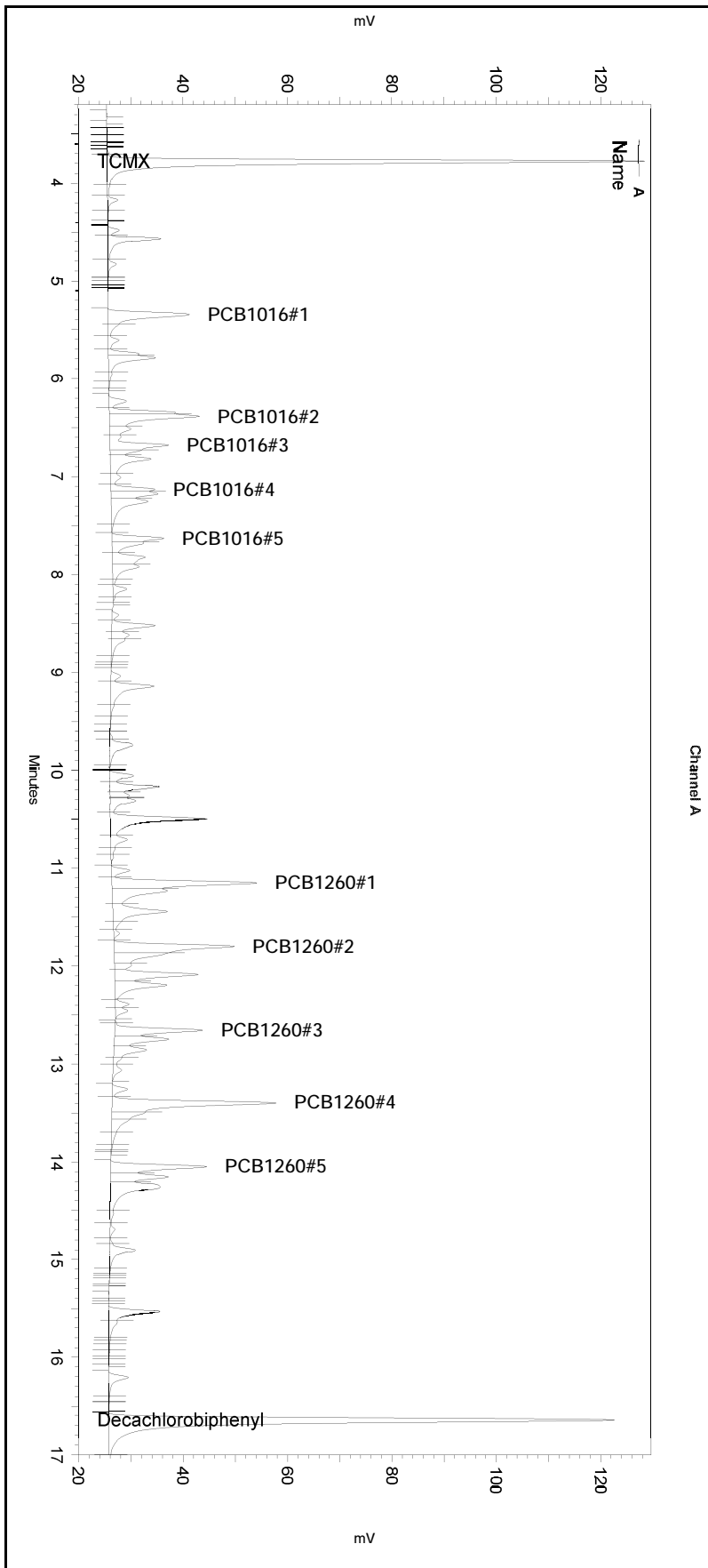
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.953	2.950	310618	50.000 CAL
PCB1016#1	4.350	4.350	75705	250.000 CAL
PCB1016#2	5.243	5.237	78561	250.000 CAL
PCB1016#3	5.443	5.437	57917	250.000 CAL
PCB1016#4	5.963	5.960	29024	250.000 CAL
PCB1016#5	6.657	6.657	47913	250.000 CAL
PCB1260#1	9.863	9.850	85802	250.000 CAL
PCB1260#2	10.477	10.470	87993	250.000 CAL
PCB1260#3	11.400	11.397	61664	250.000 CAL
PCB1260#4	12.057	12.053	96787	250.000 CAL
PCB1260#5	12.727	12.723	71924	250.000 CAL
Decachlorobiphenyl	15.673	15.673	400306	50.000 CAL

Sample Name: ical,s35532,pcb250_50
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:28:15 PM
 Analysis Date: 2/6/2018 9:15:24 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

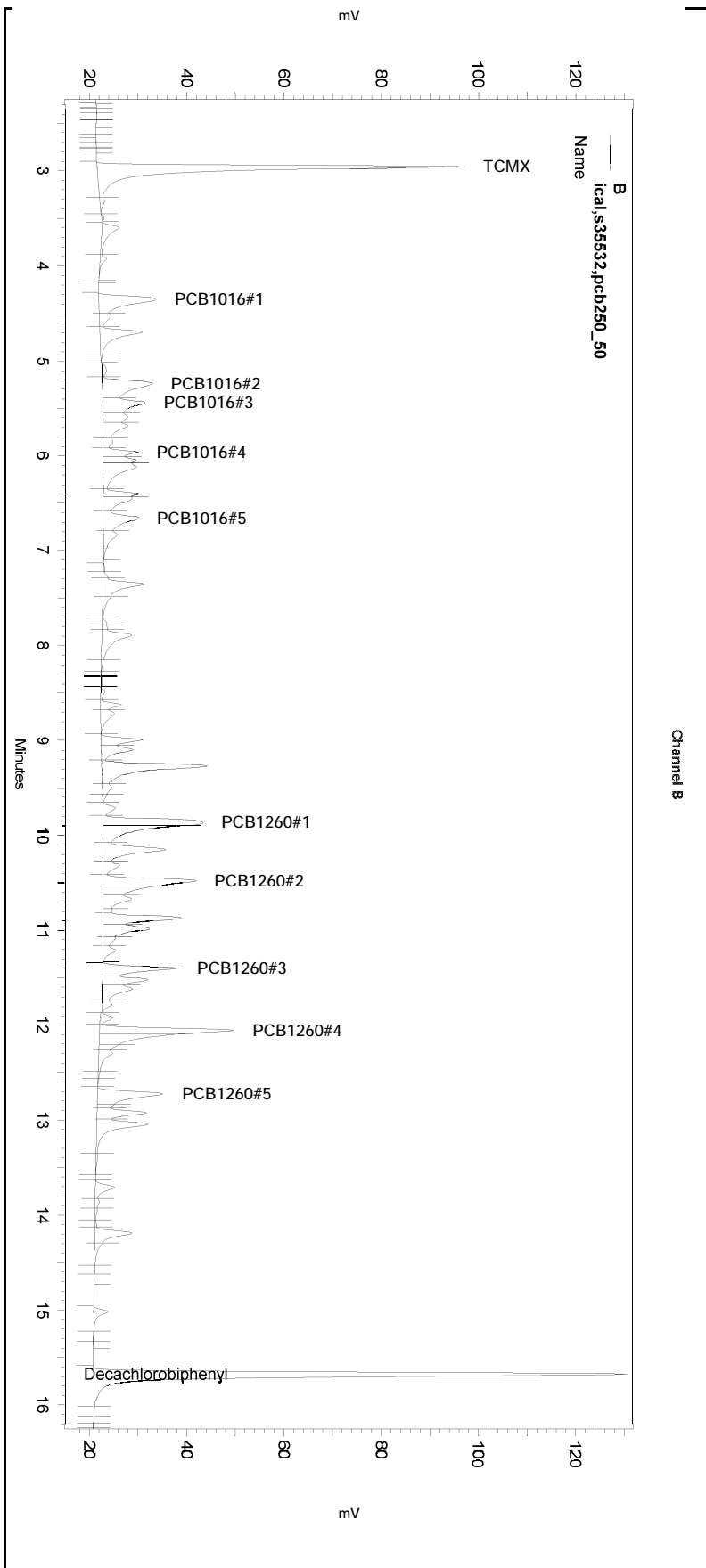
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	8.311	0	0
Yes	Manual Baseline	11.737	12.537	0

Sample Name: ical,s35532,pcb250_50
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:28:15 PM
 Analysis Date: 2/6/2018 9:15:24 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	3.532	0	0
Yes	Reset Baseline	5.009	0	0
Yes	Reset Baseline	7.107	0	0
Yes	Manual Baseline	9.652	11.856	0
Yes	Split Peak	9.893	0	0
Yes	Split Peak	10.532	0	0
Yes	Split Peak	12.096	0	0

Sample Name: ical,s35532,pcb250_50
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 6:28:15 PM
Analysis Date: 2/6/2018 8:30:03 AM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.780	3.776	293828	48.960
PCB1016#1	5.347	5.347	66566	212.620
PCB1016#2	6.387	6.387	69186	207.505
PCB1016#3	6.680	6.680	48409	247.139
PCB1016#4	7.130	7.130	23732	208.598
PCB1016#5	7.630	7.630	33879	186.915
PCB1260#1	11.153	11.150	101206	203.780
PCB1260#2	11.800	11.797	88364	160.593
PCB1260#3	12.657	12.650	57461	188.921
PCB1260#4	13.397	13.390	127663	187.672
PCB1260#5	14.047	14.040	66501	189.492
Decachlorobiphenyl	16.647	16.640	388028	51.229

GC06

PCB - ECD Instrument Results

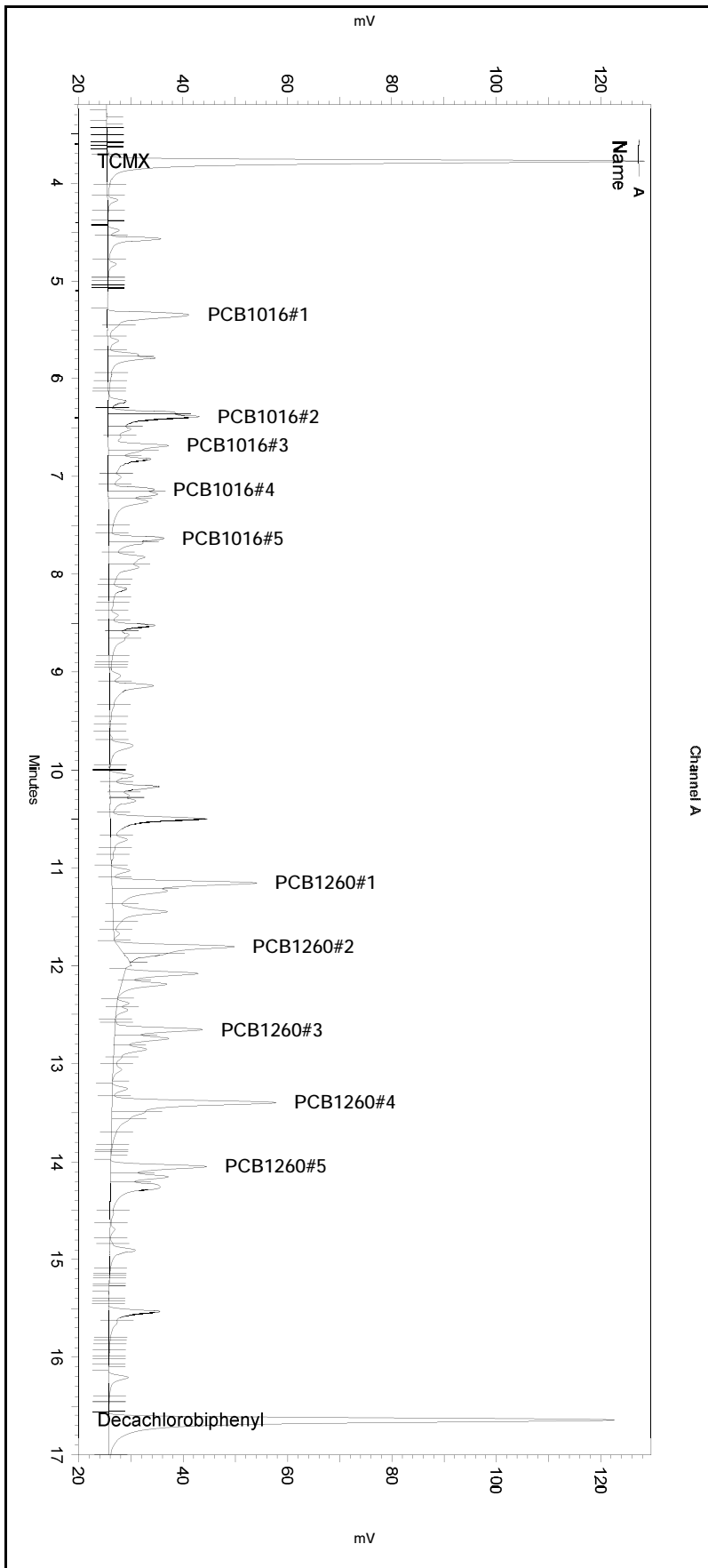
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.953	2.950	317570	43.830
PCB1016#1	4.350	4.350	79915	230.191
PCB1016#2	5.243	5.237	89713	214.721
PCB1016#3	5.443	5.437	65907	258.392
PCB1016#4	5.963	5.960	34007	239.884
PCB1016#5	6.657	6.657	57346	274.809
PCB1260#1	9.863	9.850	145085	348.732
PCB1260#2	10.477	10.470	110645	256.852
PCB1260#3	11.400	11.397	62237	205.667
PCB1260#4	12.057	12.053	150916	296.910
PCB1260#5	12.727	12.723	71924	205.817
Decachlorobiphenyl	15.673	15.673	400306	46.733

Sample Name: ical,s35532,pcb250_50
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:28:15 PM
 Analysis Date: 2/6/2018 8:30:03 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

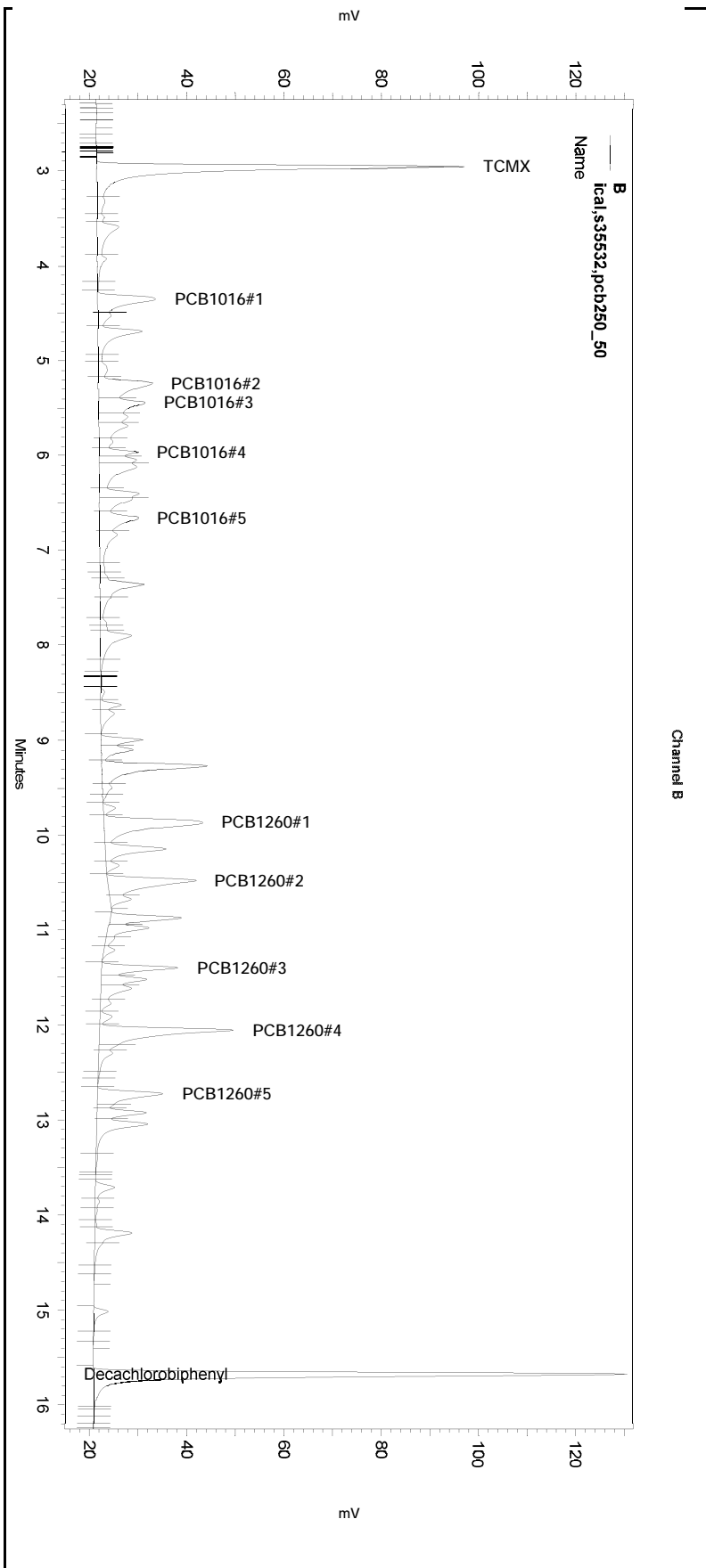
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sample Name: ical,s35532,pcb250_50
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst (lms2k3pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:28:15 PM
 Analysis Date: 2/6/2018 8:30:03 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-013

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sample Name: ical,s35533,pcb500_100
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 15 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:56:15 PM
 Analysis Date: 2/6/2018 9:15:33 AM
 Sample Amount: 1

GC06
PCB - ECD Instrument Results
 Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.777	3.776	553863	100.000 CAL
PCB1016#1	5.343	5.347	121513	500.000 CAL
PCB1016#2	6.383	6.387	131922	500.000 CAL
PCB1016#3	6.677	6.680	91959	500.000 CAL
PCB1016#4	7.127	7.130	41934	500.000 CAL
PCB1016#5	7.627	7.630	59921	500.000 CAL
PCB1260#1	11.147	11.150	196683	500.000 CAL
PCB1260#2	11.793	11.797	202242	500.000 CAL
PCB1260#3	12.650	12.650	120087	500.000 CAL
PCB1260#4	13.390	13.390	243942	500.000 CAL
PCB1260#5	14.040	14.040	131588	500.000 CAL
Decachlorobiphenyl	16.640	16.640	686153	100.000 CAL

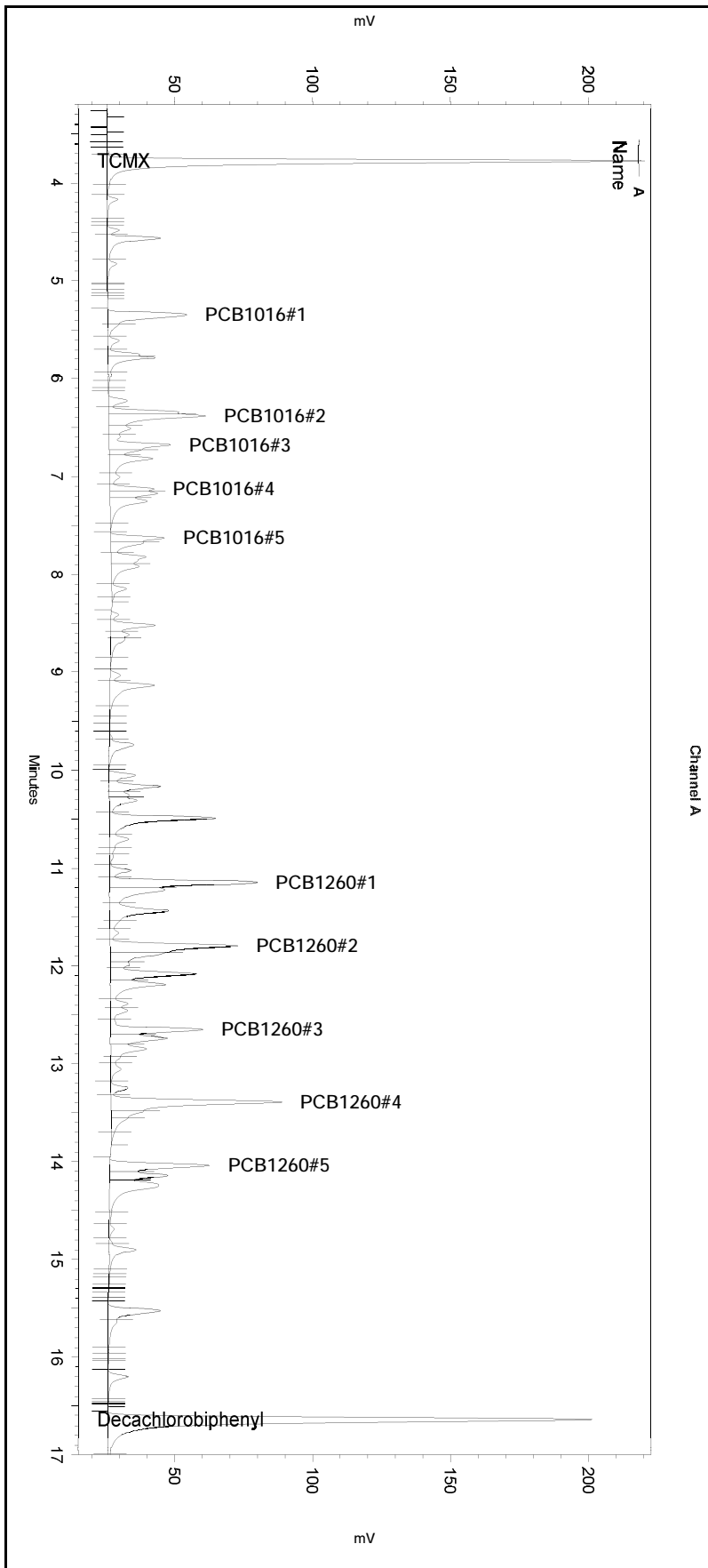
GC06
PCB - ECD Instrument Results
 Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.950	2.950	637838	100.000 CAL
PCB1016#1	4.347	4.350	145398	500.000 CAL
PCB1016#2	5.233	5.237	177754	500.000 CAL
PCB1016#3	5.437	5.437	114443	500.000 CAL
PCB1016#4	5.957	5.960	50652	500.000 CAL
PCB1016#5	6.653	6.657	88379	500.000 CAL
PCB1260#1	9.850	9.850	168167	500.000 CAL
PCB1260#2	10.470	10.470	195715	500.000 CAL
PCB1260#3	11.393	11.397	132879	500.000 CAL
PCB1260#4	12.050	12.053	240319	500.000 CAL
PCB1260#5	12.720	12.723	145879	500.000 CAL
Decachlorobiphenyl	15.667	15.673	747321	100.000 CAL

Sample Name: ical,s35533,pcb500_100
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 15 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:56:15 PM
 Analysis Date: 2/6/2018 9:15:33 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

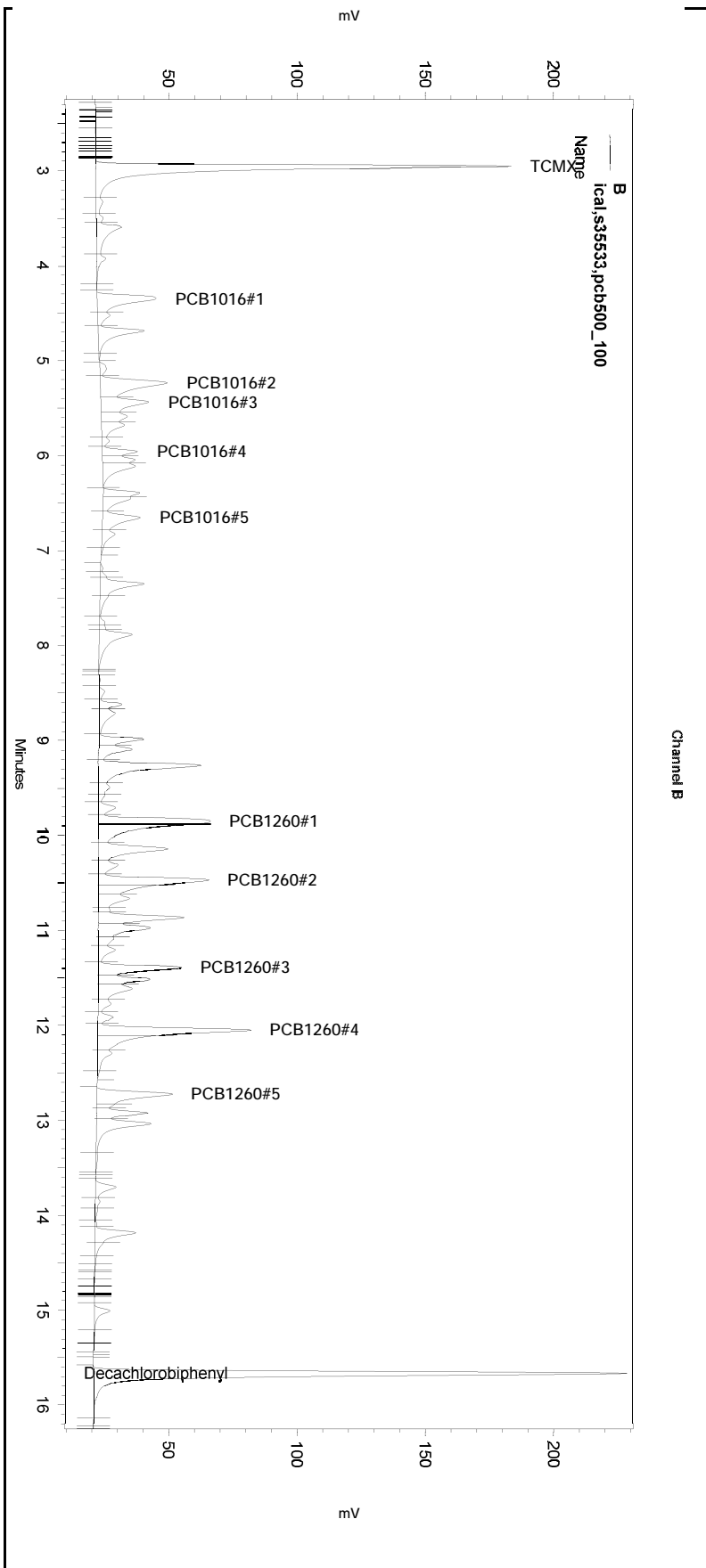
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	8.281	0	0
Yes	Reset Baseline	13.823	0	0

Sample Name: ical,s35533,pcb500_100
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 15 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:56:15 PM
 Analysis Date: 2/6/2018 9:15:33 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline		5.004	0	0
Yes	Reset Baseline		6.33	0	0
Yes	Reset Baseline		7.042	0	0
Yes	Split Peak		9.879	0	0
Yes	Split Peak		10.528	0	0
Yes	Split Peak		12.111	0	0
Yes	Reset Baseline		12.569	0	0

Sample Name: ical,s35533,pcb500_100
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: 15 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 6:56:15 PM
Analysis Date: 2/6/2018 8:30:11 AM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.777	3.776	553863	94.958
PCB1016#1	5.343	5.347	121809	389.074
PCB1016#2	6.383	6.387	135050	405.047
PCB1016#3	6.677	6.680	97163	496.040
PCB1016#4	7.127	7.130	45431	399.326
PCB1016#5	7.627	7.630	66341	366.012
PCB1260#1	11.147	11.150	201573	409.647
PCB1260#2	11.793	11.797	208929	379.707
PCB1260#3	12.650	12.650	128972	424.035
PCB1260#4	13.390	13.390	254356	373.919
PCB1260#5	14.040	14.040	136613	389.273
Decachlorobiphenyl	16.640	16.640	686153	93.900

GC06

PCB - ECD Instrument Results

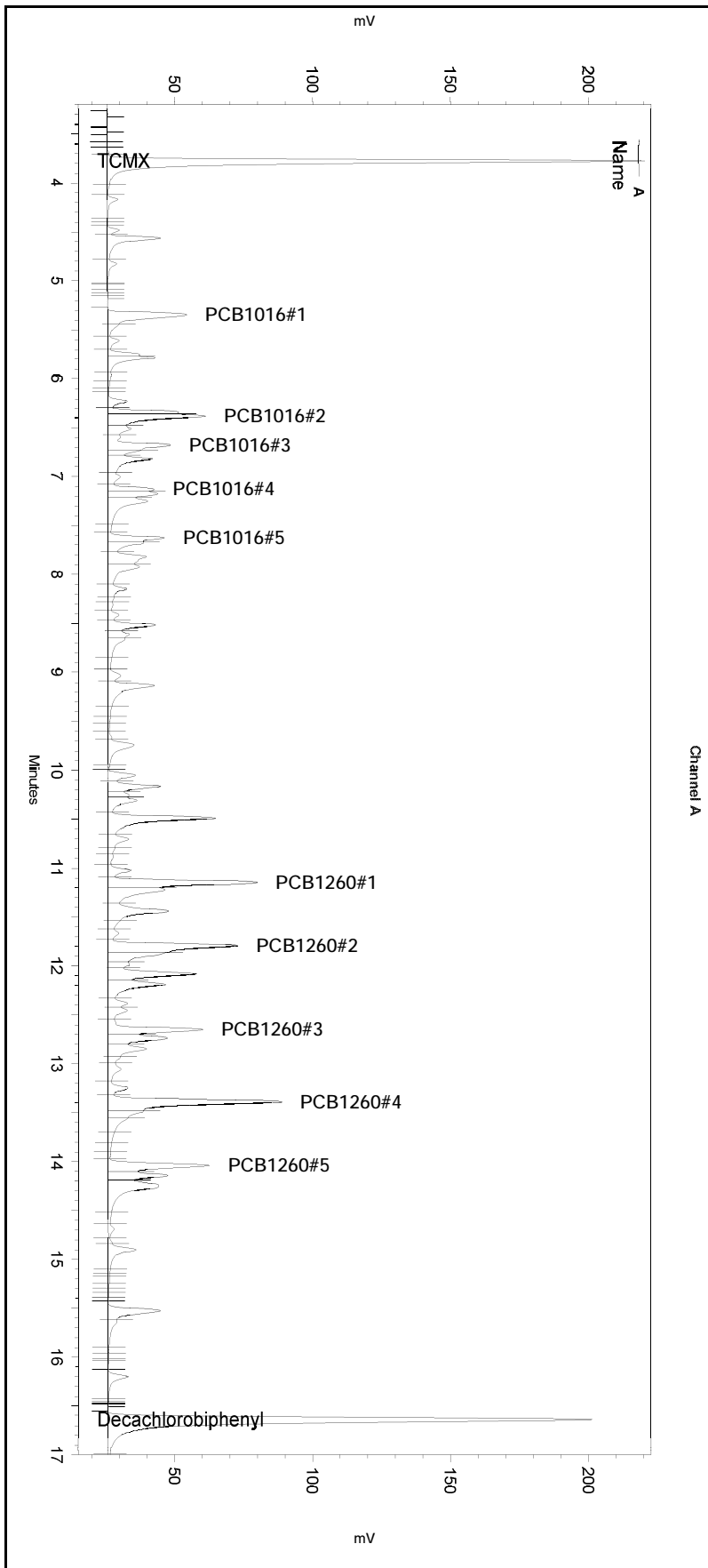
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.950	2.950	643318	88.789
PCB1016#1	4.347	4.350	158506	456.569
PCB1016#2	5.233	5.237	208271	473.864
PCB1016#3	5.437	5.437	138783	544.105
PCB1016#4	5.957	5.960	68702	484.621
PCB1016#5	6.653	6.657	126126	604.412
PCB1260#1	9.850	9.850	337779	811.898
PCB1260#2	10.470	10.470	293928	645.122
PCB1260#3	11.393	11.397	145302	480.162
PCB1260#4	12.050	12.053	354720	697.870
PCB1260#5	12.720	12.723	158284	452.943
Decachlorobiphenyl	15.667	15.673	747321	88.736

Sample Name: ical,s35533,pcb500_100
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 15 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:56:15 PM
 Analysis Date: 2/6/2018 8:30:11 AM
 Sample Amount: 1



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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

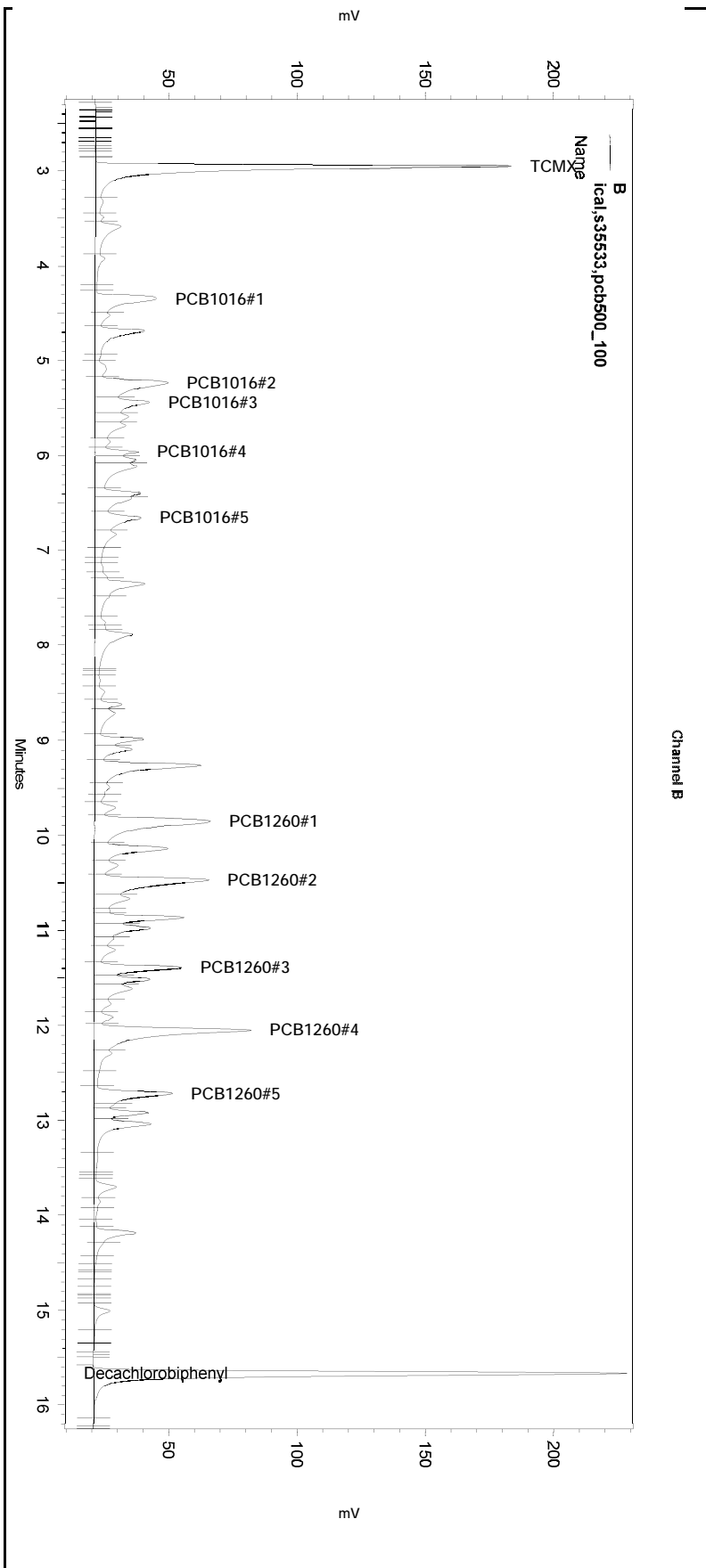
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sample Name: ical,s35533,pcb500_100
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 15 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 6:56:15 PM
 Analysis Date: 2/6/2018 8:30:11 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-014

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
None					

Sample Name: ical,s35534,pcb750_150
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 7:24:15 PM
Analysis Date: 2/6/2018 9:15:43 AM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.787	3.776	792513	150.000 CAL
PCB1016#1	5.353	5.347	172309	750.000 CAL
PCB1016#2	6.393	6.387	200958	750.000 CAL
PCB1016#3	6.687	6.680	112723	750.000 CAL
PCB1016#4	7.137	7.130	61299	750.000 CAL
PCB1016#5	7.637	7.630	87434	750.000 CAL
PCB1260#1	11.157	11.150	279525	750.000 CAL
PCB1260#2	11.803	11.797	296557	750.000 CAL
PCB1260#3	12.657	12.650	165730	750.000 CAL
PCB1260#4	13.397	13.390	360209	750.000 CAL
PCB1260#5	14.047	14.040	195788	750.000 CAL
Decachlorobiphenyl	16.650	16.640	954432	150.000 CAL

GC06

PCB - ECD Instrument Results

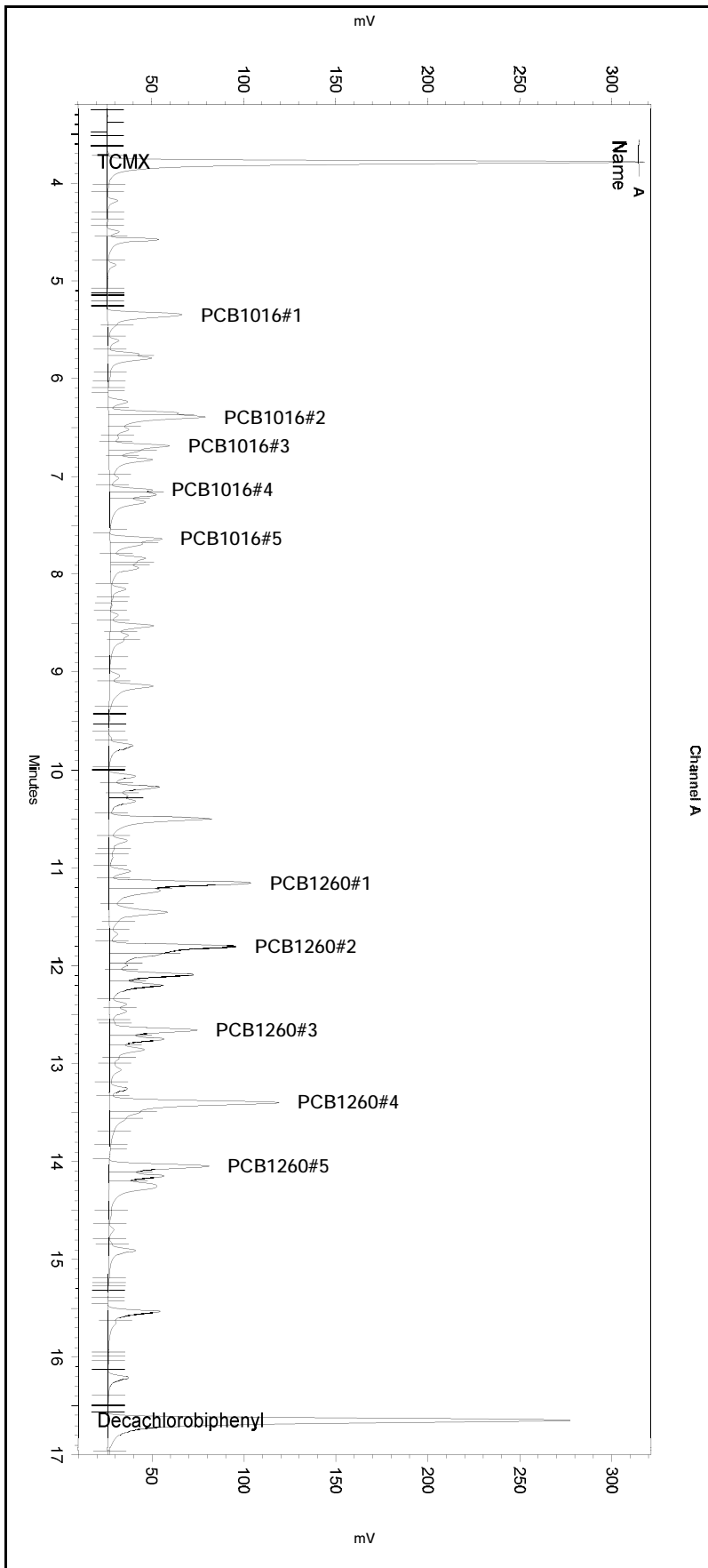
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.960	2.950	940979	150.000 CAL
PCB1016#1	4.343	4.350	210521	750.000 CAL
PCB1016#2	5.243	5.237	283302	750.000 CAL
PCB1016#3	5.443	5.437	168136	750.000 CAL
PCB1016#4	5.967	5.960	76134	750.000 CAL
PCB1016#5	6.660	6.657	135585	750.000 CAL
PCB1260#1	9.853	9.850	246105	750.000 CAL
PCB1260#2	10.477	10.470	300517	750.000 CAL
PCB1260#3	11.403	11.397	193698	750.000 CAL
PCB1260#4	12.057	12.053	358580	750.000 CAL
PCB1260#5	12.727	12.723	224944	750.000 CAL
Decachlorobiphenyl	15.677	15.673	1060764	150.000 CAL

Sample Name: ical,s35534,pcb750_150
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:24:15 PM
 Analysis Date: 2/6/2018 9:15:43 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

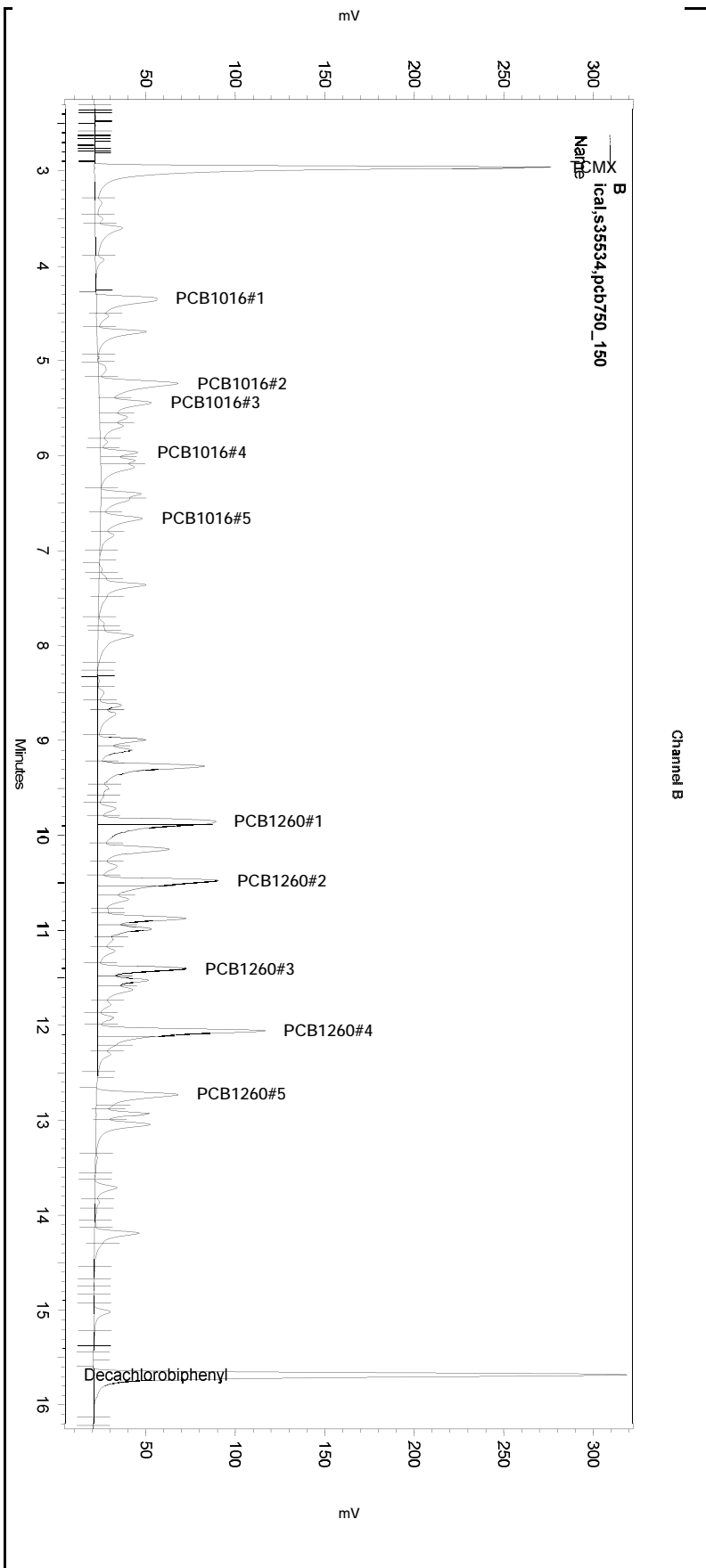
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	8.279	0	0
Yes	Reset Baseline	13.864	0	0

Sample Name: ical,s35534,pcb750_150
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:24:15 PM
 Analysis Date: 2/6/2018 9:15:43 AM
 Sample Amount: 1



 << General Method Parameters >> -----

No items selected for this section

 << B >> -----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	5.01	0	0
Yes	Reset Baseline	6.332	0	0
Yes	Reset Baseline	7.093	0	0
Yes	Split Peak	9.887	0	0
Yes	Split Peak	10.536	0	0
Yes	Split Peak	12.117	0	0
Yes	Reset Baseline	12.56	0	0

Sample Name: ical,s35534,pcb750_150
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lms2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
Run Date: 2/5/2018 7:24:15 PM
Analysis Date: 2/6/2018 8:30:20 AM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.787	3.776	792513	137.172
PCB1016#1	5.353	5.347	172309	550.377
PCB1016#2	6.393	6.387	200958	602.721
PCB1016#3	6.687	6.680	112723	575.477
PCB1016#4	7.137	7.130	61299	538.802
PCB1016#5	7.637	7.630	87889	484.895
PCB1260#1	11.157	11.150	281577	573.747
PCB1260#2	11.803	11.797	300210	545.602
PCB1260#3	12.657	12.650	170564	560.782
PCB1260#4	13.397	13.390	368274	541.385
PCB1260#5	14.047	14.040	200006	569.909
Decachlorobiphenyl	16.650	16.640	954432	132.300

GC06

PCB - ECD Instrument Results

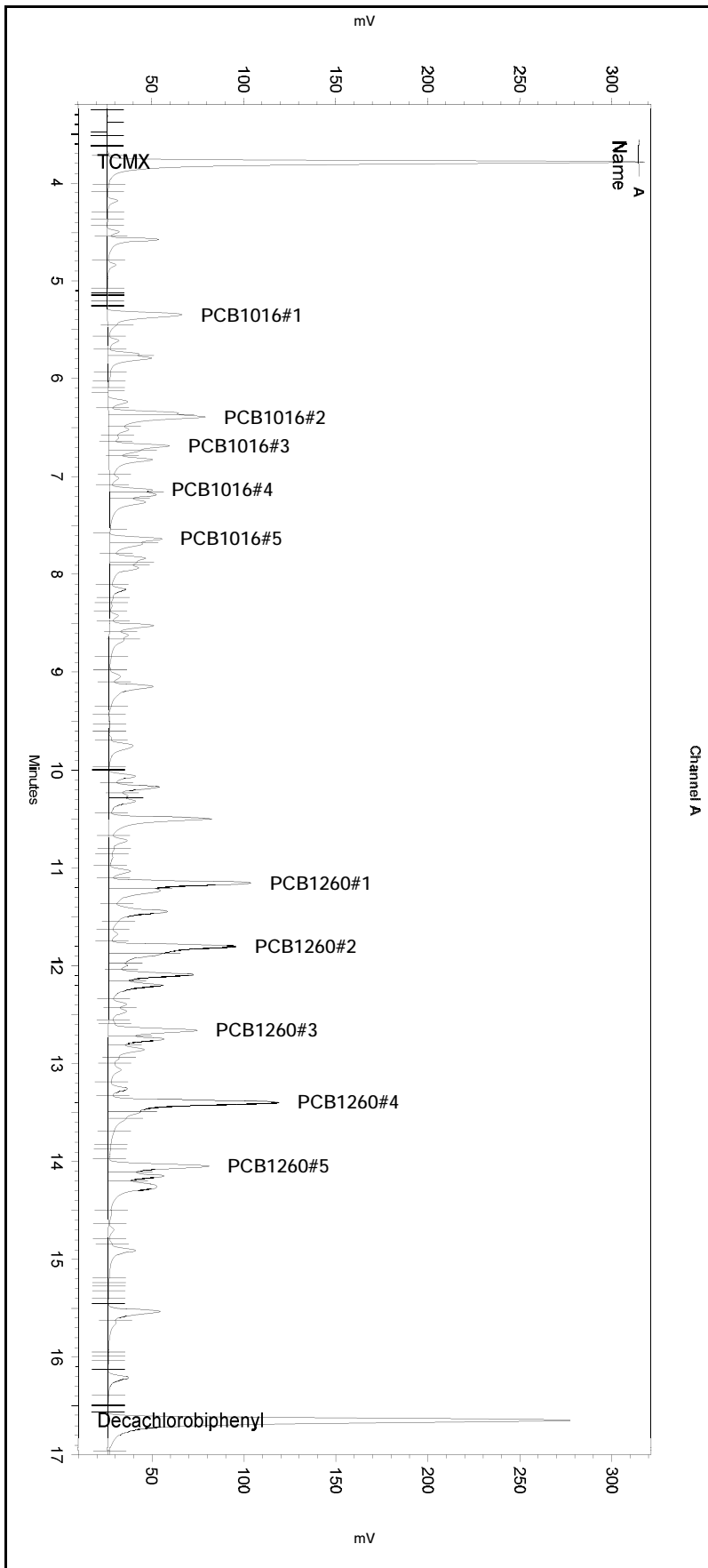
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.960	2.950	944011	130.289
PCB1016#1	4.343	4.350	224910	647.842
PCB1016#2	5.243	5.237	319044	715.992
PCB1016#3	5.443	5.437	196203	769.223
PCB1016#4	5.967	5.960	97633	688.698
PCB1016#5	6.660	6.657	179184	858.673
PCB1260#1	9.853	9.850	474827	1141.312
PCB1260#2	10.477	10.470	430957	935.407
PCB1260#3	11.403	11.397	211640	699.381
PCB1260#4	12.057	12.053	484451	953.101
PCB1260#5	12.727	12.723	241864	692.114
Decachlorobiphenyl	15.677	15.673	1060764	126.675

Sample Name: ical,s35534,pcb750_150
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:24:15 PM
 Analysis Date: 2/6/2018 8:30:20 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

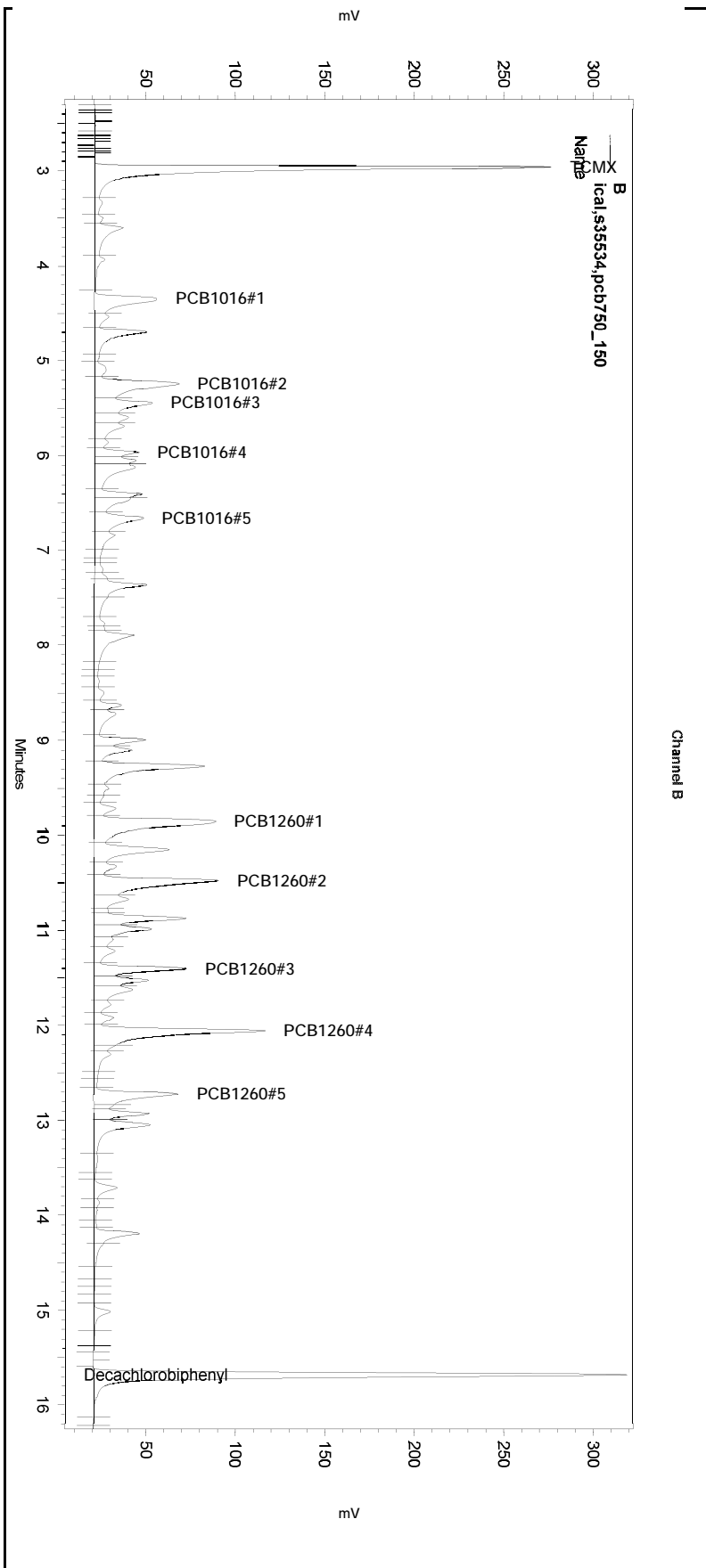
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sample Name: ical,s35534,pcb750_150
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 16 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:24:15 PM
 Analysis Date: 2/6/2018 8:30:20 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sample Name: ical,s35535,pcb1000_200
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:52:17 PM
 Analysis Date: 2/6/2018 9:15:52 AM
 Sample Amount: 1

GC06
PCB - ECD Instrument Results
 Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.760	3.776	1216734	200.000 CAL
PCB1016#1	5.330	5.347	251575	1000.000 CAL
PCB1016#2	6.367	6.387	318730	1000.000 CAL
PCB1016#3	6.663	6.680	167317	1000.000 CAL
PCB1016#4	7.110	7.130	94195	1000.000 CAL
PCB1016#5	7.610	7.630	134677	1000.000 CAL
PCB1260#1	11.133	11.150	423466	1000.000 CAL
PCB1260#2	11.777	11.797	434255	1000.000 CAL
PCB1260#3	12.633	12.650	250420	1000.000 CAL
PCB1260#4	13.373	13.390	537551	1000.000 CAL
PCB1260#5	14.023	14.040	295539	1000.000 CAL
Decachlorobiphenyl	16.627	16.640	1367649	200.000 CAL

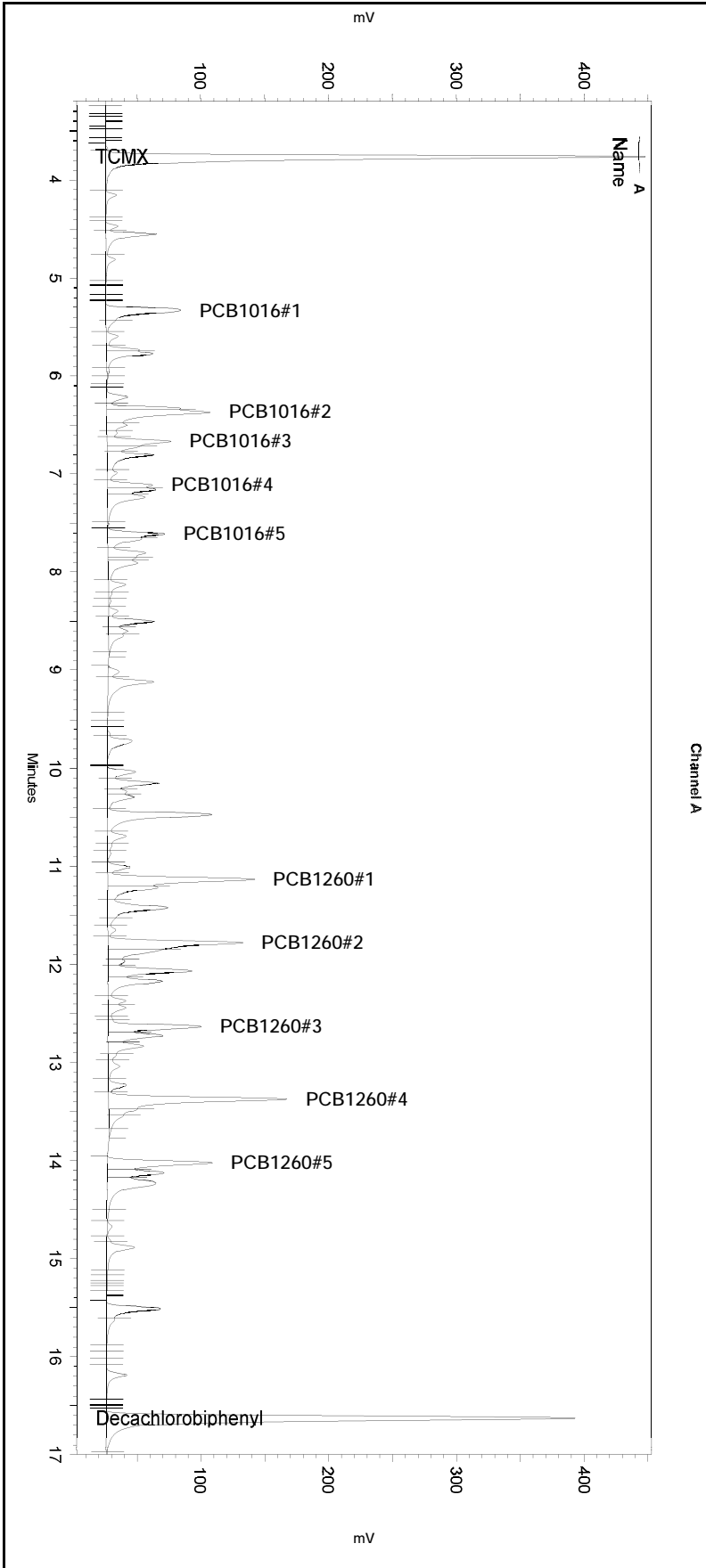
GC06
PCB - ECD Instrument Results
 Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.933	2.950	1467975	200.000 CAL
PCB1016#1	4.330	4.350	318597	1000.000 CAL
PCB1016#2	5.213	5.237	429594	1000.000 CAL
PCB1016#3	5.417	5.437	238343	1000.000 CAL
PCB1016#4	5.940	5.960	110352	1000.000 CAL
PCB1016#5	6.637	6.657	207093	1000.000 CAL
PCB1260#1	9.827	9.850	324077	1000.000 CAL
PCB1260#2	10.450	10.470	414357	1000.000 CAL
PCB1260#3	11.377	11.397	289196	1000.000 CAL
PCB1260#4	12.030	12.053	516620	1000.000 CAL
PCB1260#5	12.700	12.723	353792	1000.000 CAL
Decachlorobiphenyl	15.650	15.673	1532268	200.000 CAL

Sample Name: ical,s35535,pcb1000_200
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:52:17 PM
 Analysis Date: 2/6/2018 9:15:52 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

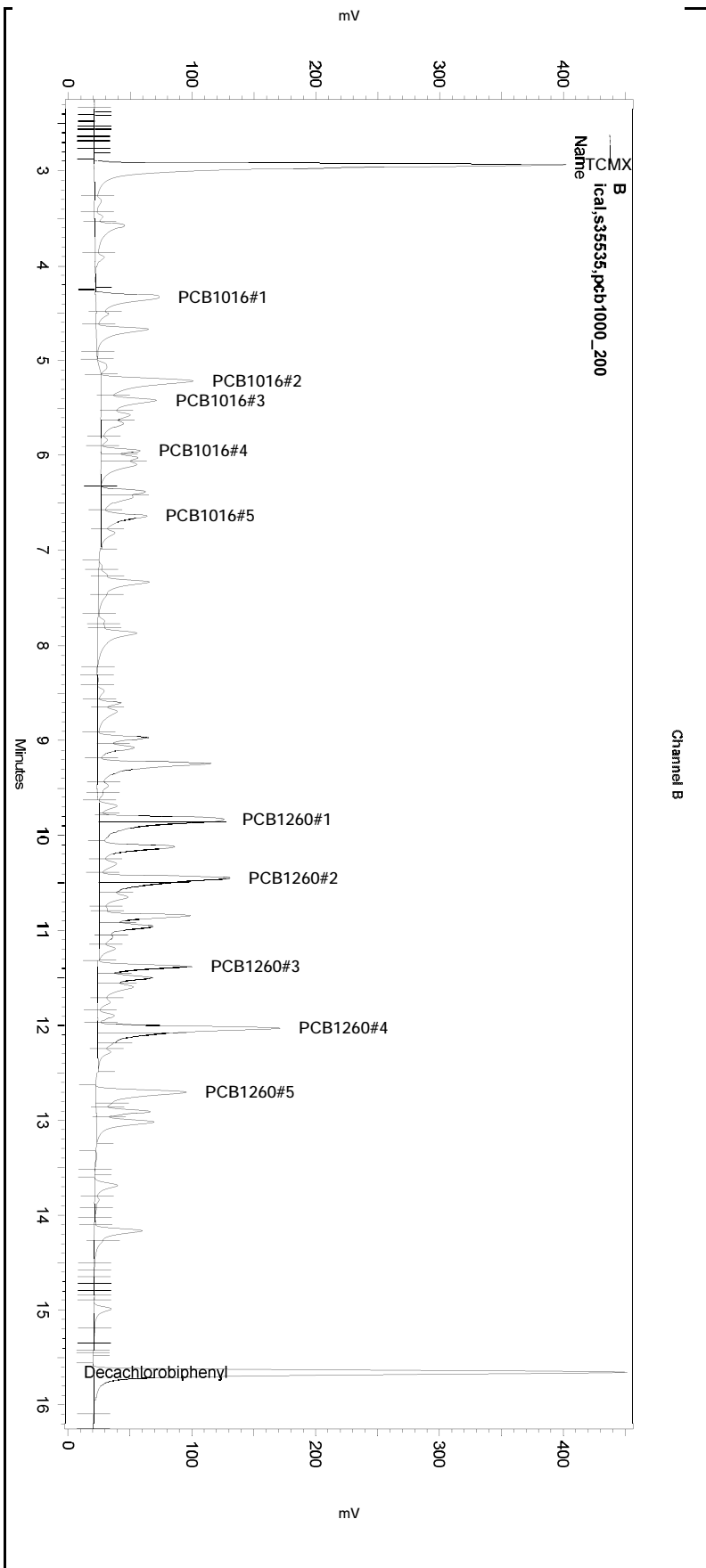
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	8.866	0	0
Yes	Reset Baseline	13.767	0	0

Sample Name: ical,s35535,pcb1000_200
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3)pest1
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:52:17 PM
 Analysis Date: 2/6/2018 9:15:52 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	5.138	0	0
Yes	Reset Baseline	6.986	0	0
Yes	Reset Baseline	7.032	0	0
Yes	Manual Baseline	9.631	11.31	0
Yes	Manual Peak	9.765	9.854	0
Yes	Split Peak	10.498	0	0
Yes	Split Peak	12.08	0	0
Yes	Reset Baseline	12.488	0	0
Yes	Reset Baseline	12.561	0	0
Yes	Reset Baseline	13.247	0	0

Sample Name: ical,s35535,pcb1000_200
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:52:17 PM
 Analysis Date: 2/6/2018 8:30:28 AM
 Sample Amount: 1

GC06
PCB - ECD Instrument Results
 Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.760	3.776	1217271	212.308
PCB1016#1	5.330	5.347	254029	811.401
PCB1016#2	6.367	6.387	324567	973.454
PCB1016#3	6.663	6.680	172452	880.407
PCB1016#4	7.110	7.130	99576	875.246
PCB1016#5	7.610	7.630	143442	791.388
PCB1260#1	11.133	11.150	432274	882.849
PCB1260#2	11.777	11.797	445827	810.246
PCB1260#3	12.633	12.650	263340	865.811
PCB1260#4	13.373	13.390	556760	818.471
PCB1260#5	14.023	14.040	302189	861.075
Decachlorobiphenyl	16.627	16.640	1367649	191.445

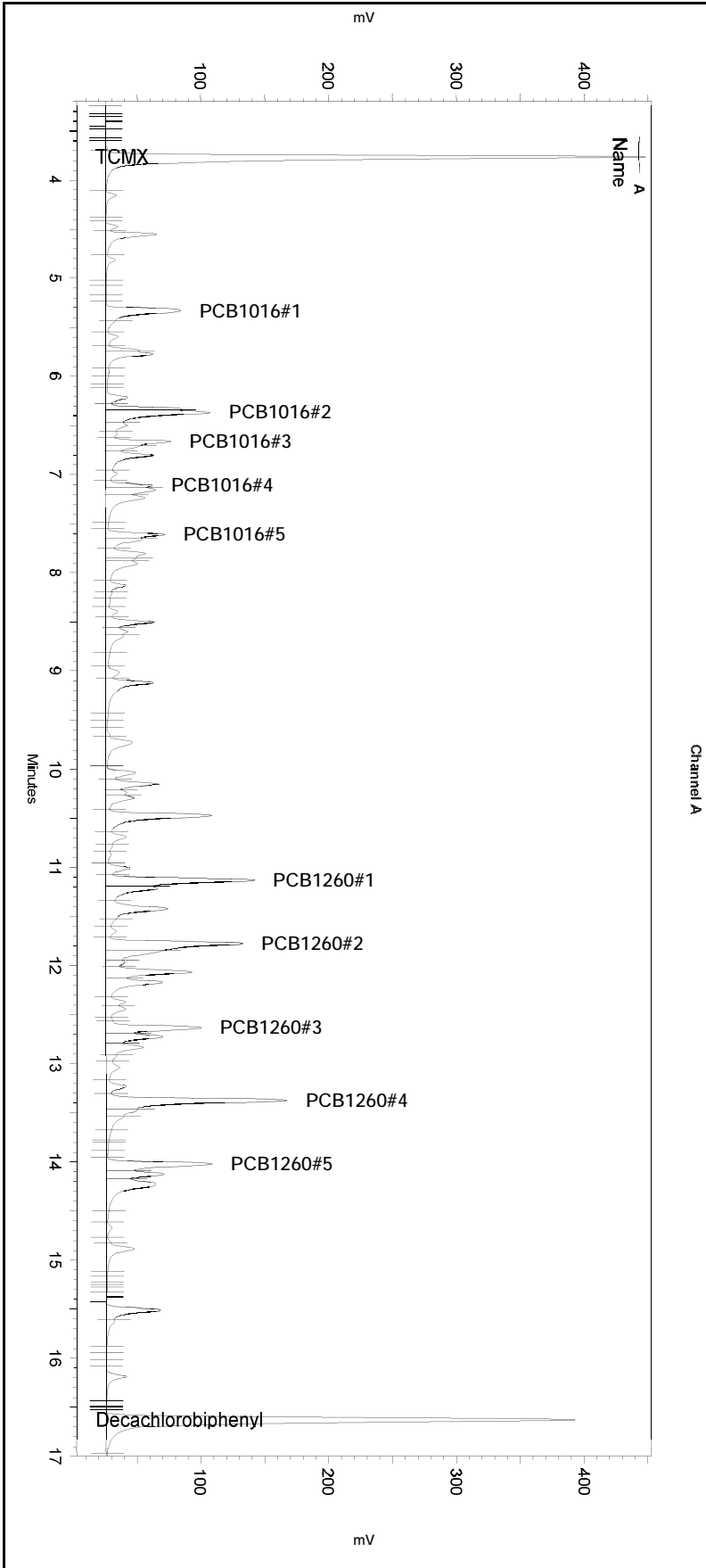
GC06
PCB - ECD Instrument Results
 Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.933	2.950	1471407	203.079
PCB1016#1	4.330	4.350	337101	971.003
PCB1016#2	5.213	5.237	510792	1135.114
PCB1016#3	5.417	5.437	295103	1156.965
PCB1016#4	5.940	5.960	143488	1012.157
PCB1016#5	6.637	6.657	269785	1292.844
PCB1260#1	9.827	9.850	708817	1703.739
PCB1260#2	10.450	10.470	654713	1409.416
PCB1260#3	11.377	11.397	314144	1038.113
PCB1260#4	12.030	12.053	728675	1433.584
PCB1260#5	12.700	12.723	376385	1077.057
Decachlorobiphenyl	15.650	15.673	1532268	183.746

Sample Name: ical,s35535,pcb1000_200
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:52:17 PM
 Analysis Date: 2/6/2018 8:30:28 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

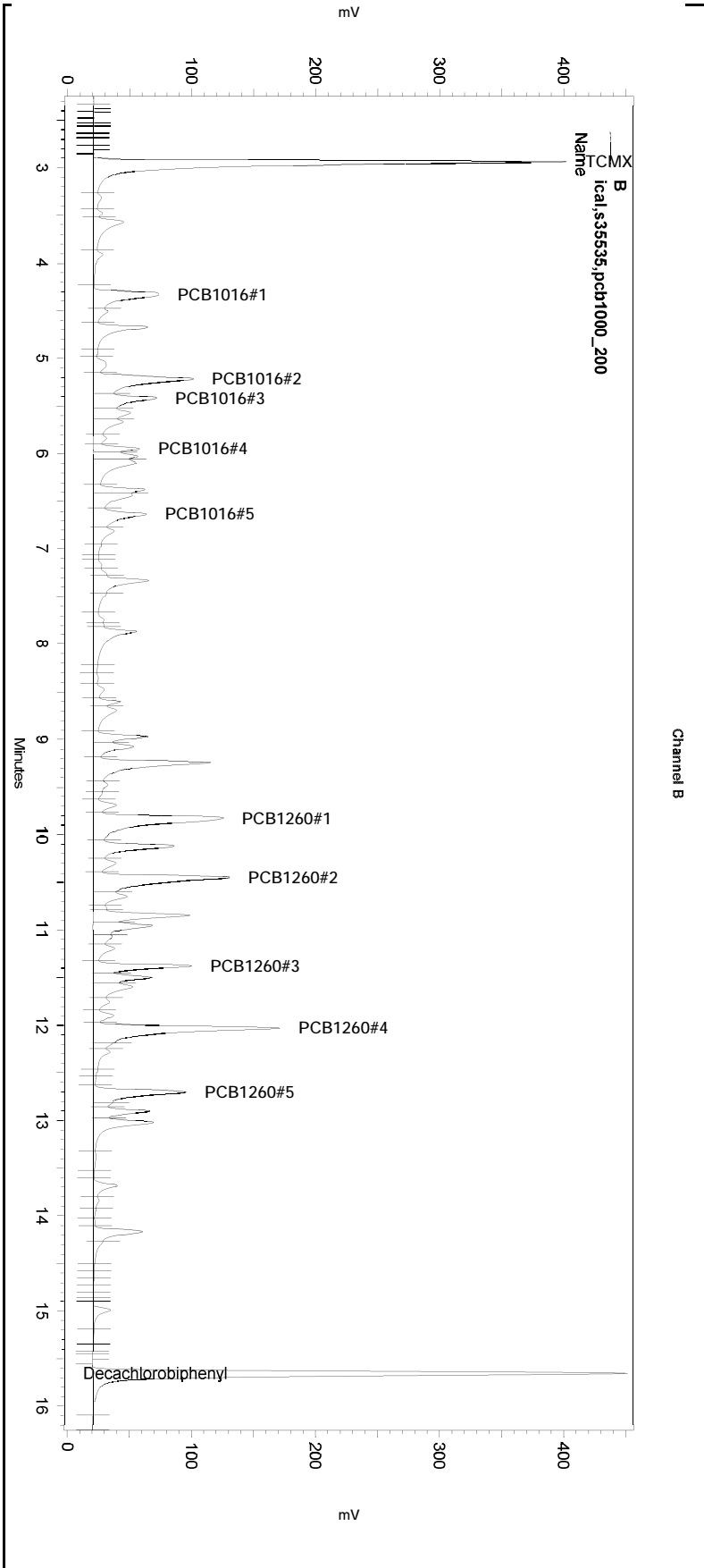
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sample Name: ical,s35535,pcb1000_200
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lms2k3)pest1
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 7:52:17 PM
 Analysis Date: 2/6/2018 8:30:28 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-016

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
None					

Sample Name: **icv,s35527,ULTRA_1660**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 18 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 8:48:17 PM
 Analysis Date: 2/6/2018 2:08:19 PM
 Sample Amount: 1

GC06
PCB - ECD Instrument Results
 Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.780	3.776	293629	48.356
PCB1016#1	5.347	5.347	66859	252.512
PCB1016#2	6.383	6.387	65396	249.298
PCB1016#3	6.677	6.680	40148	252.893
PCB1016#4	7.127	7.130	21119	240.253
PCB1016#5	7.627	7.630	30534	258.051
PCB1260#1	11.150	11.150	94163	229.935
PCB1260#2	11.797	11.797	84354	210.945
PCB1260#3	12.650	12.650	69589	289.628
PCB1260#4	13.390	13.390	146856	286.775
PCB1260#5	14.040	14.040	70604	264.993
Decachlorobiphenyl	16.643	16.640	396259	56.090

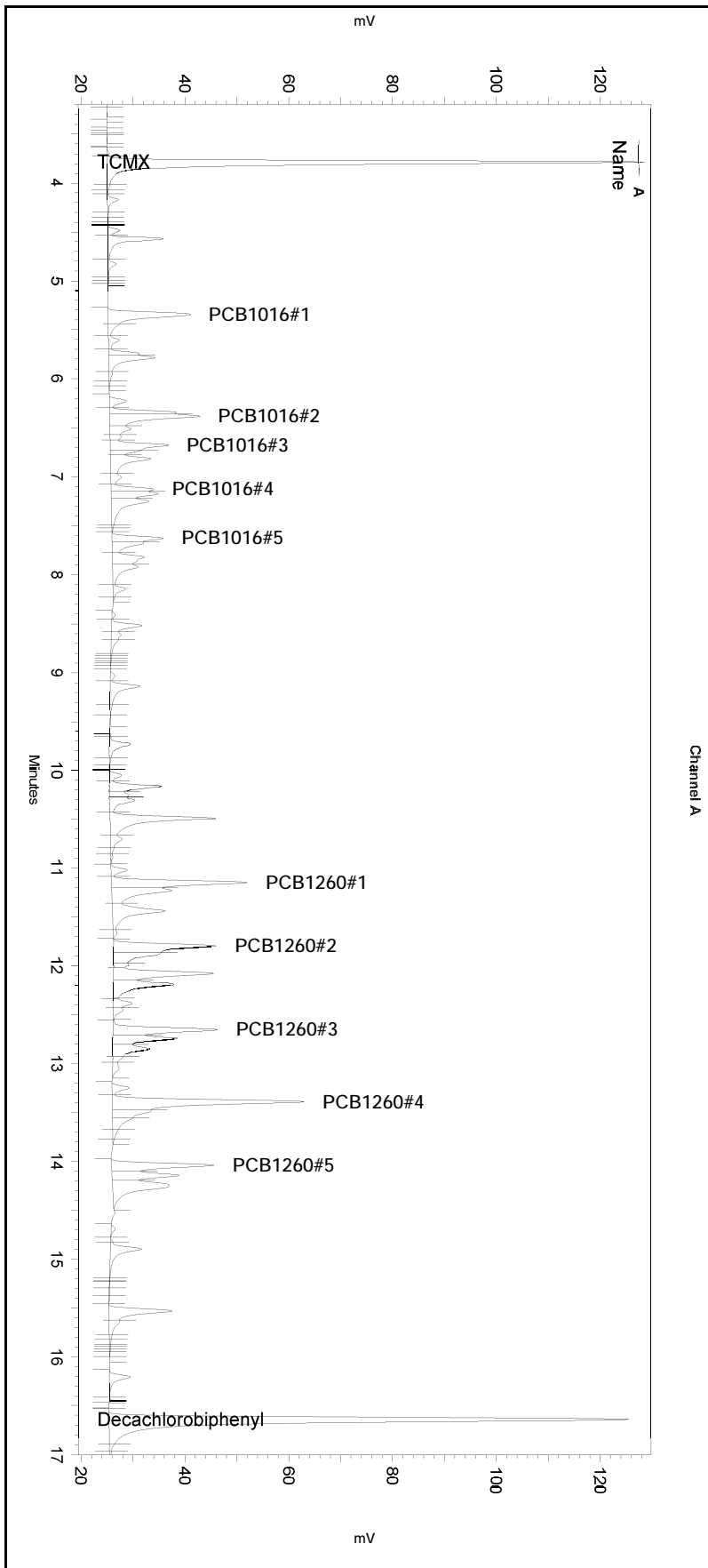
GC06
PCB - ECD Instrument Results
 Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.957	2.950	313228	50.358
PCB1016#1	4.353	4.350	78175	260.118
PCB1016#2	5.240	5.237	83950	271.392
PCB1016#3	5.443	5.437	62696	276.074
PCB1016#4	5.960	5.960	29535	267.664
PCB1016#5	6.657	6.657	48362	264.947
PCB1260#1	9.857	9.850	84124	258.649
PCB1260#2	10.473	10.470	75866	198.459
PCB1260#3	11.397	11.397	79318	299.061
PCB1260#4	12.053	12.053	124406	273.636
PCB1260#5	12.723	12.723	76343	264.827
Decachlorobiphenyl	15.670	15.673	415451	49.229

Sample Name: **icv,s35527,ULTRA_1660**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 18 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 8:48:17 PM
 Analysis Date: 2/6/2018 2:08:19 PM
 Sample Amount: 1



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No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

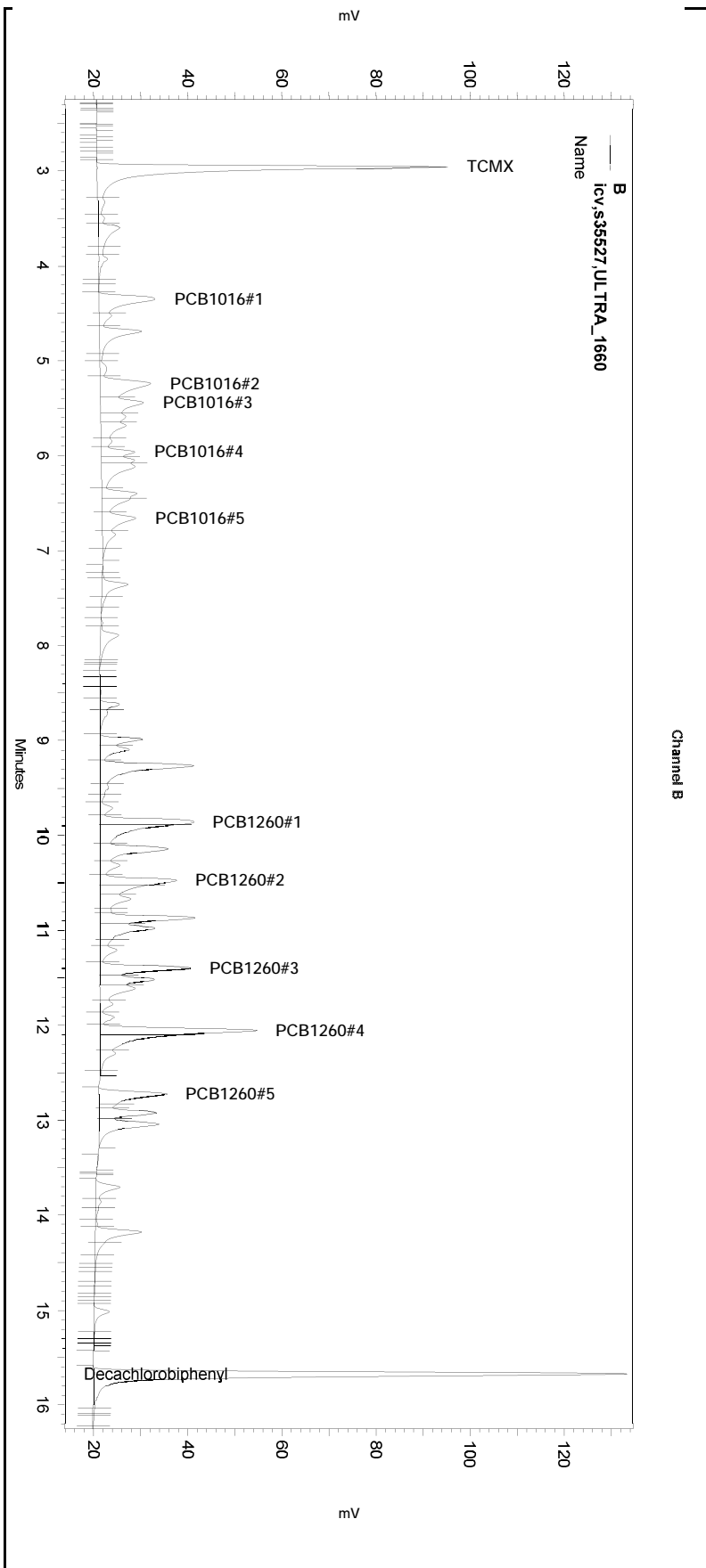
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	8.279	0	0
Yes	Manual Baseline	11.717	13.151	0
Yes	Reset Baseline	13.832	0	0
Yes	Reset Baseline	14.53	0	0

Sample Name: **icv,s35527,ULTRA_1660**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 18 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 8:48:17 PM
 Analysis Date: 2/6/2018 2:08:19 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	7.101	0	0
Yes	Split Peak	9.889	0	0
Yes	Split Peak	10.527	0	0
Yes	Split Peak	12.099	0	0
Yes	Reset Baseline	12.531	0	0
Yes	Reset Baseline	13.286	0	0

Sample Name: **icv,s35527,ULTRA_1660**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 18 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 8:48:17 PM
 Analysis Date: 2/6/2018 9:20:16 AM
 Sample Amount: 1

GC06
PCB - ECD Instrument Results
 Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.780	3.776	293629	48.356
PCB1016#1	5.347	5.347	67007	253.071
PCB1016#2	6.383	6.387	67051	255.607
PCB1016#3	6.677	6.680	41944	264.206
PCB1016#4	7.127	7.130	22871	260.185
PCB1016#5	7.627	7.630	33958	286.988
PCB1260#1	11.150	11.150	94163	229.935
PCB1260#2	11.797	11.797	78175	195.493
PCB1260#3	12.650	12.650	67950	282.807
PCB1260#4	13.390	13.390	147972	288.954
PCB1260#5	14.040	14.040	71702	269.114
Decachlorobiphenyl	16.643	16.640	396259	56.090

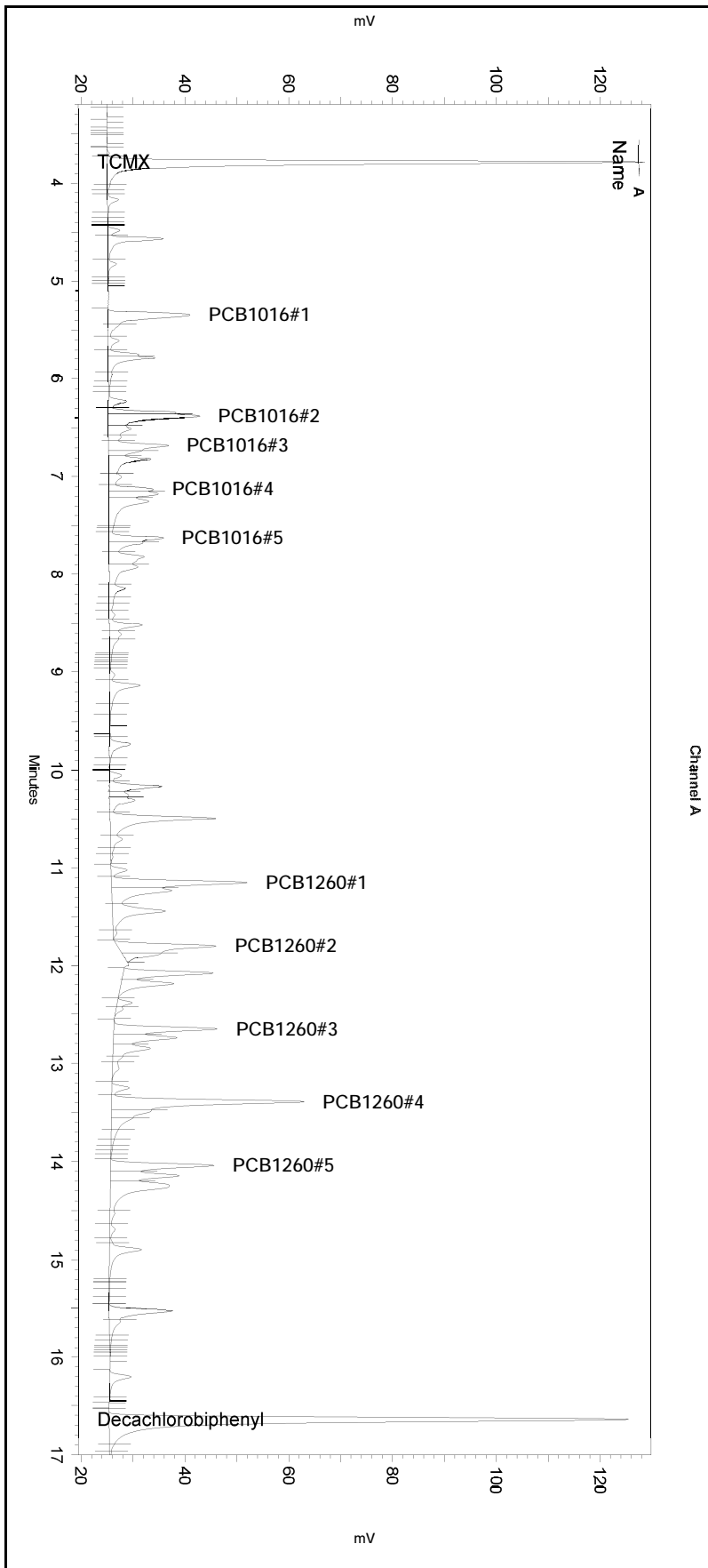
GC06
PCB - ECD Instrument Results
 Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.957	2.950	315163	50.669
PCB1016#1	4.353	4.350	85662	285.030
PCB1016#2	5.240	5.237	95779	303.957
PCB1016#3	5.443	5.437	72236	316.536
PCB1016#4	5.960	5.960	36556	341.487
PCB1016#5	6.657	6.657	65160	356.973
PCB1260#1	9.857	9.850	167022	513.528
PCB1260#2	10.473	10.470	125647	318.792
PCB1260#3	11.397	11.397	88434	333.432
PCB1260#4	12.053	12.053	209211	460.168
PCB1260#5	12.723	12.723	86205	299.038
Decachlorobiphenyl	15.670	15.673	415451	49.229

Sample Name: **icv,s35527,ULTRA_1660**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 18 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 8:48:17 PM
 Analysis Date: 2/6/2018 9:20:16 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

=====					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
Yes	Width	0	0	0.2	
Yes	Threshold	0	0	50	
Yes	Integration Off	0	2.1	0	
Yes	Shoulder Sensitivity	3	18	0	

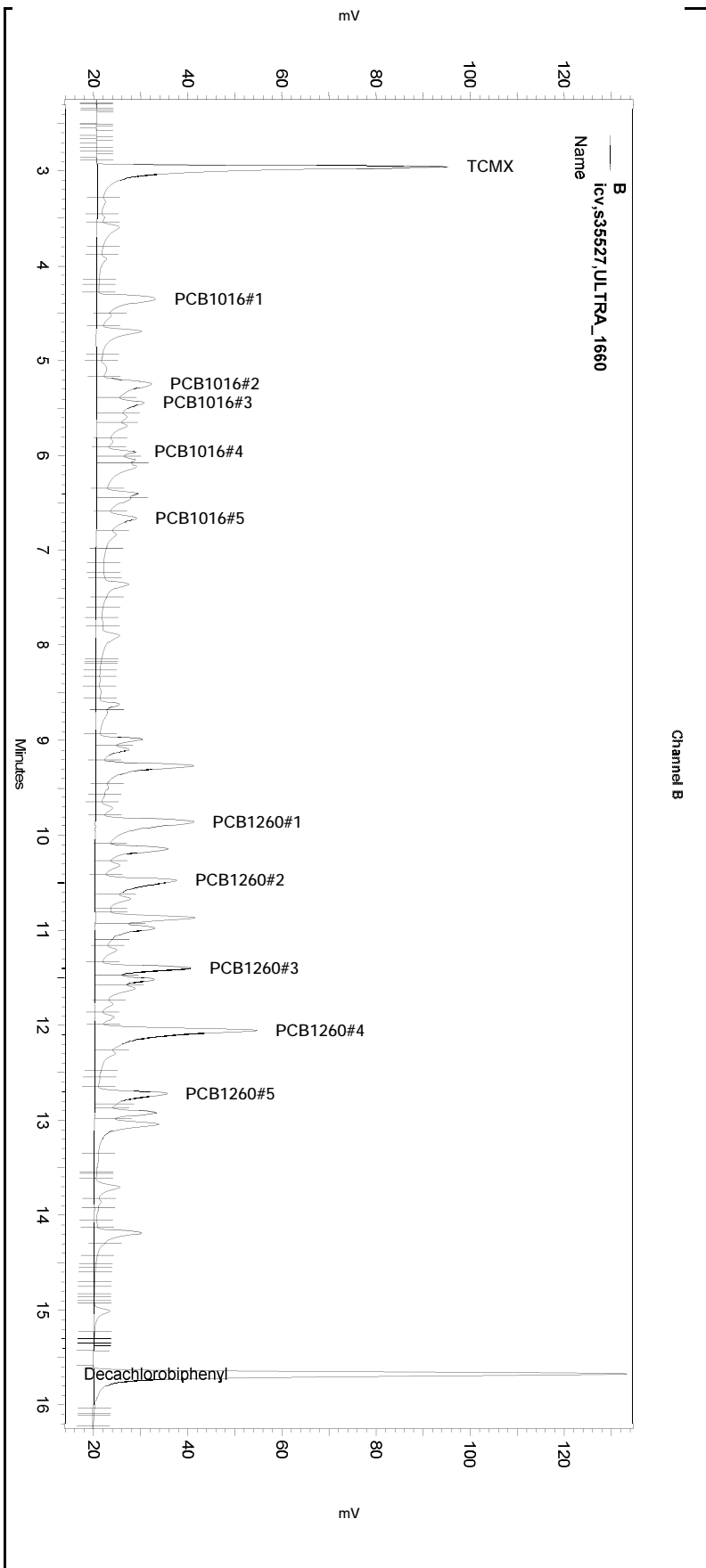
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018

=====					
Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value	
None					

Sample Name: **icv,s35527,ULTRA_1660**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\036.seq
 Instrument: GC06 (Offline) Vial: 18 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-036ical.met

Software Version 3.1.7
 Run Date: 2/5/2018 8:48:17 PM
 Analysis Date: 2/6/2018 9:20:16 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\036-018

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
None					

ENTHALPY INITIAL CALIBRATION FOR 300092 PCBS Soil: EPA 8082

Inst : GC16
 Calnum : 238128692001
 Units : pg/ul

Name : ar-1660-089ical
 Date : 30-MAR-2018 19:52
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	089_015	238128692015	PCB100_20	30-MAR-2018 19:52	S35531 (10X)
L2	089_016	238128692016	PCB25_5	30-MAR-2018 20:21	S35530
L3	089_017	238128692017	PCB100_20	30-MAR-2018 20:50	S35531
L4	089_018	238128692018	PCB250_50	30-MAR-2018 21:19	S35532
L5	089_019	238128692019	PCB500_100	30-MAR-2018 21:48	S35533
L6	089_020	238128692020	PCB750_150	30-MAR-2018 22:17	S35534
L7	089_021	238128692021	PCB1000_200	30-MAR-2018 22:46	S35535

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r ² %RSD	MnR ²	MxRSD	Flg
Aroclor-1016 Peak # 1	A	679.40	789.96	705.88	608.90	512.66	491.00	541.09	AVRG		0.00162		618.41	18	.99	20	
Aroclor-1016 Peak # 2	A	996.20	975.72	908.08	845.78	688.95	680.03	765.33	AVRG		0.00119		837.16	16	.99	20	
Aroclor-1016 Peak # 3	A	395.10	477.32	449.42	446.03	368.21	350.77	408.47	AVRG		0.00242		413.62	11	.99	20	
Aroclor-1016 Peak # 4	A	292.70	373.00	285.04	290.64	224.59	213.26	230.51	LINR	-25.092	0.00456		272.82	0.993	.99	20	
Aroclor-1016 Peak # 5	A	416.00	459.48	413.80	376.22	325.47	316.06	358.19	AVRG		0.00263		380.75	14	.99	20	
Aroclor-1260 Peak # 1	A	1418.3	1563.3	1393.6	1283.3	1043.2	992.03	1084.5	AVRG		7.97E-4		1254.0	17	.99	20	
Aroclor-1260 Peak # 2	A	1188.8	1303.0	1218.3	1151.2	981.64	968.46	1100.6	AVRG		8.85E-4		1130.3	11	.99	20	
Aroclor-1260 Peak # 3	A	773.10	680.84	662.84	631.02	540.51	518.45	584.21	AVRG		0.00159		627.28	14	.99	20	
Aroclor-1260 Peak # 4	A	1435.4	1640.9	1596.6	1510.0	1299.4	1267.9	1416.7	AVRG		6.89E-4		1452.4	10	.99	20	
Aroclor-1260 Peak # 5	A	616.60	745.12	758.94	737.52	636.02	638.00	734.32	AVRG		0.00144		695.22	9	.99	20	
Decachlorobiphenyl	A	15055	16866	15661	14208	11706	10998	11734	AVRG		7.27E-5		13747	17	.99	20	
Aroclor-1016 Peak # 1	B	539.60	585.24	522.62	466.69	383.78	389.31	510.23	AVRG		0.00206		485.35	16	.99	20	
Aroclor-1016 Peak # 2	B	1346.1	1485.2	1413.0	1335.3	1264.4	1354.1	1739.5	AVRG		7.04E-4		1419.7	11	.99	20	
Aroclor-1016 Peak # 3	B	611.10	699.56	667.49	595.89	532.14	533.13	673.75	AVRG		0.00162		616.15	11	.99	20	
Aroclor-1016 Peak # 4	B	386.80	461.72	419.46	379.02	320.48	315.08	384.44	AVRG		0.00262		381.00	14	.99	20	
Aroclor-1016 Peak # 5	B	535.10	634.68	637.10	599.48	507.52	520.48	635.83	AVRG		0.00172		581.46	10	.99	20	
Aroclor-1260 Peak # 1	B	1158.3	1302.6	1175.2	1118.7	1039.2	1123.4	1329.4	AVRG		8.49E-4		1178.1	9	.99	20	
Aroclor-1260 Peak # 2	B	1246.7	1356.9	1252.5	1306.9	1241.9	1430.3	1764.3	AVRG		7.29E-4		1371.4	14	.99	20	
Aroclor-1260 Peak # 3	B	775.40	871.32	791.24	735.36	667.23	729.20	881.87	AVRG		0.00128		778.80	10	.99	20	
Aroclor-1260 Peak # 4	B	1324.2	1485.2	1460.2	1508.9	1460.6	1571.5	1832.3	AVRG		6.58E-4		1520.4	10	.99	20	
Aroclor-1260 Peak # 5	B	743.20	932.84	881.53	846.42	794.54	880.11	1089.6	AVRG		0.00113		881.17	13	.99	20	
Decachlorobiphenyl	B	19919	22003	21308	21937	19441	18908	20577	AVRG		4.86E-5		20585	6	.99	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Aroclor-1016 Peak # 1	A	10.000	10	25.000	28	100.00	14	250.00	-2	500.00	-17	750.00	-21	1000.0	-13
Aroclor-1016 Peak # 2	A	10.000	19	25.000	17	100.00	8	250.00	1	500.00	-18	750.00	-19	1000.0	-9
Aroclor-1016 Peak # 3	A	10.000	-4	25.000	15	100.00	9	250.00	8	500.00	-11	750.00	-15	1000.0	-1
Aroclor-1016 Peak # 4	A	10.000	-217	25.000	-30	100.00	5	250.00	23	500.00	-3	750.00	-6	1000.0	3
Aroclor-1016 Peak # 5	A	10.000	9	25.000	21	100.00	9	250.00	-1	500.00	-15	750.00	-17	1000.0	-6
Aroclor-1260 Peak # 1	A	10.000	13	25.000	25	100.00	11	250.00	2	500.00	-17	750.00	-21	1000.0	-14
Aroclor-1260 Peak # 2	A	10.000	5	25.000	15	100.00	8	250.00	2	500.00	-13	750.00	-14	1000.0	-3
Aroclor-1260 Peak # 3	A	10.000	23	25.000	9	100.00	6	250.00	1	500.00	-14	750.00	-17	1000.0	-7
Aroclor-1260 Peak # 4	A	10.000	-1	25.000	13	100.00	10	250.00	4	500.00	-11	750.00	-13	1000.0	-2
Aroclor-1260 Peak # 5	A	10.000	-11	25.000	7	100.00	9	250.00	6	500.00	-9	750.00	-8	1000.0	6
Decachlorobiphenyl	A	2.0000	10	5.0000	23	20.000	14	50.000	3	100.00	-15	150.00	-20	200.00	-15
Aroclor-1016 Peak # 1	B	10.000	11	25.000	21	100.00	8	250.00	-4	500.00	-21	750.00	-20	1000.0	5
Aroclor-1016 Peak # 2	B	10.000	-5	25.000	5	100.00	0	250.00	-6	500.00	-11	750.00	-5	1000.0	23
Aroclor-1016 Peak # 3	B	10.000	-1	25.000	14	100.00	8	250.00	-3	500.00	-14	750.00	-13	1000.0	9
Aroclor-1016 Peak # 4	B	10.000	2	25.000	21	100.00	10	250.00	-1	500.00	-16	750.00	-17	1000.0	1
Aroclor-1016 Peak # 5	B	10.000	-8	25.000	9	100.00	10	250.00	3	500.00	-13	750.00	-10	1000.0	9
Aroclor-1260 Peak # 1	B	10.000	-2	25.000	11	100.00	0	250.00	-5	500.00	-12	750.00	-5	1000.0	13
Aroclor-1260 Peak # 2	B	10.000	-9	25.000	-1	100.00	-9	250.00	-5	500.00	-9	750.00	4	1000.0	29
Aroclor-1260 Peak # 3	B	10.000	0	25.000	12	100.00	2	250.00	-6	500.00	-14	750.00	-6	1000.0	13
Aroclor-1260 Peak # 4	B	10.000	-13	25.000	-2	100.00	-4	250.00	-1	500.00	-4	750.00	3	1000.0	21
Aroclor-1260 Peak # 5	B	10.000	-16	25.000	6	100.00	0	250.00	-4	500.00	-10	750.00	0	1000.0	24
Decachlorobiphenyl	B	2.0000	-3	5.0000	7	20.000	4	50.000	7	100.00	-6	150.00	-8	200.00	0

JC1 04/05/18 : Corrected automatically drawn baseline in all levels.

Analyst: JC1

Date: 04/05/18

Reviewer: EAH

Date: 04/05/18

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 PCBS Soil
EPA 8082

Inst : GC16
Calnum : 238128692001

Name : ar-1660-089ical
Cal Date : 30-MAR-2018

ICV 238128692023 (089_023 30-MAR-2018) stds: S35527

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Aroclor-1016	A	250.0	224.8	pg/ul	-10	15	
Aroclor-1260	A	250.0	222.4	pg/ul	-11	15	
Aroclor-1016	B	250.0	211.9	pg/ul	-15	15	
Aroclor-1260	B	250.0	214.6	pg/ul	-14	15	

Analyst: JC1

Date: 04/02/18

Reviewer: EAH

Date: 04/05/18

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015
Sample Name: ical,s35531,pcb100_20,10x
Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
Run Date: 3/30/2018 7:52:58 PM
Analysis Date: 4/2/2018 4:48:13 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.530	4.537	26596	2.000 CAL
PCB1016#1	6.223	6.230	6794	10.000 CAL
PCB1016#2	7.327	7.330	9962	10.000 CAL
PCB1016#3	7.633	7.637	3951	10.000 CAL
PCB1016#4	8.087	8.097	2927	10.000 CAL
PCB1016#5	8.610	8.613	4160	10.000 CAL
PCB1260#1	12.187	12.190	14183	10.000 CAL
PCB1260#2	12.840	12.843	11888	10.000 CAL
PCB1260#3	13.693	13.697	7731	10.000 CAL
PCB1260#4	14.437	14.440	14354	10.000 CAL
PCB1260#5	15.093	15.097	6166	10.000 CAL
Decachlorobiphenyl	17.690	17.690	30110	2.000 CAL

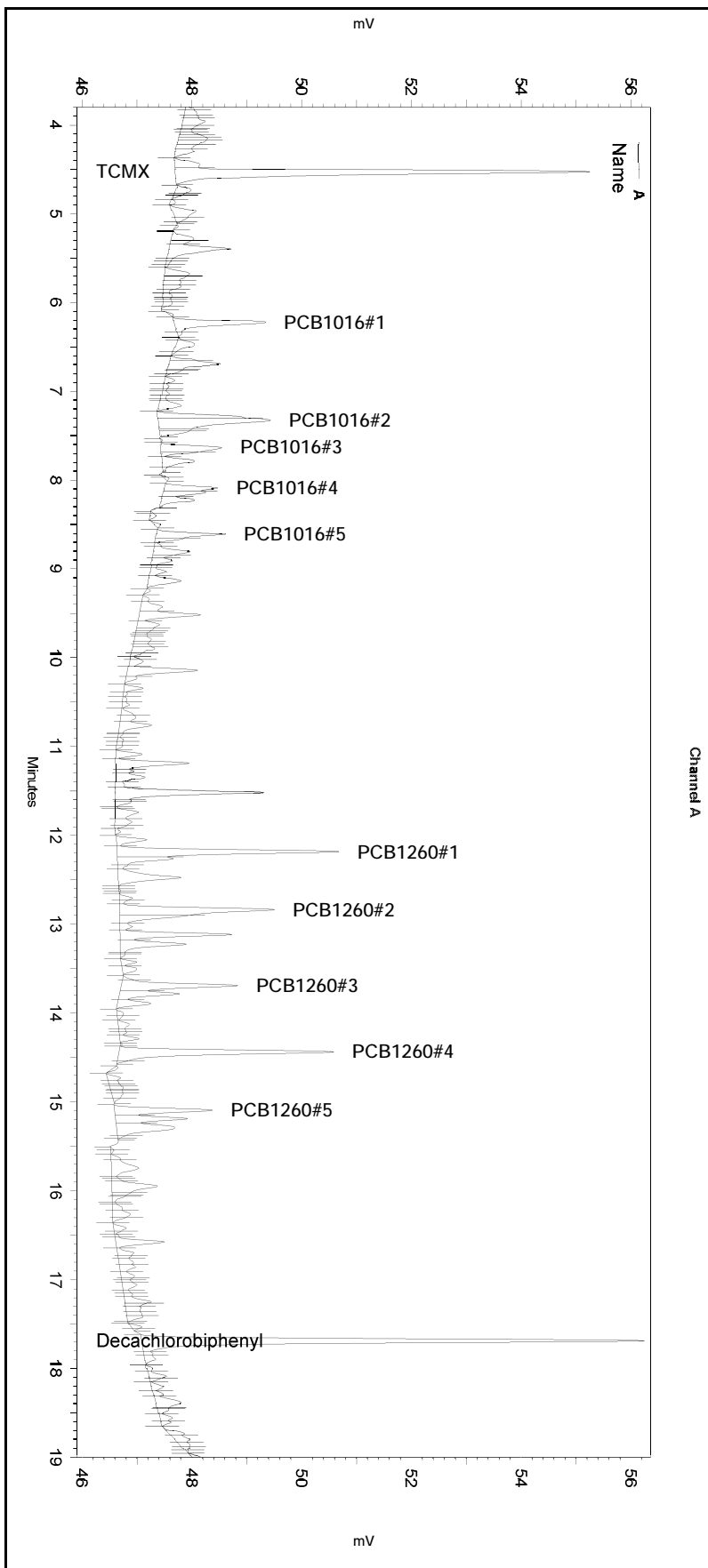
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.640	4.647	33646	2.000 CAL
PCB1016#1	6.340	6.347	5396	10.000 CAL
PCB1016#2	7.380	7.387	13461	10.000 CAL
PCB1016#3	7.613	7.617	6111	10.000 CAL
PCB1016#4	8.193	8.197	3868	10.000 CAL
PCB1016#5	8.967	8.970	5351	10.000 CAL
PCB1260#1	12.303	12.307	11583	10.000 CAL
PCB1260#2	12.960	12.963	12467	10.000 CAL
PCB1260#3	13.917	13.920	7754	10.000 CAL
PCB1260#4	14.570	14.573	13242	10.000 CAL
PCB1260#5	15.257	15.263	7432	10.000 CAL
Decachlorobiphenyl	18.263	18.267	39838	2.000 CAL

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015
 Sample Name: ical,s35531,pcb100_20,10x
 Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 7:52:58 PM
 Analysis Date: 4/2/2018 4:48:13 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

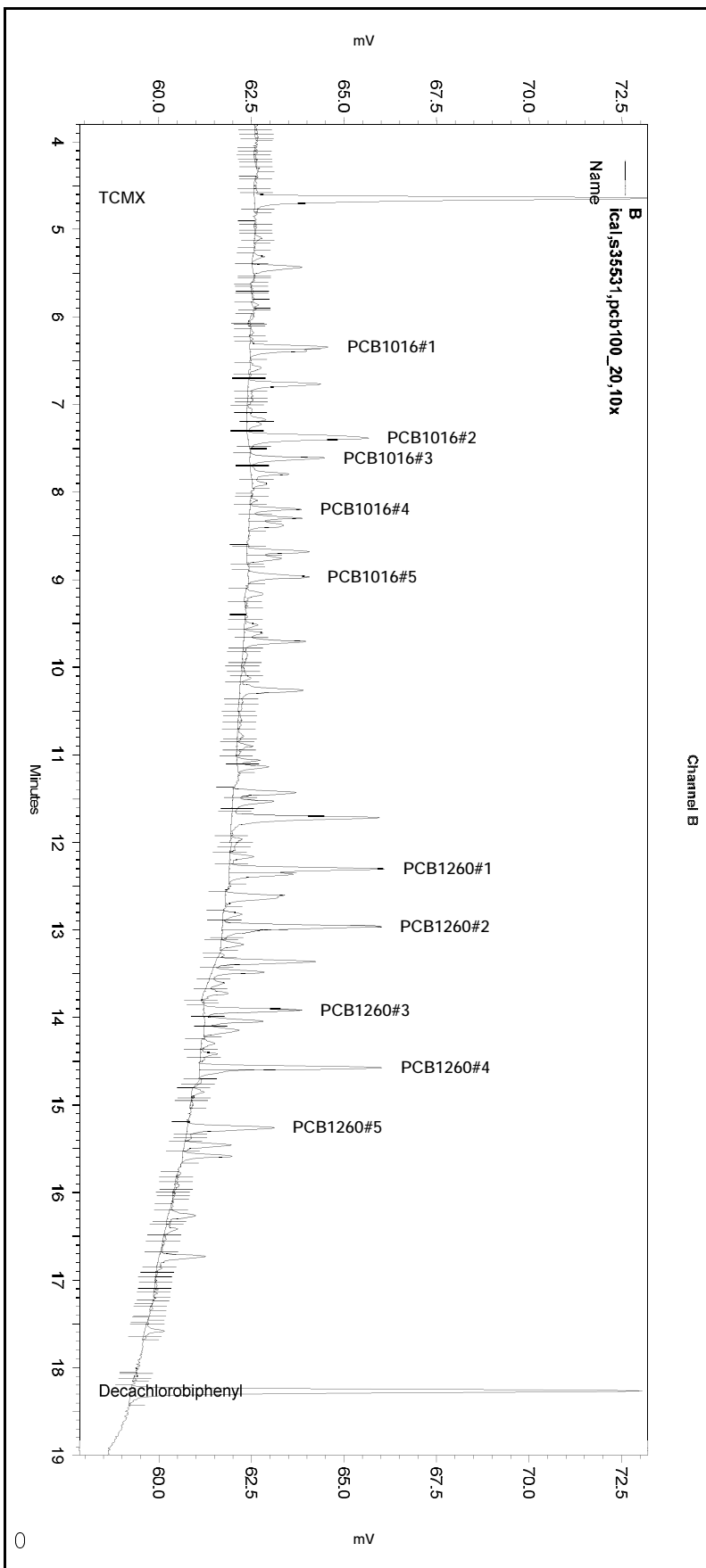
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	4.676	0	0
Yes	Reset Baseline	6.156	0	0
Yes	Reset Baseline	6.39	0	0
Yes	Reset Baseline	7.514	0	0
Yes	Reset Baseline	7.909	0	0
Yes	Reset Baseline	8.007	0	0
Yes	Reset Baseline	8.31	0	0
Yes	Reset Baseline	8.535	0	0
Yes	Reset Baseline	9.225	0	0
Yes	Reset Baseline	12.002	0	0
Yes	Reset Baseline	12.652	0	0
Yes	Reset Baseline	13.57	0	0
Yes	Reset Baseline	13.953	0	0
Yes	Reset Baseline	14.337	0	0
Yes	Reset Baseline	14.589	0	0
Yes	Reset Baseline	15.017	0	0
Yes	Reset Baseline	15.451	0	0
Yes	Reset Baseline	17.613	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015
 Sample Name: ical,s35531,pcb100_20,10x
 Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 7:52:58 PM
 Analysis Date: 4/2/2018 4:48:13 PM
 Sample Amount: 1



 << General Method Parameters >>-----

No items selected for this section

 << B >>-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	4.824	0	0
Yes	Reset Baseline	7.522	0	0
Yes	Reset Baseline	7.949	0	0
Yes	Reset Baseline	8.45	0	0
Yes	Reset Baseline	9.051	0	0
Yes	Reset Baseline	12.486	0	0
Yes	Split Peak	12.998	0	0
Yes	Reset Baseline	13.236	0	0
Yes	Reset Baseline	13.844	0	0
Yes	Reset Baseline	14.232	0	0
Yes	Split Peak	14.602	0	0
Yes	Reset Baseline	14.698	0	0
Yes	Split Peak	15.335	0	0
Yes	Reset Baseline	15.663	0	0
Yes	Reset Baseline	18.426	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015
Sample Name: ical,s35531,pcb100_20,10x
Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 7:52:58 PM
Analysis Date: 4/2/2018 3:49:33 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.530	4.537	27372	2.607
PCB1016#1	6.223	6.230	9804	18.362
PCB1016#2	7.327	7.330	11375	17.245
PCB1016#3	7.633	7.637	5580	15.625
PCB1016#4	8.087	8.097	5338	9.678
PCB1016#5	8.610	8.613	6297	19.628
PCB1260#1	12.187	12.190	14754	14.980
PCB1260#2	12.840	12.843	13102	15.352
PCB1260#3	13.693	13.697	9325	19.816
PCB1260#4	14.437	14.440	16491	15.272
PCB1260#5	15.093	15.097	7051	13.023
Decachlorobiphenyl	17.690	17.690	31626	2.936

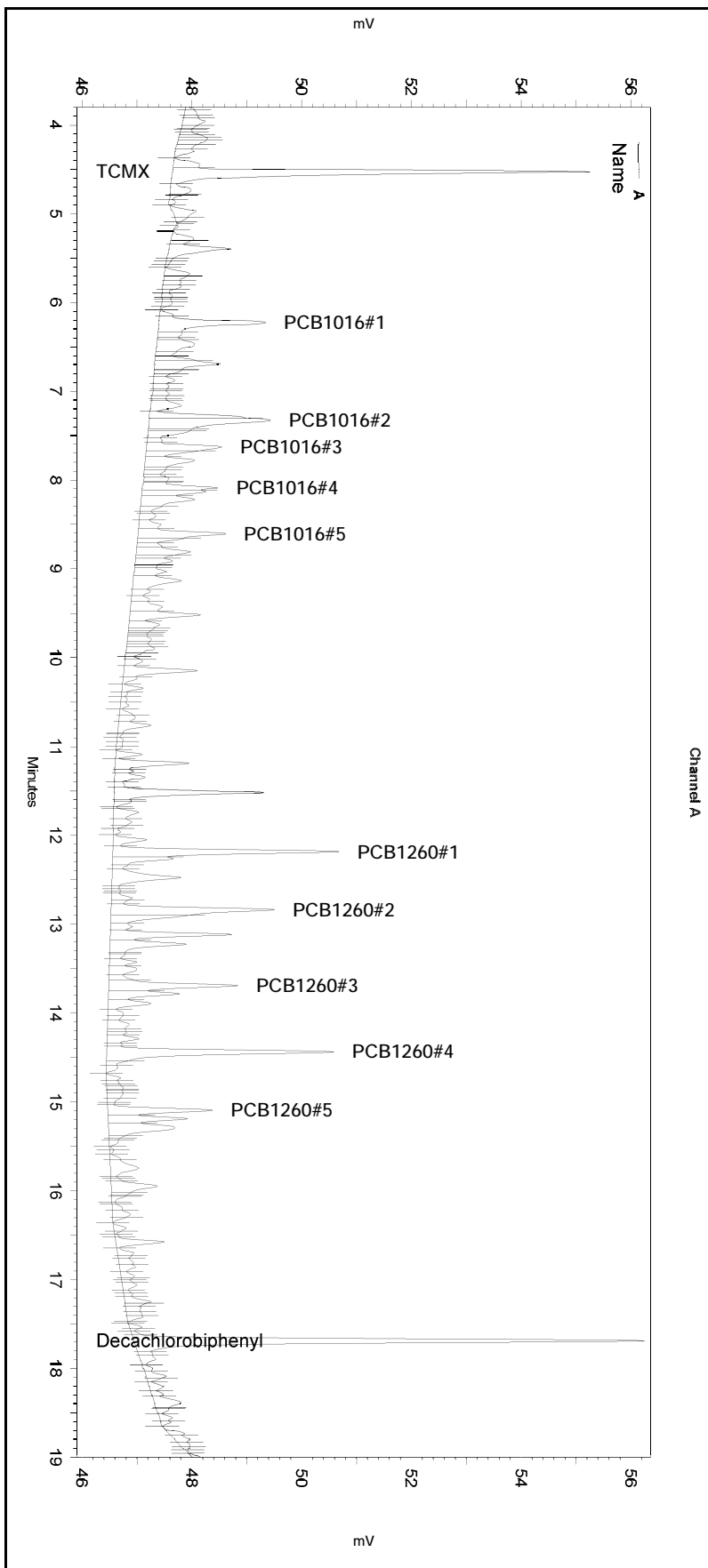
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.640	4.647	33881	1.927
PCB1016#1	6.340	6.347	5396	13.686
PCB1016#2	7.380	7.387	13819	13.046
PCB1016#3	7.613	7.617	6982	14.608
PCB1016#4	8.193	8.197	4436	14.429
PCB1016#5	8.967	8.970	5623	13.032
PCB1260#1	12.303	12.307	12000	14.186
PCB1260#2	12.960	12.963	16486	17.474
PCB1260#3	13.917	13.920	8594	15.549
PCB1260#4	14.570	14.573	17467	17.018
PCB1260#5	15.257	15.263	8159	14.097
Decachlorobiphenyl	18.263	18.267	42495	3.116

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015
 Sample Name: ical,s35531,pcb100_20,10x
 Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 7:52:58 PM
 Analysis Date: 4/2/2018 3:49:33 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

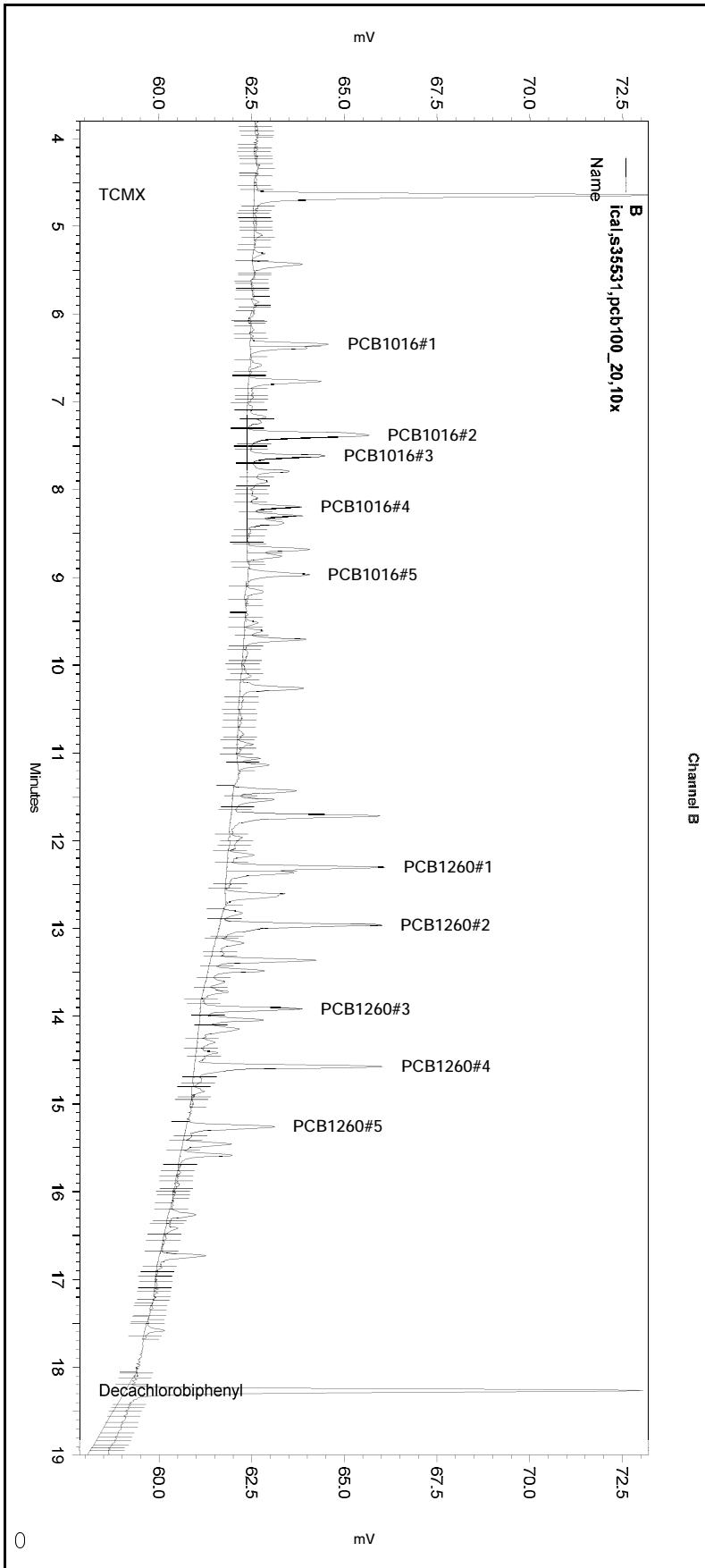
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015
 Sample Name: ical,s35531,pcb100_20,10x
 Instrument: GC16 (Offline) Vial: 35 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 7:52:58 PM
 Analysis Date: 4/2/2018 3:49:33 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016
Sample Name: ical,s35530,pcb25_5
Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
Run Date: 3/30/2018 8:21:57 PM
Analysis Date: 4/2/2018 4:48:19 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.537	4.537	64991	5.000 CAL
PCB1016#1	6.233	6.230	19749	25.000 CAL
PCB1016#2	7.333	7.330	24393	25.000 CAL
PCB1016#3	7.643	7.637	11933	25.000 CAL
PCB1016#4	8.100	8.097	9325	25.000 CAL
PCB1016#5	8.617	8.613	11487	25.000 CAL
PCB1260#1	12.193	12.190	39083	25.000 CAL
PCB1260#2	12.847	12.843	32574	25.000 CAL
PCB1260#3	13.700	13.697	17021	25.000 CAL
PCB1260#4	14.443	14.440	41022	25.000 CAL
PCB1260#5	15.100	15.097	18628	25.000 CAL
Decachlorobiphenyl	17.697	17.690	84331	5.000 CAL

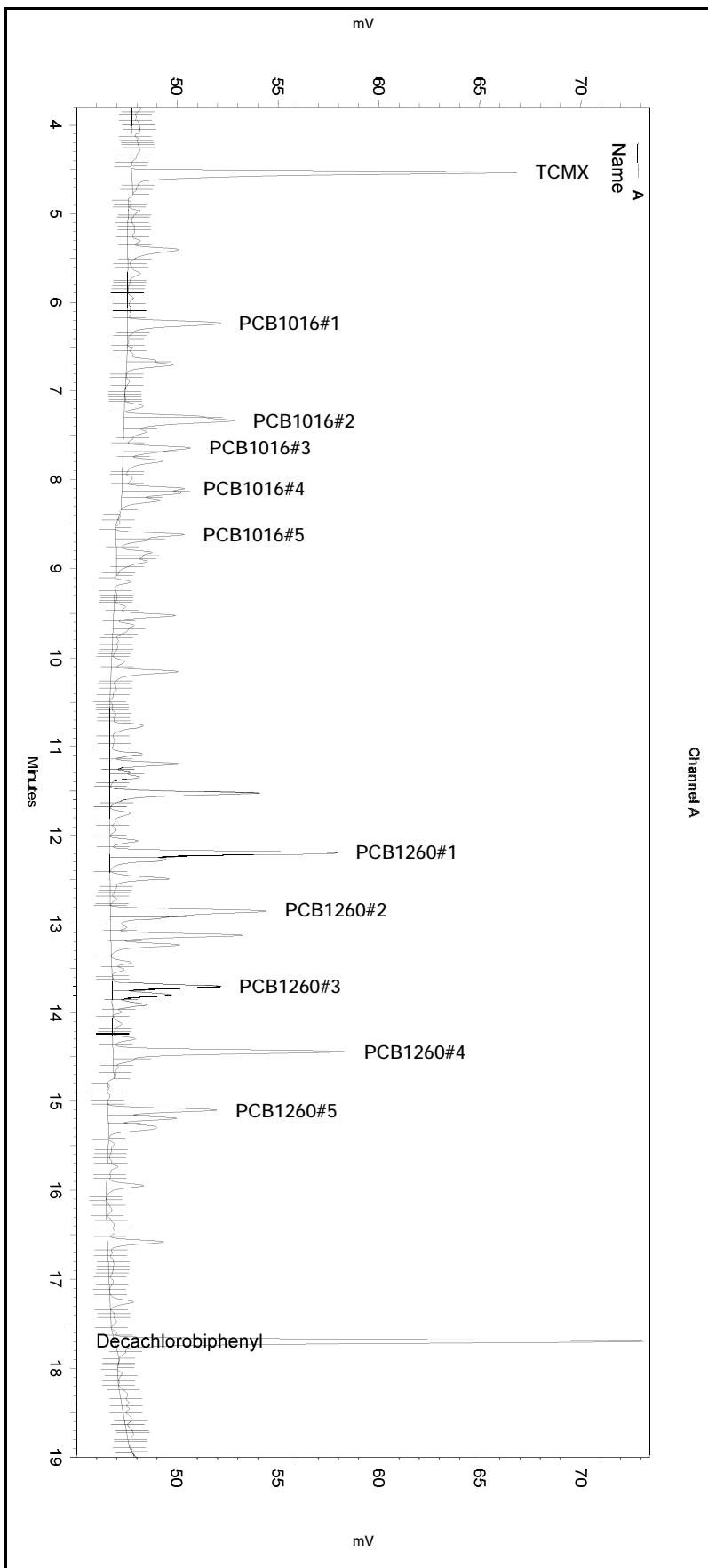
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.650	4.647	93581	5.000 CAL
PCB1016#1	6.350	6.347	14631	25.000 CAL
PCB1016#2	7.387	7.387	37131	25.000 CAL
PCB1016#3	7.620	7.617	17489	25.000 CAL
PCB1016#4	8.200	8.197	11543	25.000 CAL
PCB1016#5	8.973	8.970	15867	25.000 CAL
PCB1260#1	12.310	12.307	32565	25.000 CAL
PCB1260#2	12.967	12.963	33923	25.000 CAL
PCB1260#3	13.920	13.920	21783	25.000 CAL
PCB1260#4	14.577	14.573	37131	25.000 CAL
PCB1260#5	15.267	15.263	23321	25.000 CAL
Decachlorobiphenyl	18.270	18.267	110017	5.000 CAL

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016
 Sample Name: ical,s35530,pcb25_5
 Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 8:21:57 PM
 Analysis Date: 4/2/2018 4:48:19 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

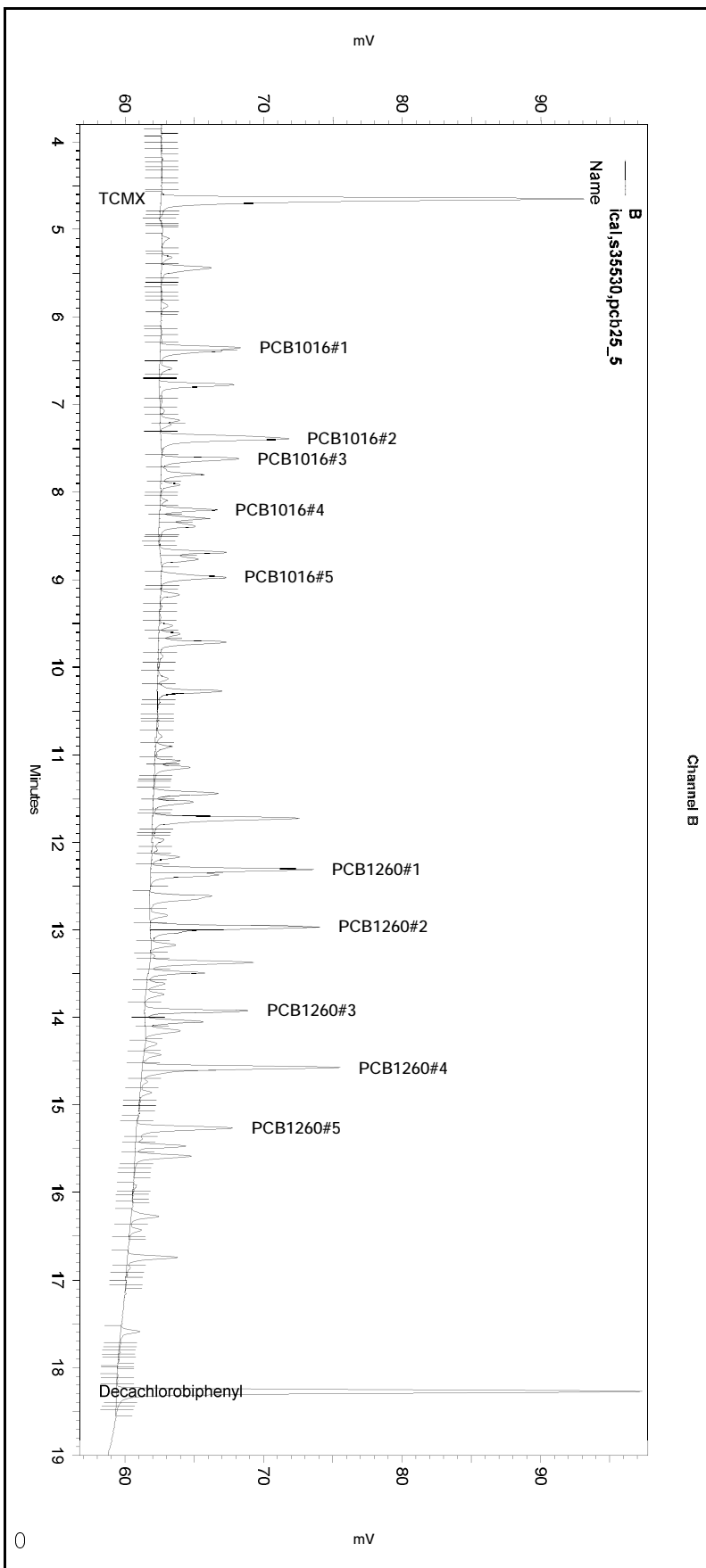
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	4.775	0	0
Yes	Reset Baseline	6.403	0	0
Yes	Reset Baseline	8.337	0	0
Yes	Reset Baseline	8.552	0	0
Yes	Reset Baseline	9.072	0	0
Yes	Reset Baseline	11.999	0	0
Yes	Reset Baseline	13.583	0	0
Yes	Reset Baseline	14.746	0	0
Yes	Reset Baseline	15.412	0	0
Yes	Reset Baseline	17.887	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016
 Sample Name: ical,s35530,pcb25_5
 Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 8:21:57 PM
 Analysis Date: 4/2/2018 4:48:19 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	7.556	0	0
Yes	Split Peak	12.999	0	0
Yes	Reset Baseline	13.259	0	0
Yes	Reset Baseline	14.252	0	0
Yes	Split Peak	14.609	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016
Sample Name: ical,s35530,pcb25_5
Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
Run Date: 3/30/2018 8:21:57 PM
Analysis Date: 4/2/2018 3:49:38 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.537	4.537	67003	6.382
PCB1016#1	6.233	6.230	21079	39.479
PCB1016#2	7.333	7.330	25074	38.012
PCB1016#3	7.643	7.637	12421	34.782
PCB1016#4	8.100	8.097	9681	31.853
PCB1016#5	8.617	8.613	11947	37.239
PCB1260#1	12.193	12.190	39504	40.109
PCB1260#2	12.847	12.843	33485	39.236
PCB1260#3	13.700	13.697	18933	40.233
PCB1260#4	14.443	14.440	43765	40.530
PCB1260#5	15.100	15.097	19061	35.205
Decachlorobiphenyl	17.697	17.690	85445	7.933

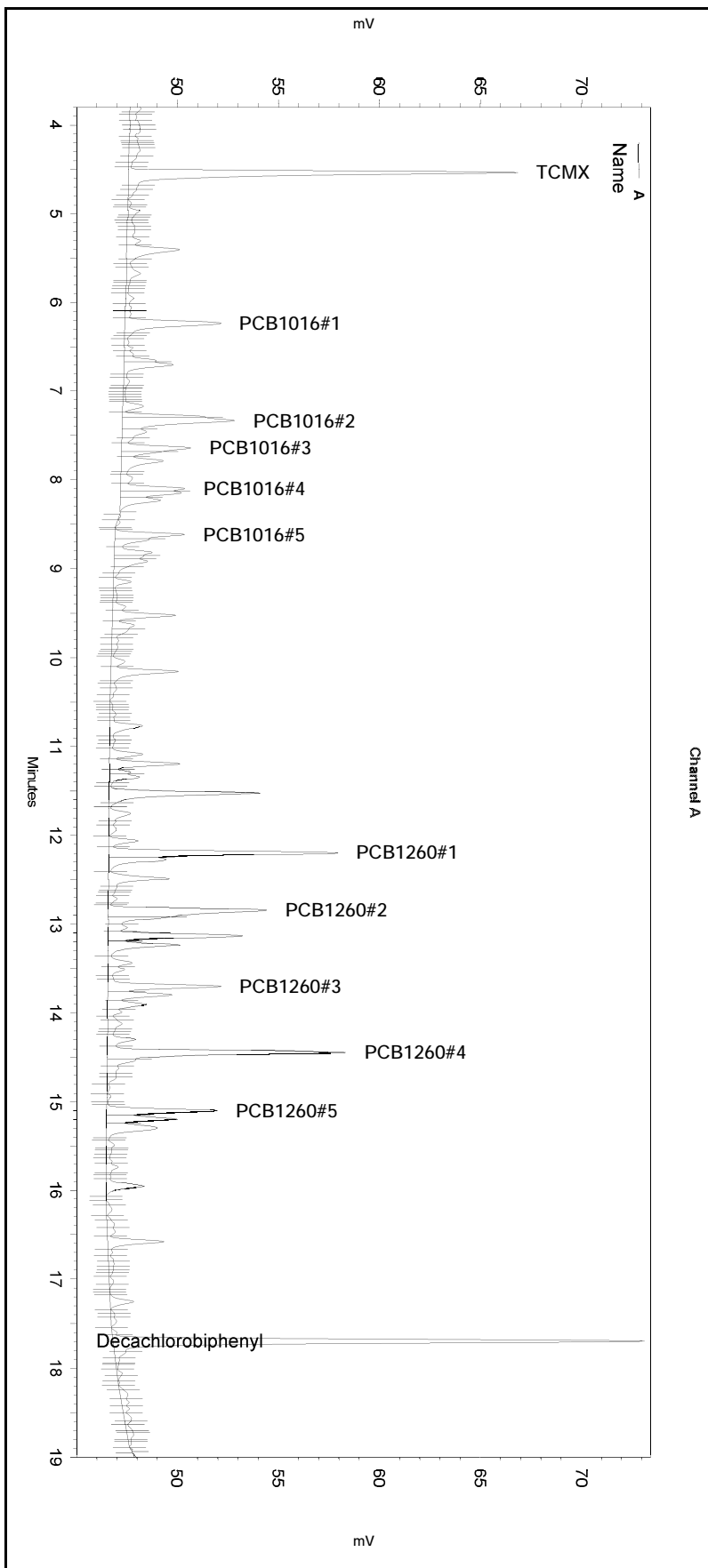
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.650	4.647	93581	5.323
PCB1016#1	6.350	6.347	14631	37.109
PCB1016#2	7.387	7.387	39385	37.183
PCB1016#3	7.620	7.617	19023	39.802
PCB1016#4	8.200	8.197	11970	38.936
PCB1016#5	8.973	8.970	15867	36.773
PCB1260#1	12.310	12.307	32565	38.498
PCB1260#2	12.967	12.963	45500	48.227
PCB1260#3	13.920	13.920	22536	40.775
PCB1260#4	14.577	14.573	45282	44.117
PCB1260#5	15.267	15.263	23321	40.294
Decachlorobiphenyl	18.270	18.267	110017	8.067

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016
 Sample Name: ical,s35530,pcb25_5
 Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 8:21:57 PM
 Analysis Date: 4/2/2018 3:49:38 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

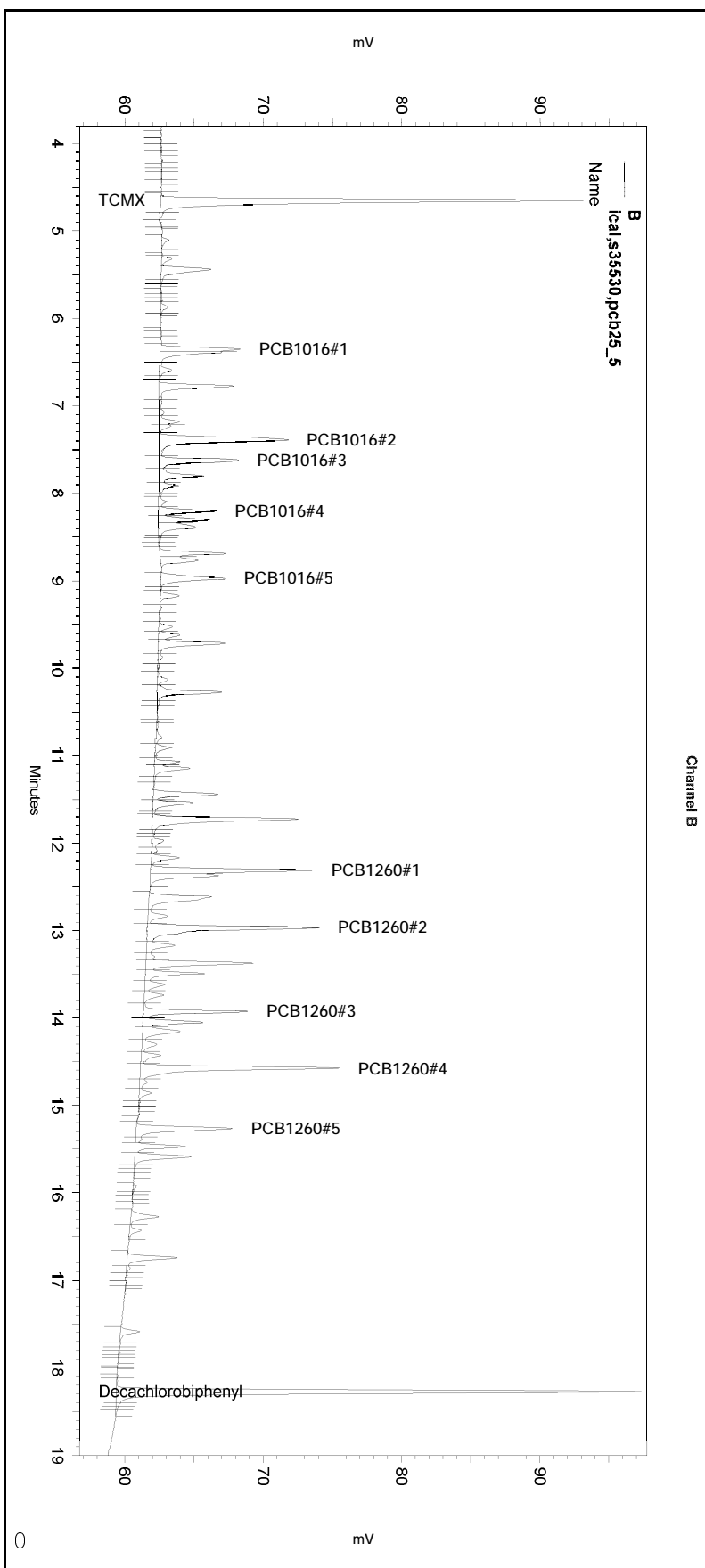
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Channel A

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016
 Sample Name: ical,s35530,pcb25_5
 Instrument: GC16 (Offline) Vial: 36 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 8:21:57 PM
 Analysis Date: 4/2/2018 3:49:38 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017
Sample Name: ical,s35531,pcb100_20
Instrument: GC16 (Offline) Vial: 37 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 8:50:59 PM
Analysis Date: 4/2/2018 4:48:25 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.537	4.537	256572	20.000 CAL
PCB1016#1	6.233	6.230	70588	100.000 CAL
PCB1016#2	7.333	7.330	90808	100.000 CAL
PCB1016#3	7.640	7.637	44942	100.000 CAL
PCB1016#4	8.100	8.097	28504	100.000 CAL
PCB1016#5	8.617	8.613	41380	100.000 CAL
PCB1260#1	12.193	12.190	139356	100.000 CAL
PCB1260#2	12.847	12.843	121826	100.000 CAL
PCB1260#3	13.700	13.697	66284	100.000 CAL
PCB1260#4	14.443	14.440	159662	100.000 CAL
PCB1260#5	15.097	15.097	75894	100.000 CAL
Decachlorobiphenyl	17.697	17.690	313213	20.000 CAL

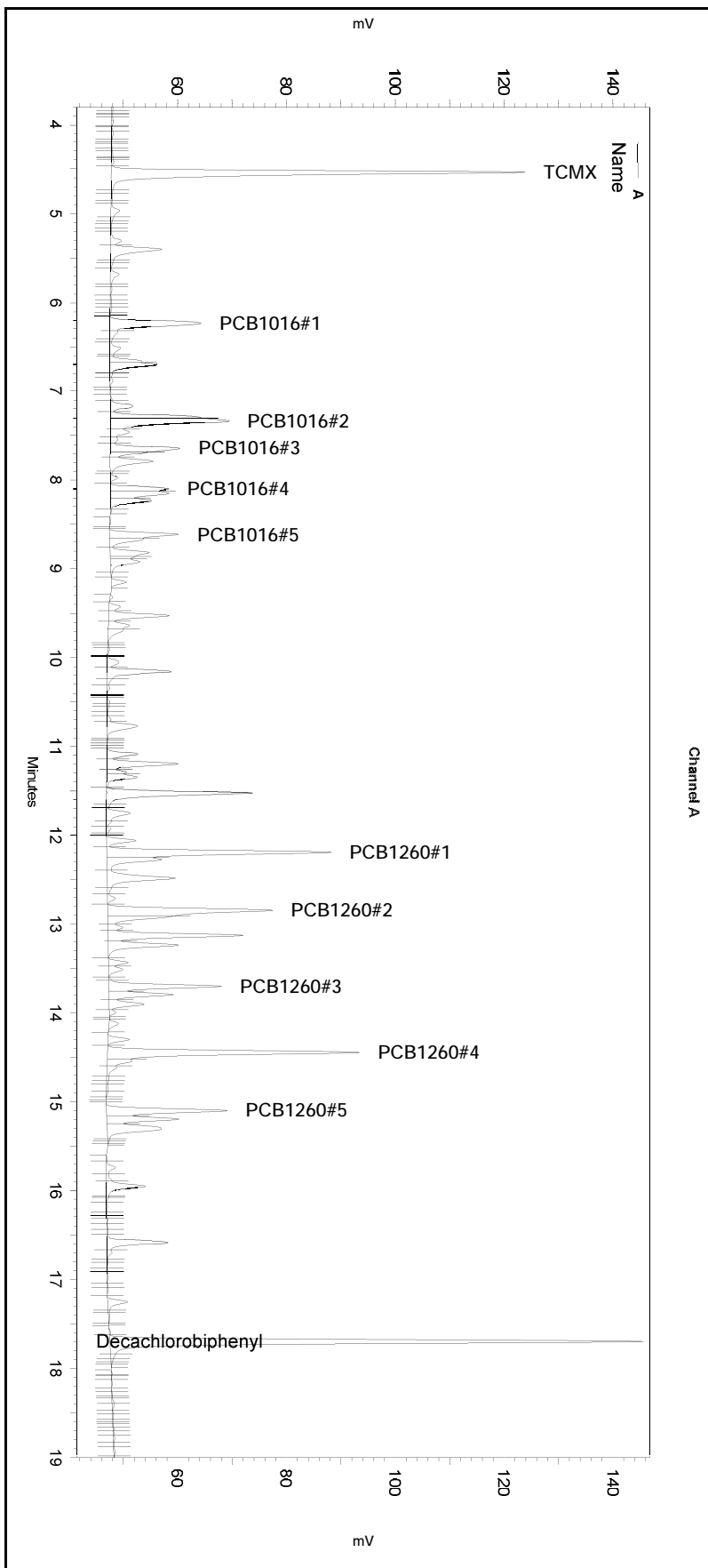
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.647	4.647	399995	20.000 CAL
PCB1016#1	6.347	6.347	52262	100.000 CAL
PCB1016#2	7.387	7.387	141304	100.000 CAL
PCB1016#3	7.620	7.617	66749	100.000 CAL
PCB1016#4	8.197	8.197	41946	100.000 CAL
PCB1016#5	8.973	8.970	63710	100.000 CAL
PCB1260#1	12.310	12.307	117515	100.000 CAL
PCB1260#2	12.967	12.963	125251	100.000 CAL
PCB1260#3	13.920	13.920	79124	100.000 CAL
PCB1260#4	14.577	14.573	146019	100.000 CAL
PCB1260#5	15.263	15.263	88153	100.000 CAL
Decachlorobiphenyl	18.270	18.267	426160	20.000 CAL

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017
 Sample Name: ical,s35531,pcb100_20
 Instrument: GC16 (Offline) Vial: 37 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 8:50:59 PM
 Analysis Date: 4/2/2018 4:48:25 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

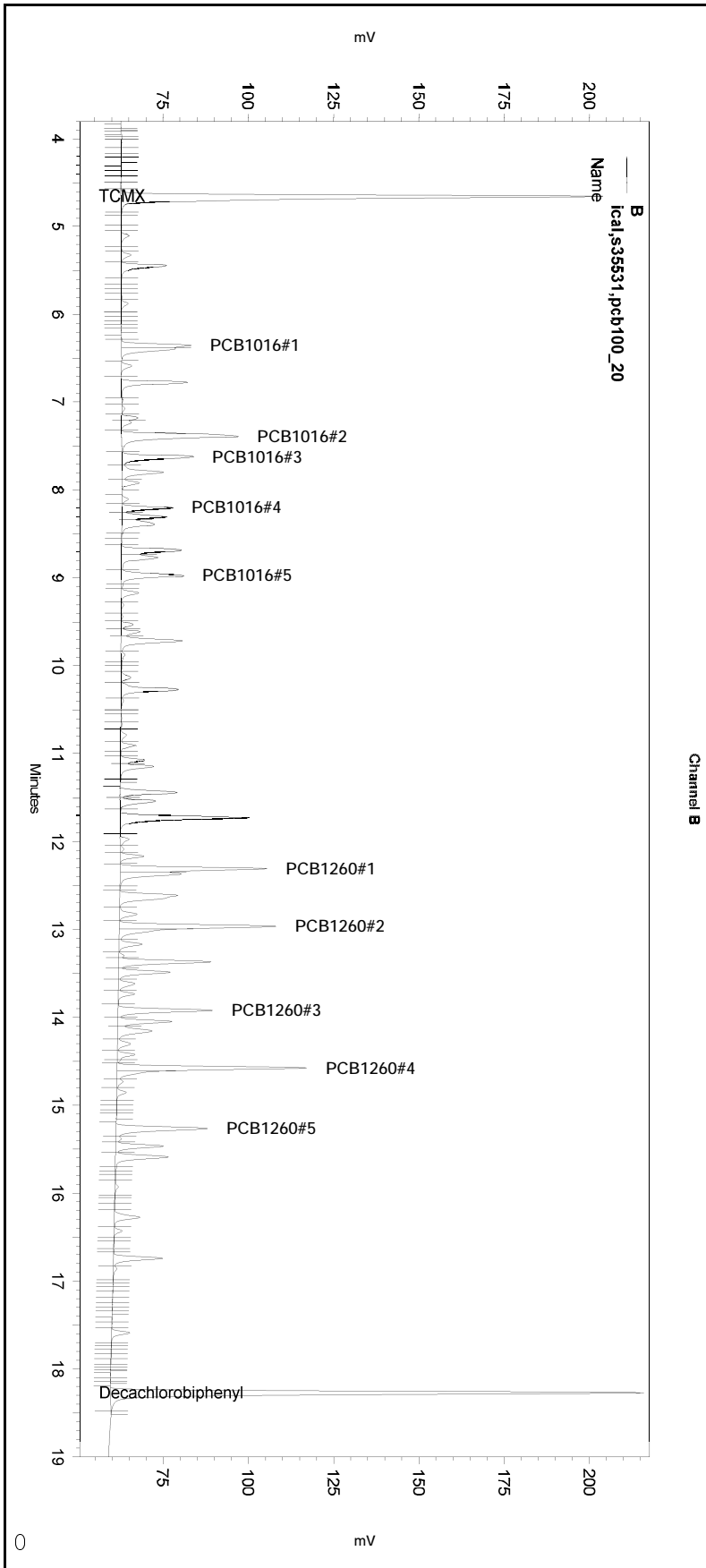
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	8.384	0	0
Yes	Reset Baseline	9.244	0	0
Yes	Reset Baseline	14.04	0	0
Yes	Reset Baseline	15.484	0	0
Yes	Reset Baseline	17.99	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017
 Sample Name: ical,s35531,pcb100_20
 Instrument: GC16 (Offline) Vial: 37 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 8:50:59 PM
 Analysis Date: 4/2/2018 4:48:25 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	6.519	0	0
Yes	Reset Baseline	7.998	0	0
Yes	Reset Baseline	12.245	0	0
Yes	Split Peak	12.996	0	0
Yes	Split Peak	14.614	0	0
Yes	Reset Baseline	18.518	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017
Sample Name: ical,s35531,pcb100_20
Instrument: GC16 (Offline) Vial: 37 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 8:50:59 PM
Analysis Date: 4/2/2018 3:49:43 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.537	4.537	256572	24.439
PCB1016#1	6.233	6.230	70712	132.438
PCB1016#2	7.333	7.330	92209	139.789
PCB1016#3	7.640	7.637	46360	129.819
PCB1016#4	8.100	8.097	30238	136.817
PCB1016#5	8.617	8.613	42802	133.413
PCB1260#1	12.193	12.190	139751	141.892
PCB1260#2	12.847	12.843	123787	145.047
PCB1260#3	13.700	13.697	69809	148.346
PCB1260#4	14.443	14.440	162252	150.261
PCB1260#5	15.097	15.097	76414	141.135
Decachlorobiphenyl	17.697	17.690	315046	29.250

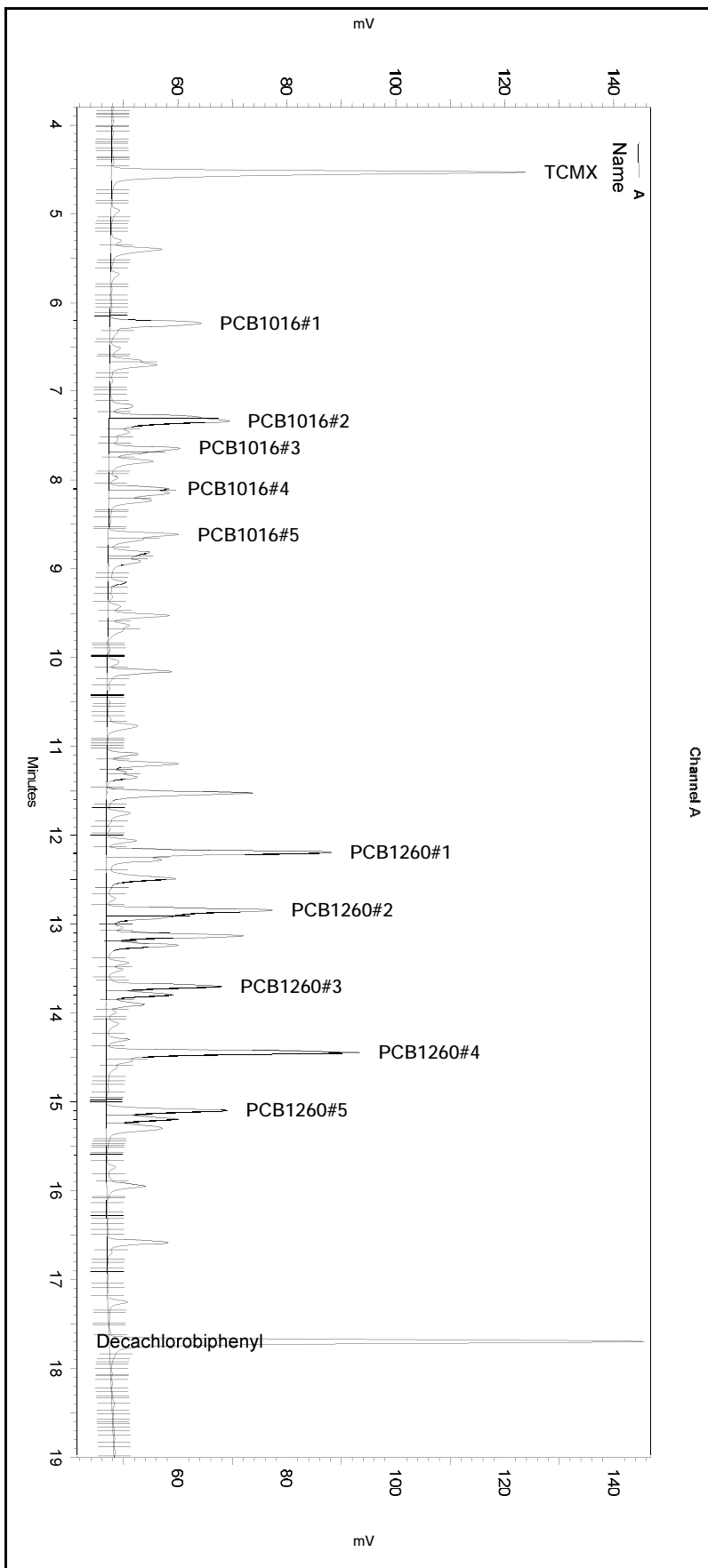
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.647	4.647	400031	22.755
PCB1016#1	6.347	6.347	53299	135.184
PCB1016#2	7.387	7.387	144980	136.874
PCB1016#3	7.620	7.617	69443	145.295
PCB1016#4	8.197	8.197	43682	142.089
PCB1016#5	8.973	8.970	65741	152.361
PCB1260#1	12.310	12.307	120197	142.097
PCB1260#2	12.967	12.963	163758	173.573
PCB1260#3	13.920	13.920	80451	145.561
PCB1260#4	14.577	14.573	169621	165.257
PCB1260#5	15.263	15.263	88153	152.312
Decachlorobiphenyl	18.270	18.267	430472	31.563

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017
 Sample Name: ical,s35531,pcb100_20
 Instrument: GC16 (Offline) Vial: 37 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 8:50:59 PM
 Analysis Date: 4/2/2018 3:49:43 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

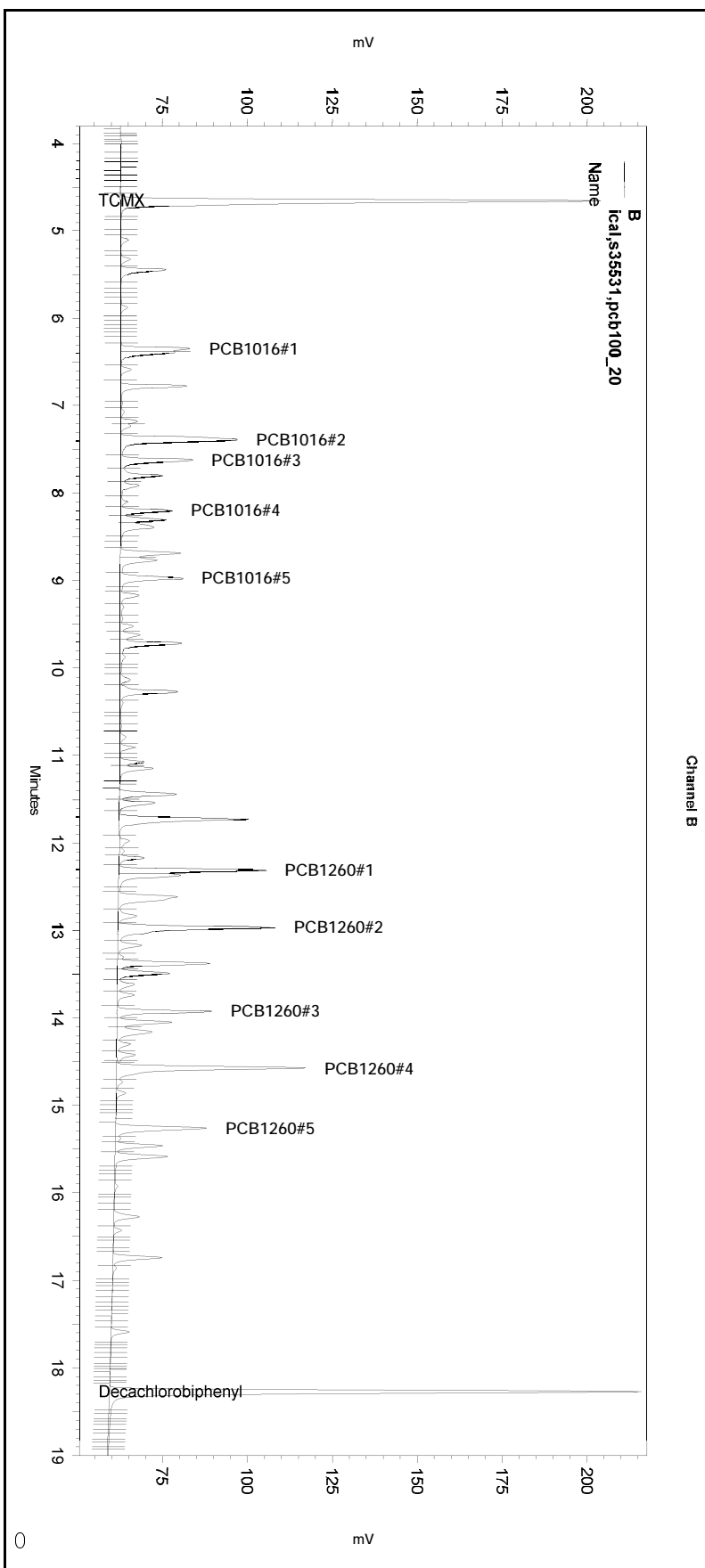
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Channel A

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017
 Sample Name: ical,s35531,pcb100_20
 Instrument: GC16 (Offline) Vial: 37 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 8:50:59 PM
 Analysis Date: 4/2/2018 3:49:43 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-017

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018
Sample Name: ical,s35532,pcb250_50
Instrument: GC16 (Offline) Vial: 38 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 9:19:59 PM
Analysis Date: 4/2/2018 4:48:31 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.527	4.537	606071	50.000 CAL
PCB1016#1	6.217	6.230	152225	250.000 CAL
PCB1016#2	7.317	7.330	211446	250.000 CAL
PCB1016#3	7.627	7.637	111507	250.000 CAL
PCB1016#4	8.083	8.097	72660	250.000 CAL
PCB1016#5	8.603	8.613	94056	250.000 CAL
PCB1260#1	12.180	12.190	320814	250.000 CAL
PCB1260#2	12.833	12.843	287796	250.000 CAL
PCB1260#3	13.687	13.697	157756	250.000 CAL
PCB1260#4	14.430	14.440	377500	250.000 CAL
PCB1260#5	15.087	15.097	184380	250.000 CAL
Decachlorobiphenyl	17.683	17.690	710420	50.000 CAL

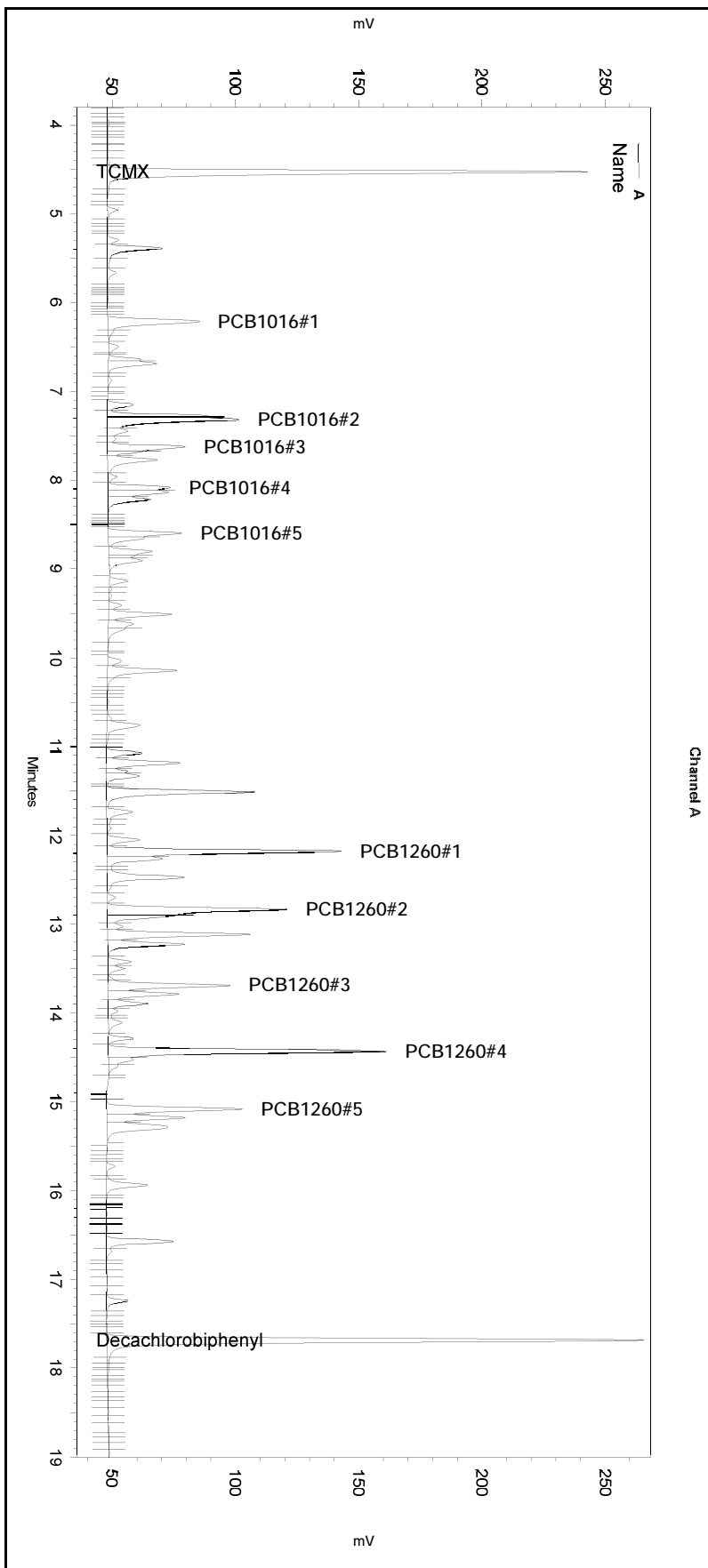
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.637	4.647	1141355	50.000 CAL
PCB1016#1	6.333	6.347	116672	250.000 CAL
PCB1016#2	7.373	7.387	333833	250.000 CAL
PCB1016#3	7.607	7.617	148973	250.000 CAL
PCB1016#4	8.183	8.197	94755	250.000 CAL
PCB1016#5	8.960	8.970	149871	250.000 CAL
PCB1260#1	12.297	12.307	279678	250.000 CAL
PCB1260#2	12.953	12.963	326733	250.000 CAL
PCB1260#3	13.910	13.920	183839	250.000 CAL
PCB1260#4	14.563	14.573	377235	250.000 CAL
PCB1260#5	15.253	15.263	211604	250.000 CAL
Decachlorobiphenyl	18.257	18.267	1096852	50.000 CAL

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018
 Sample Name: ical,s35532,pcb250_50
 Instrument: GC16 (Offline) Vial: 38 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 9:19:59 PM
 Analysis Date: 4/2/2018 4:48:31 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

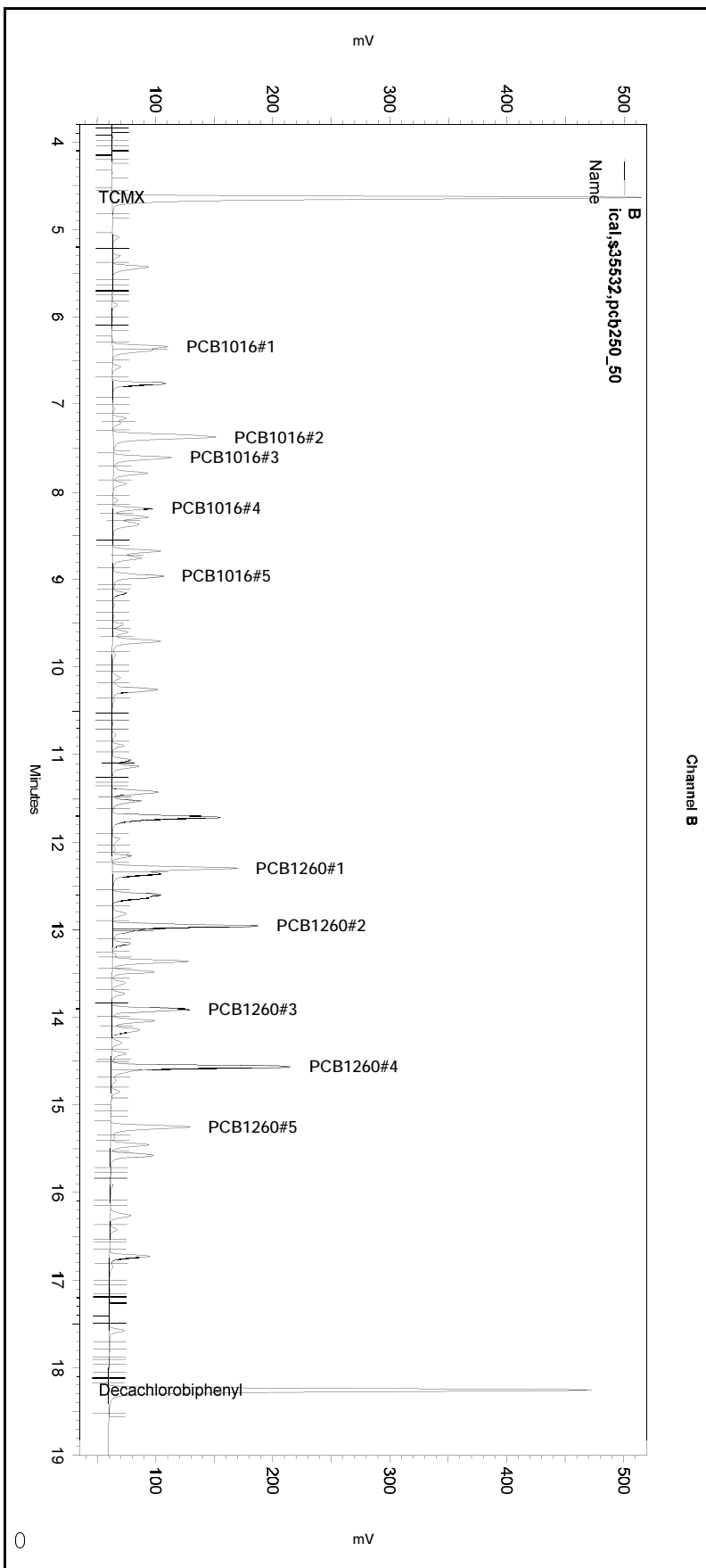
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	6.446	0	0
Yes	Reset Baseline	9.052	0	0
Yes	Reset Baseline	14.73	0	0
Yes	Reset Baseline	15.461	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
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 Sample Name: ical,s35532,pcb250_50
 Instrument: GC16 (Offline) Vial: 38 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 9:19:59 PM
 Analysis Date: 4/2/2018 4:48:31 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	6.481	0	0
Yes	Reset Baseline	7.528	0	0
Yes	Split Peak	12.991	0	0
Yes	Reset Baseline	13.243	0	0
Yes	Split Peak	14.602	0	0
Yes	Reset Baseline	14.916	0	0
Yes	Reset Baseline	18.556	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018
Sample Name: ical,s35532,pcb250_50
Instrument: GC16 (Offline) Vial: 38 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 9:19:59 PM
Analysis Date: 4/2/2018 3:49:47 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.527	4.537	606071	57.731
PCB1016#1	6.217	6.230	153759	287.978
PCB1016#2	7.317	7.330	211668	320.890
PCB1016#3	7.627	7.637	111852	313.212
PCB1016#4	8.083	8.097	73172	356.037
PCB1016#5	8.603	8.613	95633	298.087
PCB1260#1	12.180	12.190	323221	328.172
PCB1260#2	12.833	12.843	291839	341.960
PCB1260#3	13.687	13.697	162683	345.706
PCB1260#4	14.430	14.440	386025	357.495
PCB1260#5	15.087	15.097	187159	345.678
Decachlorobiphenyl	17.683	17.690	710420	65.958

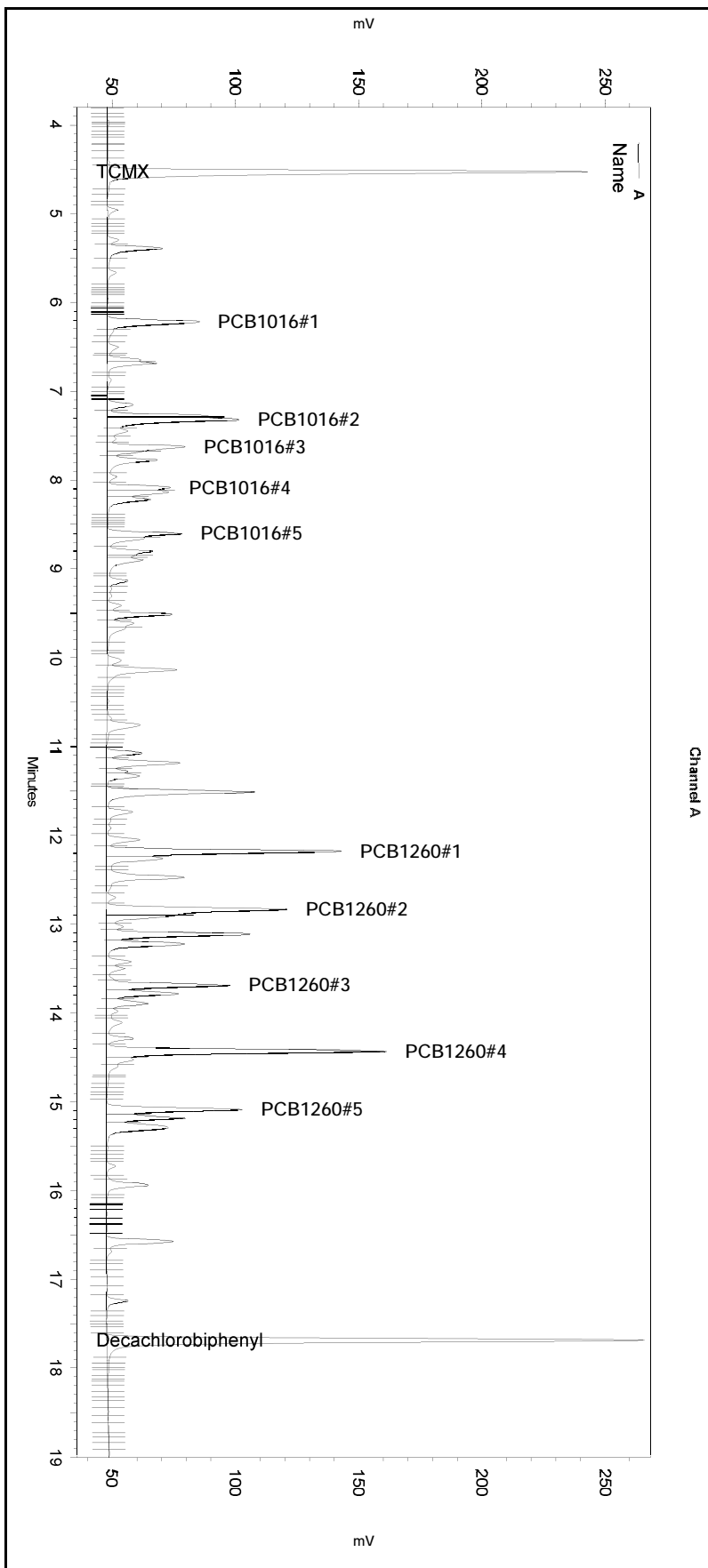
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.637	4.647	1141355	64.924
PCB1016#1	6.333	6.347	118106	299.556
PCB1016#2	7.373	7.387	350161	330.583
PCB1016#3	7.607	7.617	160010	334.787
PCB1016#4	8.183	8.197	99259	322.870
PCB1016#5	8.960	8.970	157598	365.249
PCB1260#1	12.297	12.307	285073	337.014
PCB1260#2	12.953	12.963	369443	391.585
PCB1260#3	13.910	13.920	188668	341.358
PCB1260#4	14.563	14.573	429306	418.262
PCB1260#5	15.253	15.263	211604	365.613
Decachlorobiphenyl	18.257	18.267	1112475	81.570

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018
 Sample Name: ical,s35532,pcb250_50
 Instrument: GC16 (Offline) Vial: 38 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 9:19:59 PM
 Analysis Date: 4/2/2018 3:49:47 PM
 Sample Amount: 1



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No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

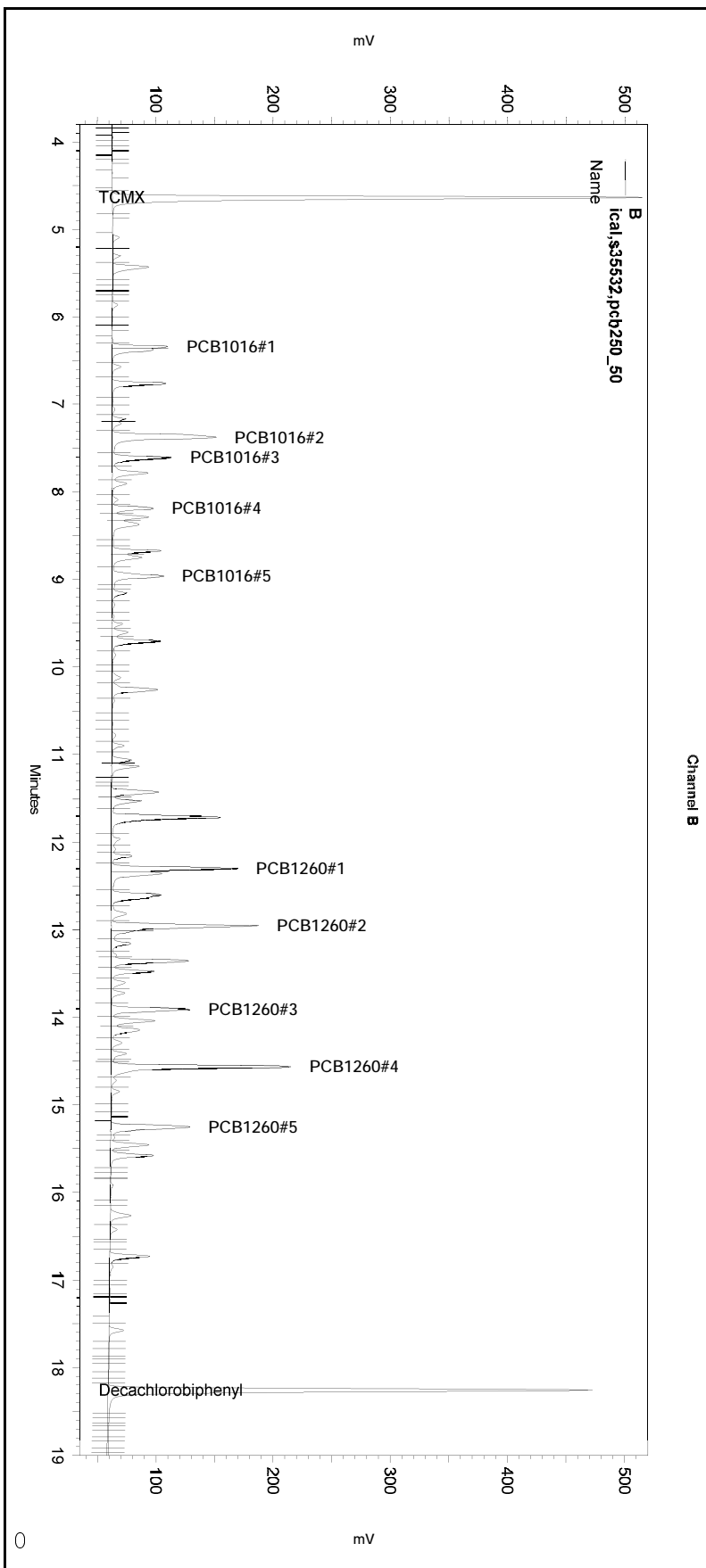
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018
 Sample Name: ical,s35532,pcb250_50
 Instrument: GC16 (Offline) Vial: 38 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 9:19:59 PM
 Analysis Date: 4/2/2018 3:49:47 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	1.8	0
Yes	Shoulder Sensitivity		0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-018

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
None					

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019
Sample Name: ical,s35533,pcb500_100
Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 9:48:58 PM
Analysis Date: 4/2/2018 4:48:37 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.537	4.537	1065181	100.000 CAL
PCB1016#1	6.230	6.230	256332	500.000 CAL
PCB1016#2	7.330	7.330	344476	500.000 CAL
PCB1016#3	7.637	7.637	184106	500.000 CAL
PCB1016#4	8.097	8.097	112294	500.000 CAL
PCB1016#5	8.613	8.613	162737	500.000 CAL
PCB1260#1	12.190	12.190	521603	500.000 CAL
PCB1260#2	12.843	12.843	490822	500.000 CAL
PCB1260#3	13.697	13.697	270256	500.000 CAL
PCB1260#4	14.440	14.440	649706	500.000 CAL
PCB1260#5	15.097	15.097	318012	500.000 CAL
Decachlorobiphenyl	17.693	17.690	1170609	100.000 CAL

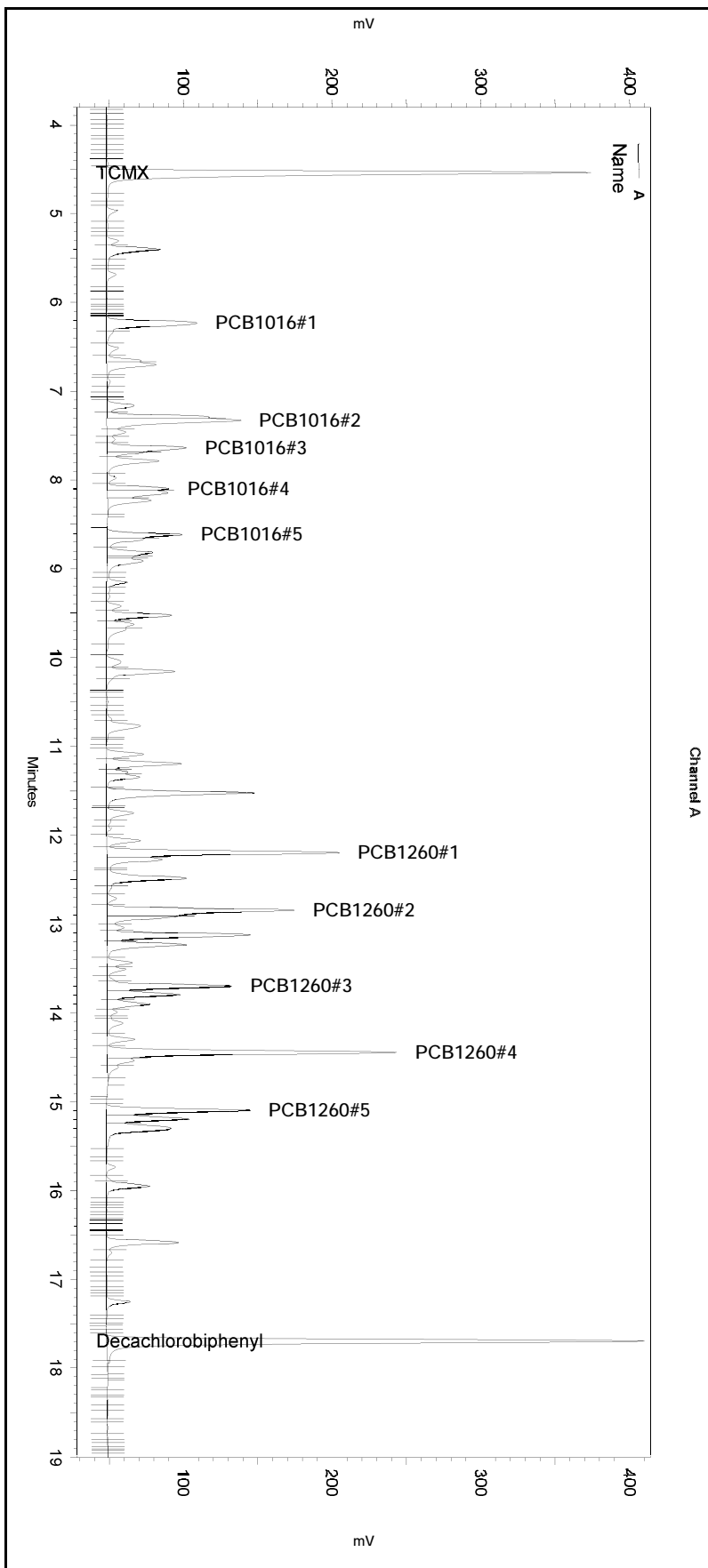
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.647	4.647	2131818	100.000 CAL
PCB1016#1	6.347	6.347	191891	500.000 CAL
PCB1016#2	7.387	7.387	632184	500.000 CAL
PCB1016#3	7.617	7.617	266072	500.000 CAL
PCB1016#4	8.197	8.197	160238	500.000 CAL
PCB1016#5	8.970	8.970	253761	500.000 CAL
PCB1260#1	12.307	12.307	519614	500.000 CAL
PCB1260#2	12.963	12.963	620946	500.000 CAL
PCB1260#3	13.920	13.920	333613	500.000 CAL
PCB1260#4	14.573	14.573	730295	500.000 CAL
PCB1260#5	15.263	15.263	397268	500.000 CAL
Decachlorobiphenyl	18.267	18.267	1944099	100.000 CAL

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019
 Sample Name: ical,s35533,pcb500_100
 Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 9:48:58 PM
 Analysis Date: 4/2/2018 4:48:37 PM
 Sample Amount: 1



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No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

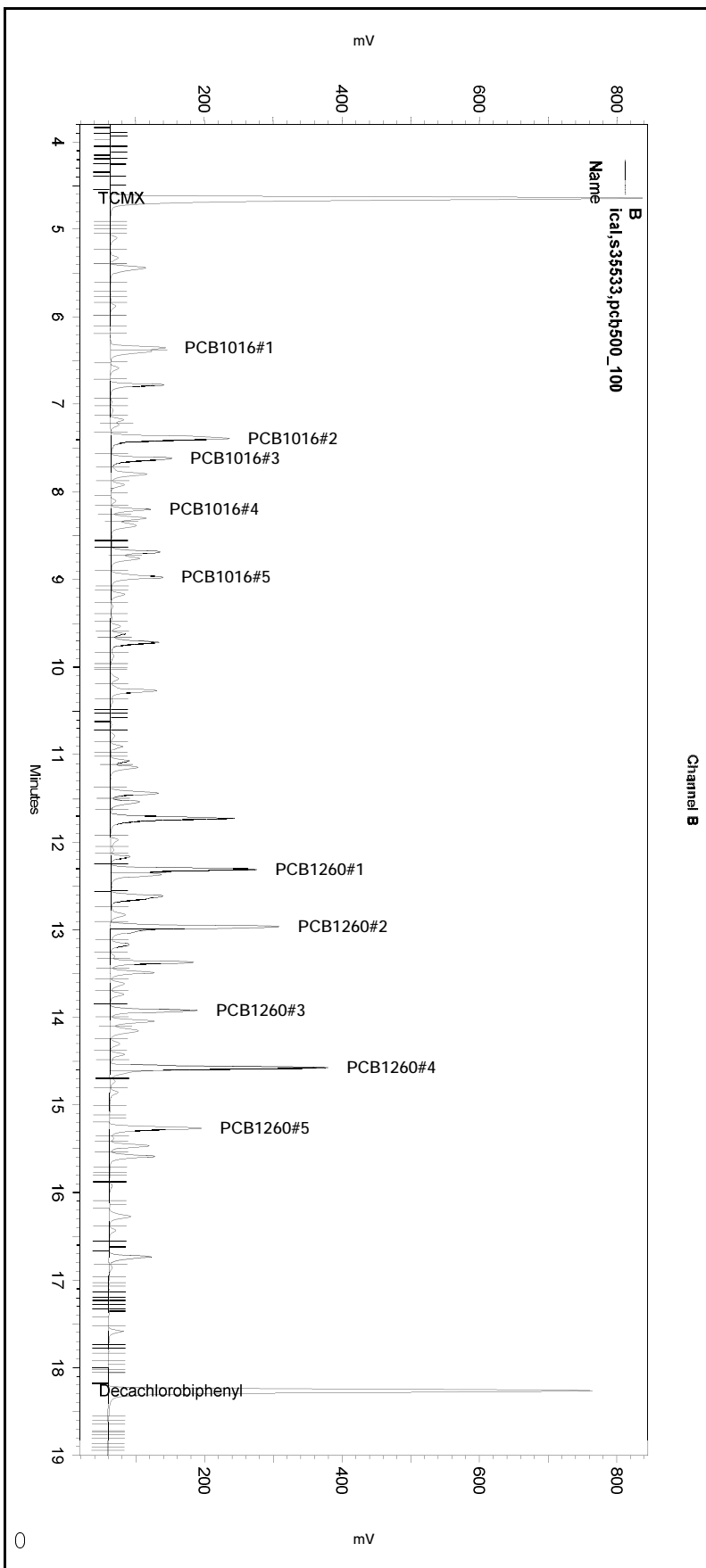
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	8.412	0	0
Yes	Reset Baseline	14.806	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019
 Sample Name: ical,s35533,pcb500_100
 Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 9:48:58 PM
 Analysis Date: 4/2/2018 4:48:37 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	6.186	6.511	0
Yes	Manual Peak	6.258	6.374	0
Yes	Split Peak	6.369	0	0
Yes	Reset Baseline	8.007	0	0
Yes	Reset Baseline	12.545	0	0
Yes	Split Peak	12.997	0	0
Yes	Split Peak	14.606	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019
Sample Name: ical,s35533,pcb500_100
Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 9:48:58 PM
Analysis Date: 4/2/2018 3:49:52 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.537	4.537	1065234	101.468
PCB1016#1	6.230	6.230	256693	480.764
PCB1016#2	7.330	7.330	347071	526.161
PCB1016#3	7.637	7.637	187120	523.980
PCB1016#4	8.097	8.097	115846	573.930
PCB1016#5	8.613	8.613	165008	514.328
PCB1260#1	12.190	12.190	524350	532.382
PCB1260#2	12.843	12.843	494924	579.924
PCB1260#3	13.697	13.697	274896	584.162
PCB1260#4	14.440	14.440	657447	608.858
PCB1260#5	15.097	15.097	320237	591.469
Decachlorobiphenyl	17.693	17.690	1170609	108.683

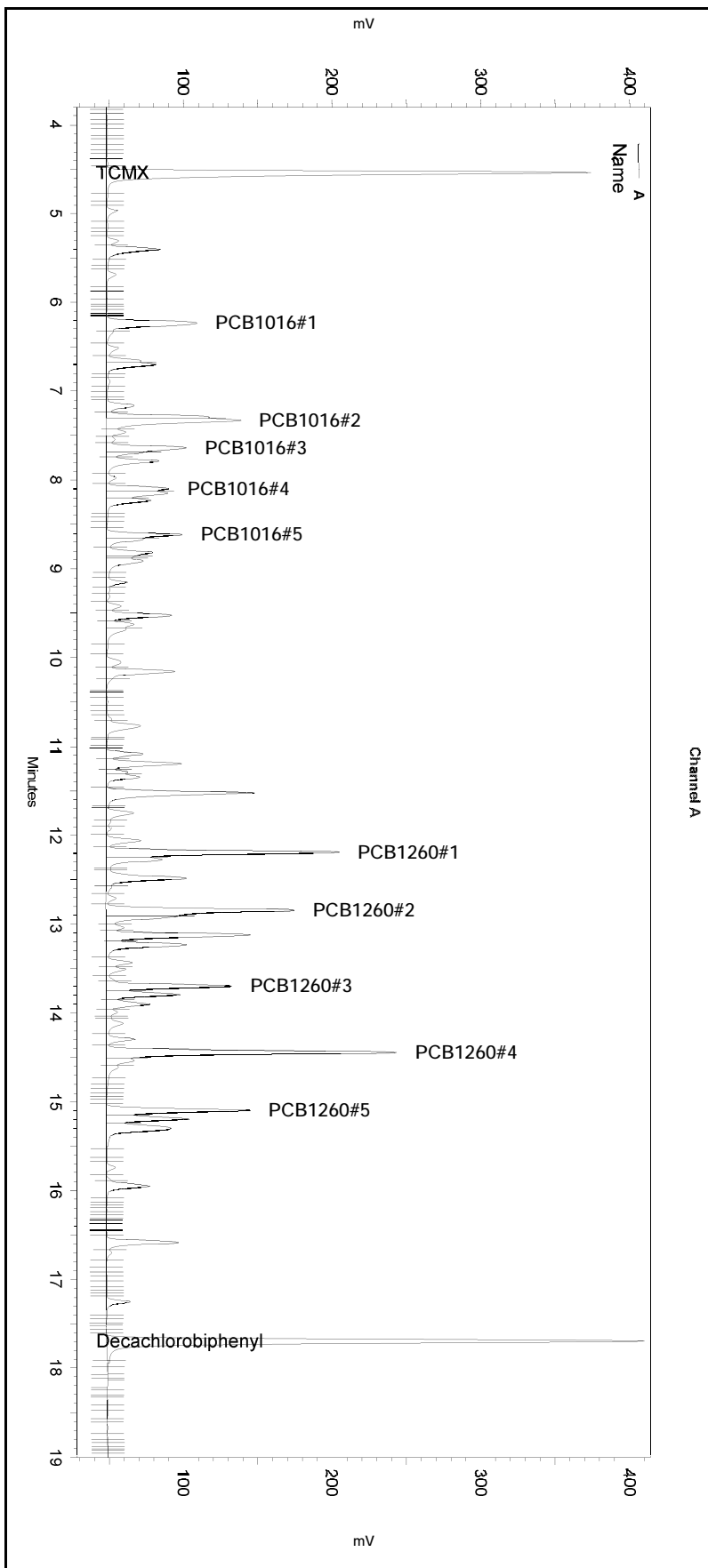
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.647	4.647	2131818	121.265
PCB1016#1	6.347	6.347	82436	209.085
PCB1016#2	7.387	7.387	639711	603.943
PCB1016#3	7.617	7.617	271760	568.600
PCB1016#4	8.197	8.197	163894	533.115
PCB1016#5	8.970	8.970	257547	596.891
PCB1260#1	12.307	12.307	524640	620.231
PCB1260#2	12.963	12.963	763789	809.565
PCB1260#3	13.920	13.920	337689	610.983
PCB1260#4	14.573	14.573	838292	816.726
PCB1260#5	15.263	15.263	397268	686.407
Decachlorobiphenyl	18.267	18.267	1944099	142.547

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019
 Sample Name: ical,s35533,pcb500_100
 Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 9:48:58 PM
 Analysis Date: 4/2/2018 3:49:52 PM
 Sample Amount: 1



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No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

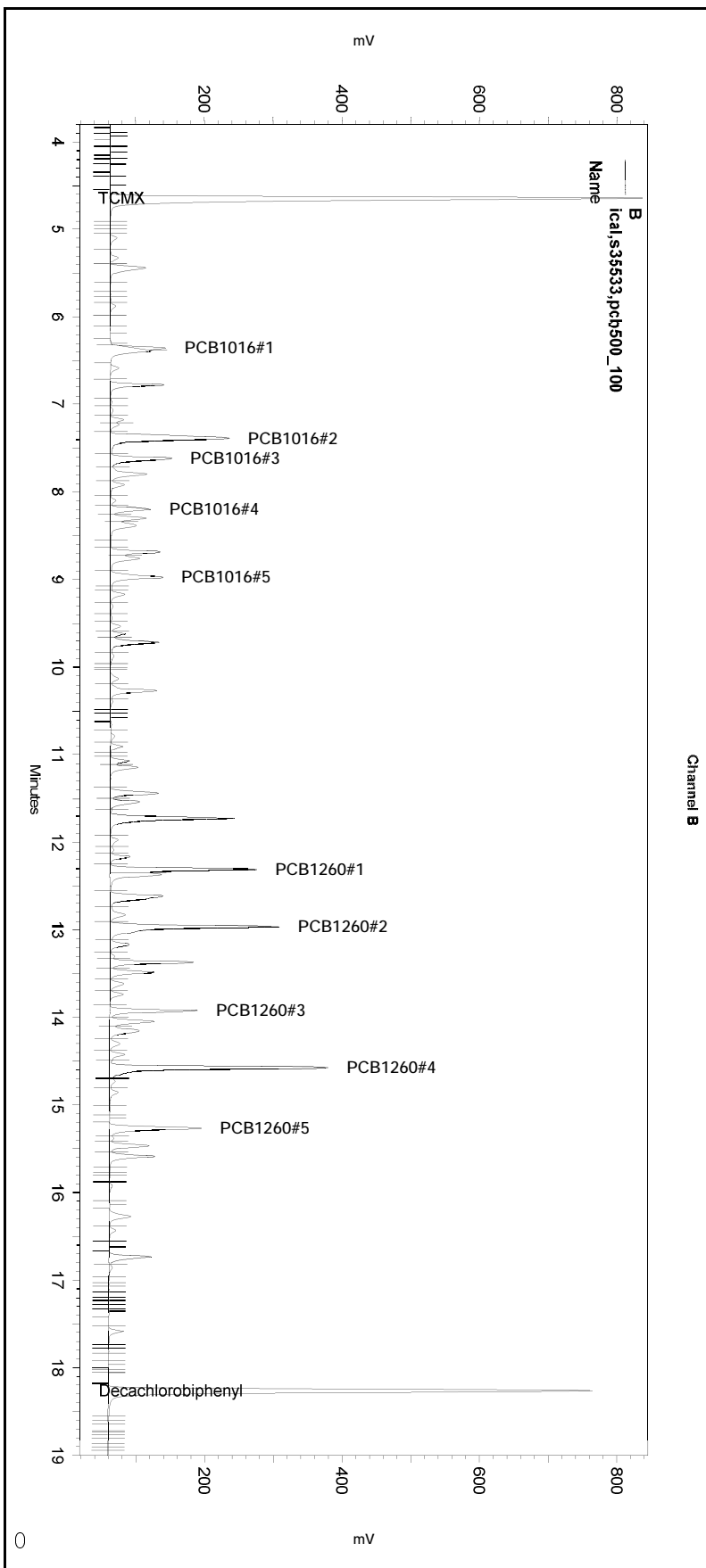
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019
 Sample Name: ical,s35533,pcb500_100
 Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 9:48:58 PM
 Analysis Date: 4/2/2018 3:49:52 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020
Sample Name: ical,s35534,pcb750_150
Instrument: GC16 (Offline) Vial: 40 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 10:17:59 PM
Analysis Date: 4/2/2018 4:48:43 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.527	4.537	1579981	150.000 CAL
PCB1016#1	6.220	6.230	368252	750.000 CAL
PCB1016#2	7.317	7.330	510019	750.000 CAL
PCB1016#3	7.627	7.637	263075	750.000 CAL
PCB1016#4	8.087	8.097	159947	750.000 CAL
PCB1016#5	8.603	8.613	237046	750.000 CAL
PCB1260#1	12.180	12.190	744026	750.000 CAL
PCB1260#2	12.833	12.843	726346	750.000 CAL
PCB1260#3	13.687	13.697	388837	750.000 CAL
PCB1260#4	14.430	14.440	950904	750.000 CAL
PCB1260#5	15.083	15.097	478500	750.000 CAL
Decachlorobiphenyl	17.683	17.690	1649658	150.000 CAL

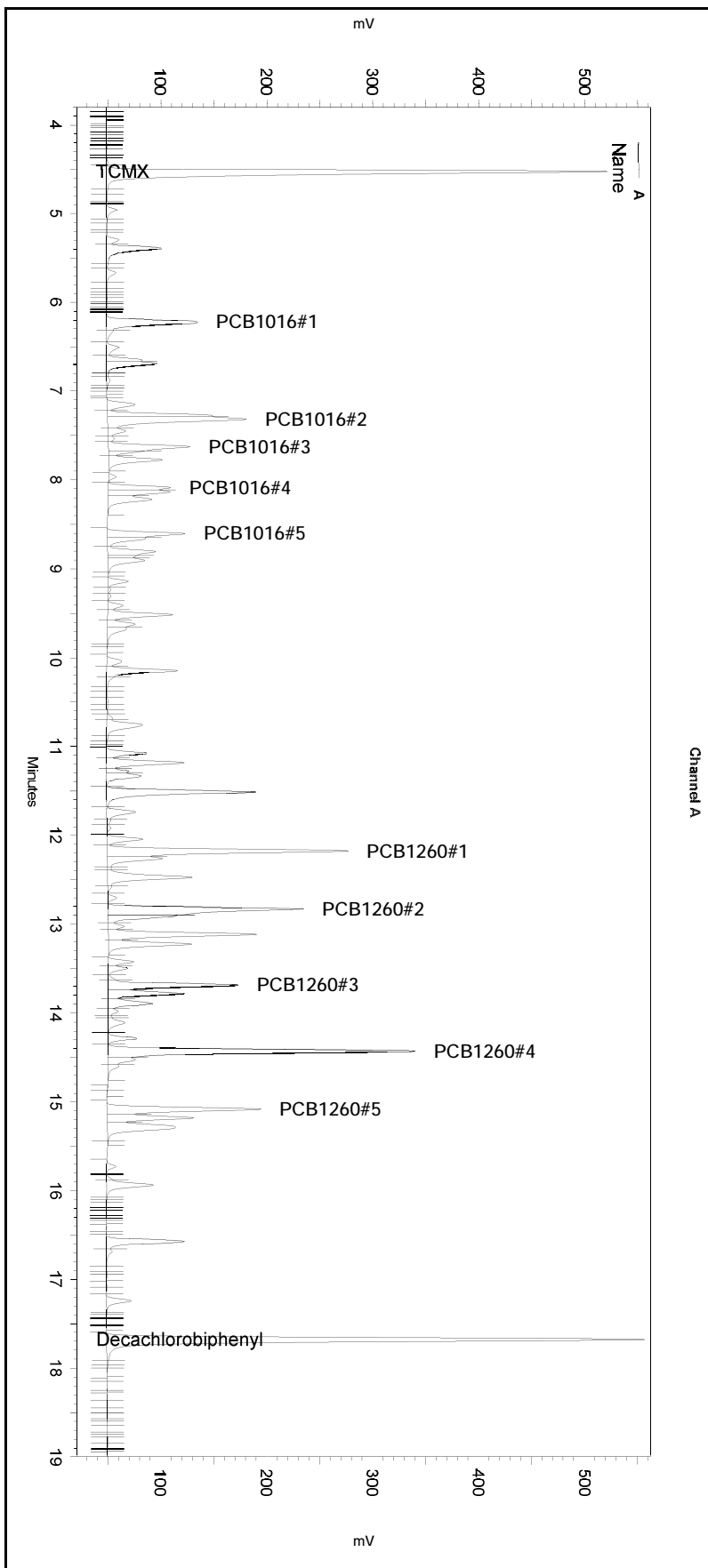
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.637	4.647	3251520	150.000 CAL
PCB1016#1	6.337	6.347	291982	750.000 CAL
PCB1016#2	7.373	7.387	1015538	750.000 CAL
PCB1016#3	7.607	7.617	399847	750.000 CAL
PCB1016#4	8.187	8.197	236311	750.000 CAL
PCB1016#5	8.960	8.970	390359	750.000 CAL
PCB1260#1	12.297	12.307	842566	750.000 CAL
PCB1260#2	12.953	12.963	1072749	750.000 CAL
PCB1260#3	13.910	13.920	546901	750.000 CAL
PCB1260#4	14.563	14.573	1178589	750.000 CAL
PCB1260#5	15.253	15.263	660082	750.000 CAL
Decachlorobiphenyl	18.257	18.267	2836227	150.000 CAL

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020
 Sample Name: ical,s35534,pcb750_150
 Instrument: GC16 (Offline) Vial: 40 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 10:17:59 PM
 Analysis Date: 4/2/2018 4:48:43 PM
 Sample Amount: 1



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No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

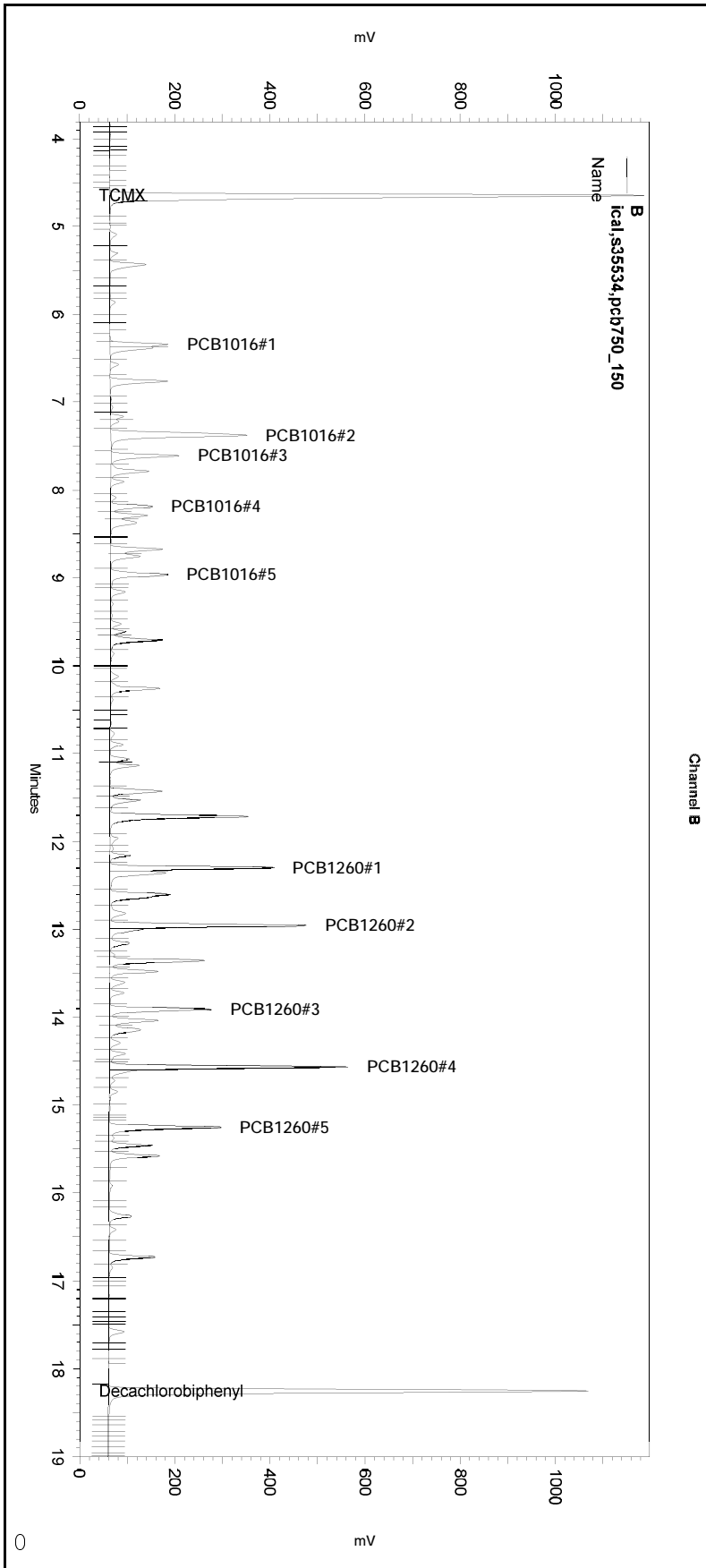
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	7.899	0	0
Yes	Reset Baseline	8.393	0	0
Yes	Reset Baseline	9.085	0	0
Yes	Reset Baseline	13.348	0	0
Yes	Reset Baseline	14.753	0	0
Yes	Reset Baseline	15.488	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020
 Sample Name: ical,s35534,pcb750_150
 Instrument: GC16 (Offline) Vial: 40 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 10:17:59 PM
 Analysis Date: 4/2/2018 4:48:43 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	6.217	6.511	0
Yes	Manual Peak	6.217	6.36	0
Yes	Reset Baseline	7.533	0	0
Yes	Split Peak	12.994	0	0
Yes	Split Peak	14.597	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020
Sample Name: ical,s35534,pcb750_150
Instrument: GC16 (Offline) Vial: 40 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 10:17:59 PM
Analysis Date: 4/2/2018 3:49:57 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.527	4.537	1579981	150.499
PCB1016#1	6.220	6.230	368602	690.360
PCB1016#2	7.317	7.330	518562	786.143
PCB1016#3	7.627	7.637	274968	769.975
PCB1016#4	8.087	8.097	169960	850.236
PCB1016#5	8.603	8.613	242537	755.985
PCB1260#1	12.180	12.190	751318	762.827
PCB1260#2	12.833	12.843	740047	867.145
PCB1260#3	13.687	13.697	401549	853.303
PCB1260#4	14.430	14.440	966962	895.497
PCB1260#5	15.083	15.097	485615	896.918
Decachlorobiphenyl	17.683	17.690	1649658	153.159

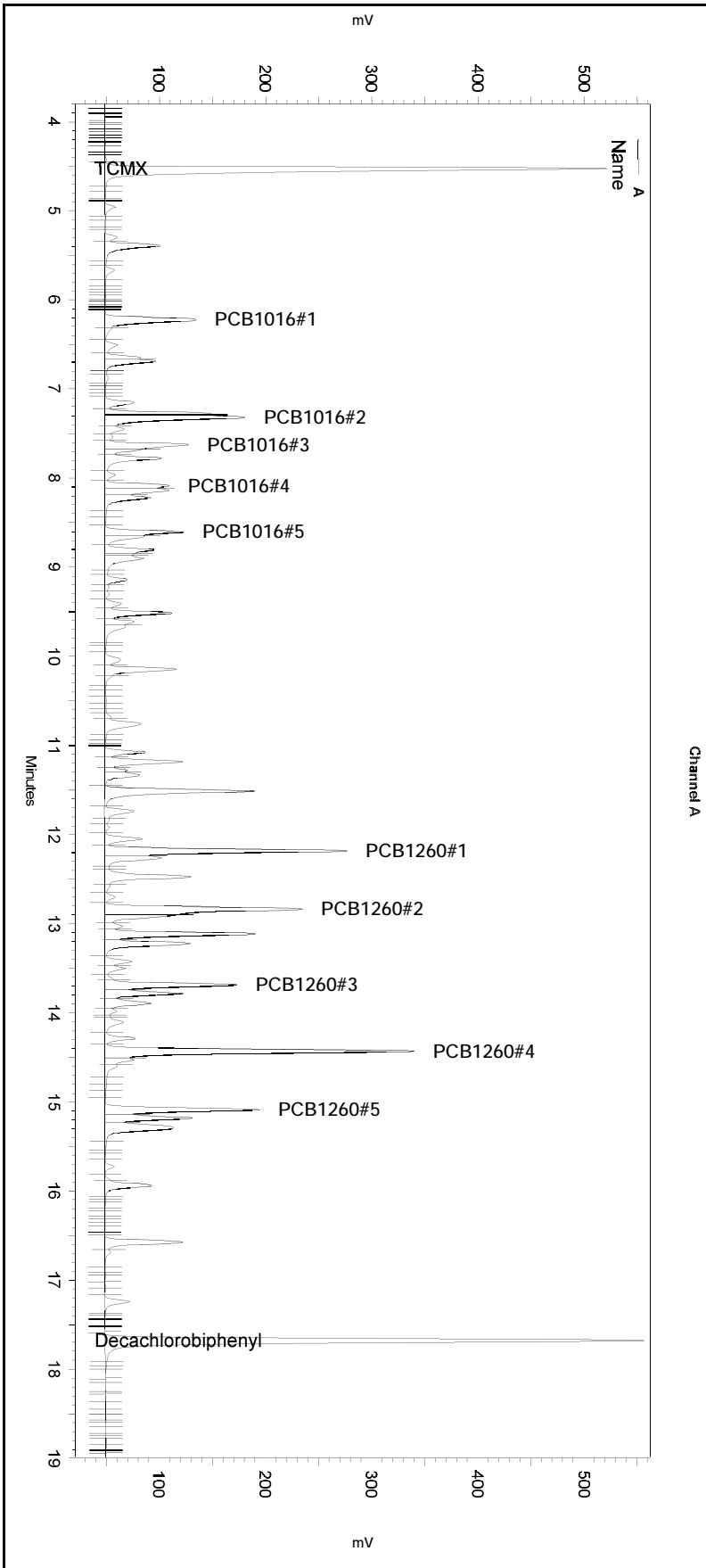
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.637	4.647	3251520	184.957
PCB1016#1	6.337	6.347	125293	317.785
PCB1016#2	7.373	7.387	1041847	983.595
PCB1016#3	7.607	7.617	417885	874.335
PCB1016#4	8.187	8.197	240821	783.343
PCB1016#5	8.960	8.970	394801	914.991
PCB1260#1	12.297	12.307	842566	996.083
PCB1260#2	12.953	12.963	1244997	1319.614
PCB1260#3	13.910	13.920	546901	989.512
PCB1260#4	14.563	14.573	1338252	1303.824
PCB1260#5	15.253	15.263	660082	1140.501
Decachlorobiphenyl	18.257	18.267	2836227	207.961

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020
 Sample Name: ical,s35534,pcb750_150
 Instrument: GC16 (Offline) Vial: 40 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 10:17:59 PM
 Analysis Date: 4/2/2018 3:49:57 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

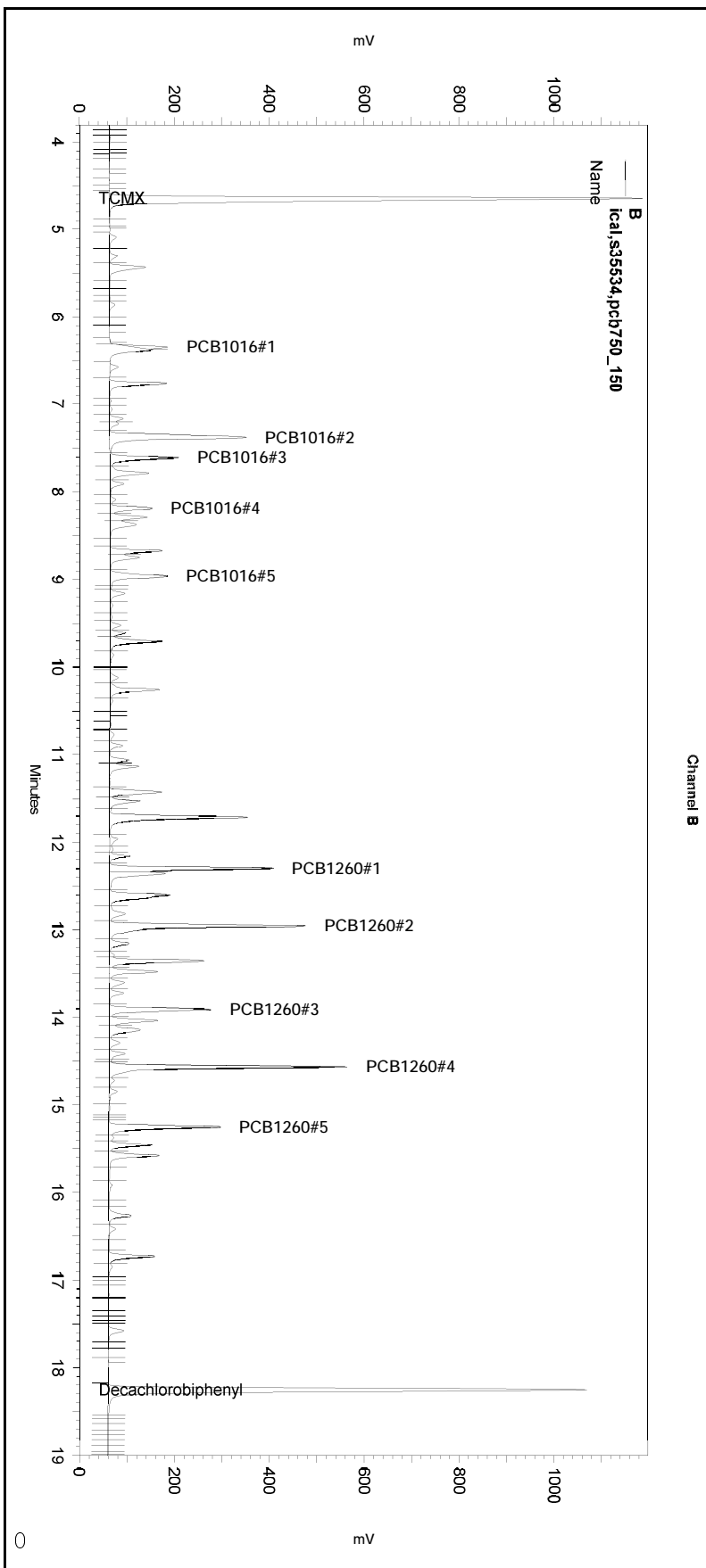
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020
 Sample Name: ical,s35534,pcb750_150
 Instrument: GC16 (Offline) Vial: 40 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 10:17:59 PM
 Analysis Date: 4/2/2018 3:49:57 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-020

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021
Sample Name: ical,s35535,pcb1000_200
Instrument: GC16 (Offline) Vial: 41 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 10:46:58 PM
Analysis Date: 4/2/2018 4:48:48 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.527	4.537	2437524	200.000 CAL
PCB1016#1	6.223	6.230	541091	1000.000 CAL
PCB1016#2	7.320	7.330	765331	1000.000 CAL
PCB1016#3	7.627	7.637	408471	1000.000 CAL
PCB1016#4	8.087	8.097	230511	1000.000 CAL
PCB1016#5	8.607	8.613	358191	1000.000 CAL
PCB1260#1	12.180	12.190	1084465	1000.000 CAL
PCB1260#2	12.833	12.843	1100627	1000.000 CAL
PCB1260#3	13.690	13.697	584214	1000.000 CAL
PCB1260#4	14.433	14.440	1416721	1000.000 CAL
PCB1260#5	15.087	15.097	734317	1000.000 CAL
Decachlorobiphenyl	17.687	17.690	2346838	200.000 CAL

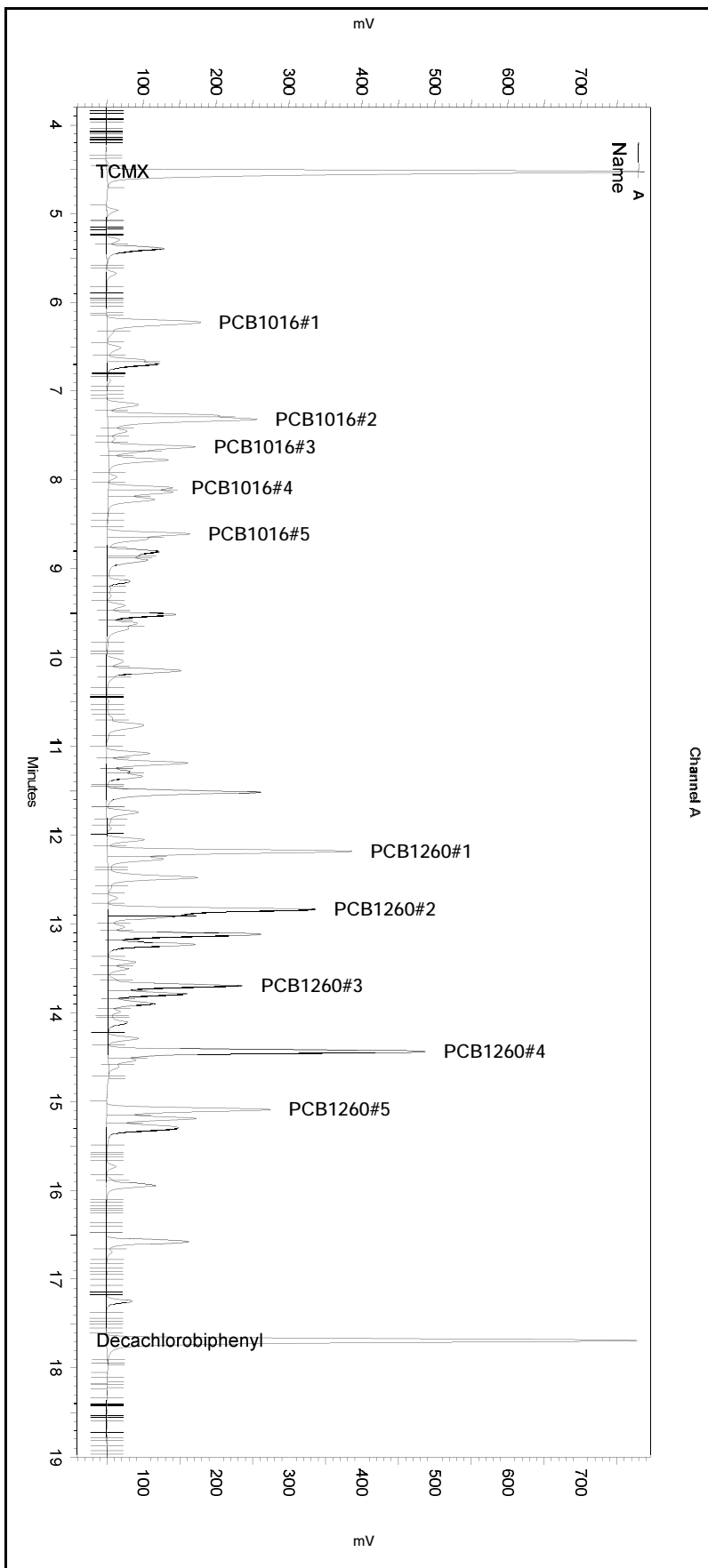
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.640	4.647	5184032	200.000 CAL
PCB1016#1	6.337	6.347	510229	1000.000 CAL
PCB1016#2	7.377	7.387	1739540	1000.000 CAL
PCB1016#3	7.607	7.617	673747	1000.000 CAL
PCB1016#4	8.187	8.197	384442	1000.000 CAL
PCB1016#5	8.963	8.970	635832	1000.000 CAL
PCB1260#1	12.300	12.307	1329400	1000.000 CAL
PCB1260#2	12.957	12.963	1764348	1000.000 CAL
PCB1260#3	13.913	13.920	881871	1000.000 CAL
PCB1260#4	14.567	14.573	1832256	1000.000 CAL
PCB1260#5	15.257	15.263	1089550	1000.000 CAL
Decachlorobiphenyl	18.260	18.267	4115486	200.000 CAL

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021
 Sample Name: ical,s35535,pcb1000_200
 Instrument: GC16 (Offline) Vial: 41 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 10:46:58 PM
 Analysis Date: 4/2/2018 4:48:48 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

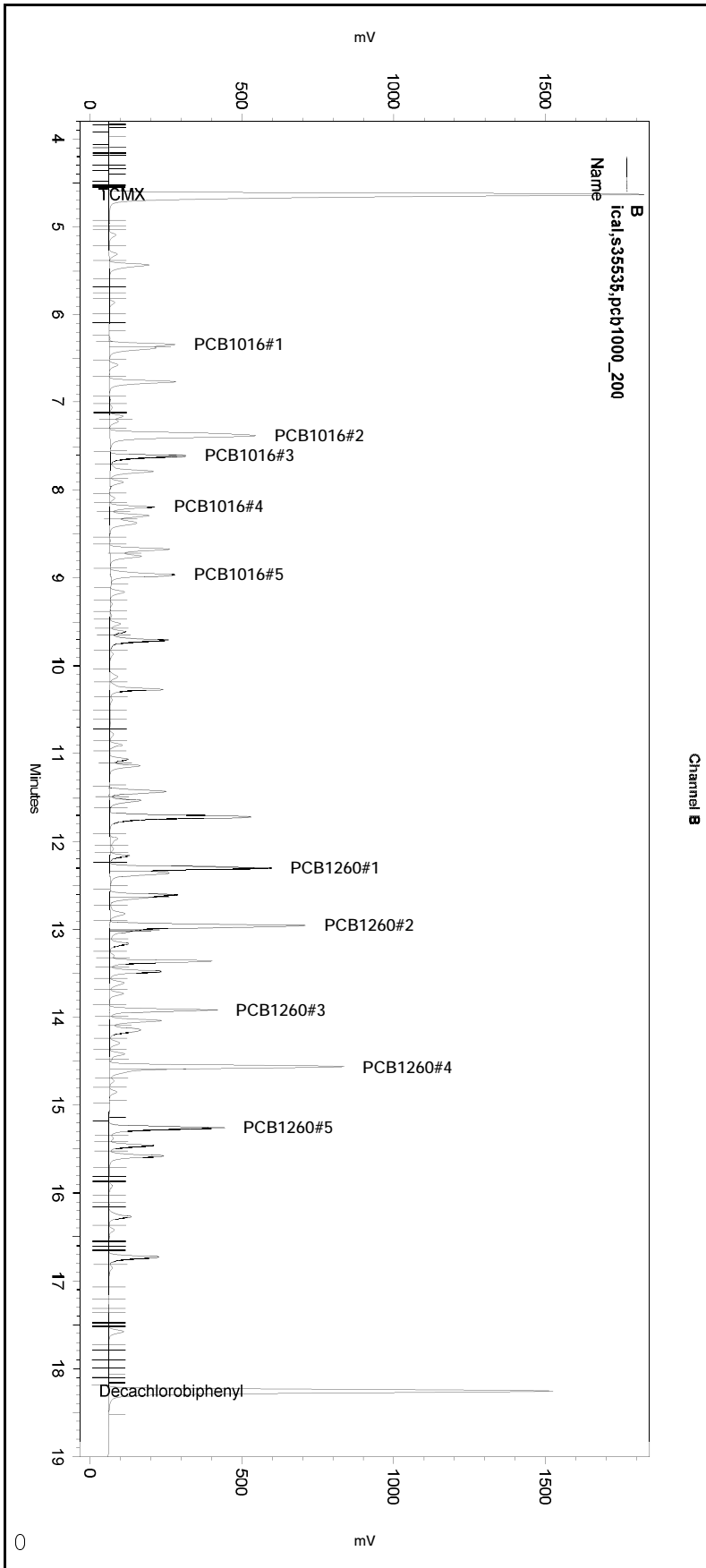
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	4.705	0	0
Yes	Reset Baseline	6.44	0	0
Yes	Reset Baseline	7.912	0	0
Yes	Reset Baseline	12.642	0	0
Yes	Reset Baseline	14.734	0	0
Yes	Reset Baseline	17.971	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021
 Sample Name: ical,s35535,pcb1000_200
 Instrument: GC16 (Offline) Vial: 41 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 10:46:58 PM
 Analysis Date: 4/2/2018 4:48:48 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	6.236	6.511	0
Yes	Manual Peak	6.254	6.362	0
Yes	Reset Baseline	7.536	0	0
Yes	Reset Baseline	12.492	0	0
Yes	Split Peak	13.003	0	0
Yes	Split Peak	14.596	0	0
Yes	Reset Baseline	14.785	0	0
Yes	Reset Baseline	18.528	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021
Sample Name: ical,s35535,pcb1000_200
Instrument: GC16 (Offline) Vial: 41 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
Run Date: 3/30/2018 10:46:58 PM
Analysis Date: 4/2/2018 3:50:01 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.527	4.537	2460866	234.407
PCB1016#1	6.223	6.230	545591	1021.846
PCB1016#2	7.320	7.330	777101	1178.089
PCB1016#3	7.627	7.637	424073	1187.504
PCB1016#4	8.087	8.097	244035	1228.462
PCB1016#5	8.607	8.613	365813	1140.234
PCB1260#1	12.180	12.190	1096456	1113.251
PCB1260#2	12.833	12.843	1124443	1317.558
PCB1260#3	13.690	13.697	602694	1280.741
PCB1260#4	14.433	14.440	1442591	1335.975
PCB1260#5	15.087	15.097	741176	1368.932
Decachlorobiphenyl	17.687	17.690	2359210	219.036

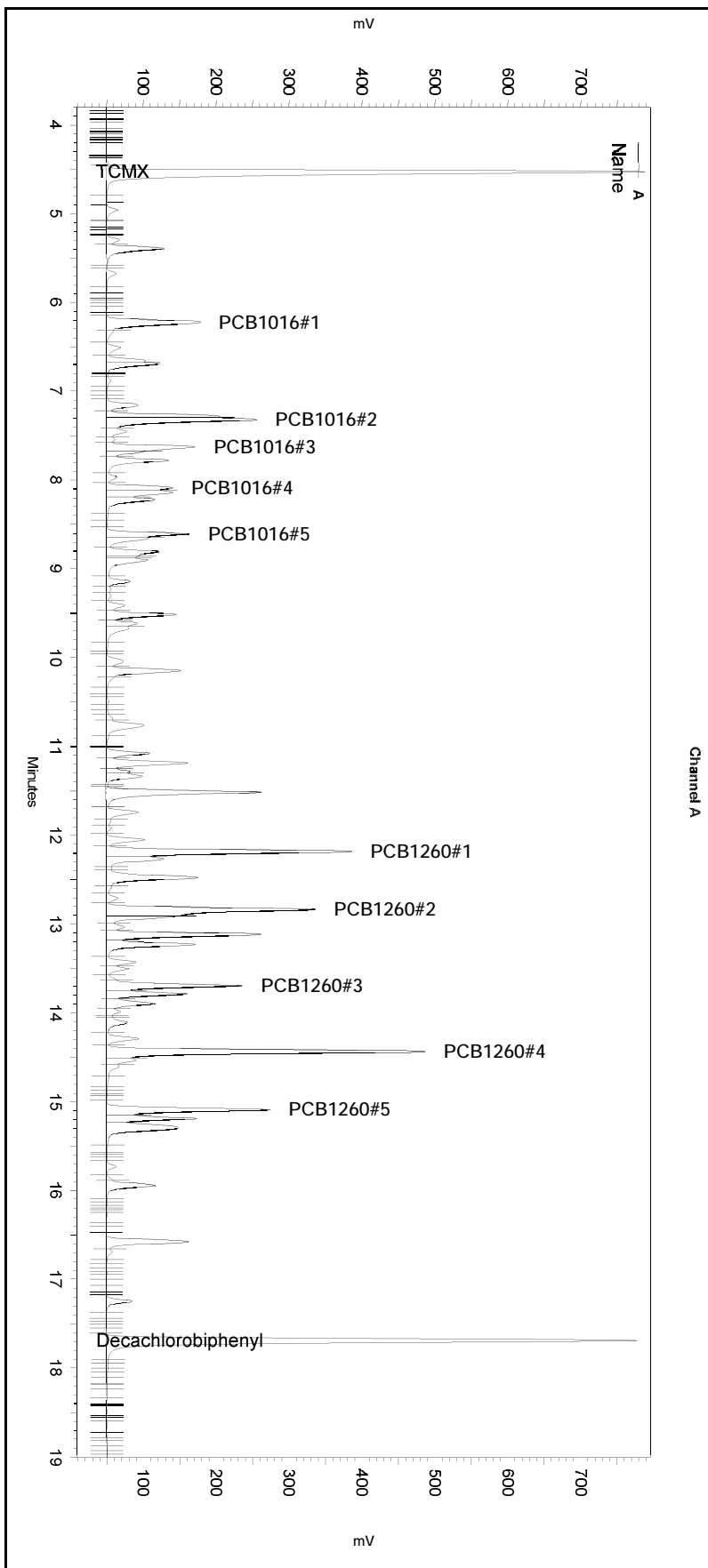
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.640	4.647	5184032	294.885
PCB1016#1	6.337	6.347	214259	543.432
PCB1016#2	7.377	7.387	1765569	1666.852
PCB1016#3	7.607	7.617	693177	1450.325
PCB1016#4	8.187	8.197	385554	1254.131
PCB1016#5	8.963	8.970	635832	1473.605
PCB1260#1	12.300	12.307	1346634	1591.994
PCB1260#2	12.957	12.963	1880275	1992.966
PCB1260#3	13.913	13.920	903515	1634.736
PCB1260#4	14.567	14.573	2146031	2090.823
PCB1260#5	15.257	15.263	1113682	1924.240
Decachlorobiphenyl	18.260	18.267	4185512	306.894

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021
 Sample Name: ical,s35535,pcb1000_200
 Instrument: GC16 (Offline) Vial: 41 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 10:46:58 PM
 Analysis Date: 4/2/2018 3:50:01 PM
 Sample Amount: 1



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No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

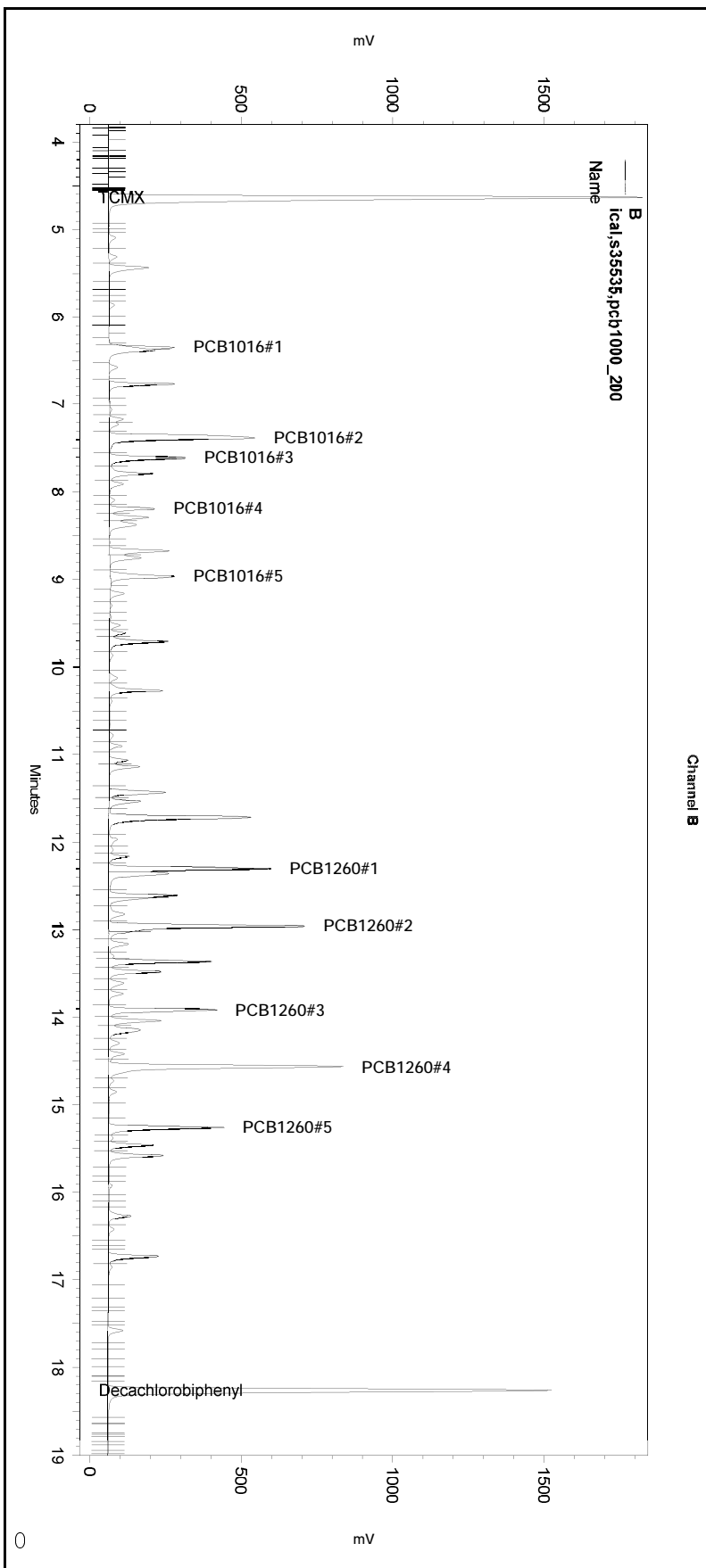
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021
 Sample Name: ical,s35535,pcb1000_200
 Instrument: GC16 (Offline) Vial: 41 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\ical.met

Software Version 3.1.7
 Run Date: 3/30/2018 10:46:58 PM
 Analysis Date: 4/2/2018 3:50:01 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled Event Type		Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-021

Enabled Event Type		Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023
Sample Name: **icv,s35527,ULTRA_1660**
Instrument: GC16 (Offline) Vial: 43 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
Run Date: 3/30/2018 11:44:59 PM
Analysis Date: 4/2/2018 4:54:47 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.533	4.537	543137	44.930
PCB1016#1	6.227	6.230	142661	230.689
PCB1016#2	7.327	7.330	182490	217.988
PCB1016#3	7.637	7.637	91471	221.149
PCB1016#4	8.093	8.097	56134	230.963
PCB1016#5	8.613	8.613	84977	223.185
PCB1260#1	12.190	12.190	255076	203.407
PCB1260#2	12.843	12.843	203208	179.786
PCB1260#3	13.697	13.697	156360	249.266
PCB1260#4	14.440	14.440	362993	249.924
PCB1260#5	15.097	15.097	159607	229.579
Decachlorobiphenyl	17.693	17.690	576484	41.936

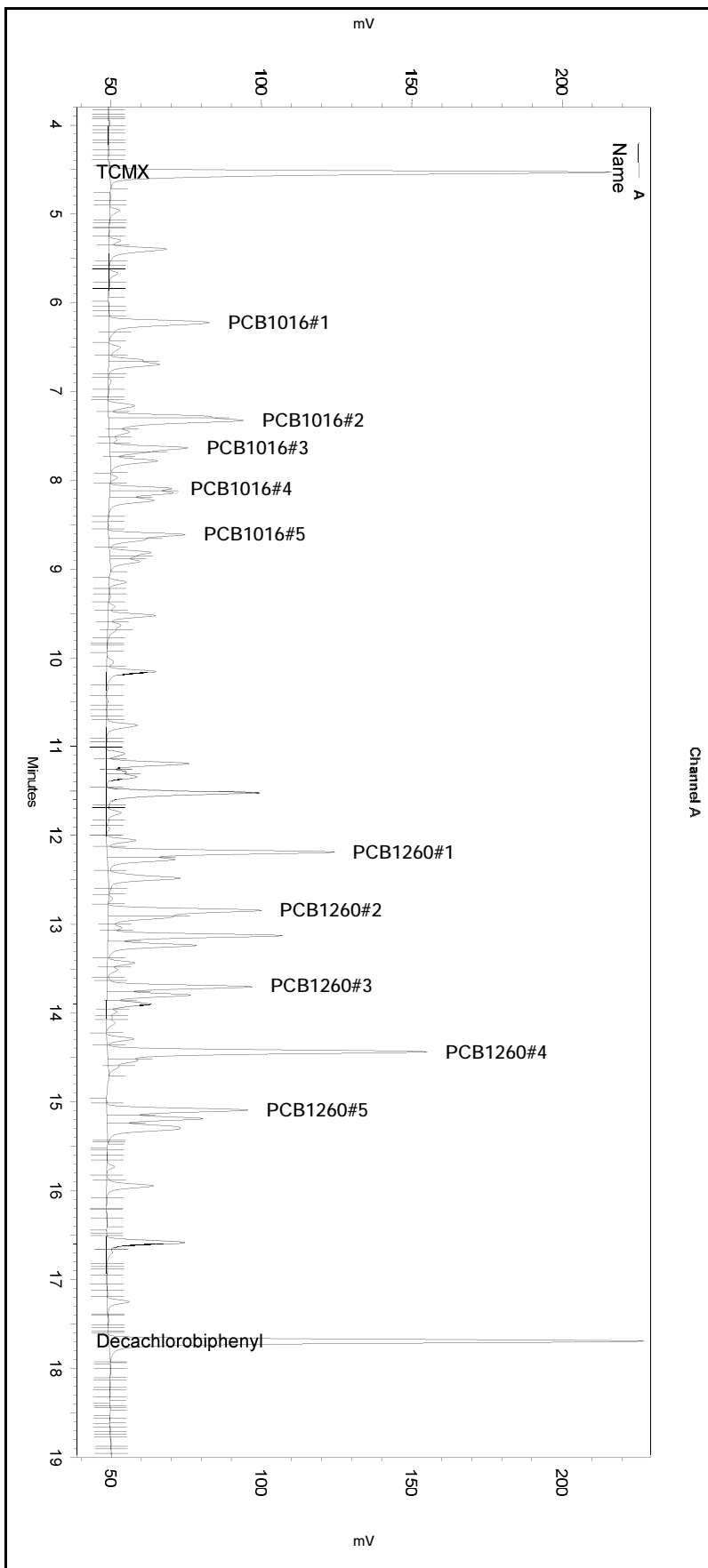
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.643	4.647	1019779	48.468
PCB1016#1	6.343	6.347	108429	223.403
PCB1016#2	7.383	7.387	292546	206.067
PCB1016#3	7.617	7.617	131453	213.345
PCB1016#4	8.193	8.197	81509	213.934
PCB1016#5	8.967	8.970	117974	202.894
PCB1260#1	12.307	12.307	230133	195.340
PCB1260#2	12.963	12.963	247575	180.530
PCB1260#3	13.917	13.920	184186	236.499
PCB1260#4	14.573	14.573	382090	251.307
PCB1260#5	15.263	15.263	184423	209.294
Decachlorobiphenyl	18.267	18.267	905036	43.966

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023
 Sample Name: **icv,s35527,ULTRA_1660**
 Instrument: GC16 (Offline) Vial: 43 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
 Run Date: 3/30/2018 11:44:59 PM
 Analysis Date: 4/2/2018 4:54:47 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

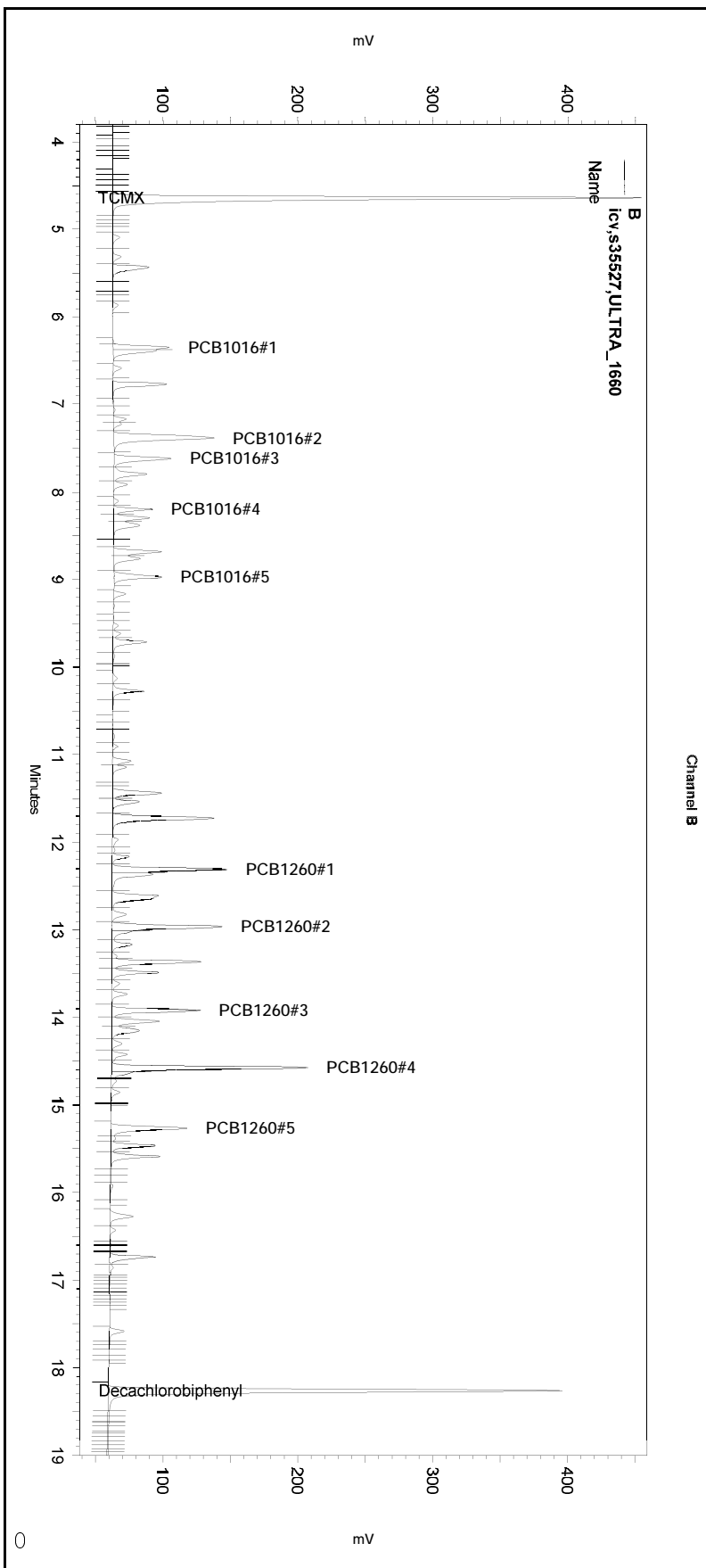
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	4.718	0	0
Yes	Reset Baseline	6.436	0	0
Yes	Reset Baseline	7.913	0	0
Yes	Reset Baseline	9.026	0	0
Yes	Reset Baseline	12.652	0	0
Yes	Reset Baseline	14.715	0	0
Yes	Reset Baseline	15.477	0	0
Yes	Reset Baseline	17.932	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023
 Sample Name: **icv,s35527,ULTRA_1660**
 Instrument: GC16 (Offline) Vial: 43 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
 Run Date: 3/30/2018 11:44:59 PM
 Analysis Date: 4/2/2018 4:54:47 PM
 Sample Amount: 1



 << General Method Parameters >>-----

No items selected for this section

 << B >>-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Peak	6.118	6.369	0
Yes	Manual Baseline	6.238	6.494	0
Yes	Reset Baseline	7.537	0	0
Yes	Split Peak	13.017	0	0
Yes	Split Peak	14.626	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023
Sample Name: **icv,s35527,ULTRA_1660**
Instrument: GC16 (Offline) Vial: 43 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
Run Date: 3/30/2018 11:44:59 PM
Analysis Date: 4/2/2018 4:53:15 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.533	4.537	550600	45.548
PCB1016#1	6.227	6.230	147016	237.731
PCB1016#2	7.327	7.330	186156	222.367
PCB1016#3	7.637	7.637	96656	233.685
PCB1016#4	8.093	8.097	61269	254.386
PCB1016#5	8.613	8.613	88444	232.291
PCB1260#1	12.190	12.190	257178	205.083
PCB1260#2	12.843	12.843	208742	184.682
PCB1260#3	13.697	13.697	158456	252.607
PCB1260#4	14.440	14.440	366840	252.572
PCB1260#5	15.097	15.097	160589	230.991
Decachlorobiphenyl	17.693	17.690	581705	42.315

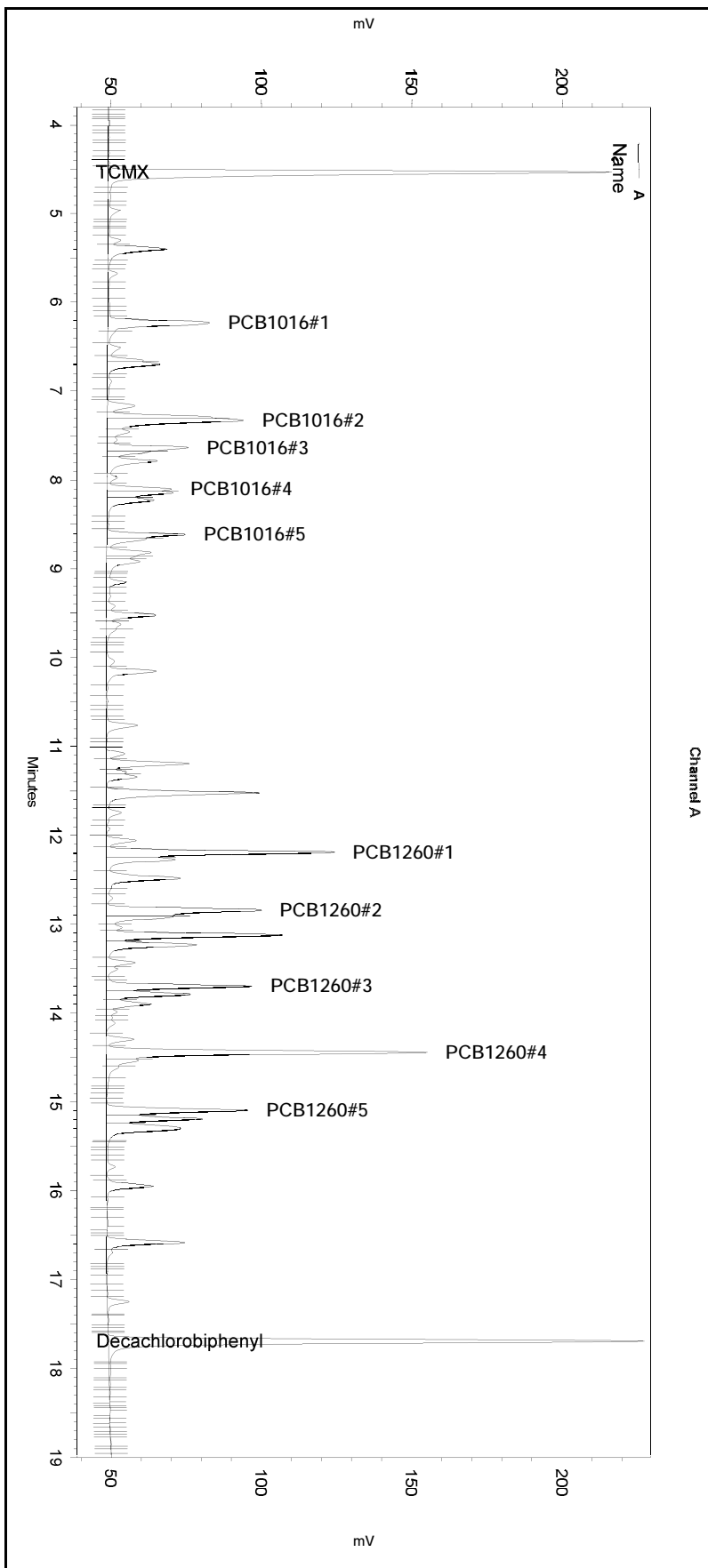
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.643	4.647	1019779	48.468
PCB1016#1	6.343	6.347	42251	87.052
PCB1016#2	7.383	7.387	300112	211.396
PCB1016#3	7.617	7.617	138005	223.979
PCB1016#4	8.193	8.197	82047	215.347
PCB1016#5	8.967	8.970	117974	202.894
PCB1260#1	12.307	12.307	230133	195.340
PCB1260#2	12.963	12.963	278986	203.435
PCB1260#3	13.917	13.920	184186	236.499
PCB1260#4	14.573	14.573	413629	272.051
PCB1260#5	15.263	15.263	184423	209.294
Decachlorobiphenyl	18.267	18.267	905036	43.966

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023
 Sample Name: **icv,s35527,ULTRA_1660**
 Instrument: GC16 (Offline) Vial: 43 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
 Run Date: 3/30/2018 11:44:59 PM
 Analysis Date: 4/2/2018 4:53:15 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

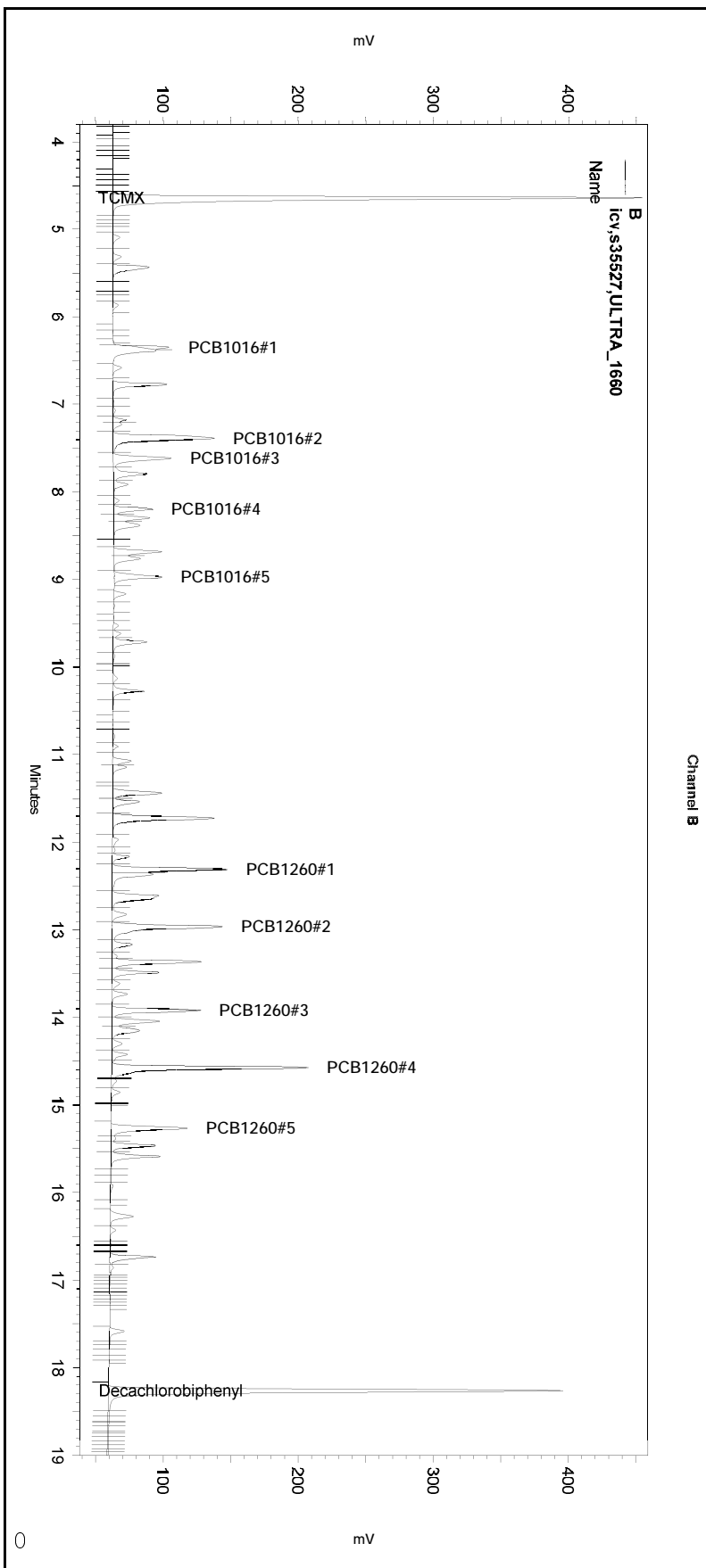
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
No	Reset Baseline	4.718	0	0
No	Reset Baseline	6.436	0	0
No	Reset Baseline	7.913	0	0
No	Reset Baseline	9.026	0	0
No	Reset Baseline	12.652	0	0
No	Reset Baseline	14.715	0	0
No	Reset Baseline	15.477	0	0
No	Reset Baseline	17.932	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence2018\089.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023
 Sample Name: **icv,s35527,ULTRA_1660**
 Instrument: GC16 (Offline) Vial: 43 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-089\cal.met

Software Version 3.1.7
 Run Date: 3/30/2018 11:44:59 PM
 Analysis Date: 4/2/2018 4:53:15 PM
 Sample Amount: 1



 << General Method Parameters >>-----

No items selected for this section

 << B >>-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\089-023

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
No	Manual Peak	6.118	6.369	0
No	Manual Baseline	6.238	6.494	0
No	Reset Baseline	7.537	0	0
No	Split Peak	12.993	0	0
No	Reset Baseline	13.249	0	0
No	Split Peak	14.606	0	0
No	Reset Baseline	14.786	0	0
No	Reset Baseline	15.686	0	0
No	Reset Baseline	18.478	0	0

Continuing Calibration Verification Raw Data

ENTHALPY CONTINUING CALIBRATION FOR 300092 PCBS Soil
EPA 8082

Inst : GC06 Run Name : PCB500_100 IDF : 1.0
 Seqnum : 208228032011 File : 158_011 Time : 07-JUN-2018 13:58
 Cal : 208052389001 Caldate : 05-FEB-2018
 Standards: S36140

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	445.5	pg/uL	-11	15	
Aroclor-1260	A			500.0	441.7	pg/uL	-12	15	
Decachlorobiphenyl	A	8292.8	6263.9	100.0	91.30	pg/uL	-9	15	
Aroclor-1016	B			500.0	407.6	pg/uL	-18	15	c- ***
Aroclor-1260	B			500.0	425.0	pg/uL	-15	15	
Decachlorobiphenyl	B	8439.1	7798.4	100.0	92.41	pg/uL	-8	15	

JC1 06/07/18 : Corrected automatically drawn baseline.

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

--low bias c=CCV

Sample Name: **ccv,s36140,pcb500_100**
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-011
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
Run Date: 6/7/2018 1:58:20 PM
Analysis Date: 6/7/2018 2:33:49 PM
Sample Amount: 1

GC06
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.433	3.447	423583	69.757
PCB1016#1	4.943	4.950	105972	400.233
PCB1016#2	5.953	5.960	129874	495.097
PCB1016#3	6.243	6.250	66902	421.416
PCB1016#4	6.707	6.690	40352	459.051
PCB1016#5	7.173	7.177	53442	451.653
PCB1260#1	10.663	10.667	191523	467.677
PCB1260#2	11.310	11.297	152333	380.940
PCB1260#3	12.153	12.157	98148	408.490
PCB1260#4	12.900	12.890	269464	526.199
PCB1260#5	13.547	13.547	113262	425.098
Decachlorobiphenyl	16.130	16.137	626394	91.298

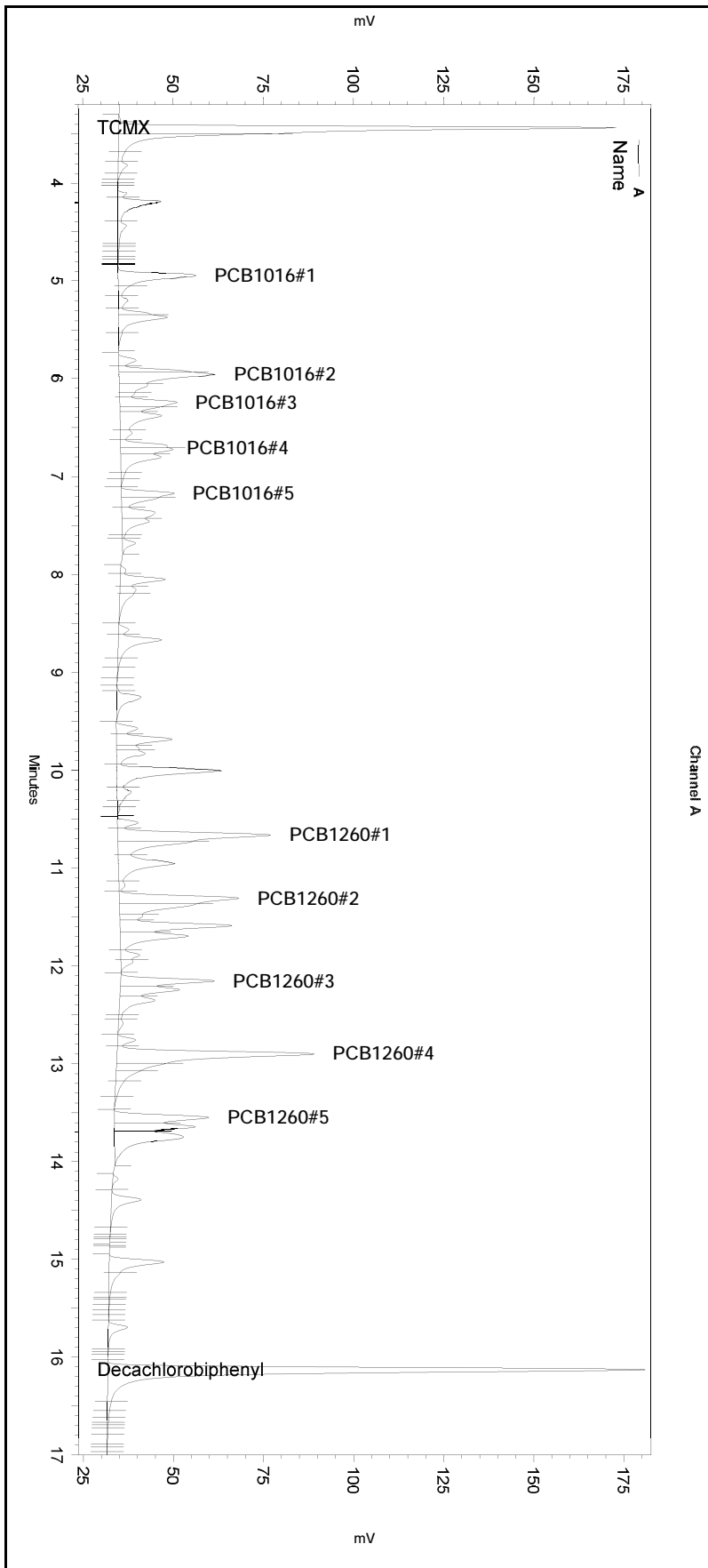
GC06
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.473	2.493	482160	77.517
PCB1016#1	3.757	3.763	121051	402.783
PCB1016#2	4.597	4.601	130065	393.699
PCB1016#3	4.780	4.787	98179	426.569
PCB1016#4	5.277	5.283	44263	401.139
PCB1016#5	5.943	5.947	75530	413.784
PCB1260#1	9.083	9.070	157420	484.006
PCB1260#2	9.700	9.680	152993	384.894
PCB1260#3	10.590	10.590	102413	386.139
PCB1260#4	11.257	11.247	228337	502.237
PCB1260#5	11.920	11.903	106035	367.827
Decachlorobiphenyl	14.817	14.823	779844	92.409

Sample Name: **ccv,s36140,pcb500_100**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-011
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 1:58:20 PM
 Analysis Date: 6/7/2018 2:33:49 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

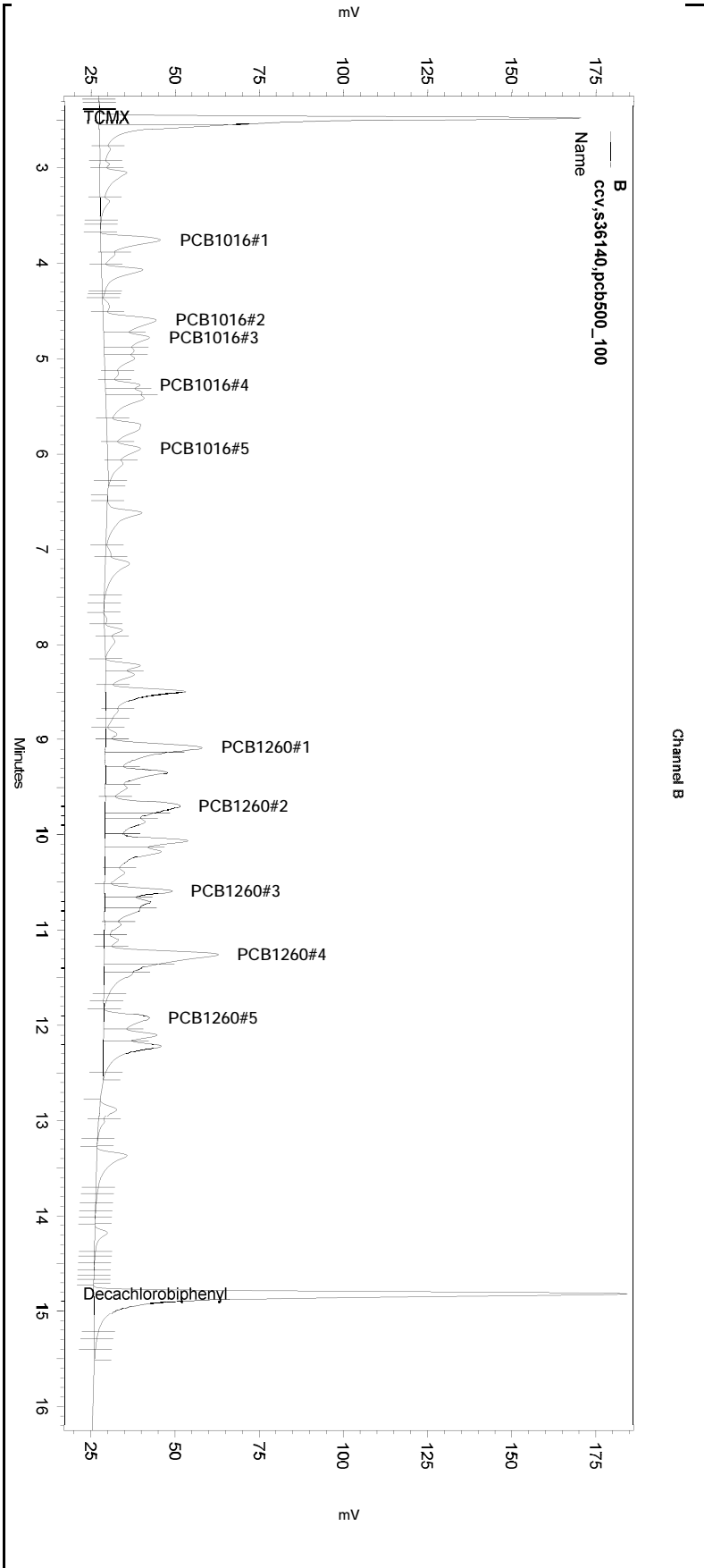
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-011

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.045	0	0
Yes	Split Peak	5.927	0	0
Yes	Split Peak	6.289	0	0
Yes	Reset Baseline	7.793	0	0
Yes	Reset Baseline	10.468	0	0
Yes	Reset Baseline	12.067	0	0
Yes	Reset Baseline	12.689	0	0
Yes	Reset Baseline	14.045	0	0

Sample Name: **ccv,s36140,pcb500_100**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-011
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 (Offline) Vial: 13 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 1:58:20 PM
 Analysis Date: 6/7/2018 2:33:49 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-011

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline		6.333	0	0
Yes	Reset Baseline		8.141	0	0
Yes	Split Peak		9.135	0	0
Yes	Split Peak		9.772	0	0
Yes	Split Peak		11.354	0	0
Yes	Reset Baseline		12.569	0	0
Yes	Reset Baseline		15.513	0	0

Sample Name: **ccv,s36140,pcb500_100**
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-011
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
Instrument: GC06 Vial: 13 Operator: lims2k3\pest3
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
Run Date: 6/7/2018 1:58:20 PM
Analysis Date: 6/7/2018 2:22:17 PM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.433	3.447	423583	69.757
PCB1016#1	4.943	4.950	122543	462.819
PCB1016#2	5.953	5.960	177767	677.671
PCB1016#3	6.243	6.250	98114	618.021
PCB1016#4	6.707	6.690	46383	527.661
PCB1016#5	7.173	7.177	63351	535.397
PCB1260#1	10.663	10.667	202460	494.384
PCB1260#2	11.310	11.297	167798	419.614
PCB1260#3	12.153	12.157	118337	492.516
PCB1260#4	12.900	12.890	286940	560.326
PCB1260#5	13.547	13.547	122042	458.052
Decachlorobiphenyl	16.130	16.137	626394	91.298

GC06

PCB - ECD Instrument Results

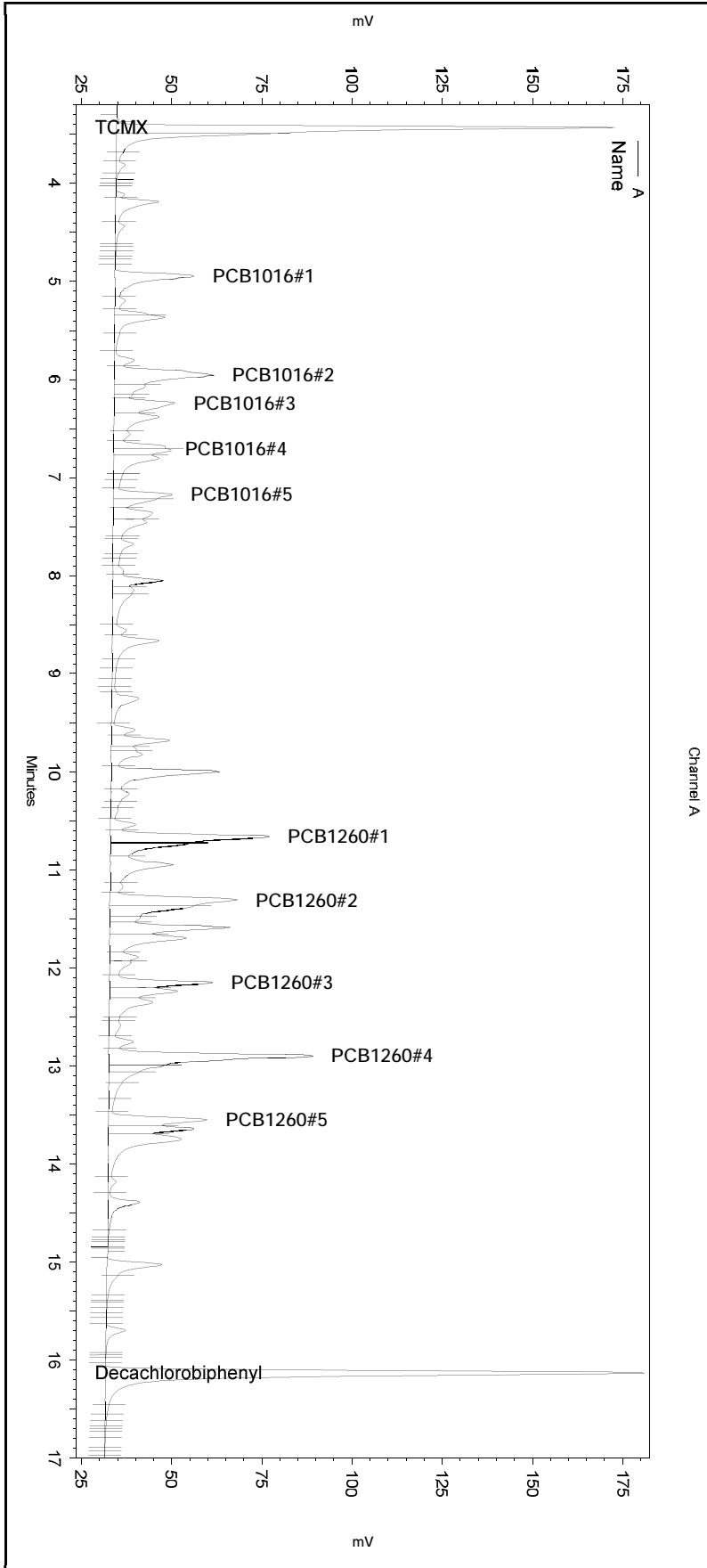
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.473	2.493	483278	77.697
PCB1016#1	3.757	3.763	131370	437.118
PCB1016#2	4.597	4.601	152018	448.011
PCB1016#3	4.780	4.787	115760	501.135
PCB1016#4	5.277	5.283	58230	527.716
PCB1016#5	5.943	5.947	112165	614.486
PCB1260#1	9.083	9.070	293964	903.826
PCB1260#2	9.700	9.680	229216	569.144
PCB1260#3	10.590	10.590	126074	475.350
PCB1260#4	11.257	11.247	336069	739.197
PCB1260#5	11.920	11.903	139982	485.586
Decachlorobiphenyl	14.817	14.823	790145	93.629

Sample Name: **ccv,s36140,pcb500_100**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-011
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 Vial: 13 Operator: lims2k3\pest3
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 1:58:20 PM
 Analysis Date: 6/7/2018 2:22:17 PM
 Sample Amount: 1



---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

Manual Integration Fixes

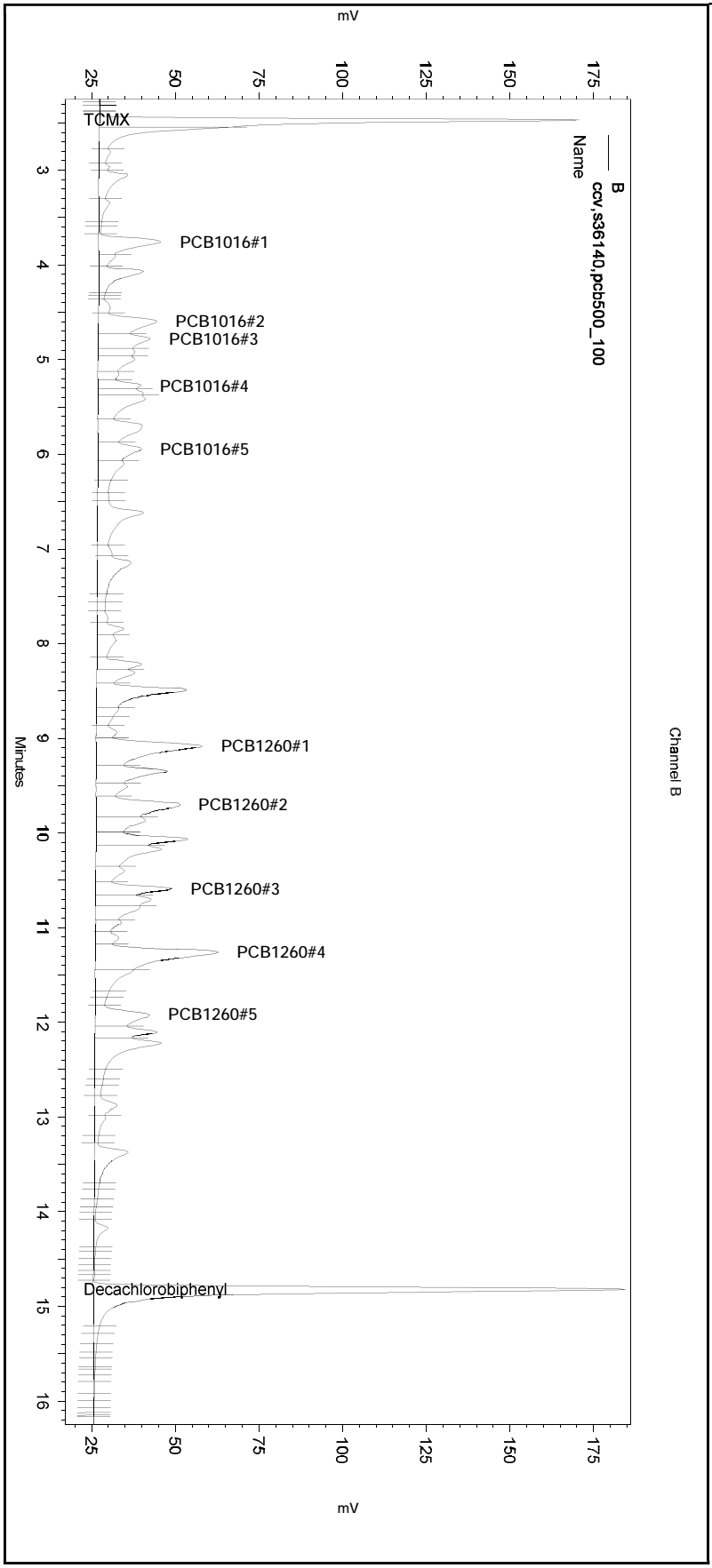
Data File: C:\Documents and Settings\All Users\Application Data\ChromatographySystem\Recovery Data\Instrument.10112\158-011_DBFC.imp

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Channel A

Sample Name: **ccv,s36140,pcb500_100**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-011
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 Vial: 13 Operator: lms2k3\pest3
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 1:58:20 PM
 Analysis Date: 6/7/2018 2:22:17 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events
 =====

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes
 =====

Data File: C:\Documents and Settings\All Users\Application Data\ChromatographySystem\Recovery Data\Instrument.10112\158-011_DBFC.tmp

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

ENTHALPY CONTINUING CALIBRATION FOR 300092 PCBS Soil
EPA 8082

Inst : GC06 Run Name : PCB500_100 IDF : 1.0
 Seqnum : 208228032016 File : 158_016 Time : 07-JUN-2018 17:07
 Cal : 208052389001 Caldate : 05-FEB-2018
 Standards: S36140

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	513.6	pg/uL	3	15	
Aroclor-1260	A			500.0	583.2	pg/uL	17	15	c+ ***
Decachlorobiphenyl	A	8292.8	8231.0	100.0	121.4	pg/uL	21	15	c+
Aroclor-1016	B			500.0	517.3	pg/uL	3	15	
Aroclor-1260	B			500.0	523.0	pg/uL	5	15	
Decachlorobiphenyl	B	8439.1	10437	100.0	123.7	pg/uL	24	15	c+

JC1 06/07/18 : Corrected automatically drawn baseline.

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

+ = high bias c = CCV

Sample Name: **ccv,s36140,pcb500_100**
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-016
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
Run Date: 6/7/2018 5:07:08 PM
Analysis Date: 6/7/2018 5:33:08 PM
Sample Amount: 1

GC06
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.433	3.447	605510	99.717
PCB1016#1	4.940	4.950	126548	477.945
PCB1016#2	5.953	5.960	155204	591.658
PCB1016#3	6.240	6.250	74549	469.585
PCB1016#4	6.680	6.690	39004	443.716
PCB1016#5	7.170	7.177	69210	584.913
PCB1260#1	10.663	10.667	245047	598.377
PCB1260#2	11.310	11.297	202993	507.626
PCB1260#3	12.153	12.157	124632	518.716
PCB1260#4	12.900	12.890	357492	698.097
PCB1260#5	13.547	13.547	158002	593.018
Decachlorobiphenyl	16.130	16.137	823100	121.391

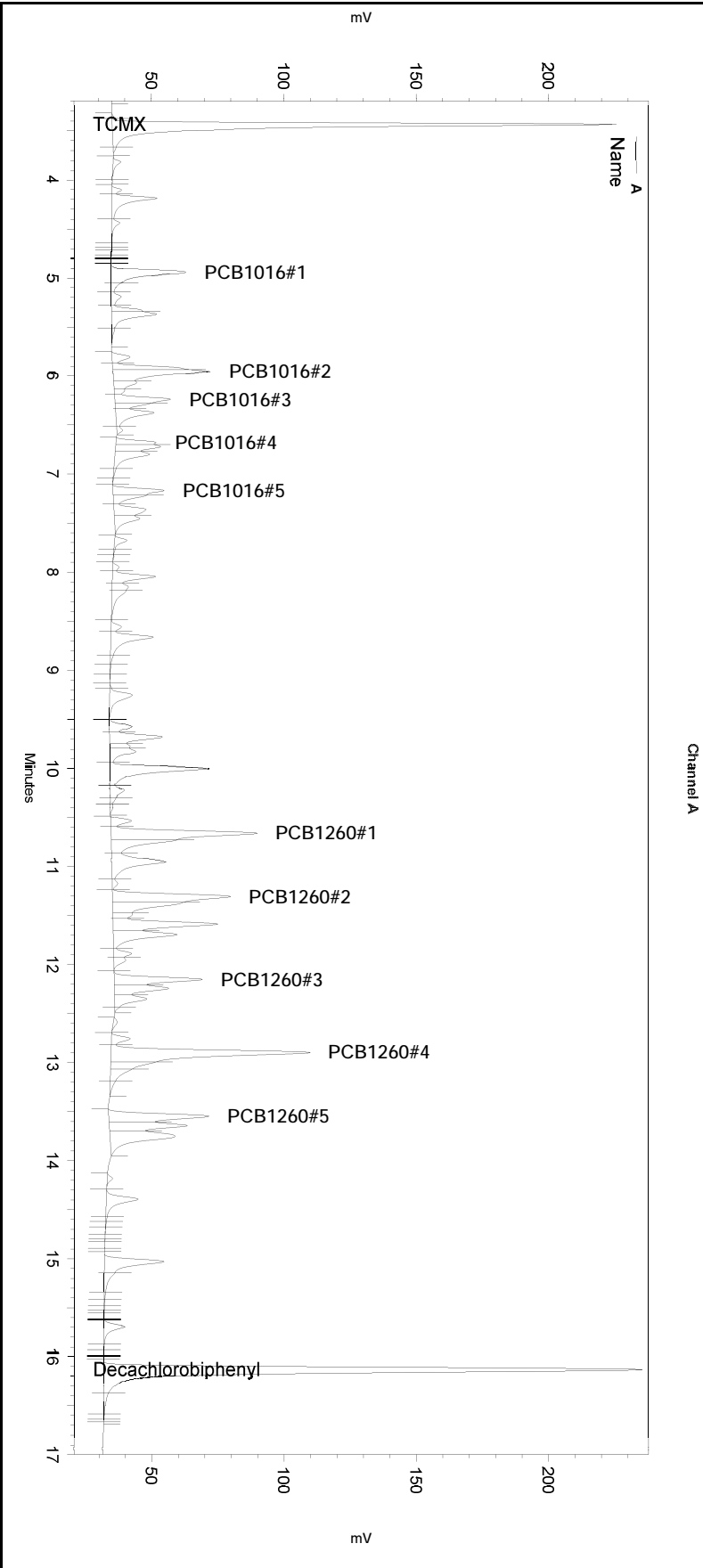
GC06
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.470	2.493	722613	116.175
PCB1016#1	3.747	3.763	151154	502.947
PCB1016#2	4.587	4.601	187471	531.359
PCB1016#3	4.770	4.787	126934	548.528
PCB1016#4	5.270	5.283	55333	501.462
PCB1016#5	5.933	5.947	91643	502.058
PCB1260#1	9.073	9.070	169280	520.471
PCB1260#2	9.687	9.680	179594	449.195
PCB1260#3	10.587	10.590	127957	482.450
PCB1260#4	11.250	11.247	280510	616.993
PCB1260#5	11.913	11.903	157346	545.820
Decachlorobiphenyl	14.817	14.823	1043689	123.673

Sample Name: **ccv,s36140,pcb500_100**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3)pest1
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 5:07:08 PM
 Analysis Date: 6/7/2018 5:33:08 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

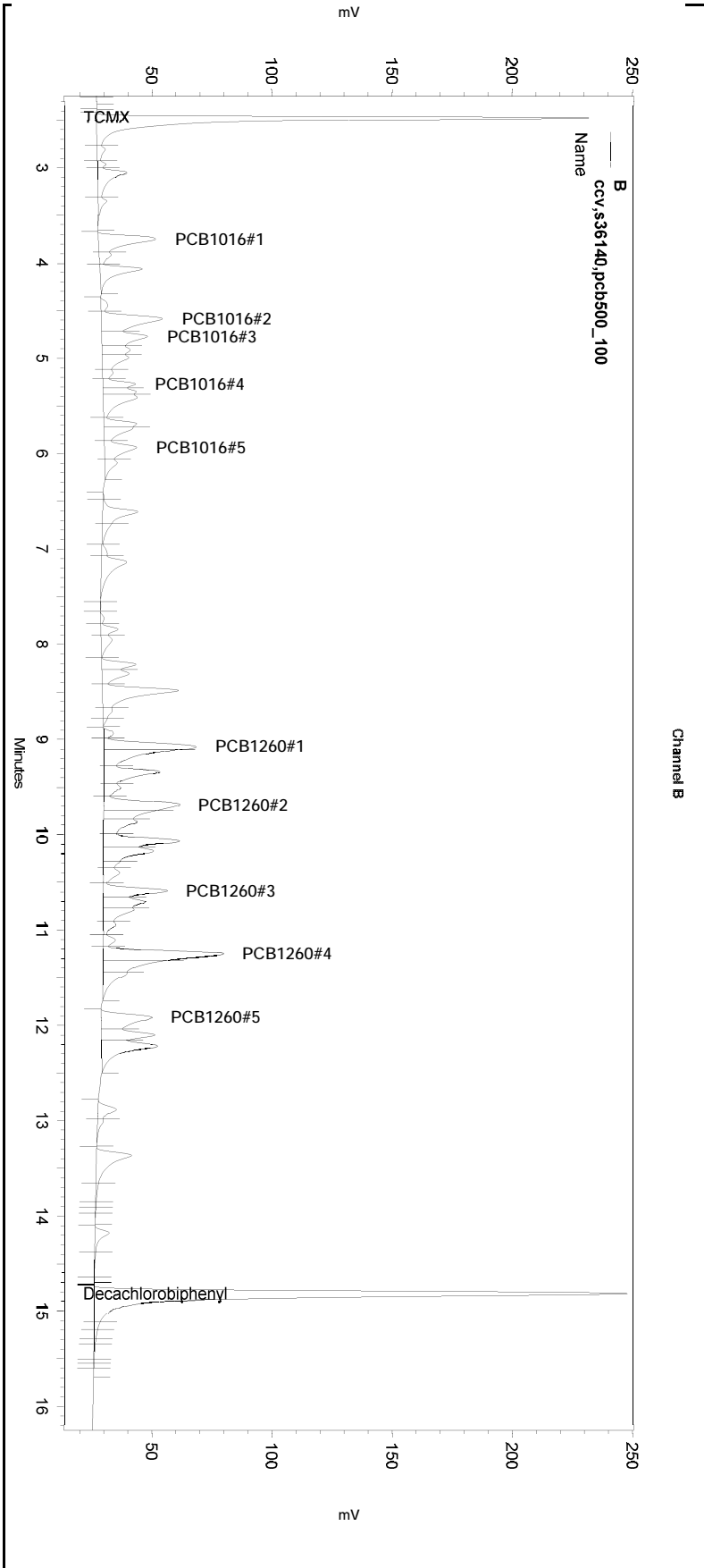
Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	3.748	0	0
Yes	Manual Baseline	5.743	6.605	0
Yes	Split Peak	5.931	0	0
Yes	Reset Baseline	7.615	0	0
Yes	Reset Baseline	10.469	0	0
Yes	Reset Baseline	12.055	0	0
Yes	Reset Baseline	12.504	0	0
Yes	Reset Baseline	13.346	0	0
Yes	Reset Baseline	13.95	0	0
Yes	Split Peak	16.37	0	0
Yes	Reset Baseline	16.685	0	0

Sample Name: **ccv,s36140,pcb500_100**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 (Offline) Vial: N/A Operator: pest 1. Analyst: (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 5:07:08 PM
 Analysis Date: 6/7/2018 5:33:08 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width		0	0	0.2
Yes	Threshold		0	0	50
Yes	Integration Off		0	2.1	0
Yes	Shoulder Sensitivity		3	18	1

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-016

Enabled		Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline		4.327	0	0
Yes	Reset Baseline		6.269	0	0
Yes	Reset Baseline		8.86	0	0
Yes	Split Peak		9.108	0	0
Yes	Split Peak		9.746	0	0
Yes	Split Peak		11.322	0	0
Yes	Reset Baseline		11.737	0	0
Yes	Reset Baseline		12.495	0	0
Yes	Reset Baseline		15.691	0	0

Sample Name: **ccv,s36140,pcb500_100**
Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-016
Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
Instrument: GC06 Vial: N/A Operator: lms2k3\pest3
Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
Run Date: 6/7/2018 5:07:08 PM
Analysis Date: 6/7/2018 5:31:05 PM
Sample Amount: 1

GC06

PCB - ECD Instrument Results

Channel A: Stx-CLPesticides

A Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	3.433	3.447	611717	100.739
PCB1016#1	4.940	4.950	126548	477.945
PCB1016#2	5.953	5.960	193791	738.756
PCB1016#3	6.240	6.250	61601	388.025
PCB1016#4	6.680	6.690	39004	443.716
PCB1016#5	7.170	7.177	70110	592.519
PCB1260#1	10.663	10.667	253254	618.418
PCB1260#2	11.310	11.297	216860	542.303
PCB1260#3	12.153	12.157	148051	616.185
PCB1260#4	12.900	12.890	375736	733.723
PCB1260#5	13.547	13.547	166863	626.275
Decachlorobiphenyl	16.130	16.137	837740	123.631

GC06

PCB - ECD Instrument Results

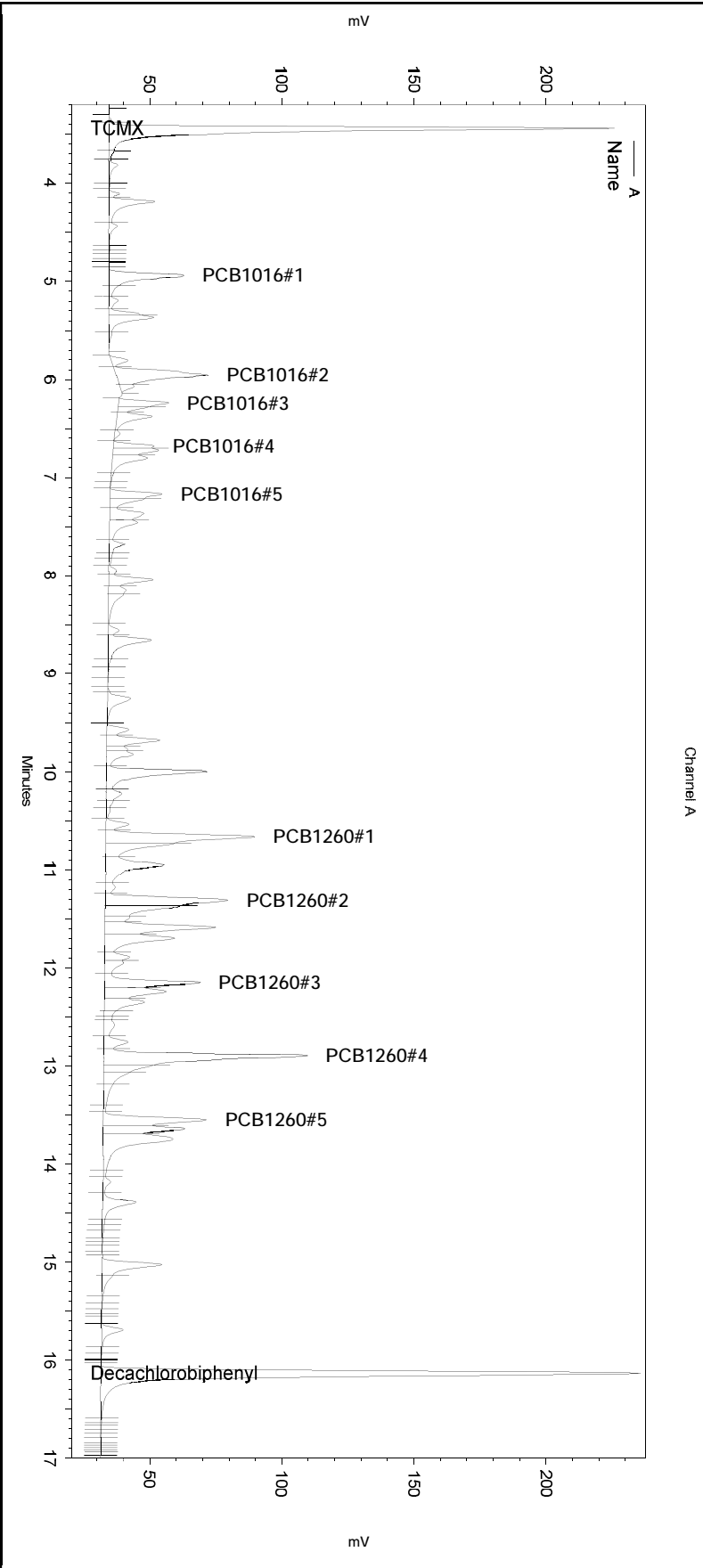
Channel B: Rtx-5

B Results

Name	RT	ExpRT	Area	Conc (ug/L)
TCMX	2.470	2.493	727347	116.936
PCB1016#1	3.747	3.763	166008	552.372
PCB1016#2	4.587	4.601	217548	598.422
PCB1016#3	4.770	4.787	150754	649.556
PCB1016#4	5.270	5.283	73980	670.452
PCB1016#5	5.933	5.947	136722	749.019
PCB1260#1	9.073	9.070	371170	1141.204
PCB1260#2	9.687	9.680	305632	753.861
PCB1260#3	10.587	10.590	159244	600.415
PCB1260#4	11.250	11.247	454410	999.493
PCB1260#5	11.913	11.903	195450	678.000
Decachlorobiphenyl	14.817	14.823	1050693	124.503

Sample Name: **ccv,s36140,pcb500_100**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 Vial: N/A Operator: lms2k3\pest3
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 5:07:08 PM
 Analysis Date: 6/7/2018 5:31:05 PM
 Sample Amount: 1



---< General Method Parameters >-----

No items selected for this section

---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	0

Manual Integration Fixes

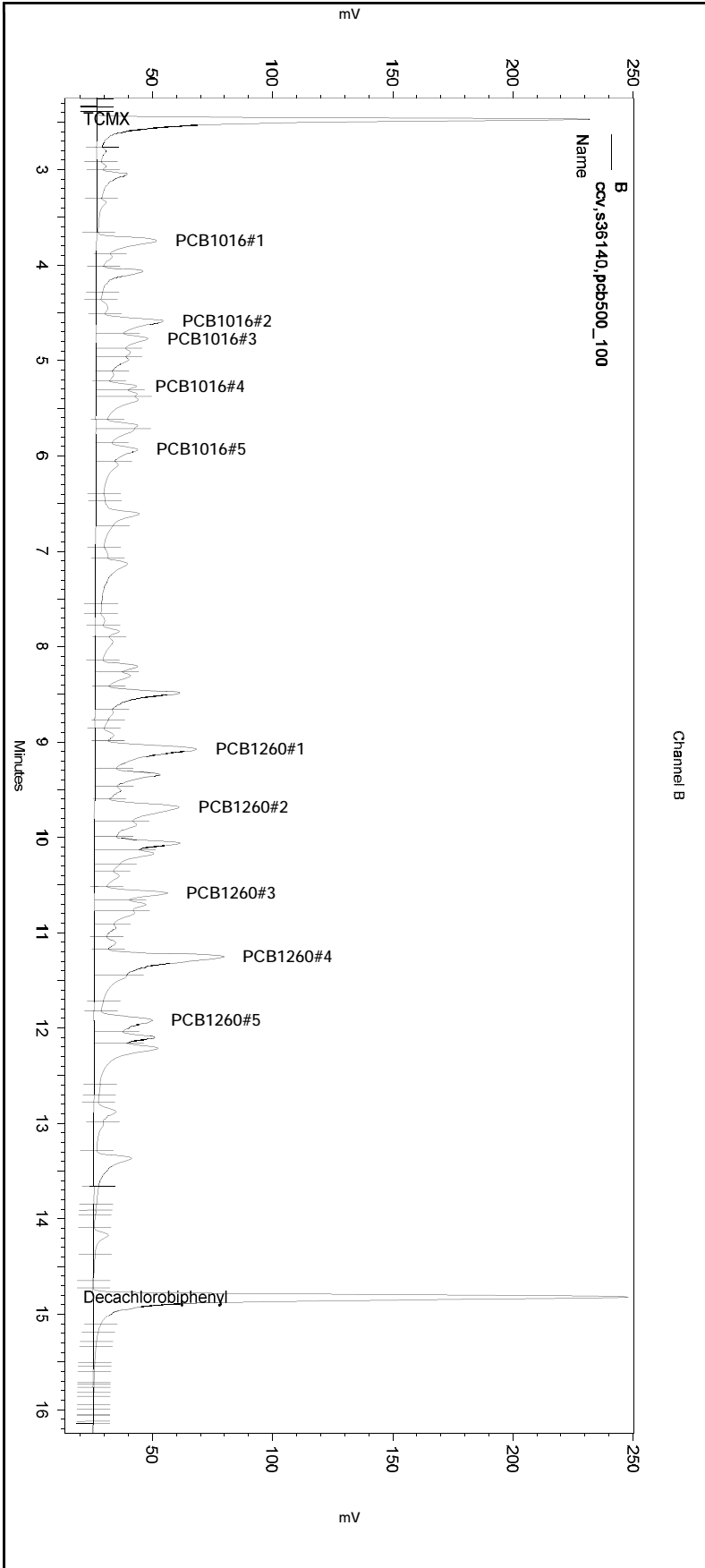
Data File: C:\Documents and Settings\All Users\Application Data\ChromatographySystem\Recovery Data\Instrument.10112\158-016_DC02.tmp

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Channel A

Sample Name: **ccv,s36140,pcb500_100**
 Data File: \\kraken\gdrive\ezchrom\Projects\GC06\Data\2018\158-016
 Sequence File: \\kraken\gdrive\ezchrom\Projects\GC06\Sequence\2018\158.seq
 Instrument: GC06 Vial: N/A Operator: lms2k3\pest3
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC06\Method\Ar1660\pcb-run-157b.met

Software Version 3.1.7
 Run Date: 6/7/2018 5:07:08 PM
 Analysis Date: 6/7/2018 5:31:05 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	3	18	1

Manual Integration Fixes

 Data File: C:\Documents and Settings\All Users\Application Data\ChromatographySystem\Recovery Data\Instrument.10112\158-016_DC02.tmp

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

ENTHALPY CONTINUING CALIBRATION FOR 300092 PCBS Soil
EPA 8082

Inst : GC16 Run Name : PCB250_50 IDF : 1.0
 Seqnum : 238226583007 File : 157_007 Time : 06-JUN-2018 16:39
 Cal : 238128692001 Caldate : 30-MAR-2018
 Standards: S36139

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			250.0	273.0	pg/ul	9	15	
Aroclor-1260	A			250.0	281.8	pg/ul	13	15	
Decachlorobiphenyl	A	13747	15159	50.00	55.14	pg/ul	10	15	
Aroclor-1016	B			250.0	262.0	pg/ul	5	15	
Aroclor-1260	B			250.0	268.2	pg/ul	7	15	
Decachlorobiphenyl	B	20585	21925	50.00	53.25	pg/ul	7	15	

JC1 06/06/18 : Corrected automatically drawn baseline.

Analyst: JC1 Date: 06/06/18 Reviewer: EAH Date: 06/07/18

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007
Sample Name: **ccv,s36139,pcb250_50**
Instrument: GC16 (Offline) Vial: 27 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 4:39:50 PM
Analysis Date: 6/6/2018 5:20:57 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.153	4.147	689574	57.044
PCB1016#1	5.800	5.797	160167	258.996
PCB1016#2	6.877	6.873	226807	270.926
PCB1016#3	7.180	7.180	110555	267.288
PCB1016#4	7.637	7.634	67231	281.582
PCB1016#5	8.147	8.147	109010	286.305
PCB1260#1	11.710	11.717	362031	288.696
PCB1260#2	12.360	12.370	310589	274.790
PCB1260#3	13.213	13.220	172255	274.605
PCB1260#4	13.960	13.967	414749	285.558
PCB1260#5	14.613	14.627	198296	285.229
Decachlorobiphenyl	17.207	17.210	757951	55.136

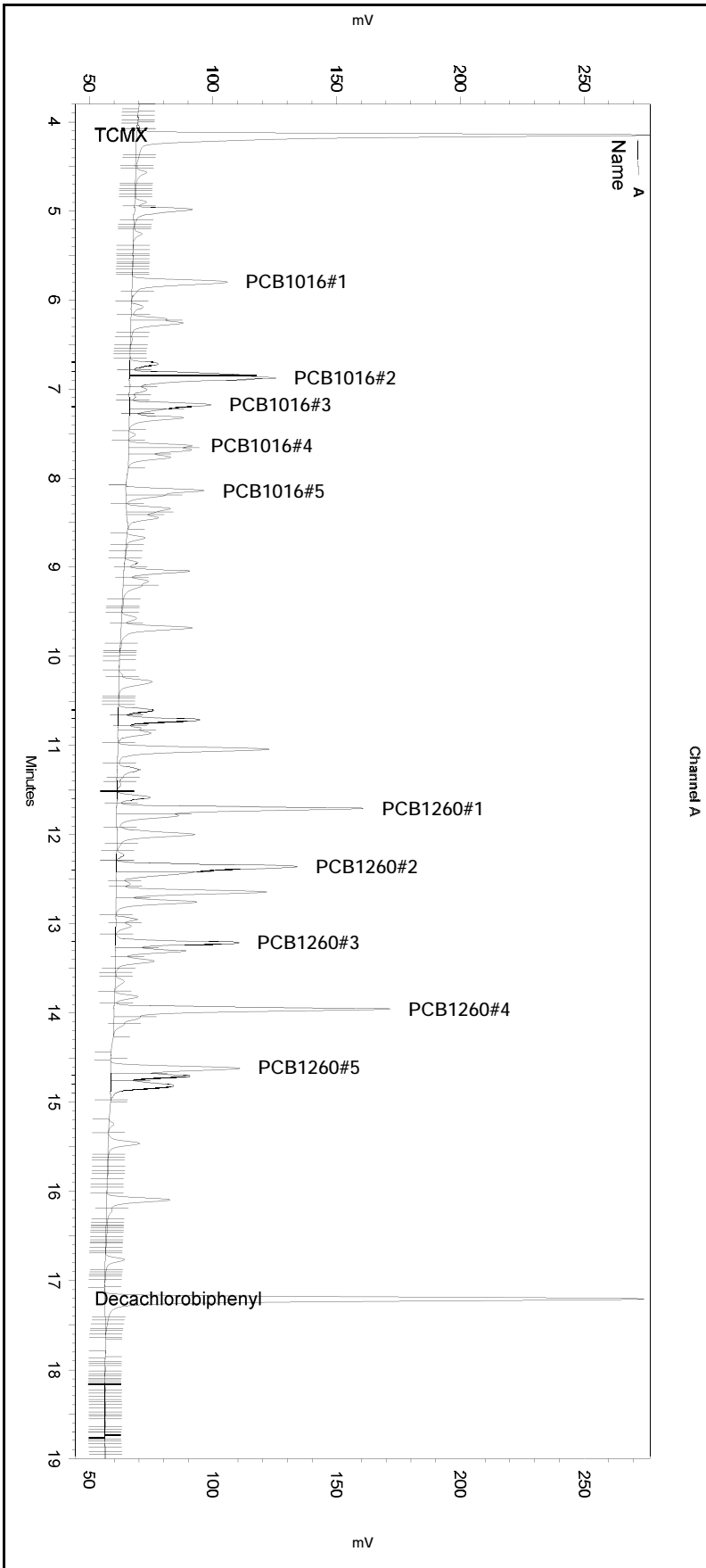
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.263	4.260	1253288	59.566
PCB1016#1	5.917	5.913	108180	222.889
PCB1016#2	6.937	6.933	389893	274.637
PCB1016#3	7.167	7.160	170971	277.482
PCB1016#4	7.737	7.733	99737	261.777
PCB1016#5	8.500	8.497	158971	273.401
PCB1260#1	11.823	11.820	331755	281.598
PCB1260#2	12.477	12.470	365307	266.380
PCB1260#3	13.430	13.423	192539	247.225
PCB1260#4	14.087	14.083	426152	280.288
PCB1260#5	14.773	14.770	233804	265.334
Decachlorobiphenyl	17.770	17.763	1096231	53.254

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007
 Sample Name: **ccv,s36139,pcb250_50**
 Instrument: GC16 (Offline) Vial: 27 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 4:39:50 PM
 Analysis Date: 6/6/2018 5:20:57 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

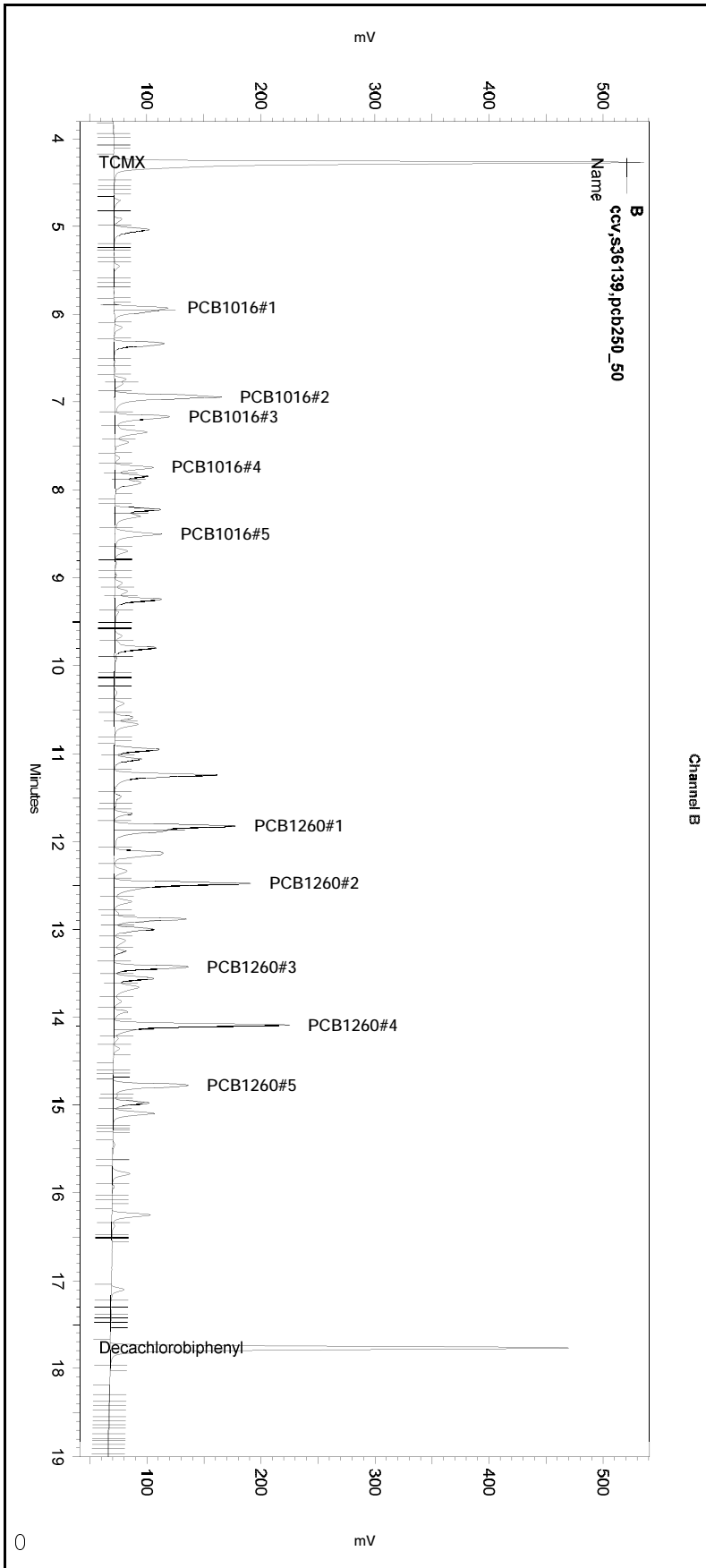
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	7.452	0	0
Yes	Reset Baseline	7.881	0	0
Yes	Reset Baseline	8.579	0	0
Yes	Reset Baseline	13.547	0	0
Yes	Reset Baseline	14.266	0	0
Yes	Reset Baseline	15	0	0
Yes	Reset Baseline	17.665	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007
 Sample Name: **ccv,s36139,pcb250_50**
 Instrument: GC16 (Offline) Vial: 27 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 4:39:50 PM
 Analysis Date: 6/6/2018 5:20:57 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	5.811	6.085	0
Yes	Manual Peak	5.85	5.935	0
Yes	Split Peak	5.94	0	0
Yes	Reset Baseline	7.573	0	0
Yes	Reset Baseline	8.04	0	0
Yes	Reset Baseline	8.786	0	0
Yes	Split Peak	12.525	0	0
Yes	Split Peak	14.139	0	0
Yes	Reset Baseline	14.428	0	0
Yes	Reset Baseline	18.044	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007
Sample Name: **ccv,s36139,pcb250_50**
Instrument: GC16 (Offline) Vial: 27 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 4:39:50 PM
Analysis Date: 6/6/2018 5:19:12 PM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.153	4.147	689574	57.044
PCB1016#1	5.800	5.797	160192	259.037
PCB1016#2	6.877	6.873	228641	273.116
PCB1016#3	7.180	7.180	113193	273.666
PCB1016#4	7.637	7.634	69907	293.788
PCB1016#5	8.147	8.147	110006	288.921
PCB1260#1	11.710	11.717	366240	292.053
PCB1260#2	12.360	12.370	317427	280.840
PCB1260#3	13.213	13.220	183427	292.415
PCB1260#4	13.960	13.967	426325	293.528
PCB1260#5	14.613	14.627	200849	288.901
Decachlorobiphenyl	17.207	17.210	760701	55.336

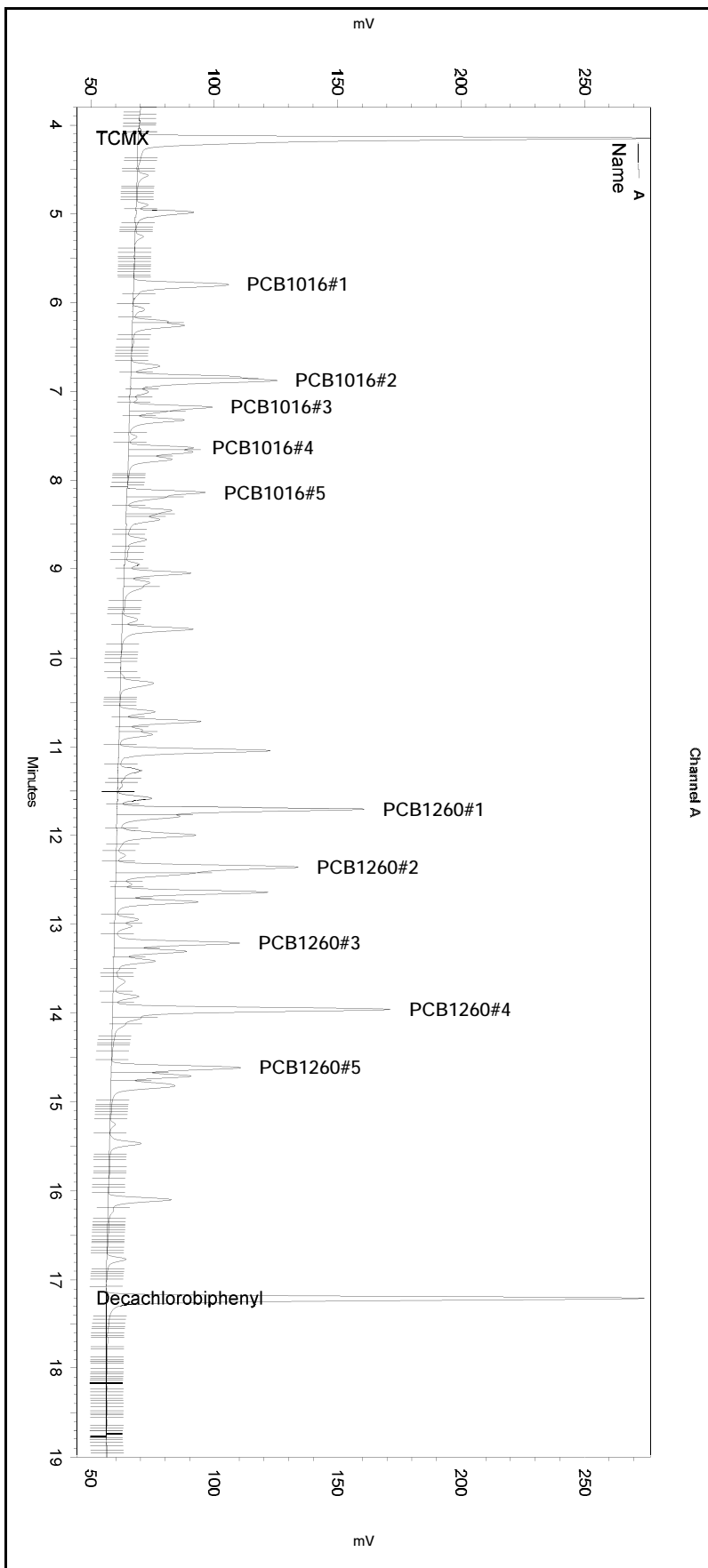
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.263	4.260	1253288	59.566
PCB1016#1	5.917	5.913	41965	86.463
PCB1016#2	6.937	6.933	394422	277.827
PCB1016#3	7.167	7.160	175018	284.050
PCB1016#4	7.737	7.733	103748	272.305
PCB1016#5	8.500	8.497	166602	286.525
PCB1260#1	11.823	11.820	332763	282.454
PCB1260#2	12.477	12.470	436382	318.207
PCB1260#3	13.430	13.423	196114	251.815
PCB1260#4	14.087	14.083	468965	308.446
PCB1260#5	14.773	14.770	233804	265.334
Decachlorobiphenyl	17.770	17.763	1102607	53.564

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007
 Sample Name: **ccv,s36139,pcb250_50**
 Instrument: GC16 (Offline) Vial: 27 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 4:39:50 PM
 Analysis Date: 6/6/2018 5:19:12 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

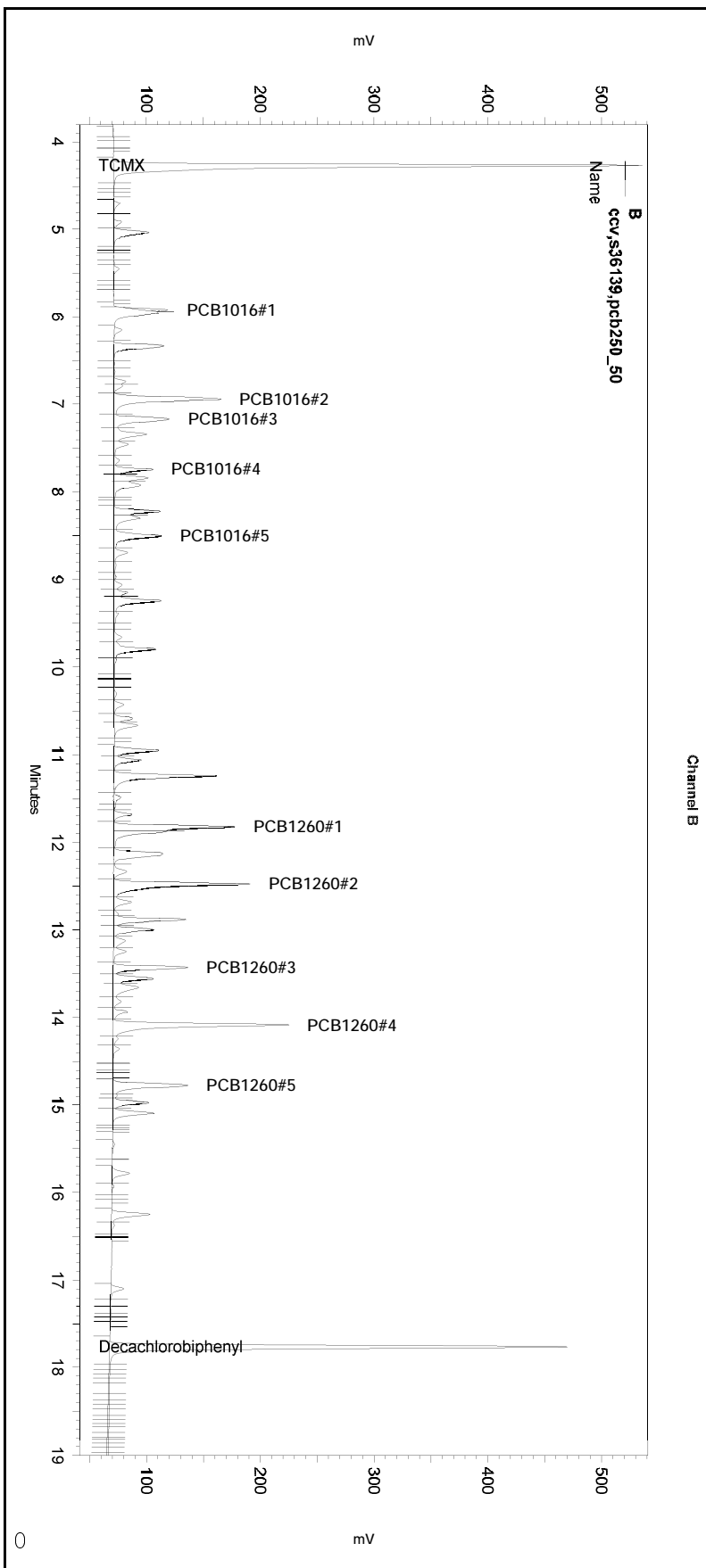
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
No	Reset Baseline	7.452	0	0
No	Reset Baseline	7.881	0	0
No	Reset Baseline	8.579	0	0
No	Reset Baseline	17.665	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007
 Sample Name: **ccv,s36139,pcb250_50**
 Instrument: GC16 (Offline) Vial: 27 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 4:39:50 PM
 Analysis Date: 6/6/2018 5:19:12 PM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-007

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
No	Manual Baseline	5.811	6.085	0
No	Manual Peak	5.85	5.935	0
No	Split Peak	5.94	0	0
No	Reset Baseline	7.573	0	0
No	Reset Baseline	8.04	0	0
No	Reset Baseline	8.786	0	0
No	Split Peak	12.525	0	0
No	Split Peak	14.139	0	0
No	Reset Baseline	14.428	0	0
No	Reset Baseline	18.044	0	0

ENTHALPY CONTINUING CALIBRATION FOR 300092 PCBS Soil
EPA 8082

Inst : GC16 Run Name : PCB250_50 IDF : 1.0
 Seqnum : 238226583019 File : 157_019 Time : 06-JUN-2018 22:40
 Cal : 238128692001 Caldate : 30-MAR-2018
 Standards: S36139

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			250.0	280.4	pg/ul	12	15	
Aroclor-1260	A			250.0	288.6	pg/ul	15	15	
Decachlorobiphenyl	A	13747	15773	50.00	57.37	pg/ul	15	15	
Aroclor-1016	B			250.0	278.3	pg/ul	11	15	
Aroclor-1260	B			250.0	286.1	pg/ul	14	15	
Decachlorobiphenyl	B	20585	24962	50.00	60.63	pg/ul	21	15	c+

JC1 06/07/18 : Corrected automatically drawn baseline.

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

+=high bias c=CCV

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019
Sample Name: **ccv,s36139,pcb250_50**
Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 10:40:35 PM
Analysis Date: 6/7/2018 10:45:15 AM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.150	4.147	701197	58.006
PCB1016#1	5.797	5.797	161658	261.407
PCB1016#2	6.870	6.873	233242	278.612
PCB1016#3	7.173	7.180	119919	289.928
PCB1016#4	7.633	7.634	67612	283.320
PCB1016#5	8.143	8.147	109988	288.874
PCB1260#1	11.703	11.717	360699	287.634
PCB1260#2	12.357	12.370	322178	285.043
PCB1260#3	13.210	13.220	174055	277.475
PCB1260#4	13.953	13.967	429832	295.943
PCB1260#5	14.607	14.627	206320	296.771
Decachlorobiphenyl	17.200	17.210	788666	57.370

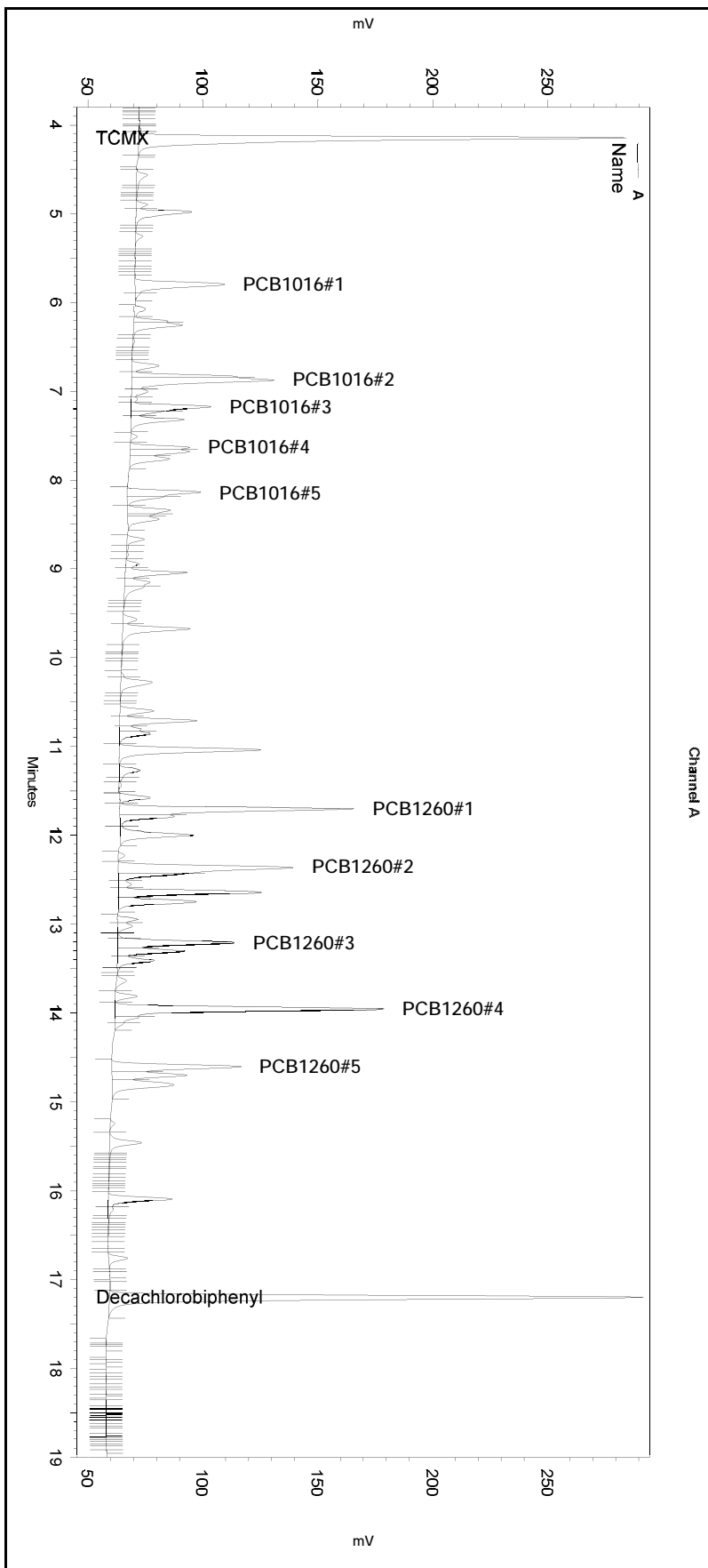
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.260	4.260	1346359	63.990
PCB1016#1	5.913	5.913	123224	253.886
PCB1016#2	6.933	6.933	416365	293.284
PCB1016#3	7.163	7.160	179194	290.828
PCB1016#4	7.737	7.733	105326	276.446
PCB1016#5	8.500	8.497	161004	276.898
PCB1260#1	11.820	11.820	344999	292.840
PCB1260#2	12.470	12.470	402011	293.144
PCB1260#3	13.423	13.423	200442	257.372
PCB1260#4	14.080	14.083	456078	299.970
PCB1260#5	14.767	14.770	253229	287.379
Decachlorobiphenyl	17.763	17.763	1248107	60.632

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019
 Sample Name: **ccv,s36139,pcb250_50**
 Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 10:40:35 PM
 Analysis Date: 6/7/2018 10:45:15 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

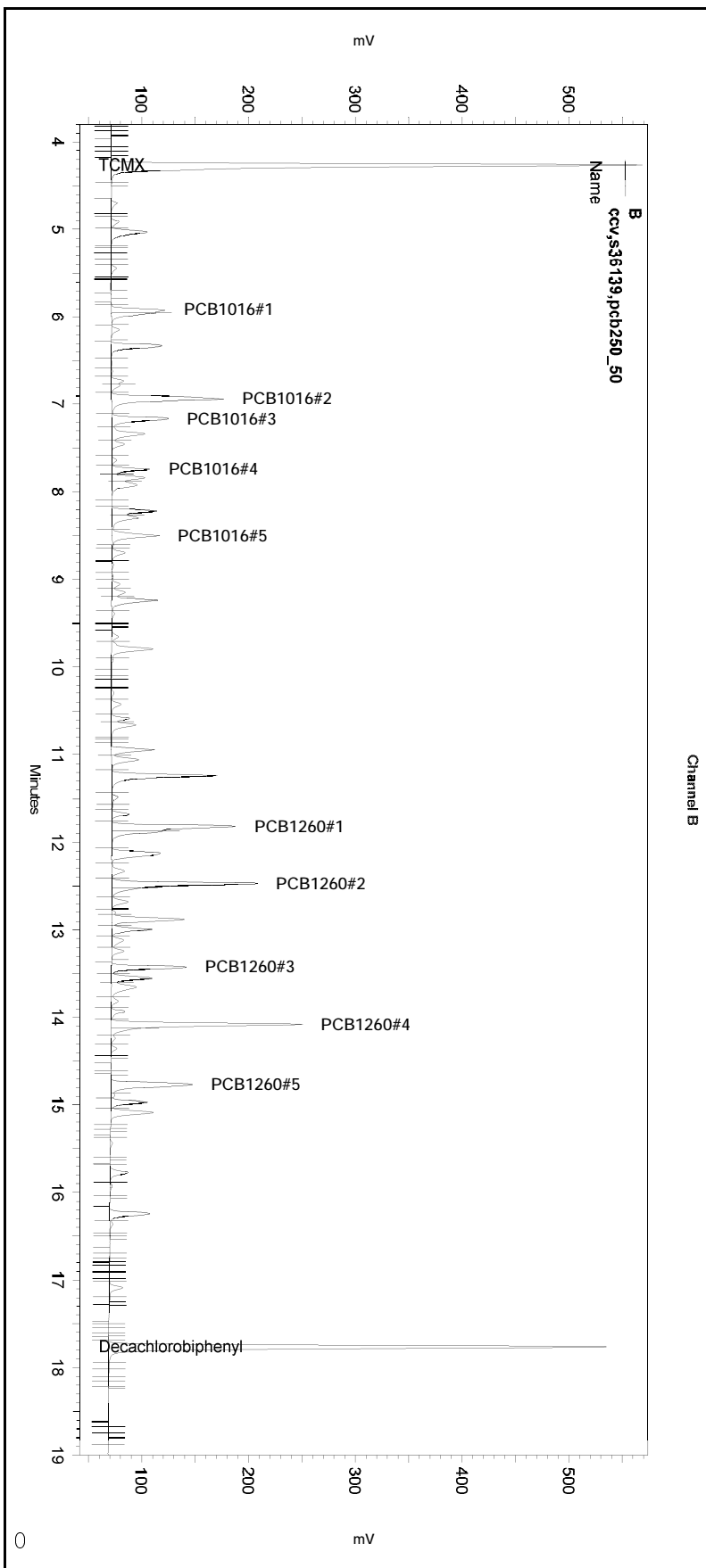
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Reset Baseline	4.36	0	0
Yes	Reset Baseline	5.988	0	0
Yes	Reset Baseline	7.452	0	0
Yes	Reset Baseline	7.868	0	0
Yes	Reset Baseline	8.573	0	0
Yes	Reset Baseline	11.519	0	0
Yes	Reset Baseline	12.118	0	0
Yes	Reset Baseline	12.285	0	0
Yes	Reset Baseline	12.86	0	0
Yes	Split Peak	13.157	0	0
Yes	Reset Baseline	13.536	0	0
Yes	Reset Baseline	14.201	0	0
Yes	Reset Baseline	14.974	0	0
Yes	Reset Baseline	17	0	0
Yes	Reset Baseline	17.432	0	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019
 Sample Name: **ccv,s36139,pcb250_50**
 Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lms2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 10:40:35 PM
 Analysis Date: 6/7/2018 10:45:15 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Manual Baseline	5.822	6.086	0
Yes	Split Peak	5.938	0	0
Yes	Reset Baseline	8.777	0	0
Yes	Split Peak	12.522	0	0
Yes	Reset Baseline	12.76	0	0
Yes	Split Peak	14.124	0	0
Yes	Manual Baseline	14.641	15.23	0

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019
Sample Name: **ccv,s36139,pcb250_50**
Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
Run Date: 6/6/2018 10:40:35 PM
Analysis Date: 6/7/2018 10:37:37 AM
Sample Amount: 1

GC16
PCB - ECD Instrument Results
Channel A: Stx-CLPesticides

A Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.150	4.147	709097	58.659
PCB1016#1	5.797	5.797	170349	275.461
PCB1016#2	6.870	6.873	238384	284.755
PCB1016#3	7.173	7.180	125388	303.150
PCB1016#4	7.633	7.634	72191	304.207
PCB1016#5	8.143	8.147	112072	294.348
PCB1260#1	11.703	11.717	370258	295.257
PCB1260#2	12.357	12.370	330929	292.786
PCB1260#3	13.210	13.220	190402	303.535
PCB1260#4	13.953	13.967	440440	303.247
PCB1260#5	14.607	14.627	207792	298.888
Decachlorobiphenyl	17.200	17.210	809317	58.873

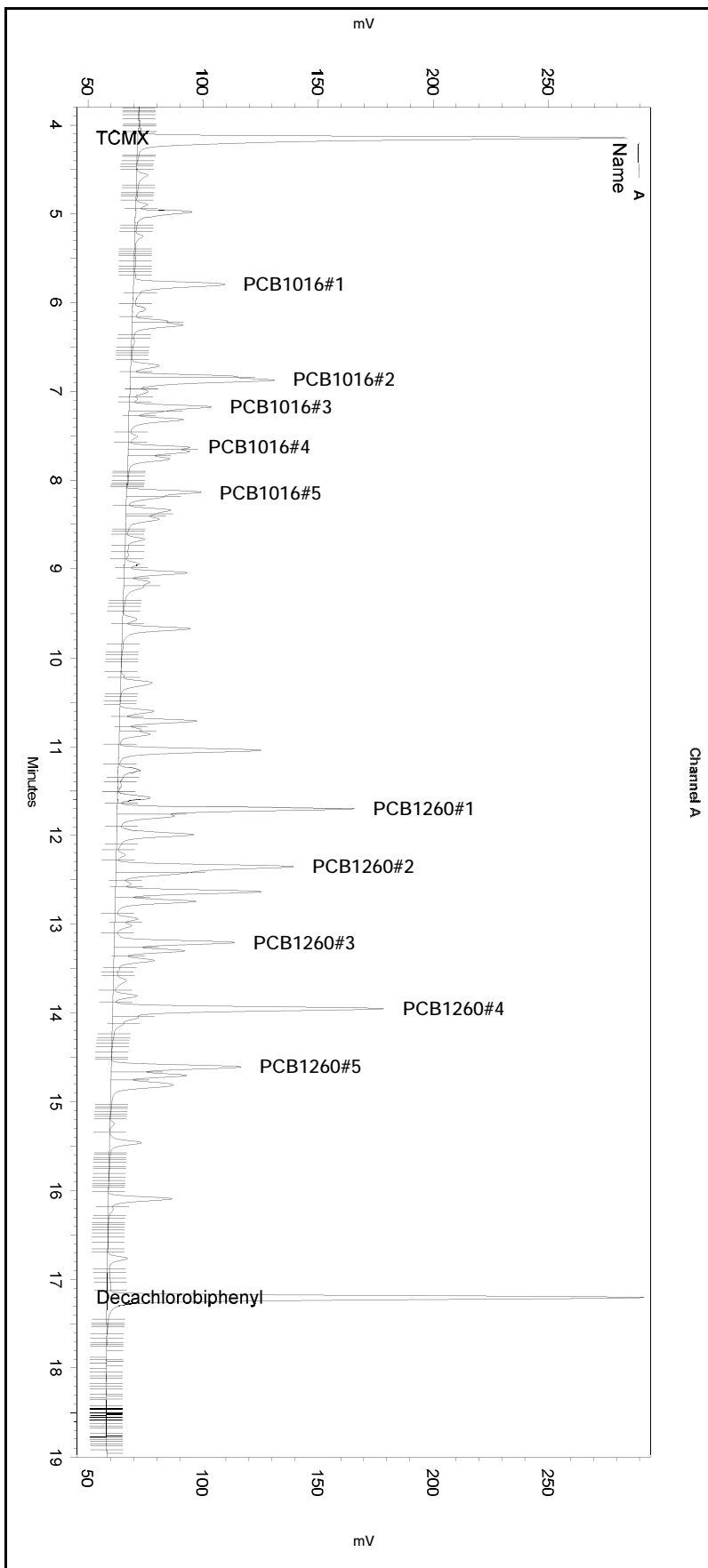
GC16
PCB - ECD Instrument Results
Channel B: Rtx-5

B Results

Name	RT	Exp RT	Area	Conc (ug/L)
TCMX	4.260	4.260	1346359	63.990
PCB1016#1	5.913	5.913	47122	97.088
PCB1016#2	6.933	6.933	419632	295.585
PCB1016#3	7.163	7.160	181800	295.057
PCB1016#4	7.737	7.733	108252	284.126
PCB1016#5	8.500	8.497	170044	292.445
PCB1260#1	11.820	11.820	349499	296.659
PCB1260#2	12.470	12.470	465463	339.413
PCB1260#3	13.423	13.423	204780	262.942
PCB1260#4	14.080	14.083	509484	335.097
PCB1260#5	14.767	14.770	240305	272.712
Decachlorobiphenyl	17.763	17.763	1248107	60.632

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019
 Sample Name: **ccv,s36139,pcb250_50**
 Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 10:40:35 PM
 Analysis Date: 6/7/2018 10:37:37 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< A >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.1
Yes	Threshold	0	0	2
Yes	Integration Off	0	2.1	0
Yes	Shoulder Sensitivity	0	0	0

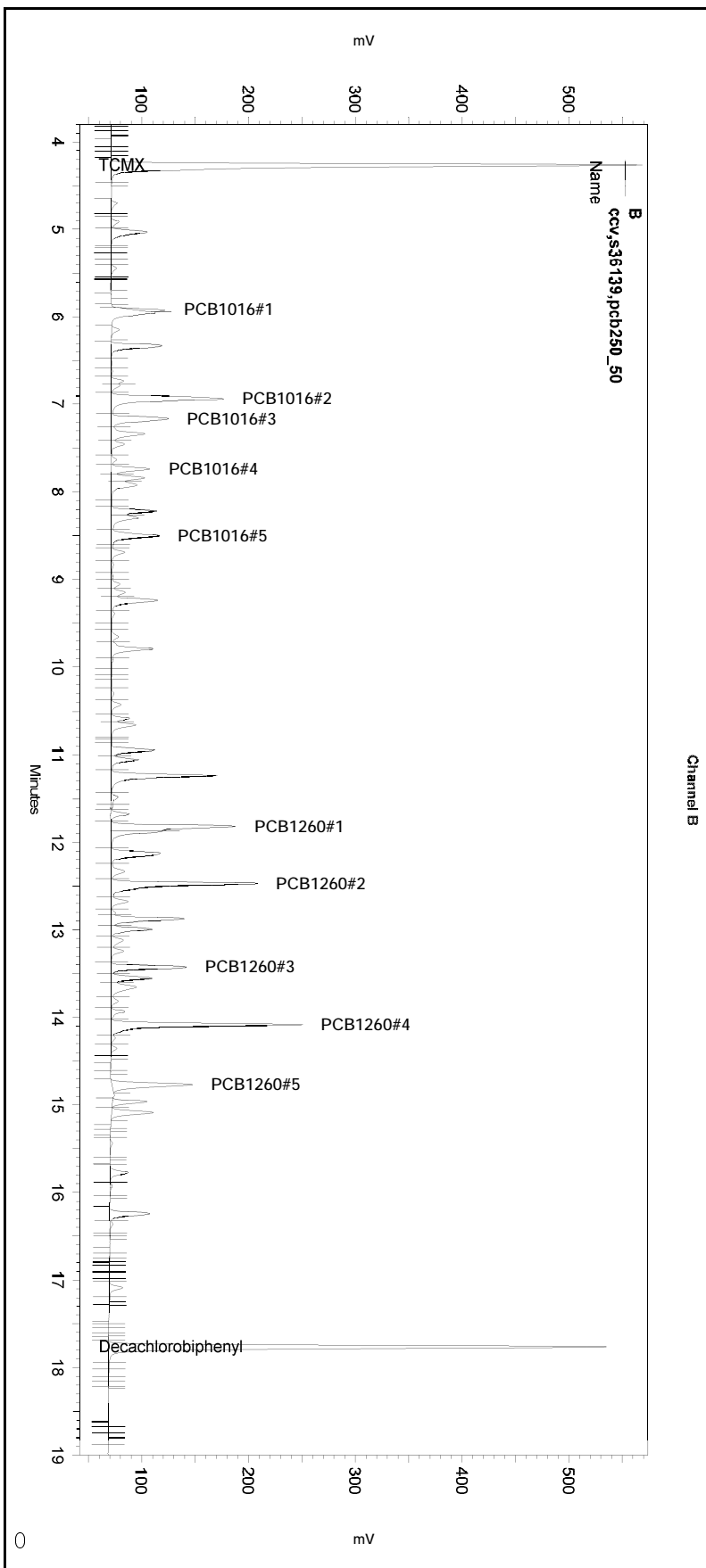
Manual Integration Fixes

Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\kraken\gdrive\ezchrom\Projects\GC16\Sequence\2018\157.seq
 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019
 Sample Name: **ccv,s36139,pcb250_50**
 Instrument: GC16 (Offline) Vial: 39 Operator: pest 1. Analyst (lims2k3\pest1)
 Method Name: \\kraken\gdrive\ezchrom\Projects\GC16\Method\PCBs & Congeners\Ar1660\pcb-run-157.met

Software Version 3.1.7
 Run Date: 6/6/2018 10:40:35 PM
 Analysis Date: 6/7/2018 10:37:37 AM
 Sample Amount: 1



 ---< General Method Parameters >-----

No items selected for this section

 ---< B >-----

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50
Yes	Integration Off	0	1.8	0
Yes	Shoulder Sensitivity	0	0	0

Manual Integration Fixes

 Data File: \\kraken\gdrive\ezchrom\Projects\GC16\Data\2018\157-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 208052389

Instrument : GC06 Begun : 02/05/18 09:09
 Method : EPA 8082 SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	036_001	X	HEX			02/05/18 09:09	1.0	
002	036_002	X	HEX			02/05/18 09:37	1.0	
003	036_003	CCV	PCB500_100			02/05/18 10:05	1.0	1
004	036_004	CCV	AR2154_250			02/05/18 10:33	1.0	2
005	036_005	X	PRIMER			02/05/18 14:44	1.0	
006	036_006	X	HEX			02/05/18 15:12	1.0	
007	036_007	X	HEX			02/05/18 15:40	1.0	
008	036_008	X	HEX			02/05/18 16:08	1.0	
009	036_009	IB	CALIB			02/05/18 16:36	1.0	
010	036_010	ICAL	PCB100_20			02/05/18 17:04	1.0	3
011	036_011	ICAL	PCB25_5			02/05/18 17:32	1.0	4
012	036_012	ICAL	PCB100_20			02/05/18 18:00	1.0	3
013	036_013	ICAL	PCB250_50			02/05/18 18:28	1.0	5
014	036_014	ICAL	PCB500_100			02/05/18 18:56	1.0	6
015	036_015	ICAL	PCB750_150			02/05/18 19:24	1.0	7
016	036_016	ICAL	PCB1000_200			02/05/18 19:52	1.0	8
017	036_017	X	HEX			02/05/18 20:20	1.0	
018	036_018	ICV	ULTRA_1660			02/05/18 20:48	1.0	9
019	036_019	X	HEX			02/05/18 21:16	1.0	

JC1 02/06/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 19.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 208228032

Instrument : GC06
 Method : EPA 8082

Begun : 06/07/18 08:32
 SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	158_001	X	HEX			06/07/18 08:32	1.0	
002	158_002	CCV	PCB500_100			06/07/18 09:00	1.0	1
003	158_003	CCV	AR2154_500			06/07/18 09:28	1.0	2
004	158_004	CCV	AR1242_250			06/07/18 11:09	1.0	3
005	158_005	SAMPLE	300249-005	Water	260194	06/07/18 11:37	1.0	
007	158_007	SAMPLE	300249-008	Water	260194	06/07/18 12:06	1.0	
008	158_008	SAMPLE	300370-001	Water	260194	06/07/18 12:34	1.0	
009	158_009	SAMPLE	300289-001	Water	260194	06/07/18 13:02	1.0	
010	158_010	SAMPLE	300289-002	Water	260194	06/07/18 13:30	1.0	
011	158_011	CCV	PCB500_100			06/07/18 13:58	1.0	1
012	158_012	CCV	AR1242_250			06/07/18 14:26	1.0	3
013	158_013	CCV	AR2154_500			06/07/18 14:54	1.0	2
014	158_014	SAMPLE	300092-001	Soil	260198	06/07/18 16:04	5.0	
015	158_015	SAMPLE	300092-001	Soil	260198	06/07/18 16:39	2.0	
016	158_016	CCV	PCB500_100			06/07/18 17:07	1.0	1

JC1 06/07/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 238128692

Instrument : GC16
 Method : EPA 8082

Begun : 03/30/18 08:52
 SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	089_001	X	HEX			03/30/18 08:52	1.0		
002	089_002	CCV	PCB250_50			03/30/18 09:21	1.0	1	
003	089_003	CCV	AR2154_500			03/30/18 09:50	1.0	2	
004	089_004	SAMPLE	298044-037	Soil	257898	03/30/18 11:39	100.0		diluted (client history), 9:PCB1254#5=4400
005	089_005	SAMPLE	298044-013	Soil	257927	03/30/18 12:08	100.0		diluted (client history), 5:PCB1016#4=7900
006	089_006	X	HEX			03/30/18 12:58	1.0		
007	089_007	X	HEX			03/30/18 14:27	1.0		
008	089_008	CCV	PCB500_100			03/30/18 14:56	1.0	3	
009	089_009	CCV	AR2154_500			03/30/18 15:25	1.0	2	
010	089_010	X	PRIMER			03/30/18 17:27	1.0		
011	089_011	X	HEX			03/30/18 17:56	1.0		
012	089_012	X	HEX			03/30/18 18:25	1.0		
013	089_013	X	HEX			03/30/18 18:54	1.0		
014	089_014	IB	CALIB			03/30/18 19:23	1.0		
015	089_015	ICAL	PCB100_20			03/30/18 19:52	1.0	4	
016	089_016	ICAL	PCB25_5			03/30/18 20:21	1.0	5	
017	089_017	ICAL	PCB100_20			03/30/18 20:50	1.0	4	
018	089_018	ICAL	PCB250_50			03/30/18 21:19	1.0	1	
019	089_019	ICAL	PCB500_100			03/30/18 21:48	1.0	6	
020	089_020	ICAL	PCB750_150			03/30/18 22:17	1.0	7	
021	089_021	ICAL	PCB1000_200			03/30/18 22:46	1.0	8	
022	089_022	X	HEX			03/30/18 23:15	1.0		
023	089_023	ICV	ULTRA_1660			03/30/18 23:44	1.0	9	
024	089_024	X	HEX			03/31/18 00:13	1.0		

JC1 04/02/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 24.

Standards used: 1=S35532 2=S35873 3=S36140 4=S35531 5=S35530 6=S35533 7=S35534 8=S35535 9=S35527

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 238226583

Instrument : GC16
 Method : EPA 8082

Begun : 06/06/18 08:23
 SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	157_001	X	HEX			06/06/18 08:23	1.0	
002	157_002	CCV	PCB250_50			06/06/18 08:52	1.0	1
003	157_003	CCV	AR2154_500			06/06/18 09:21	1.0	2
004	157_004	BLANK	QC934666	Water	260194	06/06/18 15:12	1.0	
005	157_005	BS	QC934667	Water	260194	06/06/18 15:41	1.0	
006	157_006	BSD	QC934668	Water	260194	06/06/18 16:10	1.0	
007	157_007	CCV	PCB250_50			06/06/18 16:39	1.0	1
008	157_008	CCV	AR2154_500			06/06/18 17:08	1.0	2
009	157_009	BLANK	QC934745	Soil	260217	06/06/18 17:50	1.0	
010	157_010	LCS	QC934746	Soil	260217	06/06/18 18:19	1.0	
011	157_011	MSS	300276-001	Soil	260217	06/06/18 18:48	1.0	
012	157_012	MS	QC934747	Soil	260217	06/06/18 19:17	1.0	
013	157_013	MSD	QC934748	Soil	260217	06/06/18 19:46	1.0	
014	157_014	BLANK	QC934675	Miscell.	260198	06/06/18 20:15	1.0	
015	157_015	BS	QC934676	Miscell.	260198	06/06/18 20:44	1.0	
016	157_016	BSD	QC934677	Miscell.	260198	06/06/18 21:13	1.0	
017	157_017	SAMPLE	300410-001	Soil	260217	06/06/18 21:42	1.0	
018	157_018	SAMPLE	300410-002	Soil	260217	06/06/18 22:11	1.0	
019	157_019	CCV	PCB250_50			06/06/18 22:40	1.0	1
020	157_020	CCV	AR2154_500			06/06/18 23:09	1.0	2
021	157_021	SAMPLE	300276-002	Soil	260217	06/06/18 23:38	1.0	
022	157_022	SAMPLE	300276-003	Soil	260217	06/07/18 00:07	1.0	
023	157_023	SAMPLE	300276-004	Soil	260217	06/07/18 00:36	1.0	
024	157_024	SAMPLE	300276-005	Soil	260217	06/07/18 01:05	1.0	
025	157_025	SAMPLE	300276-006	Soil	260217	06/07/18 01:34	1.0	
026	157_026	SAMPLE	300276-007	Soil	260217	06/07/18 02:03	1.0	
027	157_027	CCV	PCB250_50			06/07/18 02:32	1.0	1
028	157_028	CCV	AR2154_500			06/07/18 03:01	1.0	3

JC1 06/07/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

SAMPLE PREPARATION SUMMARY

Batch # : 260198
 Started By : ALE
 Method : 3540C
 Spike #1 ID : S37127

Prep Date : 05-JUN-2018 13:22
 SOP Version : Soxhlet_3540_rv9
 Spike #2 ID : S36375

Analysis : PCB
 Finished By : JCT
 Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
300092-001		Soil	9.54	10	1	1.048		.5				PCB	See comment 1 below
300228-003		Miscell.	5.74	10	1	1.742		.5				PCB	entire sample used
300268-001		Soil	9.51	10	1	1.052		.5				PCB	See comment 1 below
300268-002		Soil	9.67	10	1	1.034		.5				PCB	See comment 1 below
300297-001		Miscell.	2.56	10	1	3.906		.5				PCB	entire sample used
300297-002		Miscell.	.93	10	1	10.75		.5				PCB	entire sample used
QC934675	BLANK	Miscell.	5	10	1	2.0		.5				PCB	
QC934676	BS	Miscell.	5	10	1	2.0		.5	.5			PCB	
QC934677	BSD	Miscell.	5	10	1	2.0		.5	.5			PCB	

Comment 1: Prepped 06-JUN-2018 13:20; ALO ARG MIS PER SOP

JC1 06/07/18 : Matrix spikes were not performed for this analysis in batch 260198 due to insufficient sample amount.

Analyst: JC1 Date: 06/07/18 Reviewer: EAH Date: 06/07/18

Standards



Certificate of Analysis



Method 8082 Calibration Mixture

Product Number: PPM-8082

Page: 1 of 1

Lot Number: CM-5400

Lot Issue Date: 16-Oct-2015

Expiration Date: 30-Nov-2019

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1016	012674-11-2	NT01016	1001 ± 5 µg/mL
Aroclor 1260	011096-82-5	NT01023	1004 ± 5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

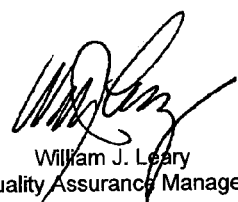
1716-1600 Aroclor 1000 ug/ SRC
 1500 U in Isooctane
 CSI 21-52P-16 1000 ug/mL
 630958 A Expires: 30-NOV-19

9/21/2016

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCCL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.



ISO 9001
Registered
TUV USA, Inc.


 William J. Leary
 Quality Assurance Manager



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32039 **Lot No.:** A0120262

Description : Aroclor® 1016/1260 Mix
Aroclor® 1016/1260 Mix 1,000 µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : October 31, 2022 **Storage:** 25°C nominal

Handling: This product contains PCBs.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Aroclor 1016	1,001.6 µg/mL	+/-	5.8779	µg/mL	Gravimetric
	CAS # 12674-11-2 (Lot W-125-04)		+/-	31.7447	µg/mL	Unstressed
	Purity ----%		+/-	41.4691	µg/mL	Stressed
2	Aroclor 1260	1,008.8 µg/mL	+/-	5.9202	µg/mL	Gravimetric
	CAS # 11096-82-5 (Lot W-129-06)		+/-	31.9729	µg/mL	Unstressed
	Purity ----%		+/-	41.7672	µg/mL	Stressed

Solvent: Hexane
CAS # 110-54-3
Purity 99%

AK_10/06_Restek_1000µg/mL DRG
AK_10/06
091 02-11-17 1000 µg/ml
032385 A Expires: 31-001-22

3/2/17



Certificate of Analysis



Pesticides Surrogate Standard Spiking Solution

Product Number: ISM-320 Page: 1 of 1
 Lot Number: CM-6063 Lot Issue Date: 03-Dec-2015 Expiration Date: 31-Dec-2018

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
2,4,5,6-tetrachloro-m-xylene	000877-09-8	RM09246	200.5 ± 1.0 µg/mL
decachlorobiphenyl (BZ # 209)	002051-24-3	RM01256	200.6 ± 1.0 µg/mL

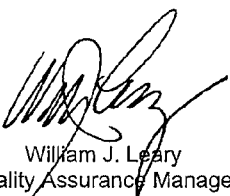
Matrix: acetone

Storage: Store at Room Temperature (15° to 30°C).

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCCL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.



ISO 9001
Registered
TUV USA, Inc.


 William J. Leary
 Quality Assurance Manager

RES16/60_S (S# 35525, EXP: 04-JUL-18) Prepared (initials & date): JCI 1-5-18

F:\qc\forms\gc-hplc\AR1016+1260.doc, 10/16/17

- Rinsed and partially filled a **100 mL** class A volumetric flask with hexane (Lot#: 174710)
- Added **1.0 mL PSS** @200 µg/mL (S# 34007, Exp: 31-DEC-18)
- Added **1.0 mL AR_16/60** @1,000 µg/mL (S# 32385, Exp: 31-OCT-22)
- Brought to final volume with hexane (same lot#), inverted to mix, and transferred to (3) 40 mL amber VOA vials
- Calculations: Surrogates = (1mL / 100mL) * (200 µg/mL) * 1000 mL/L = 2,000 µg/L

AR1016/1260 = (1mL / 100mL) * (1000 µg/mL) * 1000mL/L = 10,000 µg/L

AR 16/60 @ 10000ug/L WRK
 RES16/60 S
 JCI 05-JAN-18 2000-10000 ug/L
 S35525 B | Expires: 04-JUL-18

JCI

PCBULTRA_S (S# 35526, EXP: 30-JUN-18) Prepared (initials & date): JCI 1-5-18

F:\qc\forms\gc-hplc\AR1016+1260.doc, 10/16/17

- Rinsed and partially filled a **100mL** class A volumetric flask with hexane (Lot#: 174710)
- Added **1.0 mL** of **1660_U** @ 1000 µg/mL (S# 30958, Exp: 30-NOV-19)
- Added **1.0 mL** of **PSS** @ 200 µg/mL (S# 34007, Exp: 31-DEC-18)
- Brought to final volume with hexane (same lot#)
- Inverted to mix and transferred to (3) 40 mL amber VOA vials
- Calculations: AR1016/1260 = (1.0mL / 100mL) * (1000 µg/mL) * 1,000mL/L = 10,000 µg/L

TCMX/DCB = (1.0mL / 100mL) * (200 µg/mL) * 1,000mL/L = 2,000 µg/L

ULTRA_1660 (S# 35527, EXP: 30-JUN-18) Prepared (initials & date): JCI 1-5-18

F:\qc\forms\gc-hplc\AR1016+1260.doc, 10/16/17

- Rinsed and partially filled a **100mL** class A volumetric flask with hexane (Lot#: 174710)
- Added **2.5 mL** of **PCBULTRA_S** (S# 35526, Exp: 30-JUN-18)
- Brought to final volume with hexane (same lot#)
- Inverted to mix, and transferred to (3) 40 mL amber VOA vials
- Calculations: AR1016/1260 = (2.5mL / 100mL) * (10,000 µg/L) = 250 µg/L

TCMX/DCB = (2.5mL / 100mL) * (2,000 µg/L) = 50 µg/L

ultra 1660 +surr wrk 2000- WRK Ultra_1660 PCB 50-250 ug/L WRK
 PCBULTRA_S in Hexane ULTRA_1660 in Hexane
 JCI 01-JAN-18 2000-10000 ug/L JCI 05-JAN-18 50-250 ug/L
 S35526 A | Expires: 30-JUN-18 JCI S35527 A | Expires: 30-JUN-18

JCI

Continued on Page _____

[Signature] 1-5-18
 Signed Date

Read and Understood By _____
 Signed Date

AR1660 7-Point ICAL

Prepared (initials & date): JET/CNC^{11/5/18}
1-5-18

F:\qc\forms\gc-hplc\AR1016+1260.doc, 10/16/17

- Rinsed and partially filled a class A volumetric flask with hexane (Lot#: 174710)
- Added corresponding amount of **RES16/60_S** (35525, Exp: 04-JUL-18)
- Brought to final volume with hexane (same lot#), inverted to mix, and transferred to 40 mL amber VOA vials

Level	LIMS Name	RES16/60 Volume (mL)	Final Volume (mL)	Final Conc (µg/L) Spike/Surr
1.	PCB10_2 S35529	0.10	100	10 / 2
2.	PCB25_5 S35530	0.25	100	25 / 5
3.	PCB100_20 S35531	1.0	100	100 / 20
4.	PCB250_50 S35532	5.0 2.5	200 100	250 / 50
5.	PCB500_100 S35533	10.0 5	200 100	500 / 100
6.	PCB750_150 S35534	7.5	100	750 / 150
7.	PCB1K_200 S35535	10.0 5	100 50	1000 / 200

- Calculation (Level 1) = AR1016/1260 = (0.1mL/100mL) * (10,000 µg/L) = 10 µg/L
Surrogates = (0.1mL/100mL) * (2,000 µg/L) = 2 µg/L

PCB ICAL #1 WRK
PCB10_2
CNC 05-JAN-18 2-10 ug/L
S35529 A | Expires: 04-JUL-18

PCB ICAL #4 WRK
PCB250_50
CNC 05-JAN-18 50-250 ug/L
S35532 A | Expires: 04-JUL-18

PCB ICAL #2 WRK
PCB25_5
CNC 05-JAN-18 5-25 ug/L
S35530 A | Expires: 04-JUL-18

PCB ICAL #5 WRK
PCB500_100
CNC 05-JAN-18 100-500 ug/L
S35533 A | Expires: 04-JUL-18

PCB ICAL #3 WRK
PCB100_20
CNC 05-JAN-18 20-100 ug/L
S35531 A | Expires: 04-JUL-18

PCB ICAL #6 WRK
PCB750_150
CNC 05-JAN-18 150-750 ug/L
S35534 A | Expires: 04-JUL-18

PCB ICAL #7 WRK
PCB1K_200
CNC 05-JAN-18 200-1000 ug/L
S35535 A | Expires: 04-JUL-18

CNC
CNC 1/5/18

11/5/18

Continued on Page _____

Read and Understood By _____

Signed _____

Date _____

Signed _____

Date _____

PCB250_50 (S# 36139, EXP: 04-JUL-18) Prepared (initials & date): RDG 2/28/18
 F:\qc\forms\gc-hplc\AR1016+1260.doc, 10/16/17

- Rinsed and partially filled a **100mL** class A volumetric flask with hexane (Lot#: 1765B)
- Added **2.5 mL** of **RES16/60_S** (S# 35525, Exp: 04-JUL-18)
- Brought to final volume with hexane (same lot#)
- Inverted to mix and transferred to (3) 40 mL amber VOA vials
- Calculations: $AR1016/1260 = (2.5\text{mL} / 100\text{mL}) * (10,000 \mu\text{g/L}) = 250 \mu\text{g/L}$

$TCMX/DCB = (2.5\text{mL} / 100\text{mL}) * (2,000 \mu\text{g/L}) = 50 \mu\text{g/L}$

RDG 2/28/18
PCB500_100 (S# 36140, EXP: 04-JUL-18) Prepared (initials & date): RDG 2/28/18
 F:\qc\forms\gc-hplc\AR1016+1260.doc, 10/16/17

- Rinsed and partially filled a **100mL** class A volumetric flask with hexane (Lot#: 1765B)
- Added **5.0 mL** of **RES16/60_S** (S# 35525, Exp: 04-JUL-18)
- Brought to final volume with hexane (same lot#)
- Inverted to mix, and transferred to (3) 40 mL amber VOA vials
- Calculations: $AR1016/1260 = (5.0\text{mL} / 100\text{mL}) * (10,000 \mu\text{g/L}) = 500 \mu\text{g/L}$

$TCMX/DCB = (5.0\text{mL} / 100\text{mL}) * (2,000 \mu\text{g/L}) = 100 \mu\text{g/L}$

PCB ICAL #4 WRK
 PCB250_50
 RDG 02-FEB-18 50-250 ug/L
 S36139 D | Expires: 04-JUL-18

RDG 2/28/18

PCB ICAL #5 WRK
 PCB500_100
 RDG 02-FEB-18 100-500 ug/L
 S36140 D | Expires: 04-JUL-18

RDG 2/28/18

RDG 2/28/18

RES32_S (S# 36186, EXP: 29-AUG-18) Prepared (initials & date): JC1 3-2-18
 F:\qc\forms\gc-hplc\AR1232.doc, 10/16/17

- Rinsed and partially filled a **100 mL** class A volumetric flask with hexane (Lot#: 176 172635)
- Added **1.0 mL AR32_R** @ 1,000 $\mu\text{g/mL}$ (S# 31018, Exp: 31-MAY-22)
- Brought to final volume with hexane (same lot#), inverted to mix, and transferred to (3) 40 mL amber VOA vials
- Calculations: $AR1232 = (1\text{mL} / 100\text{mL}) * (1,000 \mu\text{g/mL}) * 1000 \text{mL/L} = 10,000 \mu\text{g/L}$

aroclor 1232 secondary sto WRK
 RES32_S
 JC1 02-MAR-18 10 mg/L
 S36186 A | Expires: 29-AUG-18

JC1

RESTEK
 32008
 Lot# A0117033
 Aroclor® 1232 Standard
 Expire: 06/2022. Store: 25°C maximum
 For label information for the chemicals provided on the
 stability package. 1 mL
 Made in USA

110 Economy Circle
 Bellefonte, PA 16823
 814-353-1300



Continued on Page

Read and Understood By

Signed

Date

Signed

Date

PROJECT PCB 16/60 SPIKE

DATE

TITLE

Initials: RD1 Date Prepared: 20-MAR-18 PCB (Ar1016/1260) Spiking Standard

LIMS Name: PCB16/60 SPIKE Expires: 16-SEP-18 Standard # S36375
 F:\qc\forms\lab\recipe_PCB1660 spike.doc, v2, 3/15/17

1. Rinsed a 200mL class A volumetric flask with CH₂Cl₂ (lot# EM57291) 3 times and dried with N₂(g).
2. Partially filled flask with 1:1 MeOH/ CH₂Cl₂ (MeOH lot# FC176576, CH₂Cl₂ lot# EM57291)
3. Added 1.0mL 1660_U (S# 35349 EXP: 30-NOV-19)
 Calculation: $(1.0\text{mL}/200.0\text{mL}) * (1000\mu\text{g}/1.0\text{mL}) = 5\mu\text{g}/\text{mL}$
4. Brought up to volume with 1:1 MeOH/ CH₂Cl₂ (same lot numbers)
5. Inverted 3 times to mix and transferred to (5) 40ml VOA vials
6. Stored in freezer at < -10°C

PPM-8082-1
 Lot: CM-5400
 Exp: 11/30/2019
 Method 8082 Calibration Mixture
 2 analyte(s) at 1000 ug/mL in
 isooctane (2,2,4-trimethylpentane)
 260 Smith St, No Kingstown, RI 02852 USA

ULTRA
 1 mL
 For Lab Use Only
 RD1 3/20/18

Aroclors 1016 & 1260 @ 5ug WRK
 PCB 16/60 SPIKE in Methanol
 RD1 20-MAR-18 5 ug/mL
 S36375 F 1 Expires: 16-SEP-18
 RD1 3/20/2018

RD1 3/20/2018

Continued to page

SIGNATURE *[Handwritten Signature]*

DATE 3/20/2018

DISCLOSED TO AND UNDERSTOOD BY

DATE

PROPRIETARY INFORMATION

ENTHALPY EPA 8082

Inst: <u>GC25</u>	IDF: 1.0
Seqnum: <u>828115722018 D</u>	File: 080_018
Standards: <u>S36375 (20X)</u>	Time: 21-MAR-2018 19:31

Analyte	Ch	Cal	Caldate	Spiked	Quant	Units	%D	Flags
Aroclor-1016	A	<u>828114268001</u>	21-MAR-2018	250.0	256.7	pg/uL	3	
Aroclor-1260	A	<u>828114268001</u>	21-MAR-2018	250.0	238.9	pg/uL	-4	
Aroclor-1016	B	<u>828063914001</u>	13-FEB-2018	250.0	283.0	pg/uL	13	calc >LR ***
Aroclor-1260	B	<u>828063914001</u>	13-FEB-2018	250.0	119.8	pg/uL	-52	calc

JC1	<u>03/22/18 12:51</u>	Corrected automatically drawn baseline.	
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JC1 reviewed 03/22/18 12:51

Print PEST/PCBs

TITLE

PROJECT PEST/PCB SURR

DATE

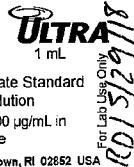
Continued from page

Initials: RD1 Date Prepared: 5/29/2018 8081 & PCB Surrogate Standard

LIMS Name: PEST/PCB SURR Expires: 25-NOV-18 Standard # S37127
F:\qc\forms\lab\recipe_pestpcb_surr.doc, v2, 3/15/17

1. Rinsed a 1000mL class A volumetric flask with CH₂Cl₂ (lot# EMS8068) 3 times and dried with N₂(g).
2. Partially filled flask with 1:1 MeOH/ CH₂Cl₂ (MeOH lot# FC177145 CH₂Cl₂ lot# EMS8068)
3. Added 5.0mL PSS 200µg/mL (S# 31127 EXP: 31-AUG-18)
Calculation: (5.0mL/1000.0mL)*(200µg/1.0mL) = 1.0 µg/mL

ISM-320-1
Lot: CM-6063
Exp: 12/31/2018
Pesticides Surrogate Standard
Spiking Solution
2 analyte(s) at 200 µg/mL in acetone
250 Smith St, No Kingstown, RI 02852 USA



4. Sonicated for 20 minutes
5. Brought up to volume with 1:1 MeOH/CH₂Cl₂ (same lot numbers)
6. Inverted 3 times to mix and transferred to (4) 250ml amber bottles.
7. Stored in freezer at < -10°C

TCMX & DCB @ 1ug/mL WRK
PEST/PCBSURR in Other
RD1 29-MAY-18 1 ug/mL
S37127 D 1 Expires: 25-NOV-18

RD1 5/29/2018

RD1 5/29/18

SIGNATURE

DATE

5/29/2018

Continued to page

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DATE

PROPRIETARY INFORMATION



Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 300092

ANALYTICAL REPORT

Metals

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 1035225322.01
Location : RFS Corp Yard
Level : IV

Sample ID
RFS-B180-DU01

Lab ID
300092-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____

Mike Dahlquist
Project Manager
mike.dahlquist@enthalpy.com
(510) 204-2225 Ext 13101

Date: 06/11/2018

CA ELAP# 2896, NELAP# 4044-001

**CASE NARRATIVE
METALS (EPA 6010B AND EPA 7471A)**

Laboratory number: 300092
Client: Tetra Tech EMI
Project: 1035225322.01
Location: RFS Corp Yard
Request Date: 05/25/18
Samples Received: 05/25/18

This data package contains sample and QC results for one soil sample, requested for the above referenced project on 05/25/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6010B and EPA 7471A):

Responses exceeding the instrument's linear range were observed for mercury in the MS/MSD of RFS-B180-DU01 (lab # 300092-001).

High % differences were observed for a number of analytes in the serial dilution of RFS-B180-DU01 (lab # 300092-001).

A number of analytes were detected between the MDL and the RL in the method blank for batch 260184; these analytes were detected in the sample at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY



Formerly Curtis & Tompkins Labs

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Project No: 103S225322.01
Project Name: RFS B180 Trawl
Project P. O. No:

Sampler: J BRADDERSEN
Report To: J BRADDERSEN
Company: TETRA TECH

EDD Format: Report Level II III IV
Turnaround Time: RUSH Standard

Telephone: 415-497-9060
Email: Jason.Bradderesen@tetratech.com

Page 1 of 1
Chain of Custody #

C&T LOGIN # 700092

ANALYTICAL REQUEST	
ISM PAPE / 100 SUBMITTS	X
CAM IT METALS 6010	X
MERCURY TPTI	X
PAT SIM SITE	X
PLB R082 + SCHLETT EXT	X

Lab No.	Sample ID.	SAMPLING		MATRIX		CHEMICAL PRESERVATIVE					
		Date Collected	Time Collected	Water	Solid	# of Containers					
	RFS-15180-DU01	5/25/18	1130	X		HCl	H2SO4	HNO3	NaOH	None	3

Notes:

SAMPLE RECEIPT
 Intact
 Cold
 On Ice
 Ambient

RELINQUISHED BY: *BR* DATE: 5/25/18 TIME: 1235

RECEIVED BY: *Pat Hansen* DATE: 5/25/18 TIME: 12:35

SAMPLE RECEIPT CHECKLIST



Section 1: Login # 300092 Client: Tetra Tech
 Date Received: 5-25-18 Project: RFS B180

Section 2: Samples received in a cooler? Yes, how many? _____ No (skip Section 3 below)
 If no cooler Sample Temp (°C): _____ using IR Gun # A, or B
 Samples received on ice directly from the field. Cooling process had begun
 If in cooler: Date Opened 5-25-18 By (print) sp (sign) sp
 Shipping info (if applicable) _____
 Are custody seals present? No, or Yes. If yes, where? on cooler, on samples, on package
 Date: _____ How many _____ Signature, Initials, None
 Were custody seals intact upon arrival? Yes No N/A

Section 3: **Important : Notify PM if temperature exceeds 6°C or arrive frozen.**
 Packing in cooler: (if other, describe) _____
 Bubble Wrap, Foam blocks, Bags, None, Cloth material, Cardboard, Styrofoam, Paper towels
 Samples received on ice directly from the field. Cooling process had begun
 Type of ice used : Wet, Blue/Gel, None Temperature blank(s) included? Yes, No
 Temperature measured using Thermometer ID: _____, or IR Gun # A B
 Cooler Temp (°C): #1: _____, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	X		
Were Method 5035 sampling containers present?		X	
If YES, what time were they transferred to freezer?			
Did all bottles arrive unbroken/unopened?	X		
Are there any missing / extra samples?		X	
Are samples in the appropriate containers for indicated tests?	X		
Are sample labels present, in good condition and complete?	X		
Does the container count match the COC?	X		
Do the sample labels agree with custody papers?	X		
Was sufficient amount of sample sent for tests requested?	X		
Did you change the hold time in LIMS for unpreserved VOAs?			X
Did you change the hold time in LIMS for preserved terracoeres?			X
Are bubbles > 6mm absent in VOA samples?			X
Was the client contacted concerning this sample delivery?		X	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (if N/A, skip the rest of section 5)			X
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check? pH strip lot# _____, pH strip lot# _____, pH strip lot# _____			
Preservative added:			
<input type="checkbox"/> H2SO4 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HCL lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HNO3 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> NaOH lot# _____ added to samples _____ on/at _____			

Section 6:
 Explanations/Comments: _____

Date Logged in 5-25-18 By (print) sp (sign) sp
 Date Labeled 5-25-18 By (print) sp (sign) sp

Results & QC Summary

California Title 22 Metals			
Lab #:	300092	Project#:	1035225322.01
Client:	Tetra Tech EMI	Location:	RFS Corp Yard
Field ID:	RFS-B180-DU01	Basis:	dry
Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg		

Moisture: 9%

Analyte	Result	RL	MDL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	1.2 J	2.2	0.075	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Arsenic	16	1.6	0.072	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Barium	190	0.27	0.033	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Beryllium	0.39	0.11	0.014	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Cadmium	0.65	0.27	0.018	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Chromium	36	0.27	0.054	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Cobalt	11	0.27	0.016	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Copper	440	0.27	0.062	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Lead	160	1.1	0.062	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Mercury	18	0.39	0.068	20.00		260282	06/07/18	06/07/18	METHOD	EPA 7471A
Molybdenum	1.6	0.27	0.029	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Nickel	30	0.27	0.047	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Selenium	ND	2.2	0.21	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Silver	1.7	0.27	0.033	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Thallium	0.22 J	0.55	0.098	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Vanadium	28	0.27	0.057	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Zinc	160	1.1	0.23	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B

J= Estimated value

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322.01	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC934619	Batch#:	260184
Matrix:	Soil	Prepared:	06/05/18
Units:	mg/Kg	Analyzed:	06/05/18

Analyte	Result	RL	MDL
Antimony	ND	2.0	0.068
Arsenic	ND	1.5	0.066
Barium	0.19 J	0.25	0.030
Beryllium	ND	0.099	0.012
Cadmium	ND	0.25	0.016
Chromium	0.17 J	0.25	0.049
Cobalt	ND	0.25	0.014
Copper	0.074 J	0.25	0.057
Lead	ND	0.99	0.056
Molybdenum	ND	0.25	0.026
Nickel	0.22 J	0.25	0.042
Selenium	ND	2.0	0.19
Silver	ND	0.25	0.030
Thallium	ND	0.50	0.089
Vanadium	ND	0.25	0.052
Zinc	0.66 J	0.99	0.21

J= Estimated value

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322.01	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	260184
Units:	mg/Kg	Prepared:	06/05/18
Diln Fac:	1.000	Analyzed:	06/05/18

Type: BS Lab ID: QC934620

Analyte	Spiked	Result	%REC	Limits
Antimony	48.22	42.58	88	80-120
Arsenic	48.22	43.07	89	80-120
Barium	48.22	44.56	92	80-120
Beryllium	24.11	22.49	93	80-120
Cadmium	48.22	41.94	87	80-120
Chromium	48.22	44.29	92	80-120
Cobalt	48.22	43.07	89	80-120
Copper	48.22	42.84	89	80-120
Lead	48.22	43.73	91	80-120
Molybdenum	48.22	43.44	90	80-120
Nickel	48.22	43.44	90	80-120
Selenium	48.22	41.64	86	80-120
Silver	4.822	4.278	89	80-120
Thallium	48.22	43.51	90	80-120
Vanadium	48.22	43.46	90	80-120
Zinc	48.22	44.67	93	80-120

Type: BSD Lab ID: QC934621

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	48.50	45.74	94	80-120	7	20
Arsenic	48.50	46.27	95	80-120	7	20
Barium	48.50	48.86	101	80-120	9	20
Beryllium	24.25	23.25	96	80-120	3	20
Cadmium	48.50	45.12	93	80-120	7	20
Chromium	48.50	47.43	98	80-120	6	20
Cobalt	48.50	46.19	95	80-120	6	20
Copper	48.50	45.73	94	80-120	6	20
Lead	48.50	46.78	96	80-120	6	20
Molybdenum	48.50	46.70	96	80-120	7	20
Nickel	48.50	46.50	96	80-120	6	20
Selenium	48.50	44.78	92	80-120	7	20
Silver	4.850	4.580	94	80-120	6	22
Thallium	48.50	46.80	97	80-120	7	20
Vanadium	48.50	46.73	96	80-120	7	20
Zinc	48.50	47.50	98	80-120	6	20

RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322.01	Analysis:	EPA 6010B
Field ID:	RFS-B180-DU01	Batch#:	260184
MSS Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg	Prepared:	06/05/18
Basis:	dry	Analyzed:	06/05/18
Diln Fac:	1.000		

Type: MS Moisture: 9%
Lab ID: QC934622

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	1.206	54.89	8.720	14	1-120
Arsenic	15.53	54.89	67.68	95	71-123
Barium	194.5	54.89	257.5	115	48-155
Beryllium	0.3933	27.45	26.34	95	80-120
Cadmium	0.6502	54.89	51.60	93	78-120
Chromium	36.05	54.89	98.09	113	64-135
Cobalt	10.74	54.89	61.34	92	65-120
Copper	437.2	54.89	502.6	119	75-132
Lead	158.9	54.89	206.6	87	53-128
Molybdenum	1.625	54.89	43.60	76	68-120
Nickel	30.43	54.89	84.71	99	56-128
Selenium	<0.2061	54.89	46.41	85	59-120
Silver	1.723	5.489	6.883	94	36-123
Thallium	0.2247	54.89	47.58	86	55-120
Vanadium	28.24	54.89	84.81	103	73-129
Zinc	163.1	54.89	214.0	93	49-138

Type: MSD Moisture: 9%
Lab ID: QC934623

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	53.66	8.413	13	1-120	1	50
Arsenic	53.66	61.94	86	71-123	7	27
Barium	53.66	225.4	57	48-155	13	41
Beryllium	26.83	24.05	88	80-120	7	20
Cadmium	53.66	47.17	87	78-120	7	21
Chromium	53.66	85.36	92	64-135	13	37
Cobalt	53.66	54.61	82	65-120	10	32
Copper	53.66	468.6	58	75-132	7	33
Lead	53.66	202.7	82	53-128	1	48
Molybdenum	53.66	40.06	72	68-120	6	23
Nickel	53.66	75.50	84	56-128	10	38
Selenium	53.66	42.47	79	59-120	7	30
Silver	5.366	6.430	88	36-123	5	47
Thallium	53.66	44.18	82	55-120	5	22
Vanadium	53.66	74.65	86	73-129	11	27
Zinc	53.66	201.5	72	49-138	5	39

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322.01	Analysis:	EPA 6010B
Field ID:	RFS-B180-DU01	Basis:	dry
Type:	Serial Dilution	Diln Fac:	5.000
MSS Lab ID:	300092-001	Batch#:	260184
Lab ID:	QC934790	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg	Analyzed:	06/06/18

Moisture: 9%

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim
Antimony	1.206	2.189	0.8006 J	2.736	NC	10
Arsenic	15.53	1.642	17.05	1.642	10	10
Barium	194.5	0.2736	210.6	1.368	8	10
Beryllium	0.3933	0.1095	0.4241 J	0.5473	NC	10
Cadmium	0.6502	0.2736	0.5768 J	1.368	NC	10
Chromium	36.05	0.2736	39.77	1.368	10	10
Cobalt	10.74	0.2736	11.61	1.368	8	10
Copper	437.2	0.2736	464.0	1.368	6	10
Lead	158.9	1.095	183.1	1.368	15 *	10
Molybdenum	1.625	0.2736	1.595	1.368	2	10
Nickel	30.43	0.2736	34.48	1.368	13 *	10
Selenium	ND	2.189	ND	3.092	NC	10
Silver	1.723	0.2736	1.945	1.368	13 *	10
Thallium	0.2247	0.5473	ND	2.736	NC	10
Vanadium	28.24	0.2736	31.93	1.368	13 *	10
Zinc	163.1	1.095	179.8	5.473	10	10

*= Value outside of QC limits; see narrative

J= Estimated value

NC= Not Calculated

ND= Not Detected at or above MDL

RL= Reporting Limit

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322.01	Analysis:	EPA 6010B
Field ID:	RFS-B180-DU01	Basis:	dry
Type:	Post Digest Spike	Diln Fac:	1.000
MSS Lab ID:	300092-001	Batch#:	260184
Lab ID:	QC934791	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg	Analyzed:	06/06/18

Moisture: 9%

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	1.206	5.473	6.413	95	75-125
Arsenic	15.53	5.473	21.69	112	75-125
Barium	194.5	5.473	197.4	53 NM	75-125
Beryllium	0.3933	5.473	5.949	102	75-125
Cadmium	0.6502	5.473	6.285	103	75-125
Chromium	36.05	5.473	41.05	91 NM	75-125
Cobalt	10.74	5.473	15.91	94	75-125
Copper	437.2	5.473	450.7	247 NM	75-125
Lead	158.9	5.473	162.2	61 NM	75-125
Molybdenum	1.625	5.473	7.195	102	75-125
Nickel	30.43	5.473	35.44	92 NM	75-125
Selenium	<0.2061	5.473	5.453	100	75-125
Silver	1.723	5.473	7.375	103	75-125
Thallium	0.2247	2.736	2.772	93	75-125
Vanadium	28.24	5.473	33.83	102 NM	75-125
Zinc	163.1	5.473	174.5	210 NM	75-125

NM= Not Meaningful: Sample concentration > 4X spike concentration

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225322.01	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	260282
Lab ID:	QC935009	Prepared:	06/07/18
Matrix:	Soil	Analyzed:	06/07/18
Units:	mg/Kg		

Result	RL	MDL
ND	0.016	0.0028

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225322.01	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	260282
Matrix:	Soil	Prepared:	06/07/18
Units:	mg/Kg	Analyzed:	06/07/18
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC935010	0.1724	0.1698	98	80-126		
BSD	QC935011	0.1667	0.1550	93	80-126	6	45

RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225322.01	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	RFS-B180-DU01	Batch#:	260282
MSS Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg	Prepared:	06/07/18
Basis:	dry	Analyzed:	06/07/18

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
MS	QC935012	18.21	0.1962	9.066 >LR	-4659 NM	61-157	9%		
MSD	QC935013		0.1863	9.066 >LR	-4908 NM	61-157	9%	NC	57

NC= Not Calculated

NM= Not Meaningful: Sample concentration > 4X spike concentration

>LR= Response exceeds instrument's linear range

RPD= Relative Percent Difference

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225322.01	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Field ID:	RFS-B180-DU01	Diln Fac:	100.0
Type:	Serial Dilution	Batch#:	260282
MSS Lab ID:	300092-001	Sampled:	05/25/18
Lab ID:	QC935014	Received:	05/25/18
Matrix:	Soil	Analyzed:	06/07/18
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	Moisture %	Diff	Lim
18.21	0.3856	16.40	1.928	9%	10	10

RL= Reporting Limit

REPORTING SUMMARY FOR 300092 METALS Soil
 Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	S	A	B	B	C	C	C	C	P	H	M	N	S	A	T	V	Z
				B	S	A	E	D	R	O	U	B	G	O	I	E	G	L		N
300092-001	MET11	06/05/18 20:15	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
300092-001	MET45	06/07/18 17:58	1.0																	
300092-001	MET45	06/07/18 18:33	20.0										+							
QC934619	MET11	06/05/18 20:05	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC934620	MET11	06/05/18 20:09	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC934621	MET11	06/05/18 20:12	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC934622	MET11	06/05/18 20:19	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC934623	MET11	06/05/18 20:22	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC934790	MET11	06/06/18 15:39	5.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC934791	MET11	06/06/18 15:43	1.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC935009	MET45	06/07/18 17:51	1.0										+							
QC935010	MET45	06/07/18 17:55	1.0										+							
QC935011	MET45	06/07/18 17:56	1.0										+							
QC935012	MET45	06/07/18 17:59	1.0										+							
QC935013	MET45	06/07/18 18:01	1.0										+							
QC935014	MET45	06/07/18 18:02	5.0										+							
QC935014	MET45	06/07/18 18:34	100.0										+							

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met11_060418	ICALBLK	CALBLANK			06/05/18 08:25	1.0		
002	met11_060418	ICAL	L1			06/05/18 08:28	1.0	1	
003	met11_060418	ICAL	L2			06/05/18 08:32	1.0	2	
004	met11_060418	ICAL	L3			06/05/18 08:35	1.0	3	
005	met11_060418	ICAL	L4			06/05/18 08:38	1.0	4	
006	met11_060418	ICAL	L5			06/05/18 08:42	1.0	5	
007	met11_060418	ICV				06/05/18 08:45	1.0	6	
008	met11_060418	XCRI				06/05/18 08:48	1.0	7	
009	met11_060418	ICB				06/05/18 08:52	1.0		
010	met11_060418	CRI				06/05/18 08:56	1.0	7	
011	met11_060418	ICSA				06/05/18 08:59	1.0	8	10:MG=490000
012	met11_060418	ICSAB				06/05/18 09:02	1.0	9	5:MG=510000
013	met11_060418	X	IB			06/05/18 09:06	1.0		
014	met11_060418	BLANK	QC934563	Soil	260169	06/05/18 09:14	1.0		
015	met11_060418	BS	QC934564	Soil	260169	06/05/18 09:18	1.0		2:FE=10000
016	met11_060418	BSD	QC934565	Soil	260169	06/05/18 09:21	1.0		1:FE=10000
017	met11_060418	MSS	300271-001	Soil	260169	06/05/18 09:24	1.0		3:FE=320000
018	met11_060418	MS	QC934566	Soil	260169	06/05/18 09:28	1.0		6:FE=360000
019	met11_060418	MSD	QC934567	Soil	260169	06/05/18 09:31	1.0		4:FE=330000
020	met11_060418	SAMPLE	300271-002	Soil	260169	06/05/18 09:34	1.0		4:FE=410000
021	met11_060418	SAMPLE	300271-003	Soil	260169	06/05/18 09:38	1.0		4:FE=540000
022	met11_060418	SAMPLE	300271-004	Soil	260169	06/05/18 09:41	1.0		2:FE=350000
023	met11_060418	SAMPLE	300271-005	Soil	260169	06/05/18 09:44	1.0		2:FE=290000
024	met11_060418	CCV				06/05/18 09:48	1.0	6	
025	met11_060418	CCB				06/05/18 09:51	1.0		
026	met11_060418	SAMPLE	300271-006	Soil	260169	06/05/18 09:54	1.0		2:FE=320000
027	met11_060418	SAMPLE	300271-007	Soil	260169	06/05/18 09:58	1.0		3:FE=360000
028	met11_060418	SAMPLE	300271-008	Soil	260169	06/05/18 10:01	1.0		2:FE=310000
029	met11_060418	SAMPLE	300271-009	Soil	260169	06/05/18 10:04	1.0		4:FE=450000
030	met11_060418	SAMPLE	300271-010	Soil	260169	06/05/18 10:08	1.0		5:FE=370000
031	met11_060418	SAMPLE	300271-011	Soil	260169	06/05/18 10:11	1.0		3:FE=300000
032	met11_060418	SAMPLE	300271-012	Soil	260169	06/05/18 10:14	1.0		4:FE=530000
033	met11_060418	SAMPLE	300271-013	Soil	260169	06/05/18 10:18	1.0		4:FE=520000
034	met11_060418	SAMPLE	300271-014	Soil	260169	06/05/18 10:21	1.0		5:FE=560000
035	met11_060418	CCV				06/05/18 10:24	1.0	6	
036	met11_060418	CCB				06/05/18 10:28	1.0		
037	met11_060418	BLANK	QC934461	Water	260142	06/05/18 10:59	1.0		
038	met11_060418	BS	QC934462	Water	260142	06/05/18 11:02	1.0		
039	met11_060418	BSD	QC934463	Water	260142	06/05/18 11:06	1.0		1:FE=10000
040	met11_060418	SAMPLE	300239-012	Water	260142	06/05/18 11:09	100.0		2:FE=21000
041	met11_060418	MSS	300239-013	Water	260142	06/05/18 11:12	100.0		
042	met11_060418	MSS	300239-013	Water	260142	06/05/18 11:16	1.0		5:NA=1400000
043	met11_060418	MS	QC934464	Water	260142	06/05/18 11:19	1.0		5:NA=1400000
044	met11_060418	MSD	QC934465	Water	260142	06/05/18 11:22	1.0		5:NA=1400000
045	met11_060418	X	IB			06/05/18 11:26	1.0		
046	met11_060418	SAMPLE	300239-012	Water	260142	06/05/18 11:29	1.0		7:NA=2200000
047	met11_060418	X	IB			06/05/18 11:32	1.0		
048	met11_060418	CCV				06/05/18 11:36	1.0	6	
049	met11_060418	CCB				06/05/18 11:39	1.0		
050	met11_060418	BLANK	QC934454	Water	260141	06/05/18 12:02	1.0		
051	met11_060418	BS	QC934455	Water	260141	06/05/18 12:05	1.0		
052	met11_060418	BSD	QC934456	Water	260141	06/05/18 12:09	1.0		1:FE=10000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met11_060418	MSS	300184-007	Water	260141	06/05/18 12:12	1.0		4:NA=2500000
054	met11_060418	MS	QC934457	Water	260141	06/05/18 12:15	1.0		5:NA=2500000
055	met11_060418	MSD	QC934458	Water	260141	06/05/18 12:19	1.0		5:NA=2400000
056	met11_060418	SAMPLE	300253-001	Water	260141	06/05/18 12:22	1.0		1:NA=820000
057	met11_060418	SAMPLE	300211-007	Filtrate	260091	06/05/18 12:25	10000		
058	met11_060418	SAMPLE	300211-022	Filtrate	260091	06/05/18 12:29	10000		
059	met11_060418	SAMPLE	300211-024	Filtrate	260091	06/05/18 12:32	10000		
060	met11_060418	CCV				06/05/18 12:35	1.0	6	
061	met11_060418	CCB				06/05/18 12:39	1.0		
062	met11_060418	MS	QC934243	Filtrate	260091	06/05/18 12:42	1.0		3:NA=320000
063	met11_060418	MSD	QC934244	Filtrate	260091	06/05/18 12:45	1.0		3:NA=320000
064	met11_060418	SAMPLE	300211-001	Filtrate	260091	06/05/18 12:49	1.0		3:NA=3100000
065	met11_060418	SAMPLE	300211-004	Filtrate	260091	06/05/18 12:52	1.0		4:NA=4800000
066	met11_060418	SAMPLE	300211-006	Filtrate	260091	06/05/18 12:55	1.0		3:NA=2800000
067	met11_060418	SAMPLE	300211-007	Filtrate	260091	06/05/18 12:59	1.0		4:NA=6800000
068	met11_060418	SAMPLE	300211-008	Filtrate	260091	06/05/18 13:02	1.0		4:NA=4600000
069	met11_060418	SAMPLE	300211-009	Filtrate	260091	06/05/18 13:05	1.0		3:NA=4700000
070	met11_060418	SAMPLE	300211-014	Filtrate	260091	06/05/18 13:09	1.0		5:NA=3500000
071	met11_060418	SAMPLE	300211-015	Filtrate	260091	06/05/18 13:12	1.0		3:NA=4500000
072	met11_060418	CCV				06/05/18 13:15	1.0	6	
073	met11_060418	CCB				06/05/18 13:19	1.0		
074	met11_060418	SAMPLE	300211-016	Filtrate	260091	06/05/18 13:22	1.0		3:NA=4700000
075	met11_060418	SAMPLE	300211-019	Filtrate	260091	06/05/18 13:25	1.0		3:NA=1600000
076	met11_060418	SAMPLE	300211-020	Filtrate	260091	06/05/18 13:29	1.0		4:NA=3400000
077	met11_060418	SAMPLE	300211-023	Filtrate	260091	06/05/18 13:32	1.0		3:NA=2700000
078	met11_060418	SAMPLE	300211-002	Filtrate	260091	06/05/18 13:35	1.0		5:NA=1000000
079	met11_060418	SAMPLE	300211-003	Filtrate	260091	06/05/18 13:39	1.0		4:NA=610000
080	met11_060418	X	RINSE			06/05/18 13:42	1.0		
081	met11_060418	PDS	QC934440	WET Leachate	260137	06/05/18 13:45	10.0	10 11 12	2:NA=170000
082	met11_060418	SAMPLE	300211-025	Filtrate	260105	06/05/18 13:49	100.0		
083	met11_060418	SAMPLE	300211-026	Filtrate	260105	06/05/18 13:52	100.0		
084	met11_060418	CCV				06/05/18 13:55	1.0	6	
085	met11_060418	CCB				06/05/18 13:59	1.0		
086	met11_060418	SAMPLE	300211-027	Filtrate	260105	06/05/18 14:02	100.0		
087	met11_060418	SAMPLE	300211-028	Filtrate	260105	06/05/18 14:05	100.0		
088	met11_060418	SAMPLE	300211-029	Filtrate	260105	06/05/18 14:09	100.0		
089	met11_060418	SAMPLE	300211-025	Filtrate	260105	06/05/18 14:12	1.0		5:NA=3200000
090	met11_060418	SAMPLE	300211-029	Filtrate	260105	06/05/18 14:15	1.0		3:NA=3100000
091	met11_060418	BLANK	QC934558	Soil	260168	06/05/18 14:19	1.0		
092	met11_060418	BS	QC934559	Soil	260168	06/05/18 14:22	1.0		1:FE=10000
093	met11_060418	BSD	QC934560	Soil	260168	06/05/18 14:25	1.0		2:FE=10000
094	met11_060418	MSS	300255-001	Soil	260168	06/05/18 14:29	1.0		4:FE=450000
095	met11_060418	MS	QC934561	Soil	260168	06/05/18 14:32	1.0		7:FE=530000
096	met11_060418	CCV				06/05/18 14:35	1.0	6	
097	met11_060418	CCB				06/05/18 14:39	1.0		
098	met11_060418	MSD	QC934562	Soil	260168	06/05/18 14:42	1.0		7:FE=520000
099	met11_060418	SAMPLE	300257-001	Soil	260168	06/05/18 14:45	100.0		
100	met11_060418	SAMPLE	300257-002	Soil	260168	06/05/18 14:49	100.0		
101	met11_060418	SAMPLE	300257-003	Soil	260168	06/05/18 14:52	100.0		
102	met11_060418	SAMPLE	300257-005	Soil	260168	06/05/18 14:55	100.0		
103	met11_060418	SAMPLE	300257-004	Soil	260168	06/05/18 14:59	1.0		4:FE=540000
104	met11_060418	SAMPLE	300257-005	Soil	260168	06/05/18 15:02	1.0		5:FE=320000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met11_060418	SAMPLE	300257-006	Soil	260168	06/05/18 15:05	1.0		4:FE=840000
106	met11_060418	SAMPLE	300259-001	Soil	260168	06/05/18 15:09	1.0		5:FE=500000
107	met11_060418	SAMPLE	300259-002	Soil	260168	06/05/18 15:12	1.0		4:FE=370000
108	met11_060418	CCV				06/05/18 15:15	1.0	6	
109	met11_060418	CCB				06/05/18 15:18	1.0		
110	met11_060418	SAMPLE	300259-003	Soil	260168	06/05/18 15:22	1.0		4:FE=400000
111	met11_060418	SAMPLE	300259-004	Soil	260168	06/05/18 15:25	1.0		4:FE=400000
112	met11_060418	SAMPLE	300260-001	Soil	260168	06/05/18 15:28	1.0		4:CA=340000
113	met11_060418	SAMPLE	300261-001	Miscell.	260168	06/05/18 15:32	10000		
114	met11_060418	SAMPLE	300261-002	Miscell.	260168	06/05/18 15:35	10000		
115	met11_060418	SAMPLE	300261-003	Miscell.	260168	06/05/18 15:38	10000		
116	met11_060418	SAMPLE	300261-004	Miscell.	260168	06/05/18 15:42	10000		
117	met11_060418	CCV				06/05/18 15:45	1.0	6	
118	met11_060418	CCB				06/05/18 15:48	1.0		
119	met11_060418	BLANK	QC933772	Water	259978	06/05/18 17:47	1.0		
120	met11_060418	SAMPLE	300073-002	Water	259978	06/05/18 17:51	1.0		3:NA=610000
121	met11_060418	SAMPLE	300073-003	Water	259978	06/05/18 17:54	1.0		3:NA=1100000
122	met11_060418	SER	QC934624	Soil	260140	06/05/18 17:57	5.0		1:FE=78000
123	met11_060418	PDS	QC934625	Soil	260140	06/05/18 18:01	1.0	10 11 12	5:FE=410000
124	met11_060418	X	IB			06/05/18 18:04	1.0		
125	met11_060418	BLANK	QC934454	Water	260141	06/05/18 18:08	1.0		
126	met11_060418	MSS	300184-007	Water	260141	06/05/18 18:11	1.0		4:NA=2500000
127	met11_060418	SER	QC934460	Water	260141	06/05/18 18:14	5.0		1:NA=520000
128	met11_060418	PDS	QC934459	Water	260141	06/05/18 18:18	1.0	10 11 12	5:NA=2400000
129	met11_060418	X	RINSE			06/05/18 18:21	1.0		
130	met11_060418	CCV				06/05/18 18:24	1.0	6	
131	met11_060418	CCB				06/05/18 18:27	1.0		
132	met11_060418	SAMPLE	300239-009	Filtrate	260104	06/05/18 18:31	1.0		3:NA=920000
133	met11_060418	SAMPLE	300239-010	Filtrate	260104	06/05/18 18:34	1.0		8:FE=1200000
134	met11_060418	SAMPLE	300239-011	Filtrate	260104	06/05/18 18:37	1.0		2:NA=1700000
135	met11_060418	SAMPLE	300239-014	Filtrate	260104	06/05/18 18:41	1.0		4:NA=3400000
136	met11_060418	SAMPLE	300239-015	Filtrate	260104	06/05/18 18:44	1.0		6:NA=2400000
137	met11_060418	SAMPLE	300211-012	Filtrate	260091	06/05/18 18:48	100.0		
138	met11_060418	SAMPLE	300211-012	Filtrate	260091	06/05/18 18:51	1.0		2:NA=300000
139	met11_060418	CCV				06/05/18 18:54	1.0	6	
140	met11_060418	CCB				06/05/18 18:58	1.0		
141	met11_060418	LOD	293439-038	Water	258670	06/05/18 19:27	1.0		
142	met11_060418	LOD	293439-039	Water	258670	06/05/18 19:30	1.0		
143	met11_060418	LOD	293439-040	Water	258670	06/05/18 19:33	1.0		
144	met11_060418	LOD	293439-041	Water	258670	06/05/18 19:37	1.0		
145	met11_060418	LOD	293439-042	Water	258670	06/05/18 19:40	1.0		
146	met11_060418	CCV				06/05/18 19:43	1.0	6	
147	met11_060418	CCB				06/05/18 19:47	1.0		
148	met11_060418	SAMPLE	300239-016	Filtrate	260104	06/05/18 19:50	1.0		3:NA=2300000
149	met11_060418	SAMPLE	300239-017	Filtrate	260104	06/05/18 19:54	1.0		2:NA=1400000
150	met11_060418	CCV				06/05/18 19:57	1.0	6	
151	met11_060418	CCB				06/05/18 20:00	1.0		
152	met11_060418	BLANK	QC934619	Soil	260184	06/05/18 20:05	1.0		
153	met11_060418	BS	QC934620	Soil	260184	06/05/18 20:09	1.0		
154	met11_060418	BSD	QC934621	Soil	260184	06/05/18 20:12	1.0		
155	met11_060418	MSS	300092-001	Soil	260184	06/05/18 20:15	1.0		2:FE=470000
156	met11_060418	MS	QC934622	Soil	260184	06/05/18 20:19	1.0		3:FE=490000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
157	met11_060418	MSD	QC934623	Soil	260184	06/05/18 20:22	1.0	2:FE=450000
158	met11_060418	BLANK	QC934609	Soil	260182	06/05/18 20:26	1.0	
159	met11_060418	BS	QC934610	Soil	260182	06/05/18 20:29	1.0	2:FE=10000
160	met11_060418	BSD	QC934611	Soil	260182	06/05/18 20:32	1.0	1:FE=10000
161	met11_060418	MSS	300369-001	Soil	260182	06/05/18 20:35	1.0	5:FE=310000
162	met11_060418	CCV				06/05/18 20:39	1.0	6
163	met11_060418	CCB				06/05/18 20:42	1.0	
164	met11_060418	MS	QC934612	Soil	260182	06/05/18 20:45	1.0	6:FE=330000
165	met11_060418	MSD	QC934613	Soil	260182	06/05/18 20:49	1.0	6:FE=360000
166	met11_060418	SAMPLE	300365-001	Miscell.	260182	06/05/18 20:52	1.0	
167	met11_060418	SAMPLE	300365-002	Miscell.	260182	06/05/18 20:55	1.0	
168	met11_060418	SAMPLE	300365-003	Miscell.	260182	06/05/18 20:59	1.0	
169	met11_060418	SAMPLE	300365-004	Miscell.	260182	06/05/18 21:02	1.0	
170	met11_060418	SAMPLE	300365-005	Miscell.	260182	06/05/18 21:05	1.0	
171	met11_060418	SAMPLE	300365-006	Miscell.	260182	06/05/18 21:09	1.0	
172	met11_060418	SAMPLE	300365-007	Miscell.	260182	06/05/18 21:12	1.0	
173	met11_060418	SAMPLE	300366-001	Miscell.	260182	06/05/18 21:15	1.0	
174	met11_060418	CCV				06/05/18 21:19	1.0	6
175	met11_060418	CCB				06/05/18 21:22	1.0	
176	met11_060418	SAMPLE	300366-002	Miscell.	260182	06/05/18 21:25	1.0	
177	met11_060418	SAMPLE	300367-001	Miscell.	260182	06/05/18 21:29	1.0	
178	met11_060418	SAMPLE	300367-002	Miscell.	260182	06/05/18 21:32	1.0	
179	met11_060418	SAMPLE	300367-003	Miscell.	260182	06/05/18 21:35	1.0	
180	met11_060418	SAMPLE	300367-004	Miscell.	260182	06/05/18 21:39	1.0	1:CA=150000
181	met11_060418	SAMPLE	300367-005	Miscell.	260182	06/05/18 21:42	1.0	
182	met11_060418	SAMPLE	300367-006	Miscell.	260182	06/05/18 21:45	1.0	
183	met11_060418	SAMPLE	300367-007	Miscell.	260182	06/05/18 21:49	1.0	1:ZN=12000
184	met11_060418	SAMPLE	300367-008	Miscell.	260182	06/05/18 21:52	1.0	1:ZN=27000
185	met11_060418	BLANK	QC934614	Miscell.	260183	06/05/18 21:55	1.0	
186	met11_060418	CCV				06/05/18 21:59	1.0	6
187	met11_060418	CCB				06/05/18 22:02	1.0	
188	met11_060418	BS	QC934615	Miscell.	260183	06/05/18 22:05	1.0	1:FE=10000
189	met11_060418	BSD	QC934616	Miscell.	260183	06/05/18 22:09	1.0	2:FE=10000
190	met11_060418	MSS	300276-001	Soil	260183	06/05/18 22:12	1.0	4:FE=430000
191	met11_060418	MS	QC934617	Soil	260183	06/05/18 22:15	1.0	4:FE=450000
192	met11_060418	MSD	QC934618	Soil	260183	06/05/18 22:19	1.0	4:FE=440000
193	met11_060418	SAMPLE	300276-002	Soil	260183	06/05/18 22:22	1.0	4:FE=470000
194	met11_060418	SAMPLE	300276-003	Soil	260183	06/05/18 22:25	1.0	4:FE=430000
195	met11_060418	SAMPLE	300276-004	Soil	260183	06/05/18 22:29	1.0	4:FE=430000
196	met11_060418	SAMPLE	300276-005	Soil	260183	06/05/18 22:32	1.0	4:FE=440000
197	met11_060418	SAMPLE	300276-006	Soil	260183	06/05/18 22:35	1.0	4:FE=400000
198	met11_060418	CCV				06/05/18 22:39	1.0	6
199	met11_060418	CCB				06/05/18 22:42	1.0	
200	met11_060418	SAMPLE	300276-007	Soil	260183	06/05/18 22:45	1.0	4:FE=430000
201	met11_060418	SAMPLE	300276-008	Soil	260183	06/05/18 22:49	1.0	4:FE=400000
202	met11_060418	SAMPLE	300276-009	Soil	260183	06/05/18 22:52	1.0	4:FE=470000
203	met11_060418	SAMPLE	300276-010	Soil	260183	06/05/18 22:55	1.0	4:FE=440000
204	met11_060418	SAMPLE	300276-011	Soil	260183	06/05/18 22:59	1.0	4:FE=440000
205	met11_060418	SAMPLE	300276-012	Soil	260183	06/05/18 23:02	1.0	4:FE=470000
206	met11_060418	SAMPLE	300368-001	Miscell.	260183	06/05/18 23:05	1.0	2:CA=210000
207	met11_060418	SAMPLE	300368-002	Miscell.	260183	06/05/18 23:09	1.0	
208	met11_060418	SAMPLE	300368-003	Miscell.	260183	06/05/18 23:12	1.0	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
209	met11_060418	SAMPLE	300368-004	Miscell.	260183	06/05/18 23:15	1.0	
210	met11_060418	CCV				06/05/18 23:19	1.0	6
211	met11_060418	CCB				06/05/18 23:22	1.0	
212	met11_060418	SAMPLE	300368-005	Miscell.	260183	06/05/18 23:25	1.0	
213	met11_060418	SAMPLE	300368-006	Miscell.	260183	06/05/18 23:29	1.0	
214	met11_060418	CCV				06/05/18 23:32	1.0	6
215	met11_060418	CCB				06/05/18 23:35	1.0	

KER 06/05/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 140.

KER 06/06/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 141 through 215.

Standards used: 1=S36876 2=S36877 3=S36878 4=S36879 5=S36880 6=S37184 7=S36770 8=S37050 9=S36567 10=S36020 11=S36031
 12=S36713

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 658225145

Date : 06/05/18
 Sequence : MET11 06/05/18

Reference : met11_060418
 Analyzed : 06/05/18 08:28

#	Type	Sample ID	Y H	Y A	Y R
		ICAL STD	41712256	2377788	5324215
		LOWER LIMIT	12513677	713336	1597265
		UPPER LIMIT	83424512	4755576	10648430
009	ICB		42245354	2485180	5393653
011	ICSA		37925719	2227491	4983168
012	ICSAB		37504779	2190764	5025528
014	BLANK	QC934563	44325957	2568783	5511595
015	BS	QC934564	43176057	2505702	5395486
016	BSD	QC934565	42997602	2516498	5449796
017	MSS	300271-001	41254661	2406914	5370671
018	MS	QC934566	40543254	2391434	5328910
019	MSD	QC934567	41547386	2426700	5374073
020	SAMPLE	300271-002	41119185	2423813	5369994
021	SAMPLE	300271-003	40352728	2393011	5253193
022	SAMPLE	300271-004	42197985	2468432	5428157
023	SAMPLE	300271-005	42141365	2468373	5428662
024	CCV		43539699	2559177	5446937
025	CCB		44230209	2599860	5514529
026	SAMPLE	300271-006	42085962	2476405	5421770
027	SAMPLE	300271-007	42052915	2467504	5436442
028	SAMPLE	300271-008	41892599	2481514	5385768
029	SAMPLE	300271-009	40937789	2425516	5375028
030	SAMPLE	300271-010	40931770	2417973	5302027
031	SAMPLE	300271-011	41545002	2448316	5339689
032	SAMPLE	300271-012	40414282	2387915	5321016
033	SAMPLE	300271-013	40340311	2383775	5337516
034	SAMPLE	300271-014	40416247	2357233	5306337
035	CCV		43510075	2561665	5486322
036	CCB		44074958	2598007	5521926
037	BLANK	QC934461	46335845	2744530	5633684
038	BS	QC934462	44483073	2625732	5547344
039	BSD	QC934463	44450537	2631475	5567716
040	SAMPLE	300239-012	43584874	2585678	5464081
041	MSS	300239-013	43977163	2603871	5365096
042	MSS	300239-013	37511958	2259162	4998607
043	MS	QC934464	37071678	2233452	5013218
044	MSD	QC934465	37012429	2211624	5033716
046	SAMPLE	300239-012	34295920	1985796	4820599
048	CCV		43513699	2547516	5456616
049	CCB		44183459	2590137	5544981
050	BLANK	QC934454	45995959	2671485	5655034
051	BS	QC934455	44057694	2592397	5565026
052	BSD	QC934456	44317639	2598299	5580933
053	MSS	300184-007	35886174	2168640	5089201
054	MS	QC934457	36004413	2185903	4900110
055	MSD	QC934458	36223463	2206344	4908276
056	SAMPLE	300253-001	40145552	2462867	5242257
057	SAMPLE	300211-007	42613852	2529190	5353106
058	SAMPLE	300211-022	42891331	2535079	5317561
059	SAMPLE	300211-024	43313429	2536370	5360986
060	CCV		42843424	2526702	5348736

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 658225145

Date : 06/05/18
 Sequence : MET11 06/05/18

Reference : met11_060418
 Analyzed : 06/05/18 08:28

#	Type	Sample ID	Y H	Y A	Y R
061	CCB		43411091	2558754	5421629
062	MS	QC934243	40537278	2398546	5296440
063	MSD	QC934244	40384586	2388011	5238709
064	SAMPLE	300211-001	34292601	2079517	4873061
065	SAMPLE	300211-004	31526058	1872196	4548418
066	SAMPLE	300211-006	34299012	2026773	4839965
067	SAMPLE	300211-007	26077969	1544869	4187690
068	SAMPLE	300211-008	31551850	1856623	4482980
069	SAMPLE	300211-009	31378994	1866519	4654054
070	SAMPLE	300211-014	32840515	1907537	4791690
071	SAMPLE	300211-015	32147649	1900267	4738703
072	CCV		42786518	2530005	5362792
073	CCB		43424995	2538834	5294101
074	SAMPLE	300211-016	31607334	1892066	4433796
075	SAMPLE	300211-019	35660171	2095653	4953984
076	SAMPLE	300211-020	33446359	1977371	4895500
077	SAMPLE	300211-023	34769820	2081509	4802709
078	SAMPLE	300211-002	36936529	2154652	4933838
079	SAMPLE	300211-003	37944155	2193791	5077009
081	PDS	QC934440	41016050	2413030	5244989
082	SAMPLE	300211-025	42210975	2470540	5268015
083	SAMPLE	300211-026	41720347	2441253	5260920
084	CCV		41941121	2459567	5287205
085	CCB		42508531	2461290	5302664
086	SAMPLE	300211-027	42195303	2465963	5351840
087	SAMPLE	300211-028	41760165	2454602	5349160
088	SAMPLE	300211-029	42343071	2480036	5321178
089	SAMPLE	300211-025	32658366	1986527	4818994
090	SAMPLE	300211-029	33922304	2041159	4755022
091	BLANK	QC934558	42605151	2493078	5333618
092	BS	QC934559	41612460	2438763	5270794
093	BSD	QC934560	41757486	2441999	5271400
094	MSS	300255-001	39657193	2321598	5156108
095	MS	QC934561	39324043	2312640	5140518
096	CCV		42406505	2487295	5284259
097	CCB		43191223	2517531	5328488
098	MSD	QC934562	39939335	2331366	5186106
099	SAMPLE	300257-001	43112704	2549809	5338582
100	SAMPLE	300257-002	43176021	2529894	5281161
101	SAMPLE	300257-003	42872787	2516155	5273885
102	SAMPLE	300257-005	42764199	2508409	5313762
103	SAMPLE	300257-004	40355533	2358333	5237595
104	SAMPLE	300257-005	40293436	2332334	5245789
105	SAMPLE	300257-006	40262130	2339163	5213387
106	SAMPLE	300259-001	39837803	2299040	5233805
107	SAMPLE	300259-002	40629479	2361147	5251224
108	CCV		42684044	2502173	5265047
109	CCB		43064693	2518728	5263074
110	SAMPLE	300259-003	40046605	2345419	5179937
111	SAMPLE	300259-004	40171572	2339730	5237327
112	SAMPLE	300260-001	39115647	2277337	5130547
113	SAMPLE	300261-001	42765866	2493314	5332770

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 658225145

Date : 06/05/18
 Sequence : MET11 06/05/18

Reference : met11_060418
 Analyzed : 06/05/18 08:28

#	Type	Sample ID	Y H	Y A	Y R
114	SAMPLE	300261-002	42762329	2475542	5371197
115	SAMPLE	300261-003	42902765	2506608	5357104
116	SAMPLE	300261-004	42964887	2503003	5328732
117	CCV		42388218	2479100	5270829
118	CCB		42558347	2503902	5253561
119	BLANK	QC933772	45518984	2630473	5607702
120	SAMPLE	300073-002	39234311	2329892	5132857
121	SAMPLE	300073-003	35496921	2079494	4818070
122	SER	QC934624	41689117	2431846	5301013
123	PDS	QC934625	40136662	2354557	5224459
125	BLANK	QC934454	44632133	2636989	5559882
126	MSS	300184-007	35515165	2169646	5064817
127	SER	QC934460	39862215	2408695	5352203
128	PDS	QC934459	36134557	2191032	5083503
130	CCV		42460887	2504647	5386867
131	CCB		43294614	2522694	5425355
132	SAMPLE	300239-009	38961437	2309605	5179930
133	SAMPLE	300239-010	40082053	2308219	5585394
134	SAMPLE	300239-011	37621934	2228124	5380282
135	SAMPLE	300239-014	33697717	1998439	4804617
136	SAMPLE	300239-015	33933015	1960342	4934955
137	SAMPLE	300211-012	44343649	2575951	5712193
138	SAMPLE	300211-012	41402441	2441947	5523854
139	CCV		43623736	2524452	5803910
140	CCB		44691596	2556938	5815802
141	LOD	293439-038	46550431	2688968	5966585
142	LOD	293439-039	45642101	2636656	5938077
143	LOD	293439-040	45446277	2610222	5967591
144	LOD	293439-041	45447938	2607760	5991699
145	LOD	293439-042	45406983	2606013	5962629
146	CCV		43501117	2505510	5812172
147	CCB		44600278	2565406	5838120
148	SAMPLE	300239-016	36478741	2147441	5112725
149	SAMPLE	300239-017	37800317	2279003	5255339
150	CCV		42168741	2477163	5372840
151	CCB		43069701	2513429	5381925
152	BLANK	QC934619	42615523	2446172	5441580
153	BS	QC934620	41719434	2435724	5359105
154	BSD	QC934621	41919293	2443947	5445920
155	MSS	300092-001	40951537	2362411	5458620
156	MS	QC934622	40364768	2332215	5359147
157	MSD	QC934623	40980993	2376321	5386505
158	BLANK	QC934609	44115699	2542792	5561119
159	BS	QC934610	43038042	2487368	5554980
160	BSD	QC934611	42953791	2493372	5513403
161	MSS	300369-001	40280305	2316908	5302366
162	CCV		42708885	2465188	5407174
163	CCB		43002897	2507817	5465417
164	MS	QC934612	39387601	2263459	5279645
165	MSD	QC934613	39456889	2263043	5340660
166	SAMPLE	300365-001	44242096	2514938	5658287
167	SAMPLE	300365-002	43586045	2483208	5638743

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 658225145

Date : 06/05/18
 Sequence : MET11 06/05/18

Reference : met11_060418
 Analyzed : 06/05/18 08:28

#	Type	Sample ID	Y H	Y A	Y R
168	SAMPLE	300365-003	43839320	2500566	5677837
169	SAMPLE	300365-004	43910825	2503339	5641077
170	SAMPLE	300365-005	44048201	2529605	5733274
171	SAMPLE	300365-006	44094267	2527929	5714838
172	SAMPLE	300365-007	43812147	2522027	5716128
173	SAMPLE	300366-001	44296400	2529471	5643010
174	CCV		43074684	2486703	5577031
175	CCB		43581638	2511804	5505564
176	SAMPLE	300366-002	44165180	2532612	5697512
177	SAMPLE	300367-001	44452623	2541759	5694878
178	SAMPLE	300367-002	44507841	2548527	5758798
179	SAMPLE	300367-003	44704697	2546013	5766681
180	SAMPLE	300367-004	42028812	2385928	5598790
181	SAMPLE	300367-005	44817023	2551224	5798319
182	SAMPLE	300367-006	44355546	2512217	5767169
183	SAMPLE	300367-007	44594263	2535163	5834135
184	SAMPLE	300367-008	44157695	2507657	5709285
185	BLANK	QC934614	44654220	2533891	5707190
186	CCV		43431567	2496504	5496935
187	CCB		43776110	2509485	5521806
188	BS	QC934615	42924494	2466736	5511739
189	BSD	QC934616	43088390	2490609	5593934
190	MSS	300276-001	41278338	2385879	5469959
191	MS	QC934617	40381388	2346327	5415592
192	MSD	QC934618	40625170	2359426	5408226
193	SAMPLE	300276-002	40788745	2373035	5467421
194	SAMPLE	300276-003	40814785	2362954	5503647
195	SAMPLE	300276-004	41069704	2378511	5450399
196	SAMPLE	300276-005	40998644	2371718	5480741
197	SAMPLE	300276-006	41312943	2334197	5479094
198	CCV		43174421	2509168	5536093
199	CCB		43922469	2528210	5643546
200	SAMPLE	300276-007	40935270	2377025	5532544
201	SAMPLE	300276-008	41414516	2381869	5493929
202	SAMPLE	300276-009	40623081	2345009	5469358
203	SAMPLE	300276-010	40522956	2364121	5520935
204	SAMPLE	300276-011	40849240	2358605	5522983
205	SAMPLE	300276-012	40722508	2355657	5522591
206	SAMPLE	300368-001	41725854	2355404	5581912
207	SAMPLE	300368-002	44178884	2511720	5727736
208	SAMPLE	300368-003	44009347	2518903	5702522
209	SAMPLE	300368-004	42633533	2449043	5653492
210	CCV		42491388	2453014	5570580
211	CCB		43409625	2478021	5604549
212	SAMPLE	300368-005	44325303	2533306	5800503
213	SAMPLE	300368-006	43872561	2516435	5757426
214	CCV		42251237	2467969	5557694
215	CCB		43385403	2504594	5623110

ENTHALPY INITIAL CALIBRATION FOR 300092 METALS Soil: EPA 6010B

Inst : MET11
 Calnum : 658225145001
 Units : ug/L

Date : 05-JUN-2018 08:25
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met11_060418	658225145002	L1	05-JUN-2018 08:28	S36876
L2	met11_060418	658225145003	L2	05-JUN-2018 08:32	S36877
L3	met11_060418	658225145004	L3	05-JUN-2018 08:35	S36878
L4	met11_060418	658225145005	L4	05-JUN-2018 08:38	S36879
L5	met11_060418	658225145006	L5	05-JUN-2018 08:42	S36880

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r ² %RSD	MnR ²	Flg
Antimony	A	1.8E-5	1.8E-5	1.7E-5	1.7E-5		WB1K	0.01449	58722.6		1.8E-5	1.000	0.995	
Arsenic	A	-1E-6	1.2E-5	1.2E-5	1.2E-5		WB1K	4.77303	82949.5		8.8E-6	1.000	0.995	
Barium	A	3.5E-4	3.4E-4	3.3E-4	3.2E-4		WB1K	-0.3036	3106.34		3.4E-4	1.000	0.995	
Cadmium	A	3.0E-4	2.7E-4	2.6E-4	2.6E-4		WB1K	-0.4633	3843.51		2.7E-4	1.000	0.995	
Chromium	A	1.7E-4	1.5E-4	1.4E-4	1.4E-4		WB1K	-0.4385	7214.76		1.5E-4	1.000	0.995	
Cobalt	A	1.8E-4	1.8E-4	1.8E-4	1.7E-4		WB1K	-0.0493	5759.29		1.8E-4	1.000	0.995	
Lead	A	3.9E-5	3.0E-5	3.0E-5	2.8E-5		WB1K	-1.6932	35244.7		3.2E-5	1.000	0.995	
Molybdenum	A	1.1E-4	1.1E-4	1.1E-4	1.0E-4		WB1K	0.13692	9543.26		1.1E-4	1.000	0.995	
Nickel	A	1.4E-4	1.3E-4	1.2E-4	1.2E-4		WB1K	-0.2760	8325.14		1.3E-4	1.000	0.995	
Selenium	A	7.8E-6	9.1E-6	9.4E-6	9.3E-6		WB1K	3.35398	107895		8.9E-6	1.000	0.995	
Thallium	A	1.4E-5	1.1E-5	1.0E-5	1.0E-5		WB1K	-1.1068	98773.9		1.1E-5	1.000	0.995	
Zinc	A	2.1E-4	2.1E-4	1.9E-4	1.9E-4		WB1K	-5.4461	5344.69		2.0E-4	1.000	0.995	
Beryllium	H	0.0010	6.2E-4	6.2E-4			WB1K	-1.4218	1628.40		7.6E-4	1.000	0.995	
Copper	H	7.2E-5	3.6E-5	3.4E-5	3.4E-5		WB1K	-5.4586	29171.5		4.4E-5	1.000	0.995	
Silver	H	3.2E-5	2.6E-5	2.5E-5	2.4E-5		WB1K	-1.6143	41422.1		2.7E-5	1.000	0.995	
Vanadium	H	1.3E-5	7.1E-6	6.7E-6	6.7E-6		WB1K	-5.0654	150038		8.3E-6	1.000	0.995	
Beryllium	R	5.0E-4	3.4E-4	3.3E-4	3.3E-4		WB1K	-0.7372	3048.79		3.7E-4	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	8	100.00	8	1000.0	2	10000	0		
Arsenic	A	5.0000	-16	100.00	7	1000.0	1	10000	0		
Barium	A	5.0000	4	100.00	5	1000.0	3	10000	0		
Cadmium	A	5.0000	5	100.00	3	1000.0	1	10000	0		
Chromium	A	5.0000	12	100.00	7	1000.0	3	10000	0		
Cobalt	A	5.0000	3	100.00	5	1000.0	3	10000	0		
Lead	A	5.0000	4	100.00	5	1000.0	4	10000	0		
Molybdenum	A	5.0000	11	100.00	6	1000.0	1	10000	0		
Nickel	A	5.0000	10	100.00	6	1000.0	3	10000	0		
Selenium	A	10.000	18	100.00	2	1000.0	1	10000	0		
Thallium	A	10.000	26	100.00	9	1000.0	3	10000	0		
Zinc	A	20.000	-14	100.00	5	1000.0	2	10000	0		
Beryllium	H	2.0000	-2	100.00	-1	1000.0	0				
Copper	H	5.0000	2	100.00	1	1000.0	0	10000	0		
Silver	H	5.0000	-1	20.000	0	200.00	1	2000.0	0		
Vanadium	H	5.0000	-11	100.00	2	1000.0	0	10000	0		
Beryllium	R	2.0000	16	100.00	2	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; WBLK=Linear regression with ICALBLK weighting factor of 1000

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
Calnum : 658225145001

Cal Date : 05-JUN-2018

ICV 658225145007 (05-JUN-2018) stds: S37184

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	2000	2082	ug/l	4	10	
Arsenic	A	2000	2069	ug/l	3	10	
Barium	A	2000	1979	ug/l	-1	10	
Cadmium	A	2000	1944	ug/l	-3	10	
Chromium	A	2000	2103	ug/l	5	10	
Cobalt	A	2000	2041	ug/l	2	10	
Lead	A	2000	1987	ug/l	-1	10	
Molybdenum	A	2000	2049	ug/l	2	10	
Nickel	A	2000	2075	ug/l	4	10	
Selenium	A	2000	2067	ug/l	3	10	
Thallium	A	2000	2072	ug/l	4	10	
Zinc	A	2000	2133	ug/l	7	10	
Beryllium	H	200.0	204.7	ug/l	2	10	
Copper	H	2000	2004	ug/l	0	10	
Silver	H	400.0	392.5	ug/l	-2	10	
Vanadium	H	2000	2011	ug/l	1	10	
Beryllium	R	200.0	200.8	ug/l	0	10	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145009 File : met11_060418 Time : 05-JUN-2018 08:52
 Cal : 658225145001 Caldate : 05-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	42245354	1.28
Yttrium	A	2377788	2485180	4.52
Yttrium	R	5324215	5393653	1.30

ENTHALPY INTERFERENCE CHECK STANDARD A FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145011 File : met11_060418 Time : 05-JUN-2018 08:59
 Cal : 658225145001 Caldate : 05-JUN-2018
 Standards: S37050

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-9.340]	10.00	ug/l	
Arsenic	A	[-4.373]	5.000	ug/l	
Barium	A	[-0.7754]	5.000	ug/l	
Cadmium	A	[0.9186]	5.000	ug/l	
Cobalt	A	[0.3987]	5.000	ug/l	
Lead	A	[2.015]	5.000	ug/l	
Molybdenum	A	[1.440]	5.000	ug/l	
Selenium	A	[-9.137]	10.00	ug/l	
Thallium	A	[-4.565]	10.00	ug/l	
Zinc	A	[-4.343]	20.00	ug/l	
Beryllium	H	[-1.653]	2.000	ug/l	
Silver	H	[-0.8000]	5.000	ug/l	
Beryllium	R	[1.142]	2.000	ug/l	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19560	ug/l	98	
Iron	A	200000	158000	ug/l	79	
Manganese	A	20000	18550	ug/l	93	
Nickel	A	20000	18320	ug/l	92	
Copper	H	20000	21230	ug/l	106	
Titanium	H	20000	19910	ug/l	100	
Vanadium	H	20000	19620	ug/l	98	
Aluminum	R	500000	481900	ug/l	96	
Calcium	R	500000	460700	ug/l	92	
Iron	R	200000	192400	ug/l	96	
Magnesium	R	500000	492000	ug/l	98	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	37925719	-9.08
Yttrium	A	2377788	2227491	-6.32
Yttrium	R	5324215	4983168	-6.41

ENTHALPY INTERFERENCE CHECK STANDARD AB FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145012 File : met11_060418 Time : 05-JUN-2018 09:02
 Cal : 658225145001 Caldate : 05-JUN-2018
 Standards: S36567

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	539.5	ug/l	8	20	
Arsenic	A	500.0	545.4	ug/l	9	20	
Barium	A	500.0	500.7	ug/l	0	20	
Cadmium	A	1000	1067	ug/l	7	20	
Chromium	A	500.0	477.9	ug/l	-4	20	
Cobalt	A	500.0	465.5	ug/l	-7	20	
Lead	A	1000	965.3	ug/l	-3	20	
Molybdenum	A	500.0	505.9	ug/l	1	20	
Nickel	A	1000	928.9	ug/l	-7	20	
Selenium	A	500.0	539.3	ug/l	8	20	
Thallium	A	500.0	476.6	ug/l	-5	20	
Zinc	A	1000	961.9	ug/l	-4	20	
Beryllium	H	500.0	515.6	ug/l	3	20	
Copper	H	500.0	528.0	ug/l	6	20	
Silver	H	1000	1087	ug/l	9	20	
Vanadium	H	500.0	457.0	ug/l	-9	20	
Beryllium	R	500.0	507.0	ug/l	1	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	37504779	-10.09
Yttrium	A	2377788	2190764	-7.87
Yttrium	R	5324215	5025528	-5.61

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
 Seqnum : 658225145150
 Cal : 658225145001
 Standards: S37184

File : met11_060418
 Caldate : 05-JUN-2018

IDF : 1.0
 Time : 05-JUN-2018 19:57

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.8E-5	1.7E-5	2000	2006	ug/l	0	10	
Arsenic	A	8.8E-6	1.2E-5	2000	1994	ug/l	0	10	
Barium	A	3.4E-4	3.1E-4	2000	1901	ug/l	-5	10	
Cadmium	A	2.7E-4	2.4E-4	2000	1869	ug/l	-7	10	
Chromium	A	1.5E-4	1.4E-4	2000	2027	ug/l	1	10	
Cobalt	A	1.8E-4	1.7E-4	2000	1971	ug/l	-1	10	
Lead	A	3.2E-5	2.7E-5	2000	1925	ug/l	-4	10	
Molybdenum	A	1.1E-4	1.0E-4	2000	1964	ug/l	-2	10	
Nickel	A	1.3E-4	1.2E-4	2000	2001	ug/l	0	10	
Selenium	A	8.9E-6	9.2E-6	2000	1996	ug/l	0	10	
Thallium	A	1.1E-5	1.0E-5	2000	1994	ug/l	0	10	
Zinc	A	2.0E-4	2.0E-4	2000	2088	ug/l	4	10	
Beryllium	H	7.6E-4	6.2E-4	200.0	198.1	ug/l	-1	10	
Copper	H	4.4E-5	3.3E-5	2000	1911	ug/l	-4	10	
Silver	H	2.7E-5	2.3E-5	400.0	379.7	ug/l	-5	10	
Vanadium	H	8.3E-6	6.5E-6	2000	1945	ug/l	-3	10	
Beryllium	R	3.7E-4	3.3E-4	200.0	199.3	ug/l	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	42168741	1.09
Yttrium	A	2377788	2477163	4.18
Yttrium	R	5324215	5372840	0.91

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145151 File : met11_060418 Time : 05-JUN-2018 20:00
 Cal : 658225145001 Caldate : 05-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	43069701	3.25
Yttrium	A	2377788	2513429	5.70
Yttrium	R	5324215	5381925	1.08

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
 Seqnum : 658225145162
 Cal : 658225145001
 Standards: S37184

File : met11_060418
 Caldate : 05-JUN-2018

IDF : 1.0
 Time : 05-JUN-2018 20:39

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.8E-5	1.7E-5	2000	2015	ug/l	1	10	
Arsenic	A	8.8E-6	1.2E-5	2000	1985	ug/l	-1	10	
Barium	A	3.4E-4	3.1E-4	2000	1904	ug/l	-5	10	
Cadmium	A	2.7E-4	2.4E-4	2000	1869	ug/l	-7	10	
Chromium	A	1.5E-4	1.4E-4	2000	2033	ug/l	2	10	
Cobalt	A	1.8E-4	1.7E-4	2000	1973	ug/l	-1	10	
Lead	A	3.2E-5	2.7E-5	2000	1926	ug/l	-4	10	
Molybdenum	A	1.1E-4	1.0E-4	2000	1966	ug/l	-2	10	
Nickel	A	1.3E-4	1.2E-4	2000	1998	ug/l	0	10	
Selenium	A	8.9E-6	9.1E-6	2000	1960	ug/l	-2	10	
Thallium	A	1.1E-5	1.0E-5	2000	1987	ug/l	-1	10	
Zinc	A	2.0E-4	1.9E-4	2000	2047	ug/l	2	10	
Beryllium	H	7.6E-4	6.1E-4	200.0	196.6	ug/l	-2	10	
Copper	H	4.4E-5	3.3E-5	2000	1926	ug/l	-4	10	
Silver	H	2.7E-5	2.3E-5	400.0	379.1	ug/l	-5	10	
Vanadium	H	8.3E-6	6.5E-6	2000	1945	ug/l	-3	10	
Beryllium	R	3.7E-4	3.3E-4	200.0	199.5	ug/l	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	42708885	2.39
Yttrium	A	2377788	2465188	3.68
Yttrium	R	5324215	5407174	1.56

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145163 File : met11_060418 Time : 05-JUN-2018 20:42
 Cal : 658225145001 Caldate : 05-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	43002897	3.09
Yttrium	A	2377788	2507817	5.47
Yttrium	R	5324215	5465417	2.65

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658226625

Instrument : MET11
 Method : EPA 6010B

Begun : 06/06/18 09:05
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met11_060618	ICALBLK	CALBLANK			06/06/18 09:05	1.0		
002	met11_060618	ICAL	L1			06/06/18 09:08	1.0	1	
003	met11_060618	ICAL	L2			06/06/18 09:11	1.0	2	
004	met11_060618	ICAL	L3			06/06/18 09:15	1.0	3	
005	met11_060618	ICAL	L4			06/06/18 09:18	1.0	4	
006	met11_060618	ICAL	L5			06/06/18 09:22	1.0	5	
007	met11_060618	ICV				06/06/18 09:25	1.0	6	
008	met11_060618	CRI				06/06/18 09:28	1.0	7	
009	met11_060618	ICB				06/06/18 09:32	1.0		
010	met11_060618	ICSA				06/06/18 09:35	1.0	8	10:MG=500000
011	met11_060618	ICSAB				06/06/18 09:38	1.0	9	5:MG=510000
012	met11_060618	X	IB			06/06/18 09:42	1.0		
013	met11_060618	BLANK	QC934604	Water	260181	06/06/18 10:06	1.0		
014	met11_060618	BS	QC934605	Water	260181	06/06/18 10:11	1.0		1:FE=10000
015	met11_060618	BSD	QC934606	Water	260181	06/06/18 10:14	1.0		1:FE=10000
016	met11_060618	MSS	300230-001	Water	260181	06/06/18 10:18	1.0		
017	met11_060618	MS	QC934607	Water	260181	06/06/18 10:21	1.0		1:FE=12000
018	met11_060618	MSD	QC934608	Water	260181	06/06/18 10:24	1.0		1:FE=12000
019	met11_060618	SAMPLE	300230-002	Water	260181	06/06/18 10:28	1.0		
020	met11_060618	X	IB			06/06/18 10:31	1.0		
021	met11_060618	SAMPLE	300254-001	Water	260181	06/06/18 10:34	1.0		
022	met11_060618	X	IB			06/06/18 10:38	1.0		
023	met11_060618	SAMPLE	300290-001	Water	260181	06/06/18 10:41	1.0		6:K=35000000
024	met11_060618	X	IB			06/06/18 10:47	1.0		
025	met11_060618	SAMPLE	300291-001	Water	260181	06/06/18 10:50	1.0		
026	met11_060618	CCV				06/06/18 10:54	1.0	6	
027	met11_060618	CCB				06/06/18 10:57	1.0		
028	met11_060618	SAMPLE	300292-001	Water	260181	06/06/18 11:00	1.0		6:K=36000000
029	met11_060618	X	IB			06/06/18 11:04	1.0		
030	met11_060618	SAMPLE	300362-001	Water	260181	06/06/18 11:07	1.0		
031	met11_060618	SAMPLE	300362-003	Water	260181	06/06/18 11:10	1.0		
032	met11_060618	SAMPLE	300362-004	Water	260181	06/06/18 11:14	1.0		
033	met11_060618	SAMPLE	300362-005	Water	260181	06/06/18 11:17	1.0		
034	met11_060618	SAMPLE	300362-006	Water	260181	06/06/18 11:20	1.0		
035	met11_060618	SAMPLE	300362-007	Water	260181	06/06/18 11:24	1.0		
036	met11_060618	SAMPLE	300362-008	Water	260181	06/06/18 11:27	1.0		
037	met11_060618	SAMPLE	300362-009	Water	260181	06/06/18 11:30	1.0		
038	met11_060618	SAMPLE	300362-010	Water	260181	06/06/18 11:34	1.0		
039	met11_060618	CCV				06/06/18 11:37	1.0	6	
040	met11_060618	CCB				06/06/18 11:40	1.0		
041	met11_060618	SAMPLE	300362-011	Water	260181	06/06/18 11:43	1.0		
042	met11_060618	SAMPLE	300362-012	Water	260181	06/06/18 11:47	1.0		
043	met11_060618	CCV				06/06/18 11:50	1.0	6	
044	met11_060618	CCB				06/06/18 11:53	1.0		
045	met11_060618	BLANK	QC934719	Soil	260207	06/06/18 12:07	1.0		
046	met11_060618	BS	QC934720	Soil	260207	06/06/18 12:10	1.0		2:FE=10000
047	met11_060618	BSD	QC934721	Soil	260207	06/06/18 12:14	1.0		2:SR=10000
048	met11_060618	SAMPLE	300375-001	Soil	260207	06/06/18 12:17	1.0		7:FE=1600000
049	met11_060618	SAMPLE	300376-001	Soil	260207	06/06/18 12:20	1.0		7:FE=1600000
050	met11_060618	SAMPLE	300377-002	Soil	260207	06/06/18 12:24	1.0		5:FE=820000
051	met11_060618	MSS	300377-001	Soil	260207	06/06/18 12:27	1.0		5:FE=560000
052	met11_060618	MS	QC934722	Soil	260207	06/06/18 12:30	1.0		6:FE=640000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658226625

Instrument : MET11
 Method : EPA 6010B

Begun : 06/06/18 09:05
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met11_060618	MSD	QC934723	Soil	260207	06/06/18 12:34	1.0		6:FE=640000
054	met11_060618	SER	QC934724	Soil	260207	06/06/18 12:37	5.0		1:FE=110000
055	met11_060618	CCV				06/06/18 12:40	1.0	6	
056	met11_060618	CCB				06/06/18 12:44	1.0		
057	met11_060618	PDS	QC934725	Soil	260207	06/06/18 12:47	1.0	10 11 12	5:FE=550000
058	met11_060618	SAMPLE	300360-001	Soil	260207	06/06/18 12:50	1.0		3:FE=320000
059	met11_060618	SAMPLE	300360-002	Soil	260207	06/06/18 12:54	1.0		4:FE=440000
060	met11_060618	SAMPLE	300360-003	Soil	260207	06/06/18 12:57	1.0		4:FE=450000
061	met11_060618	SAMPLE	300360-004	Soil	260207	06/06/18 13:00	1.0		2:FE=390000
062	met11_060618	SAMPLE	300360-005	Soil	260207	06/06/18 13:04	1.0		4:FE=410000
063	met11_060618	SAMPLE	300360-006	Soil	260207	06/06/18 13:07	1.0		4:FE=440000
064	met11_060618	SAMPLE	300360-007	Soil	260207	06/06/18 13:10	1.0		4:FE=440000
065	met11_060618	SAMPLE	300360-008	Soil	260207	06/06/18 13:14	1.0		4:CA=570000
066	met11_060618	SAMPLE	300360-009	Soil	260207	06/06/18 13:17	1.0		4:FE=480000
067	met11_060618	CCV				06/06/18 13:20	1.0	6	
068	met11_060618	CCB				06/06/18 13:24	1.0		
069	met11_060618	SAMPLE	300360-010	Soil	260207	06/06/18 13:27	1.0		4:FE=420000
070	met11_060618	SAMPLE	300360-011	Soil	260207	06/06/18 13:30	1.0		4:FE=420000
071	met11_060618	SAMPLE	300360-012	Soil	260207	06/06/18 13:34	1.0		3:FE=380000
072	met11_060618	SAMPLE	300360-013	Soil	260207	06/06/18 13:37	1.0		4:FE=370000
073	met11_060618	SAMPLE	300360-014	Soil	260207	06/06/18 13:40	1.0		2:FE=350000
074	met11_060618	CCV				06/06/18 13:44	1.0	6	
075	met11_060618	CCB				06/06/18 13:47	1.0		
076	met11_060618	BLANK	QC934614	Miscell.	260183	06/06/18 15:29	1.0		
077	met11_060618	BLANK	QC934609	Soil	260182	06/06/18 15:33	1.0		
078	met11_060618	SAMPLE	300257-006	Soil	260168	06/06/18 15:36	1.0		4:FE=830000
079	met11_060618	SER	QC934790	Soil	260184	06/06/18 15:39	5.0		1:FE=95000
080	met11_060618	PDS	QC934791	Soil	260184	06/06/18 15:43	1.0	10 11 12	2:FE=470000
081	met11_060618	SER	QC934837	Soil	260183	06/06/18 15:46	5.0		1:FE=85000
082	met11_060618	PDS	QC934838	Soil	260183	06/06/18 15:49	1.0	10 11 12	4:FE=420000
083	met11_060618	MSS	300369-001	Soil	260182	06/06/18 15:53	1.0		5:FE=310000
084	met11_060618	CCV				06/06/18 15:56	1.0	6	
085	met11_060618	CCB				06/06/18 15:59	1.0		
086	met11_060618	BLANK	QC934291	Filtrate	260105	06/06/18 16:26	1.0		
087	met11_060618	BS	QC934292	Filtrate	260105	06/06/18 16:29	1.0		1:FE=10000
088	met11_060618	BSD	QC934293	Filtrate	260105	06/06/18 16:32	1.0		1:FE=11000
089	met11_060618	BLANK	QC934761	Soil	260220	06/06/18 16:36	1.0		
090	met11_060618	BS	QC934762	Soil	260220	06/06/18 16:39	1.0		2:FE=10000
091	met11_060618	BSD	QC934763	Soil	260220	06/06/18 16:42	1.0		2:FE=10000
092	met11_060618	MSS	300372-001	Soil	260220	06/06/18 16:46	1.0		2:FE=210000
093	met11_060618	MS	QC934764	Soil	260220	06/06/18 16:49	1.0		3:FE=250000
094	met11_060618	MSD	QC934765	Soil	260220	06/06/18 16:52	1.0		3:FE=260000
095	met11_060618	SAMPLE	300372-002	Soil	260220	06/06/18 16:56	1.0		5:FE=380000
096	met11_060618	CCV				06/06/18 16:59	1.0	6	
097	met11_060618	CCB				06/06/18 17:02	1.0		
098	met11_060618	SAMPLE	300372-003	Soil	260220	06/06/18 17:06	1.0		3:FE=340000
099	met11_060618	SAMPLE	300372-004	Soil	260220	06/06/18 17:09	1.0		2:FE=300000
100	met11_060618	SAMPLE	300372-005	Soil	260220	06/06/18 17:12	1.0		3:FE=340000
101	met11_060618	SAMPLE	300372-006	Soil	260220	06/06/18 17:16	1.0		3:FE=340000
102	met11_060618	SAMPLE	300372-007	Soil	260220	06/06/18 17:19	1.0		4:FE=420000
103	met11_060618	SAMPLE	300372-008	Soil	260220	06/06/18 17:22	1.0		5:FE=320000
104	met11_060618	SAMPLE	300372-009	Soil	260220	06/06/18 17:26	1.0		3:FE=610000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658226625

Instrument : MET11
 Method : EPA 6010B

Begun : 06/06/18 09:05
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
105	met11_060618	SAMPLE	300372-010	Soil	260220	06/06/18 17:29	1.0	4:FE=490000
106	met11_060618	SAMPLE	300372-011	Soil	260220	06/06/18 17:32	1.0	3:FE=320000
107	met11_060618	SAMPLE	300372-012	Soil	260220	06/06/18 17:36	1.0	4:FE=480000
108	met11_060618	CCV				06/06/18 17:39	1.0	6
109	met11_060618	CCB				06/06/18 17:42	1.0	
110	met11_060618	SAMPLE	300372-013	Soil	260220	06/06/18 17:46	1.0	2:FE=380000
111	met11_060618	SAMPLE	300372-014	Soil	260220	06/06/18 17:49	1.0	4:FE=490000
112	met11_060618	SAMPLE	300372-015	Soil	260220	06/06/18 17:52	1.0	2:FE=340000
113	met11_060618	SAMPLE	300372-016	Soil	260220	06/06/18 17:55	1.0	4:FE=480000
114	met11_060618	BLANK	QC934803	Filtrate	260230	06/06/18 17:59	1.0	
115	met11_060618	PREPBLK	QC934808	Filtrate	260230	06/06/18 18:02	1.0	
116	met11_060618	BS	QC934804	Filtrate	260230	06/06/18 18:05	1.0	1:FE=10000
117	met11_060618	BSD	QC934805	Filtrate	260230	06/06/18 18:09	1.0	1:FE=10000
118	met11_060618	MSS	300394-020	Filtrate	260230	06/06/18 18:12	1.0	3:NA=130000
119	met11_060618	MS	QC934806	Filtrate	260230	06/06/18 18:15	1.0	3:NA=140000
120	met11_060618	CCV				06/06/18 18:19	1.0	6
121	met11_060618	CCB				06/06/18 18:22	1.0	
122	met11_060618	MSD	QC934807	Filtrate	260230	06/06/18 18:25	1.0	3:NA=140000
123	met11_060618	SAMPLE	300394-021	Filtrate	260230	06/06/18 18:29	1.0	1:NA=310000
124	met11_060618	SAMPLE	300394-022	Filtrate	260230	06/06/18 18:32	1.0	1:NA=280000
125	met11_060618	SAMPLE	300394-023	Filtrate	260230	06/06/18 18:35	1.0	1:NA=490000
126	met11_060618	SAMPLE	300394-024	Filtrate	260230	06/06/18 18:39	1.0	2:NA=300000
127	met11_060618	SAMPLE	300394-025	Filtrate	260230	06/06/18 18:42	1.0	3:NA=660000
128	met11_060618	SAMPLE	300290-001	Water	260181	06/06/18 18:45	100.0	3:NA=550000
129	met11_060618	SAMPLE	300292-001	Water	260181	06/06/18 18:49	100.0	2:NA=750000
130	met11_060618	X	IB			06/06/18 18:52	1.0	
131	met11_060618	SAMPLE	300291-001	Water	260181	06/06/18 18:55	1.0	
132	met11_060618	CCV				06/06/18 18:59	1.0	6
133	met11_060618	CCB				06/06/18 19:02	1.0	
134	met11_060618	SAMPLE	300290-001	Water	260181	06/06/18 19:29	10.0	4:K=5000000
135	met11_060618	SAMPLE	300292-001	Water	260181	06/06/18 19:32	10.0	4:NA=4300000
136	met11_060618	SAMPLE	300375-001	Soil	260207	06/06/18 19:35	100.0	1:FE=17000
137	met11_060618	SAMPLE	300376-001	Soil	260207	06/06/18 19:39	100.0	1:FE=17000
138	met11_060618	SAMPLE	300377-002	Soil	260207	06/06/18 19:42	1.0	5:FE=810000
139	met11_060618	MS	QC934722	Soil	260207	06/06/18 19:45	1.0	6:FE=630000
140	met11_060618	MSD	QC934723	Soil	260207	06/06/18 19:49	1.0	6:FE=640000
141	met11_060618	SAMPLE	300414-001	Miscell.	260219	06/06/18 19:52	100.0	
142	met11_060618	SAMPLE	300414-002	Miscell.	260219	06/06/18 19:55	100.0	1:BA=14000
143	met11_060618	CCV				06/06/18 19:59	1.0	6
144	met11_060618	CCB				06/06/18 20:02	1.0	

NBB 06/06/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 075.

KER 06/06/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 76 through 133.

NBB 06/07/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 134 through 144.

Standards used: 1=S36876 2=S36877 3=S36878 4=S36879 5=S36880 6=S37184 7=S36770 8=S37050 9=S37143 10=S36020 11=S36031
 12=S36713

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 658226625

Date : 06/06/18
 Sequence : MET11 06/06/18

Reference : met11_060618
 Analyzed : 06/06/18 09:08

#	Type	Sample ID	Y H	Y A	Y R
		ICAL STD	42506351	2294555	5350631
		LOWER LIMIT	12751905	688367	1605189
		UPPER LIMIT	85012702	4589110	10701262
009	ICB		41808102	2282842	5227947
010	ICSA		36113631	2029626	4847445
011	ICSAB		36264265	2000050	4809675
013	BLANK	QC934604	43272049	2373540	5285059
014	BS	QC934605	42134113	2344832	5221568
015	BSD	QC934606	41850553	2315548	5204161
016	MSS	300230-001	42573023	2334773	5242011
017	MS	QC934607	41277739	2278760	5164397
018	MSD	QC934608	40951751	2260525	5186495
019	SAMPLE	300230-002	42020457	2283453	5239733
021	SAMPLE	300254-001	40032212	2213073	5146852
023	SAMPLE	300290-001	9443508 *	487730 *	1985527
025	SAMPLE	300291-001	45131998	2460710	5845897
026	CCV		44311229	2446988	5688496
027	CCB		44554931	2432437	5595893
028	SAMPLE	300292-001	9628881 *	528622 *	2019586
030	SAMPLE	300362-001	41958028	2352194	5549068
031	SAMPLE	300362-003	42340386	2321966	5515900
032	SAMPLE	300362-004	42146460	2315415	5502935
033	SAMPLE	300362-005	42267181	2320624	5492113
034	SAMPLE	300362-006	42196598	2300830	5482322
035	SAMPLE	300362-007	42117712	2301494	5474926
036	SAMPLE	300362-008	42765670	2311813	5490043
037	SAMPLE	300362-009	42338328	2343613	5449028
038	SAMPLE	300362-010	42664143	2378665	5451808
039	CCV		42937313	2392952	5419474
040	CCB		43433805	2394778	5425608
041	SAMPLE	300362-011	41521920	2275695	5409404
042	SAMPLE	300362-012	42141307	2343188	5463492
043	CCV		42962392	2383237	5529228
044	CCB		43721519	2406894	5567064
045	BLANK	QC934719	45164085	2501624	5624250
046	BS	QC934720	42972527	2392493	5476875
047	BSD	QC934721	42575906	2374909	5446999
048	SAMPLE	300375-001	36222707	2024223	5030720
049	SAMPLE	300376-001	36081270	2007313	5014768
050	SAMPLE	300377-002	40397192	2225179	5444387
051	MSS	300377-001	40598039	2238831	5482499
052	MS	QC934722	40250435	2217074	5438329
053	MSD	QC934723	40107461	2228655	5368456
054	SER	QC934724	42699801	2367317	5473102
055	CCV		42650546	2361190	5410935
056	CCB		43215087	2376362	5447479
057	PDS	QC934725	39955231	2204501	5307760
058	SAMPLE	300360-001	40169012	2217675	5357034
059	SAMPLE	300360-002	38890732	2142451	5323491
060	SAMPLE	300360-003	39293194	2151242	5385886
061	SAMPLE	300360-004	39980619	2207384	5446780

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 658226625

Date : 06/06/18
 Sequence : MET11 06/06/18

Reference : met11_060618
 Analyzed : 06/06/18 09:08

#	Type	Sample ID	Y H	Y A	Y R
062	SAMPLE	300360-005	39403976	2142125	5337613
063	SAMPLE	300360-006	39913757	2241781	5404756
064	SAMPLE	300360-007	39814411	2212486	5339149
065	SAMPLE	300360-008	39267023	2184637	5243433
066	SAMPLE	300360-009	39535714	2179014	5228756
067	CCV		41615908	2278942	5321017
068	CCB		42443823	2298731	5364073
069	SAMPLE	300360-010	38925129	2135381	5284558
070	SAMPLE	300360-011	39954435	2192455	5434303
071	SAMPLE	300360-012	40136600	2162085	5371900
072	SAMPLE	300360-013	40496004	2214306	5434235
073	SAMPLE	300360-014	40655366	2227230	5402574
074	CCV		42502600	2330266	5348029
075	CCB		43430222	2369057	5401886
076	BLANK	QC934614	44798769	2457894	5535374
077	BLANK	QC934609	43788031	2411281	5557248
078	SAMPLE	300257-006	40300159	2207261	5351191
079	SER	QC934790	42559426	2336145	5534357
080	PDS	QC934791	40871141	2256732	5438824
081	SER	QC934837	43023184	2361786	5516711
082	PDS	QC934838	40636535	2266013	5396978
083	MSS	300369-001	39802256	2190929	5283167
084	CCV		42875120	2355165	5426360
085	CCB		43068983	2371367	5456491
086	BLANK	QC934291	45466697	2518381	5524224
087	BS	QC934292	43491514	2403533	5512330
088	BSD	QC934293	43249085	2402262	5544793
089	BLANK	QC934761	42962801	2359419	5632596
090	BS	QC934762	42495852	2326942	5537442
091	BSD	QC934763	42672399	2331814	5535819
092	MSS	300372-001	41712589	2272712	5538637
093	MS	QC934764	40915155	2252640	5496732
094	MSD	QC934765	41325977	2285316	5450555
095	SAMPLE	300372-002	40672563	2240554	5399885
096	CCV		43046200	2369147	5482314
097	CCB		43380388	2379945	5552977
098	SAMPLE	300372-003	40361106	2211865	5448313
099	SAMPLE	300372-004	41071798	2245183	5526553
100	SAMPLE	300372-005	39994949	2172211	5424487
101	SAMPLE	300372-006	40092387	2178420	5450950
102	SAMPLE	300372-007	39512120	2166253	5446258
103	SAMPLE	300372-008	39919068	2158113	5448983
104	SAMPLE	300372-009	39220673	2144675	5320246
105	SAMPLE	300372-010	39463747	2179973	5453803
106	SAMPLE	300372-011	40750922	2231052	5468720
107	SAMPLE	300372-012	38914490	2116949	5326087
108	CCV		42249525	2306658	5577324
109	CCB		43334664	2350043	5586657
110	SAMPLE	300372-013	40327607	2202821	5488553
111	SAMPLE	300372-014	39732639	2161123	5506299
112	SAMPLE	300372-015	40372423	2198511	5493549
113	SAMPLE	300372-016	39772843	2175438	5499655

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 658226625

Date : 06/06/18
 Sequence : MET11 06/06/18

Reference : met11_060618
 Analyzed : 06/06/18 09:08

#	Type	Sample ID	Y H	Y A	Y R
114	BLANK	QC934803	45202243	2477874	5670034
115	PREPBLK	QC934808	44843919	2467378	5668662
116	BS	QC934804	43396718	2402989	5615804
117	BSD	QC934805	43152487	2371064	5578543
118	MSS	300394-020	40529870	2219993	5487806
119	MS	QC934806	40400235	2199954	5474700
120	CCV		41742072	2254180	5515889
121	CCB		42766163	2322419	5504733
122	MSD	QC934807	40580586	2198392	5461532
123	SAMPLE	300394-021	40018601	2182021	5454708
124	SAMPLE	300394-022	40168557	2197162	5433421
125	SAMPLE	300394-023	39727999	2220346	5501636
126	SAMPLE	300394-024	39919471	2195234	5405734
127	SAMPLE	300394-025	38253415	2118705	5332184
128	SAMPLE	300290-001	37251535	2112004	5179691
129	SAMPLE	300292-001	37523501	2148167	5181793
131	SAMPLE	300291-001	42968383	2310082	5613417
132	CCV		42414170	2311495	5532224
133	CCB		42826525	2331366	5581135
134	SAMPLE	300290-001	27980083	1607989	4280953
135	SAMPLE	300292-001	27634778	1615558	4346416
136	SAMPLE	300375-001	42991172	2392896	5583854
137	SAMPLE	300376-001	43264068	2365845	5578875
138	SAMPLE	300377-002	40756868	2229958	5556194
139	MS	QC934722	40126820	2200715	5465888
140	MSD	QC934723	40242316	2200642	5491871
141	SAMPLE	300414-001	43965343	2393176	5600818
142	SAMPLE	300414-002	43654874	2381504	5607681
143	CCV		43179000	2366501	5567860
144	CCB		44029359	2400530	5664775

ENTHALPY INITIAL CALIBRATION FOR 300092 METALS Soil: EPA 6010B

Inst : MET11
 Calnum : 658226625001
 Units : ug/L

Date : 06-JUN-2018 09:05
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met11_060618	658226625002	L1	06-JUN-2018 09:08	S36876
L2	met11_060618	658226625003	L2	06-JUN-2018 09:11	S36877
L3	met11_060618	658226625004	L3	06-JUN-2018 09:15	S36878
L4	met11_060618	658226625005	L4	06-JUN-2018 09:18	S36879
L5	met11_060618	658226625006	L5	06-JUN-2018 09:22	S36880

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r ² %RSD	MnR ²	Flg
Antimony	A	1.7E-5	1.8E-5	1.7E-5	1.6E-5		WB1K	0.27777	61365.0		1.7E-5	1.000	0.995	
Arsenic	A	-2E-6	1.2E-5	1.1E-5	1.1E-5		WB1K	4.59433	89244.0		8.1E-6	1.000	0.995	
Barium	A	3.5E-4	3.3E-4	3.2E-4	3.1E-4		WB1K	-0.7700	3186.01		3.3E-4	1.000	0.995	
Cadmium	A	2.8E-4	2.6E-4	2.5E-4	2.5E-4		WB1K	-0.7788	3953.71		2.6E-4	1.000	0.995	
Chromium	A	1.6E-4	1.4E-4	1.4E-4	1.3E-4		WB1K	-0.9181	7484.22		1.4E-4	1.000	0.995	
Cobalt	A	1.8E-4	1.8E-4	1.7E-4	1.7E-4		WB1K	-0.3825	5984.01		1.7E-4	1.000	0.995	
Lead	A	3.9E-5	3.0E-5	2.9E-5	2.7E-5		WB1K	-2.8172	37119.4		3.1E-5	1.000	0.995	
Molybdenum	A	1.1E-4	1.1E-4	1.0E-4	1.0E-4		WB1K	-0.1223	9900.61		1.0E-4	1.000	0.995	
Nickel	A	1.3E-4	1.2E-4	1.2E-4	1.2E-4		WB1K	-0.6299	8657.89		1.2E-4	1.000	0.995	
Selenium	A	7.1E-6	9.1E-6	9.0E-6	8.7E-6		WB1K	0.66463	114291		8.5E-6	1.000	0.995	
Thallium	A	1.1E-5	1.1E-5	1.0E-5	9.7E-6		WB1K	-0.3739	103097		1.0E-5	1.000	0.995	
Zinc	A	2.0E-4	1.9E-4	1.7E-4	1.7E-4		WB1K	-4.4223	5899.31		1.8E-4	1.000	0.995	
Beryllium	H	9.5E-4	5.7E-4	5.7E-4			WB1K	-1.3776	1767.37		6.9E-4	1.000	0.995	
Copper	H	7.1E-5	3.5E-5	3.4E-5	3.3E-5		WB1K	-5.6194	29916.2		4.3E-5	1.000	0.995	
Silver	H	3.0E-5	2.5E-5	2.3E-5	2.3E-5		WB1K	-1.4253	44263.0		2.5E-5	1.000	0.995	
Vanadium	H	1.2E-5	6.7E-6	6.3E-6	6.2E-6		WB1K	-5.0087	161545		7.7E-6	1.000	0.995	
Beryllium	R	4.8E-4	3.0E-4	3.0E-4	3.0E-4		WB1K	-1.0505	3382.41		3.4E-4	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	9	100.00	9	1000.0	3	10000	0		
Arsenic	A	5.0000	-26	100.00	7	1000.0	3	10000	0		
Barium	A	5.0000	-3	100.00	4	1000.0	3	10000	0		
Cadmium	A	5.0000	-3	100.00	1	1000.0	0	10000	0		
Chromium	A	5.0000	2	100.00	6	1000.0	4	10000	0		
Cobalt	A	5.0000	-1	100.00	5	1000.0	3	10000	0		
Lead	A	5.0000	-12	100.00	8	1000.0	6	10000	0		
Molybdenum	A	5.0000	5	100.00	5	1000.0	1	10000	0		
Nickel	A	5.0000	2	100.00	6	1000.0	4	10000	0		
Selenium	A	10.000	-12	100.00	4	1000.0	3	10000	0		
Thallium	A	10.000	10	100.00	10	1000.0	6	10000	0		
Zinc	A	20.000	-5	100.00	5	1000.0	2	10000	0		
Beryllium	H	2.0000	-2	100.00	-1	1000.0	0				
Copper	H	5.0000	0	100.00	0	1000.0	0	10000	0		
Silver	H	5.0000	5	20.000	2	200.00	2	2000.0	0		
Vanadium	H	5.0000	-11	100.00	3	1000.0	1	10000	0		
Beryllium	R	2.0000	10	100.00	1	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; WBLK=Linear regression with ICALBLK weighting factor of 1000

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
Calnum : 658226625001

Cal Date : 06-JUN-2018

ICV 658226625007 (06-JUN-2018) stds: S37184

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	2000	2084	ug/l	4	10	
Arsenic	A	2000	2072	ug/l	4	10	
Barium	A	2000	1963	ug/l	-2	10	
Cadmium	A	2000	2029	ug/l	1	10	
Chromium	A	2000	2087	ug/l	4	10	
Cobalt	A	2000	2036	ug/l	2	10	
Lead	A	2000	1980	ug/l	-1	10	
Molybdenum	A	2000	2029	ug/l	1	10	
Nickel	A	2000	2068	ug/l	3	10	
Selenium	A	2000	2064	ug/l	3	10	
Thallium	A	2000	2085	ug/l	4	10	
Zinc	A	2000	2099	ug/l	5	10	
Beryllium	H	200.0	201.9	ug/l	1	10	
Copper	H	2000	1990	ug/l	-1	10	
Silver	H	400.0	395.6	ug/l	-1	10	
Vanadium	H	2000	2018	ug/l	1	10	
Beryllium	R	200.0	203.7	ug/l	2	10	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625009 File : met11_060618 Time : 06-JUN-2018 09:32
 Cal : 658226625001 Caldate : 06-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	41808102	-1.64
Yttrium	A	2294555	2282842	-0.51
Yttrium	R	5350631	5227947	-2.29

ENTHALPY INTERFERENCE CHECK STANDARD A FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625010 File : met11_060618 Time : 06-JUN-2018 09:35
 Cal : 658226625001 Caldate : 06-JUN-2018
 Standards: S37050

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-17.63]	10.00	ug/l	!a-
Arsenic	A	[-2.245]	5.000	ug/l	
Barium	A	[-1.200]	5.000	ug/l	
Cadmium	A	[0.2035]	5.000	ug/l	
Cobalt	A	[-0.5275]	5.000	ug/l	
Lead	A	[2.474]	5.000	ug/l	
Molybdenum	A	[0.9015]	5.000	ug/l	
Selenium	A	[-13.08]	10.00	ug/l	!a-
Thallium	A	[-3.375]	10.00	ug/l	
Zinc	A	[-2.251]	20.00	ug/l	
Beryllium	H	[-1.677]	2.000	ug/l	
Silver	H	[-0.1828]	5.000	ug/l	
Beryllium	R	[0.7283]	2.000	ug/l	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19640	ug/l	98	
Iron	A	200000	159500	ug/l	80	
Manganese	A	20000	18640	ug/l	93	
Nickel	A	20000	18320	ug/l	92	
Copper	H	20000	21850	ug/l	109	
Titanium	H	20000	20070	ug/l	100	
Vanadium	H	20000	19940	ug/l	100	
Aluminum	R	500000	476900	ug/l	95	
Calcium	R	500000	453700	ug/l	91	
Iron	R	200000	191600	ug/l	96	
Magnesium	R	500000	495100	ug/l	99	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	36113631	-15.04
Yttrium	A	2294555	2029626	-11.55
Yttrium	R	5350631	4847445	-9.40

!=warning --low bias a=ICSA

ENTHALPY INTERFERENCE CHECK STANDARD AB FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625011 File : met11_060618 Time : 06-JUN-2018 09:38
 Cal : 658226625001 Caldate : 06-JUN-2018
 Standards: S37143

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	546.2	ug/l	9	20	
Arsenic	A	500.0	545.5	ug/l	9	20	
Barium	A	500.0	498.3	ug/l	0	20	
Cadmium	A	1000	1072	ug/l	7	20	
Chromium	A	500.0	475.5	ug/l	-5	20	
Cobalt	A	500.0	463.0	ug/l	-7	20	
Lead	A	1000	952.3	ug/l	-5	20	
Molybdenum	A	500.0	499.8	ug/l	0	20	
Nickel	A	1000	920.0	ug/l	-8	20	
Selenium	A	500.0	537.7	ug/l	8	20	
Thallium	A	500.0	466.2	ug/l	-7	20	
Zinc	A	1000	949.2	ug/l	-5	20	
Beryllium	H	500.0	511.4	ug/l	2	20	
Copper	H	500.0	535.6	ug/l	7	20	
Silver	H	1000	1113	ug/l	11	20	
Vanadium	H	500.0	464.4	ug/l	-7	20	
Beryllium	R	500.0	510.2	ug/l	2	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	36264265	-14.69
Yttrium	A	2294555	2000050	-12.83
Yttrium	R	5350631	4809675	-10.11

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
 Seqnum : 658226625074
 Cal : 658226625001
 Standards: S37184

File : met11_060618
 Caldate : 06-JUN-2018

IDF : 1.0
 Time : 06-JUN-2018 13:44

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.7E-5	1.7E-5	2000	2103	ug/l	5	10	
Arsenic	A	8.1E-6	1.2E-5	2000	2080	ug/l	4	10	
Barium	A	3.3E-4	3.1E-4	2000	1952	ug/l	-2	10	
Cadmium	A	2.6E-4	2.4E-4	2000	1920	ug/l	-4	10	
Chromium	A	1.4E-4	1.4E-4	2000	2092	ug/l	5	10	
Cobalt	A	1.7E-4	1.7E-4	2000	2042	ug/l	2	10	
Lead	A	3.1E-5	2.7E-5	2000	1995	ug/l	0	10	
Molybdenum	A	1.0E-4	1.0E-4	2000	2031	ug/l	2	10	
Nickel	A	1.2E-4	1.2E-4	2000	2069	ug/l	3	10	
Selenium	A	8.5E-6	9.1E-6	2000	2075	ug/l	4	10	
Thallium	A	1.0E-5	1.0E-5	2000	2067	ug/l	3	10	
Zinc	A	1.8E-4	1.8E-4	2000	2093	ug/l	5	10	
Beryllium	H	6.9E-4	5.8E-4	200.0	202.8	ug/l	1	10	
Copper	H	4.3E-5	3.4E-5	2000	2012	ug/l	1	10	
Silver	H	2.5E-5	2.3E-5	400.0	397.3	ug/l	-1	10	
Vanadium	H	7.7E-6	6.3E-6	2000	2023	ug/l	1	10	
Beryllium	R	3.4E-4	3.0E-4	200.0	200.8	ug/l	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	42502600	-0.01
Yttrium	A	2294555	2330266	1.56
Yttrium	R	5350631	5348029	-0.05

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625075 File : met11_060618 Time : 06-JUN-2018 13:47
 Cal : 658226625001 Caldate : 06-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	43430222	2.17
Yttrium	A	2294555	2369057	3.25
Yttrium	R	5350631	5401886	0.96

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
 Seqnum : 658226625084
 Cal : 658226625001
 Standards: S37184

File : met11_060618
 Caldate : 06-JUN-2018

IDF : 1.0
 Time : 06-JUN-2018 15:56

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.7E-5	1.7E-5	2000	2116	ug/l	6	10	
Arsenic	A	8.1E-6	1.2E-5	2000	2062	ug/l	3	10	
Barium	A	3.3E-4	3.0E-4	2000	1940	ug/l	-3	10	
Cadmium	A	2.6E-4	2.4E-4	2000	1907	ug/l	-5	10	
Chromium	A	1.4E-4	1.4E-4	2000	2076	ug/l	4	10	
Cobalt	A	1.7E-4	1.7E-4	2000	2024	ug/l	1	10	
Lead	A	3.1E-5	2.7E-5	2000	1979	ug/l	-1	10	
Molybdenum	A	1.0E-4	1.0E-4	2000	2003	ug/l	0	10	
Nickel	A	1.2E-4	1.2E-4	2000	2050	ug/l	2	10	
Selenium	A	8.5E-6	9.0E-6	2000	2048	ug/l	2	10	
Thallium	A	1.0E-5	10.0E-6	2000	2054	ug/l	3	10	
Zinc	A	1.8E-4	1.8E-4	2000	2066	ug/l	3	10	
Beryllium	H	6.9E-4	5.8E-4	200.0	202.6	ug/l	1	10	
Copper	H	4.3E-5	3.4E-5	2000	1999	ug/l	0	10	
Silver	H	2.5E-5	2.2E-5	400.0	395.2	ug/l	-1	10	
Vanadium	H	7.7E-6	6.3E-6	2000	2016	ug/l	1	10	
Beryllium	R	3.4E-4	3.0E-4	200.0	202.3	ug/l	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	42875120	0.87
Yttrium	A	2294555	2355165	2.64
Yttrium	R	5350631	5426360	1.42

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625085 File : met11_060618 Time : 06-JUN-2018 15:59
 Cal : 658226625001 Caldate : 06-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	43068983	1.32
Yttrium	A	2294555	2371367	3.35
Yttrium	R	5350631	5456491	1.98

SAMPLE PREPARATION SUMMARY

Batch # : 260184
 Started By : AS2
 Method : 3050B
 Spike #1 ID : S36450

Prep Date : 05-JUN-2018 09:40
 Spike #2 ID : S36449

Analysis : ICP
 Finished By : AS2
 Units : g
 Spike #3 ID : S36709

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
300092-001		Soil	10.04	500	1	49.80						6010	
QC934619	BLANK	Soil	10.08	500	1	49.60							
QC934620	BS	Soil	10.37	500	1	48.22	5	5	5				
QC934621	BSD	Soil	10.31	500	1	48.50	5	5	5				
QC934622	MS	Soil	10.01	500	1	49.95	5	5	5				
QC934623	MSD	Soil	10.24	500	1	48.83	5	5	5				
QC934790	SER	Soil	10.04	500	1	49.80							
QC934791	PDS	Soil	10.04	500	1	49.80							

Analyst: KER

Date: 06/06/18

Reviewer: PRW

Date: 06/06/18

LIMS Batch #: 260184
 Date Digested: 6-5-18
 Digested by: AS2

Digestion Method: Time ON: 0940
 EPA 3050b Time OFF: 1410

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Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Filtered? (y/n)	ID	Comments
BLANK		10.08	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	yes	✓	QC 934619
BS		10.37	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	934620
BSD		10.31	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	1
MS		10.01	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	2
MSP		10.24	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	3
300092-001 *		10.04	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	MSS*
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
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			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			

Balance ID: B13 calibration has been checked? Yes No

Reagent ID or LIMS # Initials / Date

SCP Digestion tubes / ESS Watch glass, lot#
 Blank 'matrix' lot#
5 mL of spike solution (Std1) was added to all spikes
5 mL of spike solution (Std2) was added to all spikes
5 mL of spike solution (Std3) was added to all spikes
 Digestion Block ID, Probe Location
 Temperature (°C), Thermometer ID
 1:1 HNO3 Reagent ID
 concentrated HNO3 lot#
 3mL 30% hydrogen peroxide lot#
 concentrated HCl lot#
 filtered thru' Whatman 541, lot#
 Relinquished to ICP group

		AS2/6-5-18
chemware: 23228917		
S 36450		
S 36449		
S 36709		
GLACIER	AS2 6-5-18	
93°C	6412392	
JTB 193289-060518		
JTB 193289		
EMD 57054803		
JTB 190962		
11401069		
ICP		↓

Pipettes

Vol.(mL)	ID
5	L556969

Alypashin 6-5-18
 Digestion Chemist / Date

Continued from page 8
 Continued on page _____

Reviewed Online/ See LIMS

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 388228541

Instrument : MET45
 Method : EPA 7470A

Begun : 06/07/18 17:01
 SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				06/07/18 17:01	1.0		
002	met45	ICAL	ICAL1			06/07/18 17:02	1.0	1	
003	met45	ICAL	ICAL2			06/07/18 17:03	1.0	1	
004	met45	ICAL	ICAL3			06/07/18 17:04	1.0	1	
005	met45	ICAL	ICAL4			06/07/18 17:05	1.0	1	
006	met45	ICAL	ICAL5			06/07/18 17:07	1.0	1	
007	met45	ICV				06/07/18 17:08	1.0	2	
008	met45	ICB				06/07/18 17:09	1.0		
009	met45	BLANK	QC934998	Soil	260280	06/07/18 17:10	1.0		
010	met45	BS	QC934999	Soil	260280	06/07/18 17:12	1.0		
011	met45	BSD	QC935000	Soil	260280	06/07/18 17:13	1.0		
012	met45	MSS	300377-001	Soil	260280	06/07/18 17:14	1.0		
013	met45	MS	QC935001	Soil	260280	06/07/18 17:15	1.0		
014	met45	MSD	QC935002	Soil	260280	06/07/18 17:17	1.0		
015	met45	SER	QC935003	Soil	260280	06/07/18 17:18	5.0		
016	met45	SAMPLE	300358-001	Miscell.	260280	06/07/18 17:19	1.0		
017	met45	SAMPLE	300358-002	Miscell.	260280	06/07/18 17:20	10.0		
018	met45	SAMPLE	300358-003	Miscell.	260280	06/07/18 17:21	1.0		
019	met45	CCV				06/07/18 17:23	1.0	3	
020	met45	CCB				06/07/18 17:24	1.0		
021	met45	SAMPLE	300358-002	Miscell.	260280	06/07/18 17:25	1.0		
022	met45	SAMPLE	300377-002	Soil	260280	06/07/18 17:27	1.0		
023	met45	SAMPLE	300414-001	Miscell.	260280	06/07/18 17:28	1.0		1:HG=13
024	met45	SAMPLE	300414-002	Miscell.	260280	06/07/18 17:29	1.0		
025	met45	SAMPLE	300257-001	Soil	260280	06/07/18 17:31	1.0		
026	met45	SAMPLE	300257-002	Soil	260280	06/07/18 17:32	1.0		
027	met45	SAMPLE	300257-003	Soil	260280	06/07/18 17:33	1.0		
028	met45	SAMPLE	300257-004	Soil	260280	06/07/18 17:34	1.0		
029	met45	SAMPLE	300257-005	Soil	260280	06/07/18 17:35	1.0		
030	met45	SAMPLE	300414-001	Miscell.	260280	06/07/18 17:37	5.0		
031	met45	CCV				06/07/18 17:38	1.0	3	
032	met45	CCB				06/07/18 17:39	1.0		
033	met45	SAMPLE	300414-002	Miscell.	260280	06/07/18 17:40	1.0		
034	met45	SAMPLE	300257-006	Soil	260280	06/07/18 17:42	1.0		
035	met45	SAMPLE	300442-001	Soil	260280	06/07/18 17:43	1.0		
036	met45	SAMPLE	300447-001	Soil	260280	06/07/18 17:44	10000		
037	met45	SAMPLE	300447-002	Soil	260280	06/07/18 17:45	10000		
038	met45	SAMPLE	300447-003	Soil	260280	06/07/18 17:47	10000		
039	met45	SAMPLE	300447-004	Soil	260280	06/07/18 17:48	10000		
040	met45	SAMPLE	300447-005	Soil	260280	06/07/18 17:49	10000		
041	met45	X	RINSE			06/07/18 17:50	1.0		
042	met45	BLANK	QC935009	Soil	260282	06/07/18 17:51	1.0		
043	met45	CCV				06/07/18 17:53	1.0	3	
044	met45	CCB				06/07/18 17:54	1.0		
045	met45	BS	QC935010	Soil	260282	06/07/18 17:55	1.0		
046	met45	BSD	QC935011	Soil	260282	06/07/18 17:56	1.0		
047	met45	MSS	300092-001	Soil	260282	06/07/18 17:58	1.0		1:HG=97
048	met45	MS	QC935012	Soil	260282	06/07/18 17:59	1.0		1:HG=92
049	met45	MSD	QC935013	Soil	260282	06/07/18 18:01	1.0		1:HG=97
050	met45	SER	QC935014	Soil	260282	06/07/18 18:02	5.0		1:HG=35
051	met45	SAMPLE	300260-001	Soil	260282	06/07/18 18:04	1.0		
052	met45	SAMPLE	300244-001	Soil	260282	06/07/18 18:05	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 388228541

Instrument : MET45
 Method : EPA 7470A

Begun : 06/07/18 17:01
 SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	300244-002	Soil	260282	06/07/18 18:06	1.0		
054	met45	SAMPLE	300244-003	Soil	260282	06/07/18 18:08	1.0		
055	met45	CCV				06/07/18 18:09	1.0	3	
056	met45	CCB				06/07/18 18:10	1.0		
057	met45	SAMPLE	300244-004	Soil	260282	06/07/18 18:11	1.0		
058	met45	SAMPLE	300244-005	Soil	260282	06/07/18 18:13	1.0		
059	met45	SAMPLE	300244-006	Soil	260282	06/07/18 18:14	1.0		
060	met45	SAMPLE	300244-007	Soil	260282	06/07/18 18:15	1.0		
061	met45	SAMPLE	300244-008	Soil	260282	06/07/18 18:16	1.0		
062	met45	SAMPLE	300244-009	Soil	260282	06/07/18 18:18	1.0		
063	met45	SAMPLE	300244-010	Soil	260282	06/07/18 18:19	1.0		1:HG=12
064	met45	SAMPLE	300244-011	Soil	260282	06/07/18 18:20	1.0		
065	met45	SAMPLE	300244-012	Soil	260282	06/07/18 18:22	1.0		
066	met45	SAMPLE	300244-013	Soil	260282	06/07/18 18:23	1.0		
067	met45	CCV				06/07/18 18:24	1.0	3	
068	met45	CCB				06/07/18 18:25	1.0		
069	met45	SAMPLE	300244-017	Soil	260282	06/07/18 18:27	1.0		
070	met45	SAMPLE	300244-016	Soil	260282	06/07/18 18:28	1.0		
071	met45	SAMPLE	300244-015	Soil	260282	06/07/18 18:29	1.0		
072	met45	SAMPLE	300244-014	Soil	260282	06/07/18 18:30	1.0		
073	met45	X	RINSE			06/07/18 18:32	1.0		
074	met45	MSS	300092-001	Soil	260282	06/07/18 18:33	20.0		
075	met45	SER	QC935014	Soil	260282	06/07/18 18:34	100.0		
076	met45	SAMPLE	300447-001	Soil	260280	06/07/18 18:35	100.0		1:HG=33
077	met45	SAMPLE	300447-002	Soil	260280	06/07/18 18:37	100.0		1:HG=23
078	met45	X	RINSE			06/07/18 18:38	1.0		
079	met45	CCV				06/07/18 18:40	1.0	3	
080	met45	CCB				06/07/18 18:41	1.0		
081	met45	SAMPLE	300447-004	Soil	260280	06/07/18 18:42	100.0		1:HG=56
082	met45	SAMPLE	300447-001	Soil	260280	06/07/18 18:44	1000		
083	met45	SAMPLE	300447-002	Soil	260280	06/07/18 18:45	1000		
084	met45	SAMPLE	300447-004	Soil	260280	06/07/18 18:46	1000		
085	met45	X	RINSE			06/07/18 18:47	1.0		
086	met45	SAMPLE	300244-010	Soil	260282	06/07/18 18:49	1.0		1:HG=12
087	met45	SAMPLE	300244-011	Soil	260282	06/07/18 18:50	1.0		
088	met45	X	RINSE			06/07/18 18:51	1.0		
089	met45	SAMPLE	300244-010	Soil	260282	06/07/18 18:53	5.0		
090	met45	SAMPLE	300244-011	Soil	260282	06/07/18 18:54	1.0		
091	met45	CCV				06/07/18 18:55	1.0	3	
092	met45	CCB				06/07/18 18:56	1.0		
093	met45	SAMPLE	300447-001	Soil	260280	06/07/18 19:14	1000		
094	met45	CCV				06/07/18 19:15	1.0	3	
095	met45	CCB				06/07/18 19:16	1.0		

SL 06/07/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 92.

Standards used: 1=S37243 2=S37245 3=S37246

ENTHALPY INITIAL CALIBRATION FOR 300092 METALS Soil: EPA 7470A

Inst : MET45
 Calnum : 388228541001
 Units : ug/L

Date : 07-JUN-2018 17:01
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	388228541002	ICAL1	07-JUN-2018 17:02	S37243 (500X)
L2	met45	388228541003	ICAL2	07-JUN-2018 17:03	S37243 (200X)
L3	met45	388228541004	ICAL3	07-JUN-2018 17:04	S37243 (50X)
L4	met45	388228541005	ICAL4	07-JUN-2018 17:05	S37243 (20X)
L5	met45	388228541006	ICAL5	07-JUN-2018 17:07	S37243 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0465	0.0368	0.0371	0.0359	0.0359	LIN0	-0.0342	27.9861		0.0384	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	13	0.5000	-4	2.0000	2	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 388228541001

Cal Date : 07-JUN-2018

ICV 388228541007 (07-JUN-2018) stds: S37245

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.819	ug/L	-4	10	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541008
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 17:09

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
 Seqnum : 388228541031
 Cal : 388228541001
 Standards: S37246

IDF : 1.0
 Time : 07-JUN-2018 17:38

File : met45
 Caldate : 07-JUN-2018

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0357	5.000	4.964	ug/L	-1	20	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541032
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 17:39

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541043
Cal : 388228541001
Standards: S37246

File : met45
Caldate : 07-JUN-2018

IDF : 1.0
Time : 07-JUN-2018 17:53

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0355	5.000	4.939	ug/L	-1	20	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541044
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 17:54

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
 Seqnum : 388228541055
 Cal : 388228541001
 Standards: S37246

IDF : 1.0
 Time : 07-JUN-2018 18:09

File : met45
 Caldate : 07-JUN-2018

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0365	5.000	5.079	ug/L	2	20	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541056
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 18:10

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
 Seqnum : 388228541067
 Cal : 388228541001
 Standards: S37246

IDF : 1.0
 Time : 07-JUN-2018 18:24

File : met45
 Caldate : 07-JUN-2018

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0368	5.000	5.112	ug/L	2	20	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541068
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 18:25

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
 Seqnum : 388228541079 File : met45 Time : 07-JUN-2018 18:40
 Cal : 388228541001 Caldate : 07-JUN-2018
 Standards: S37246

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0369	5.000	5.132	ug/L	3	20	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541080
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 18:41

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 260282
 Started By : SL
 Method : METHOD
 Spike #1 ID : S37224

Prep Date : 07-JUN-2018 13:45

Analysis : HG
 Finished By : SL
 Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
300092-001		Soil	.57	50	1	87.72						T22/HG	
300244-001		Soil	.57	50	1	87.72						T22/HG	
300244-002		Soil	.6	50	1	83.33						T22/HG	
300244-003		Soil	.59	50	1	84.75						T22/HG	
300244-004		Soil	.58	50	1	86.21						T22/HG	
300244-005		Soil	.55	50	1	90.91						T22/HG	
300244-006		Soil	.61	50	1	81.97						T22/HG	
300244-007		Soil	.61	50	1	81.97						T22/HG	
300244-008		Soil	.59	50	1	84.75						T22/HG	
300244-009		Soil	.57	50	1	87.72						T22/HG	
300244-010		Soil	.6	50	1	83.33						T22/HG	
300244-011		Soil	.58	50	1	86.21						T22/HG	
300244-012		Soil	.62	50	1	80.65						T22/HG	
300244-013		Soil	.57	50	1	87.72						T22/HG	
300244-014		Soil	.62	50	1	80.65						T22/HG	
300244-015		Soil	.59	50	1	84.75						T22/HG	
300244-016		Soil	.6	50	1	83.33						T22/HG	
300244-017		Soil	.57	50	1	87.72						T22/HG	
300260-001		Soil	.58	50	1	86.21						T22/HG	
QC935009	BLANK	Soil	.63	50	1	79.37							
QC935010	BS	Soil	.58	50	1	86.21	1						
QC935011	BSD	Soil	.6	50	1	83.33	1						
QC935012	MS	Soil	.56	50	1	89.29	1						
QC935013	MSD	Soil	.59	50	1	84.75	1						
QC935014	SER	Soil	.57	50	1	87.72							

Analyst: SL

Date: 06/08/18

Reviewer: PRW

Date: 06/08/18

Soil Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 260282
 Date Digested: 6-7-18

Digestion Method: EPA 7471A/ 7471B

BK 4255

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Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		0.63	50 <input type="checkbox"/>	Y	QC 935009
BS		0.58	50 <input type="checkbox"/>		10
BSD		0.60	50 <input type="checkbox"/>		11
MS		0.56	50 <input type="checkbox"/>		12
MSD		0.59	50 <input type="checkbox"/>		13
300092.001		0.57	50 <input type="checkbox"/>		MSS
300260.001	B	0.58	50 <input type="checkbox"/>		
300244.001	F	0.57	50 <input type="checkbox"/>		
		0.60	50 <input type="checkbox"/>		
		0.59	50 <input type="checkbox"/>		
		0.58	50 <input type="checkbox"/>		
		0.55	50 <input type="checkbox"/>		
		0.61	50 <input type="checkbox"/>		
		0.61	50 <input type="checkbox"/>		
		0.59	50 <input type="checkbox"/>		
		0.57	50 <input type="checkbox"/>		
		0.60	50 <input type="checkbox"/>		
		0.58	50 <input type="checkbox"/>		
		0.62	50 <input type="checkbox"/>		
		0.57	50 <input type="checkbox"/>		
		0.62	50 <input type="checkbox"/>		
		0.59	50 <input type="checkbox"/>		
		0.60	50 <input type="checkbox"/>		
		0.57	50 <input type="checkbox"/>		
		0.62	50 <input type="checkbox"/>		
		0.59	50 <input type="checkbox"/>		
		0.60	50 <input type="checkbox"/>		
		0.57	50 <input type="checkbox"/>		

Balance ID: B-9 calibration has been checked? Yes No

Reagent ID/ LIMS# / Time Initials / Date

Standards prepared per SOP: MET 5.2, rev. 20

Digestion Tubes, Lot #

EK18058 SL 6-7-18

Blank/LCS 'matrix' ID

R263-54013

1 mL of spike standard was added to all spikes

S37244

CAL digested with this batch? ICAL Std S#

S37243

ICV / CCV LIMS S#

S37245 / S37246

Pipettes

Digestion Temperature (°C), and Probe Location

94° 10

Vol.(mL) ID

Digestion block ID

SEQU01A

.1	J28153D
.2-1	G15693E
1.5	2424335
5-10	4645146

Thermometer #

6412091

Digestion Started at (time)

1355

1: [Aqua Regia (HNO3+ HCl) Reagent ID

060718

5% KMnO4 / Granular KMnO4 reagent ID

060718 -

NaCl.hydroxylamine hydrochloride Reagent ID

060518

Stannous Chloride Reagent ID

060718

Digestion Completed at (time)

1430

filtered thru' 0.45 um syringe filter (lot #)

SS71618103

[Signature] 6-7-18
 Prep Chemist / Date

Continued from page 0
 Continued on page _____

Reviewed Online / See LIMS
 Version 7.2, July.2017

ICP Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met11_060418	ICALBLK	CALBLANK			06/05/18 08:25	1.0		
002	met11_060418	ICAL	L1			06/05/18 08:28	1.0	1	
003	met11_060418	ICAL	L2			06/05/18 08:32	1.0	2	
004	met11_060418	ICAL	L3			06/05/18 08:35	1.0	3	
005	met11_060418	ICAL	L4			06/05/18 08:38	1.0	4	
006	met11_060418	ICAL	L5			06/05/18 08:42	1.0	5	
007	met11_060418	ICV				06/05/18 08:45	1.0	6	
008	met11_060418	XCRI				06/05/18 08:48	1.0	7	
009	met11_060418	ICB				06/05/18 08:52	1.0		
010	met11_060418	CRI				06/05/18 08:56	1.0	7	
011	met11_060418	ICSA				06/05/18 08:59	1.0	8	10:MG=490000
012	met11_060418	ICSAB				06/05/18 09:02	1.0	9	5:MG=510000
013	met11_060418	X	IB			06/05/18 09:06	1.0		
014	met11_060418	BLANK	QC934563	Soil	260169	06/05/18 09:14	1.0		
015	met11_060418	BS	QC934564	Soil	260169	06/05/18 09:18	1.0		2:FE=10000
016	met11_060418	BSD	QC934565	Soil	260169	06/05/18 09:21	1.0		1:FE=10000
017	met11_060418	MSS	300271-001	Soil	260169	06/05/18 09:24	1.0		3:FE=320000
018	met11_060418	MS	QC934566	Soil	260169	06/05/18 09:28	1.0		6:FE=360000
019	met11_060418	MSD	QC934567	Soil	260169	06/05/18 09:31	1.0		4:FE=330000
020	met11_060418	SAMPLE	300271-002	Soil	260169	06/05/18 09:34	1.0		4:FE=410000
021	met11_060418	SAMPLE	300271-003	Soil	260169	06/05/18 09:38	1.0		4:FE=540000
022	met11_060418	SAMPLE	300271-004	Soil	260169	06/05/18 09:41	1.0		2:FE=350000
023	met11_060418	SAMPLE	300271-005	Soil	260169	06/05/18 09:44	1.0		2:FE=290000
024	met11_060418	CCV				06/05/18 09:48	1.0	6	
025	met11_060418	CCB				06/05/18 09:51	1.0		
026	met11_060418	SAMPLE	300271-006	Soil	260169	06/05/18 09:54	1.0		2:FE=320000
027	met11_060418	SAMPLE	300271-007	Soil	260169	06/05/18 09:58	1.0		3:FE=360000
028	met11_060418	SAMPLE	300271-008	Soil	260169	06/05/18 10:01	1.0		2:FE=310000
029	met11_060418	SAMPLE	300271-009	Soil	260169	06/05/18 10:04	1.0		4:FE=450000
030	met11_060418	SAMPLE	300271-010	Soil	260169	06/05/18 10:08	1.0		5:FE=370000
031	met11_060418	SAMPLE	300271-011	Soil	260169	06/05/18 10:11	1.0		3:FE=300000
032	met11_060418	SAMPLE	300271-012	Soil	260169	06/05/18 10:14	1.0		4:FE=530000
033	met11_060418	SAMPLE	300271-013	Soil	260169	06/05/18 10:18	1.0		4:FE=520000
034	met11_060418	SAMPLE	300271-014	Soil	260169	06/05/18 10:21	1.0		5:FE=560000
035	met11_060418	CCV				06/05/18 10:24	1.0	6	
036	met11_060418	CCB				06/05/18 10:28	1.0		
037	met11_060418	BLANK	QC934461	Water	260142	06/05/18 10:59	1.0		
038	met11_060418	BS	QC934462	Water	260142	06/05/18 11:02	1.0		
039	met11_060418	BSD	QC934463	Water	260142	06/05/18 11:06	1.0		1:FE=10000
040	met11_060418	SAMPLE	300239-012	Water	260142	06/05/18 11:09	100.0		2:FE=21000
041	met11_060418	MSS	300239-013	Water	260142	06/05/18 11:12	100.0		
042	met11_060418	MSS	300239-013	Water	260142	06/05/18 11:16	1.0		5:NA=1400000
043	met11_060418	MS	QC934464	Water	260142	06/05/18 11:19	1.0		5:NA=1400000
044	met11_060418	MSD	QC934465	Water	260142	06/05/18 11:22	1.0		5:NA=1400000
045	met11_060418	X	IB			06/05/18 11:26	1.0		
046	met11_060418	SAMPLE	300239-012	Water	260142	06/05/18 11:29	1.0		7:NA=2200000
047	met11_060418	X	IB			06/05/18 11:32	1.0		
048	met11_060418	CCV				06/05/18 11:36	1.0	6	
049	met11_060418	CCB				06/05/18 11:39	1.0		
050	met11_060418	BLANK	QC934454	Water	260141	06/05/18 12:02	1.0		
051	met11_060418	BS	QC934455	Water	260141	06/05/18 12:05	1.0		
052	met11_060418	BSD	QC934456	Water	260141	06/05/18 12:09	1.0		1:FE=10000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met11_060418	MSS	300184-007	Water	260141	06/05/18 12:12	1.0		4:NA=2500000
054	met11_060418	MS	QC934457	Water	260141	06/05/18 12:15	1.0		5:NA=2500000
055	met11_060418	MSD	QC934458	Water	260141	06/05/18 12:19	1.0		5:NA=2400000
056	met11_060418	SAMPLE	300253-001	Water	260141	06/05/18 12:22	1.0		1:NA=820000
057	met11_060418	SAMPLE	300211-007	Filtrate	260091	06/05/18 12:25	10000		
058	met11_060418	SAMPLE	300211-022	Filtrate	260091	06/05/18 12:29	10000		
059	met11_060418	SAMPLE	300211-024	Filtrate	260091	06/05/18 12:32	10000		
060	met11_060418	CCV				06/05/18 12:35	1.0	6	
061	met11_060418	CCB				06/05/18 12:39	1.0		
062	met11_060418	MS	QC934243	Filtrate	260091	06/05/18 12:42	1.0		3:NA=320000
063	met11_060418	MSD	QC934244	Filtrate	260091	06/05/18 12:45	1.0		3:NA=320000
064	met11_060418	SAMPLE	300211-001	Filtrate	260091	06/05/18 12:49	1.0		3:NA=3100000
065	met11_060418	SAMPLE	300211-004	Filtrate	260091	06/05/18 12:52	1.0		4:NA=4800000
066	met11_060418	SAMPLE	300211-006	Filtrate	260091	06/05/18 12:55	1.0		3:NA=2800000
067	met11_060418	SAMPLE	300211-007	Filtrate	260091	06/05/18 12:59	1.0		4:NA=6800000
068	met11_060418	SAMPLE	300211-008	Filtrate	260091	06/05/18 13:02	1.0		4:NA=4600000
069	met11_060418	SAMPLE	300211-009	Filtrate	260091	06/05/18 13:05	1.0		3:NA=4700000
070	met11_060418	SAMPLE	300211-014	Filtrate	260091	06/05/18 13:09	1.0		5:NA=3500000
071	met11_060418	SAMPLE	300211-015	Filtrate	260091	06/05/18 13:12	1.0		3:NA=4500000
072	met11_060418	CCV				06/05/18 13:15	1.0	6	
073	met11_060418	CCB				06/05/18 13:19	1.0		
074	met11_060418	SAMPLE	300211-016	Filtrate	260091	06/05/18 13:22	1.0		3:NA=4700000
075	met11_060418	SAMPLE	300211-019	Filtrate	260091	06/05/18 13:25	1.0		3:NA=1600000
076	met11_060418	SAMPLE	300211-020	Filtrate	260091	06/05/18 13:29	1.0		4:NA=3400000
077	met11_060418	SAMPLE	300211-023	Filtrate	260091	06/05/18 13:32	1.0		3:NA=2700000
078	met11_060418	SAMPLE	300211-002	Filtrate	260091	06/05/18 13:35	1.0		5:NA=1000000
079	met11_060418	SAMPLE	300211-003	Filtrate	260091	06/05/18 13:39	1.0		4:NA=610000
080	met11_060418	X	RINSE			06/05/18 13:42	1.0		
081	met11_060418	PDS	QC934440	WET Leachate	260137	06/05/18 13:45	10.0	10 11 12	2:NA=170000
082	met11_060418	SAMPLE	300211-025	Filtrate	260105	06/05/18 13:49	100.0		
083	met11_060418	SAMPLE	300211-026	Filtrate	260105	06/05/18 13:52	100.0		
084	met11_060418	CCV				06/05/18 13:55	1.0	6	
085	met11_060418	CCB				06/05/18 13:59	1.0		
086	met11_060418	SAMPLE	300211-027	Filtrate	260105	06/05/18 14:02	100.0		
087	met11_060418	SAMPLE	300211-028	Filtrate	260105	06/05/18 14:05	100.0		
088	met11_060418	SAMPLE	300211-029	Filtrate	260105	06/05/18 14:09	100.0		
089	met11_060418	SAMPLE	300211-025	Filtrate	260105	06/05/18 14:12	1.0		5:NA=3200000
090	met11_060418	SAMPLE	300211-029	Filtrate	260105	06/05/18 14:15	1.0		3:NA=3100000
091	met11_060418	BLANK	QC934558	Soil	260168	06/05/18 14:19	1.0		
092	met11_060418	BS	QC934559	Soil	260168	06/05/18 14:22	1.0		1:FE=10000
093	met11_060418	BSD	QC934560	Soil	260168	06/05/18 14:25	1.0		2:FE=10000
094	met11_060418	MSS	300255-001	Soil	260168	06/05/18 14:29	1.0		4:FE=450000
095	met11_060418	MS	QC934561	Soil	260168	06/05/18 14:32	1.0		7:FE=530000
096	met11_060418	CCV				06/05/18 14:35	1.0	6	
097	met11_060418	CCB				06/05/18 14:39	1.0		
098	met11_060418	MSD	QC934562	Soil	260168	06/05/18 14:42	1.0		7:FE=520000
099	met11_060418	SAMPLE	300257-001	Soil	260168	06/05/18 14:45	100.0		
100	met11_060418	SAMPLE	300257-002	Soil	260168	06/05/18 14:49	100.0		
101	met11_060418	SAMPLE	300257-003	Soil	260168	06/05/18 14:52	100.0		
102	met11_060418	SAMPLE	300257-005	Soil	260168	06/05/18 14:55	100.0		
103	met11_060418	SAMPLE	300257-004	Soil	260168	06/05/18 14:59	1.0		4:FE=540000
104	met11_060418	SAMPLE	300257-005	Soil	260168	06/05/18 15:02	1.0		5:FE=320000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met11_060418	SAMPLE	300257-006	Soil	260168	06/05/18 15:05	1.0		4:FE=840000
106	met11_060418	SAMPLE	300259-001	Soil	260168	06/05/18 15:09	1.0		5:FE=500000
107	met11_060418	SAMPLE	300259-002	Soil	260168	06/05/18 15:12	1.0		4:FE=370000
108	met11_060418	CCV				06/05/18 15:15	1.0	6	
109	met11_060418	CCB				06/05/18 15:18	1.0		
110	met11_060418	SAMPLE	300259-003	Soil	260168	06/05/18 15:22	1.0		4:FE=400000
111	met11_060418	SAMPLE	300259-004	Soil	260168	06/05/18 15:25	1.0		4:FE=400000
112	met11_060418	SAMPLE	300260-001	Soil	260168	06/05/18 15:28	1.0		4:CA=340000
113	met11_060418	SAMPLE	300261-001	Miscell.	260168	06/05/18 15:32	10000		
114	met11_060418	SAMPLE	300261-002	Miscell.	260168	06/05/18 15:35	10000		
115	met11_060418	SAMPLE	300261-003	Miscell.	260168	06/05/18 15:38	10000		
116	met11_060418	SAMPLE	300261-004	Miscell.	260168	06/05/18 15:42	10000		
117	met11_060418	CCV				06/05/18 15:45	1.0	6	
118	met11_060418	CCB				06/05/18 15:48	1.0		
119	met11_060418	BLANK	QC933772	Water	259978	06/05/18 17:47	1.0		
120	met11_060418	SAMPLE	300073-002	Water	259978	06/05/18 17:51	1.0		3:NA=610000
121	met11_060418	SAMPLE	300073-003	Water	259978	06/05/18 17:54	1.0		3:NA=1100000
122	met11_060418	SER	QC934624	Soil	260140	06/05/18 17:57	5.0		1:FE=78000
123	met11_060418	PDS	QC934625	Soil	260140	06/05/18 18:01	1.0	10 11 12	5:FE=410000
124	met11_060418	X	IB			06/05/18 18:04	1.0		
125	met11_060418	BLANK	QC934454	Water	260141	06/05/18 18:08	1.0		
126	met11_060418	MSS	300184-007	Water	260141	06/05/18 18:11	1.0		4:NA=2500000
127	met11_060418	SER	QC934460	Water	260141	06/05/18 18:14	5.0		1:NA=520000
128	met11_060418	PDS	QC934459	Water	260141	06/05/18 18:18	1.0	10 11 12	5:NA=2400000
129	met11_060418	X	RINSE			06/05/18 18:21	1.0		
130	met11_060418	CCV				06/05/18 18:24	1.0	6	
131	met11_060418	CCB				06/05/18 18:27	1.0		
132	met11_060418	SAMPLE	300239-009	Filtrate	260104	06/05/18 18:31	1.0		3:NA=920000
133	met11_060418	SAMPLE	300239-010	Filtrate	260104	06/05/18 18:34	1.0		8:FE=1200000
134	met11_060418	SAMPLE	300239-011	Filtrate	260104	06/05/18 18:37	1.0		2:NA=1700000
135	met11_060418	SAMPLE	300239-014	Filtrate	260104	06/05/18 18:41	1.0		4:NA=3400000
136	met11_060418	SAMPLE	300239-015	Filtrate	260104	06/05/18 18:44	1.0		6:NA=2400000
137	met11_060418	SAMPLE	300211-012	Filtrate	260091	06/05/18 18:48	100.0		
138	met11_060418	SAMPLE	300211-012	Filtrate	260091	06/05/18 18:51	1.0		2:NA=300000
139	met11_060418	CCV				06/05/18 18:54	1.0	6	
140	met11_060418	CCB				06/05/18 18:58	1.0		
141	met11_060418	LOD	293439-038	Water	258670	06/05/18 19:27	1.0		
142	met11_060418	LOD	293439-039	Water	258670	06/05/18 19:30	1.0		
143	met11_060418	LOD	293439-040	Water	258670	06/05/18 19:33	1.0		
144	met11_060418	LOD	293439-041	Water	258670	06/05/18 19:37	1.0		
145	met11_060418	LOD	293439-042	Water	258670	06/05/18 19:40	1.0		
146	met11_060418	CCV				06/05/18 19:43	1.0	6	
147	met11_060418	CCB				06/05/18 19:47	1.0		
148	met11_060418	SAMPLE	300239-016	Filtrate	260104	06/05/18 19:50	1.0		3:NA=2300000
149	met11_060418	SAMPLE	300239-017	Filtrate	260104	06/05/18 19:54	1.0		2:NA=1400000
150	met11_060418	CCV				06/05/18 19:57	1.0	6	
151	met11_060418	CCB				06/05/18 20:00	1.0		
152	met11_060418	BLANK	QC934619	Soil	260184	06/05/18 20:05	1.0		
153	met11_060418	BS	QC934620	Soil	260184	06/05/18 20:09	1.0		
154	met11_060418	BSD	QC934621	Soil	260184	06/05/18 20:12	1.0		
155	met11_060418	MSS	300092-001	Soil	260184	06/05/18 20:15	1.0		2:FE=470000
156	met11_060418	MS	QC934622	Soil	260184	06/05/18 20:19	1.0		3:FE=490000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
157	met11_060418	MSD	QC934623	Soil	260184	06/05/18 20:22	1.0	2:FE=450000
158	met11_060418	BLANK	QC934609	Soil	260182	06/05/18 20:26	1.0	
159	met11_060418	BS	QC934610	Soil	260182	06/05/18 20:29	1.0	2:FE=10000
160	met11_060418	BSD	QC934611	Soil	260182	06/05/18 20:32	1.0	1:FE=10000
161	met11_060418	MSS	300369-001	Soil	260182	06/05/18 20:35	1.0	5:FE=310000
162	met11_060418	CCV				06/05/18 20:39	1.0	6
163	met11_060418	CCB				06/05/18 20:42	1.0	
164	met11_060418	MS	QC934612	Soil	260182	06/05/18 20:45	1.0	6:FE=330000
165	met11_060418	MSD	QC934613	Soil	260182	06/05/18 20:49	1.0	6:FE=360000
166	met11_060418	SAMPLE	300365-001	Miscell.	260182	06/05/18 20:52	1.0	
167	met11_060418	SAMPLE	300365-002	Miscell.	260182	06/05/18 20:55	1.0	
168	met11_060418	SAMPLE	300365-003	Miscell.	260182	06/05/18 20:59	1.0	
169	met11_060418	SAMPLE	300365-004	Miscell.	260182	06/05/18 21:02	1.0	
170	met11_060418	SAMPLE	300365-005	Miscell.	260182	06/05/18 21:05	1.0	
171	met11_060418	SAMPLE	300365-006	Miscell.	260182	06/05/18 21:09	1.0	
172	met11_060418	SAMPLE	300365-007	Miscell.	260182	06/05/18 21:12	1.0	
173	met11_060418	SAMPLE	300366-001	Miscell.	260182	06/05/18 21:15	1.0	
174	met11_060418	CCV				06/05/18 21:19	1.0	6
175	met11_060418	CCB				06/05/18 21:22	1.0	
176	met11_060418	SAMPLE	300366-002	Miscell.	260182	06/05/18 21:25	1.0	
177	met11_060418	SAMPLE	300367-001	Miscell.	260182	06/05/18 21:29	1.0	
178	met11_060418	SAMPLE	300367-002	Miscell.	260182	06/05/18 21:32	1.0	
179	met11_060418	SAMPLE	300367-003	Miscell.	260182	06/05/18 21:35	1.0	
180	met11_060418	SAMPLE	300367-004	Miscell.	260182	06/05/18 21:39	1.0	1:CA=150000
181	met11_060418	SAMPLE	300367-005	Miscell.	260182	06/05/18 21:42	1.0	
182	met11_060418	SAMPLE	300367-006	Miscell.	260182	06/05/18 21:45	1.0	
183	met11_060418	SAMPLE	300367-007	Miscell.	260182	06/05/18 21:49	1.0	1:ZN=12000
184	met11_060418	SAMPLE	300367-008	Miscell.	260182	06/05/18 21:52	1.0	1:ZN=27000
185	met11_060418	BLANK	QC934614	Miscell.	260183	06/05/18 21:55	1.0	
186	met11_060418	CCV				06/05/18 21:59	1.0	6
187	met11_060418	CCB				06/05/18 22:02	1.0	
188	met11_060418	BS	QC934615	Miscell.	260183	06/05/18 22:05	1.0	1:FE=10000
189	met11_060418	BSD	QC934616	Miscell.	260183	06/05/18 22:09	1.0	2:FE=10000
190	met11_060418	MSS	300276-001	Soil	260183	06/05/18 22:12	1.0	4:FE=430000
191	met11_060418	MS	QC934617	Soil	260183	06/05/18 22:15	1.0	4:FE=450000
192	met11_060418	MSD	QC934618	Soil	260183	06/05/18 22:19	1.0	4:FE=440000
193	met11_060418	SAMPLE	300276-002	Soil	260183	06/05/18 22:22	1.0	4:FE=470000
194	met11_060418	SAMPLE	300276-003	Soil	260183	06/05/18 22:25	1.0	4:FE=430000
195	met11_060418	SAMPLE	300276-004	Soil	260183	06/05/18 22:29	1.0	4:FE=430000
196	met11_060418	SAMPLE	300276-005	Soil	260183	06/05/18 22:32	1.0	4:FE=440000
197	met11_060418	SAMPLE	300276-006	Soil	260183	06/05/18 22:35	1.0	4:FE=400000
198	met11_060418	CCV				06/05/18 22:39	1.0	6
199	met11_060418	CCB				06/05/18 22:42	1.0	
200	met11_060418	SAMPLE	300276-007	Soil	260183	06/05/18 22:45	1.0	4:FE=430000
201	met11_060418	SAMPLE	300276-008	Soil	260183	06/05/18 22:49	1.0	4:FE=400000
202	met11_060418	SAMPLE	300276-009	Soil	260183	06/05/18 22:52	1.0	4:FE=470000
203	met11_060418	SAMPLE	300276-010	Soil	260183	06/05/18 22:55	1.0	4:FE=440000
204	met11_060418	SAMPLE	300276-011	Soil	260183	06/05/18 22:59	1.0	4:FE=440000
205	met11_060418	SAMPLE	300276-012	Soil	260183	06/05/18 23:02	1.0	4:FE=470000
206	met11_060418	SAMPLE	300368-001	Miscell.	260183	06/05/18 23:05	1.0	2:CA=210000
207	met11_060418	SAMPLE	300368-002	Miscell.	260183	06/05/18 23:09	1.0	
208	met11_060418	SAMPLE	300368-003	Miscell.	260183	06/05/18 23:12	1.0	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658225145

Instrument : MET11
 Method : EPA 6010B

Begun : 06/05/18 08:25
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
209	met11_060418	SAMPLE	300368-004	Miscell.	260183	06/05/18 23:15	1.0	
210	met11_060418	CCV				06/05/18 23:19	1.0	6
211	met11_060418	CCB				06/05/18 23:22	1.0	
212	met11_060418	SAMPLE	300368-005	Miscell.	260183	06/05/18 23:25	1.0	
213	met11_060418	SAMPLE	300368-006	Miscell.	260183	06/05/18 23:29	1.0	
214	met11_060418	CCV				06/05/18 23:32	1.0	6
215	met11_060418	CCB				06/05/18 23:35	1.0	

KER 06/05/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 140.

KER 06/06/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 141 through 215.

Standards used: 1=S36876 2=S36877 3=S36878 4=S36879 5=S36880 6=S37184 7=S36770 8=S37050 9=S36567 10=S36020 11=S36031
 12=S36713

California Title 22 Metals

Lab #:	300092	Project#:	1035225322.01
Client:	Tetra Tech EMI	Location:	RFS Corp Yard
Field ID:	RFS-B180-DU01	Basis:	dry
Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg		

Moisture: 9%

Analyte	Result	RL	MDL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	1.2 J	2.2	0.075	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Arsenic	16	1.6	0.072	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Barium	190	0.27	0.033	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Beryllium	0.39	0.11	0.014	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Cadmium	0.65	0.27	0.018	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Chromium	36	0.27	0.054	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Cobalt	11	0.27	0.016	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Copper	440	0.27	0.062	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Lead	160	1.1	0.062	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Mercury	18	0.39	0.068	20.00		260282	06/07/18	06/07/18	METHOD	EPA 7471A
Molybdenum	1.6	0.27	0.029	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Nickel	30	0.27	0.047	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Selenium	ND	2.2	0.21	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Silver	1.7	0.27	0.033	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Thallium	0.22 J	0.55	0.098	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Vanadium	28	0.27	0.057	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B
Zinc	160	1.1	0.23	1.000		260184	06/05/18	06/05/18	EPA 3050B	EPA 6010B

J= Estimated value

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

ENTHALPY SAMPLE USER REPORT FOR EPA 6010B

Inst : MET11 Lab ID : 300092-001 Client ID : RFS-B180-DU01
 Seqnum : 658225145155 Matrix : Soil Acct : TTEMI (MJD)
 File : met11_060418 Batch : 260184 Time : 05-JUN-2018 20:15
 Cal : 658225145001 Caldate : 05-JUN-2018
 IDF : 1.0 Units : mg/Kg

10.04 g --> 500.0 ml = 49.80 ml/g PDF

Analyte	Ch	Result	Conf	RPD	RL	Blank	Flags
Antimony	A	1.1 J			2.0		u
Arsenic	A	14			1.5		u
Barium	A	180			0.25	0.19	u
Beryllium	H	0.36			0.10		u
Beryllium	R	0.34			0.10		?LOD ?MDL b*
Cadmium	A	0.59			0.25		u
Chromium	A	33			0.25	0.17	u
Cobalt	A	9.8			0.25		u
Copper	H	400			0.25	0.074	u
Lead	A	140			1.0		u
Molybdenum	A	1.5			0.25		u
Nickel	A	28			0.25	0.22	u
Selenium	A	ND			2.0		u
Silver	H	1.6			0.25		u
Thallium	A	0.20 J			0.50		u
Vanadium	H	26			0.25		u
Zinc	A	150			1.0	0.66	u

ISTD (ICAL 002)	Ch	ICAL Abund	MSS Abund	%Drift
Yttrium	H	41712256	40951537	-1.82
Yttrium	A	2377788	2362411	-0.65
Yttrium	R	5324215	5458620	2.52

Sample Name: 300092-001,260184,1 Sample Type: Unknown Sample

Measure Date: 2018-06-05 20:15:59 Recalculation Date: State: Measured Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	79239.81300	7770678	1420009	1336344	16096.02600	26459.63300	2695068
Int RSD	0.21897449	0.25334353	0.67746063	1.33660111	0.36337920	2.27483903	0.52377509
Int SD	173.51498000	19686.50900	9619.99850	17861.58200	58.48961000	601.91406000	14116.09600
RelInt Mean	0.00080012	1.42105710	---	---	0.00337598	0.00409486	1.14451980
RelInt RSD	0.75030757	0.20195547	---	---	1.39610544	4.79445807	0.25021879
RelInt SD	0.00000600	0.00286990	---	---	0.00004713	0.00019633	0.00286380
Conc Mean	31.48415700[µg/l]	>218494[µg/l]	1420009	1336344	283.84642000[µg/l]	43.10192900[µg/l]	3554.93340[µg/l]
Conc RSD	0.79144695	0.20197777	---	---	1.37708078	5.86627411	0.25024072
Conc SD	0.24918040[µg/l]	441.30959000[µg/l]	9619.99850	17861.58200	3.90879450[µg/l]	2.52847730[µg/l]	8.89589090[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	275013	7109881	17128.06500	89534.10600	226812	11270943	140224150
Int RSD	0.18839892	0.95481377	1.09128988	0.25074573	0.46871606	0.55020385	0.01868909
Int SD	518.12208000	67886.11800	186.91684000	224.50295000	1063.10460	62013.16200	26206.62200
RelInt Mean	0.00551465	1.31063110	0.00321163	0.03429940	0.09135731	0.27405819	59.69197600
RelInt RSD	0.23624054	0.56431754	1.05505924	0.60542250	0.30948205	0.23284758	0.77840182
RelInt SD	0.00001303	0.00739612	0.00003388	0.00020766	0.00028273	0.00063814	0.46464343
Conc Mean	7.18642680[µg/l]	75079.29700[µg/l]	11.88067000[µg/l]	196.30634000[µg/l]	658.67526000[µg/l]	7989.21920[µg/l]	>221714[µg/l]
Conc RSD	0.26693707	0.56751714	1.09619929	0.61030749	0.30968780	0.23300729	0.77842147
Conc SD	0.01918324[µg/l]	426.08788000[µg/l]	0.13023582[µg/l]	1.19807230[µg/l]	2.03983690[µg/l]	18.61546300[µg/l]	1725.87000[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	3547451	28350.42500	710320	24200013	19637.75000	110494	167151
Int RSD	0.23069134	0.98081577	0.32220464	0.50092093	0.67923729	0.36947363	0.84931256
Int SD	8183.66280	278.06544000	2288.68360	121223	133.38692000	408.24638000	1419.63580
RelInt Mean	0.64783065	0.00452574	0.12457854	10.30115900	0.00309798	0.01716862	0.06682985
RelInt RSD	0.20127066	0.38914080	0.72910650	0.37709003	1.46122772	0.29617726	0.16065600
RelInt SD	0.00130389	0.00001761	0.00090831	0.03884464	0.00004527	0.00005085	0.00010737
Conc Mean	>474100[µg/l]	17406.84700[µg/l]	55169.79600[µg/l]	8118.74530[µg/l]	29.69411300[µg/l]	3996.35290[µg/l]	556.08515000[µg/l]
Conc RSD	0.20126628	0.39245319	0.73264514	0.37709813	1.45486477	0.31300494	0.16073581
Conc SD	954.20442000[µg/l]	68.31372600[µg/l]	404.19883000[µg/l]	30.61563700[µg/l]	0.43200919[µg/l]	12.50878200[µg/l]	0.89382796[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	207806	15287.65400	10212.96900	17640.13300	3003860	3992389	9858.31890
Int RSD	0.86917113	0.98766429	0.76626938	0.58386941	0.28461388	0.36129817	0.53046726
Int SD	1806.18620	150.99070000	78.25885400	102.99534000	8549.40160	14424.43000	52.29515400
RelInt Mean	0.08341410	0.00043843	0.00003803	0.00251444	0.55373930	0.09670282	0.00010167
RelInt RSD	0.21074226	15.69304591	55.45160478	4.40209906	0.11010054	0.47541429	13.19177394
RelInt SD	0.00017579	0.00006880	0.00002109	0.00011069	0.00060967	0.00045974	0.00001341
Conc Mean	2902.81160[µg/l]	22.02874900[µg/l]	<-4.80562490[µg/l]	65.35350800[µg/l]	580.92485000[µg/l]	943.70880000[µg/l]	4.10500280[µg/l]
Conc RSD	0.21109945	18.39947924	47.38198356	4.66385202	0.11122427	0.47564446	32.27454559
Conc SD	6.12781920[µg/l]	4.05317510[µg/l]	2.27700040[µg/l]	3.04799090[µg/l]	0.64612943[µg/l]	4.48869860[µg/l]	1.32487100[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	177828	2362411	40951537	5458620	1323410	30522.27200
Int RSD	0.52116113	0.77050200	0.34321852	0.39134449	0.93014354	1.64053364
Int SD	926.76943000	18202.42700	140553	21362.01000	12309.60800	500.72814000
RelInt Mean	0.00347330	---	---	---	0.55824067	0.00252628
RelInt RSD	0.63669062	---	---	---	0.22378056	2.17134211
RelInt SD	0.00002211	---	---	---	0.00124923	0.00005485
Conc Mean	516.06387000[µg/l]	2345619	40775559	5424697	2979.71980[µg/l]	6.92086160[µg/l]
Conc RSD	0.64293929	---	---	---	0.22424986	2.39859832
Conc SD	3.31797740[µg/l]	18047.47600	140505	21140.02300	6.68201740[µg/l]	0.16600367[µg/l]

ENTHALPY SPIKE USER REPORT FOR 300092 METALS Soil
EPA 6010B

Type : MSS	Type : MS	Type : MSD
Inst : MET11	Inst : MET11	Inst : MET11
Seqnum : 658225145155	Seqnum : 658225145156.1	Seqnum : 658225145157.1
File : met11_060418	File : met11_060418	File : met11_060418
IDF : 1.0	IDF : 1.0	IDF : 1.0
Lab ID : 300092-001	Lab ID : QC934622	Lab ID : QC934623
Matrix : Soil	Matrix : Soil	Matrix : Soil
Batch : 260184	Batch : 260184	Batch : 260184
Time : 05-JUN-2018 20:15	Time : 05-JUN-2018 20:19	Time : 05-JUN-2018 20:22
Cal : 658225145001	Cal : 658225145001	Cal : 658225145001
Units : mg/Kg		

MSS: 10.04 g --> 500.0 ml = 49.80 ml/g PDF
 MS: 10.01 g --> 500.0 ml = 49.95 ml/g PDF
 MSD: 10.24 g --> 500.0 ml = 48.83 ml/g PDF

Analyte	MSS	Ch	Spiked	MS	Ch	%Rec	Spiked	MSD	Ch	%Rec	Limits	RPD	Lim	Flags
Antimony	1.097 J	A	49.95	7.935	A	14	48.83	7.656	A	13	1-120	1	50	u
Arsenic	14.14	A	49.95	61.59	A	95	48.83	56.37	A	86	71-123	7	27	u
Barium	177.0	A	49.95	234.3	A	115	48.83	205.1	A	57	48-155	13	41	u
Beryllium	0.3579	H	24.98	23.97	H	95	24.41	21.89	H	88	80-120	7	20	u
Beryllium	0.3579	H	24.98	23.97	H	95	24.41	21.98	R	89	80-120	6	20	?LOD ?MDL u
Cadmium	0.5917	A	49.95	46.96	A	93	48.83	42.92	A	87	78-120	7	21	u
Chromium	32.80	A	49.95	89.26	A	113	48.83	77.67	A	92	64-135	13	37	u
Cobalt	9.776	A	49.95	55.82	A	92	48.83	49.69	A	82	65-120	10	32	u
Copper	397.9	H	49.95	457.4	H	119	48.83	426.4	H	58	75-132	7	33	: u
Lead	144.6	A	49.95	188.0	A	87	48.83	184.5	A	82	53-128	1	48	u
Molybdenum	1.479	A	49.95	39.68	A	76	48.83	36.46	A	72	68-120	6	23	u
Nickel	27.69	A	49.95	77.08	A	99	48.83	68.70	A	84	56-128	10	38	u
Selenium	ND	A	49.95	42.23	A	85	48.83	38.64	A	79	59-120	7	30	u
Silver	1.568	H	4.995	6.264	H	94	4.883	5.851	H	88	36-123	5	47	u
Thallium	0.2044 J	A	49.95	43.30	A	86	48.83	40.21	A	82	55-120	5	22	u
Vanadium	25.70	H	49.95	77.18	H	103	48.83	67.93	H	86	73-129	11	27	u
Zinc	148.4	A	49.95	194.8	A	93	48.83	183.4	A	72	49-138	5	39	u

ISTD (ICAL 002)	Ch	ICAL Abund	MS Abund	%Drift
Yttrium	H	41712256	40364768	-3.23
Yttrium	A	2377788	2332215	-1.92
Yttrium	R	5324215	5359147	0.66

ISTD (ICAL 002)	Ch	ICAL Abund	MSD Abund	%Drift
Yttrium	H	41712256	40980993	-1.75
Yttrium	A	2377788	2376321	-0.06
Yttrium	R	5324215	5386505	1.17

:=recovery not meaningful ?LOD=no LOD ?MDL=no MDL u=use

Sample Name: qc934622,260184,1 Sample Type: Unknown Sample

Measure Date: 2018-06-05 20:19:19 Recalculation Date: State: Measured Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	172807	11203795	1455239	1370688	44309.26800	145072	3508061
Int RSD	0.30371334	0.71393423	0.57723816	0.88632920	0.15724945	0.46051354	0.36437465
Int SD	524.83649000	79987.72800	8400.19430	12148.80800	69.67608200	668.07777000	12782.48400
RelInt Mean	0.00306902	2.09035040	---	---	0.01483730	0.05466974	1.51036560
RelInt RSD	0.30231435	0.55709033	---	---	0.55976636	0.85353598	0.15095877
RelInt SD	0.00000928	0.01164514	---	---	0.00008305	0.00046663	0.00228003
Conc Mean	125.39828000[µg/l]	>321413[µg/l]	1455239	1370688	1232.94700[µg/l]	694.45325000[µg/l]	4691.36490[µg/l]
Conc RSD	0.30693140	0.55713144	---	---	0.55795059	0.86537936	0.15096557
Conc SD	0.38488670[µg/l]	1790.69070[µg/l]	8400.19430	12148.80800	6.87923510[µg/l]	6.00965510[µg/l]	7.08234570[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	11971657	8324404	577105	459514	587309	12729115	140124630
Int RSD	0.33616126	0.95166445	0.34951238	0.06386861	0.04641578	0.84812102	0.00702774
Int SD	40244.07300	79220.38900	2017.05320	293.48530000	272.60411000	107958	9847.60040
RelInt Mean	0.29605503	1.56342470	0.24470336	0.19422718	0.24775488	0.31408840	60.42886400
RelInt RSD	0.25172596	0.32584899	0.82191021	0.53960985	0.48182639	0.37338574	0.49737976
RelInt SD	0.00074525	0.00509440	0.00201124	0.00104807	0.00119375	0.00117276	0.30056094
Conc Mean	479.89495000[µg/l]	89642.61300[µg/l]	940.05708000[µg/l]	1117.55460[µg/l]	1787.03350[µg/l]	9156.95860[µg/l]	>224451[µg/l]
Conc RSD	0.25352271	0.32739625	0.82231484	0.54074068	0.48194636	0.37360837	0.49739251
Conc SD	1.21664270[µg/l]	293.48655000[µg/l]	7.73022890[µg/l]	6.04307230[µg/l]	8.61254290[µg/l]	34.21116400[µg/l]	1116.40330[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	3620721	41509.01700	915244	31028652	208540	323213	440407
Int RSD	1.13644604	0.55151653	0.09503353	0.33239894	0.19279794	0.44832085	0.16802671
Int SD	41147.54500	228.92909000	869.78879000	103139	402.06011000	1449.03070	740.00062000
RelInt Mean	0.67366825	0.00708925	0.16517591	13.38600000	0.08322277	0.05728688	0.18540251
RelInt RSD	0.15016641	1.83381486	1.31498449	0.29105096	0.64645364	1.61692899	0.65264154
RelInt SD	0.00101162	0.00013000	0.00217204	0.03896008	0.00053800	0.00092629	0.00121001
Conc Mean	>493009[µg/l]	27350.50900[µg/l]	73235.57600[µg/l]	10550.10300[µg/l]	794.34492000[µg/l]	13865.29700[µg/l]	1543.20710[µg/l]
Conc RSD	0.15016200	1.84375135	1.31978805	0.29105568	0.64634848	1.64341081	0.65275607
Conc SD	740.31169000[µg/l]	504.27538000[µg/l]	966.55438000[µg/l]	30.70667400[µg/l]	5.13423630[µg/l]	227.86379000[µg/l]	10.07337800[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	265224	25099.64000	31280.64300	86553.59900	49028766	7170617	32277.05500
Int RSD	0.20061752	1.24528368	0.55581258	0.35189922	1.26809223	0.38500721	0.39549466
Int SD	532.08574000	312.56172000	173.86175000	304.58144000	621730	27607.39400	127.65403000
RelInt Mean	0.10832718	0.00286472	0.00795942	0.03142056	9.20856450	0.17703821	0.00884935
RelInt RSD	0.41991837	5.47120443	1.03846090	0.74393557	1.40832906	0.23453372	0.98143643
RelInt SD	0.00045489	0.00015673	0.00008266	0.00023375	0.12968689	0.00041521	0.00008685
Conc Mean	3764.11640[µg/l]	158.86519000[µg/l]	845.42100000[µg/l]	861.33510000[µg/l]	9751.99090[µg/l]	1728.07030[µg/l]	866.89630000[µg/l]
Conc RSD	0.43237273	5.79978931	1.06090912	0.74729219	1.40917000	0.23459471	0.99180948
Conc SD	16.27501300[µg/l]	9.21384630[µg/l]	8.96914850[µg/l]	6.43668990[µg/l]	137.42213000[µg/l]	4.05396150[µg/l]	8.59795970[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	455365	2332215	40364768	5359147	1709086	870530
Int RSD	0.70932367	0.48446001	0.57687759	1.25337226	0.83258618	0.23810461
Int SD	3230.01080	11298.64900	232855	67170.06300	14229.61300	2072.77290
RelInt Mean	0.01033162	---	---	---	0.73028972	0.15953307
RelInt RSD	0.19558043	---	---	---	0.53876774	1.14619991
RelInt SD	0.00002021	---	---	---	0.00393457	0.00182857
Conc Mean	1545.07330[µg/l]	2315025	40187301	5324608	3899.12510[µg/l]	482.06561000[µg/l]
Conc RSD	0.19622384	---	---	---	0.53972557	1.14792144
Conc SD	3.03180210[µg/l]	11450.31000	233446	67182.26100	21.04457500[µg/l]	5.53373450[µg/l]

Sample Name: qc934623,260184,1 Sample Type: Unknown Sample

Measure Date: 2018-06-05 20:22:40 Recalculation Date: State: Measured Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	168717	9300486	1462294	1367242	41812.76600	119731	3202037
Int RSD	0.37372745	0.80297087	1.28882406	0.67214009	0.45655564	0.26403788	0.20276985
Int SD	630.54302000	74680.19700	18846.39300	9189.78160	190.89854000	316.13577000	6492.76540
RelInt Mean	0.00293428	1.72488140	---	---	0.01388705	0.04321648	1.35228250
RelInt RSD	0.22586386	0.21898436	---	---	1.01848175	0.69181017	0.28992806
RelInt SD	0.00000663	0.00377722	---	---	0.00014144	0.00029898	0.00392065
Conc Mean	119.83246000[µg/l]	>265214[µg/l]	1462294	1367242	1154.40120[µg/l]	546.94729000[µg/l]	4200.30920[µg/l]
Conc RSD	0.22890799	0.21900341	---	---	1.01561390	0.70399780	0.28994982
Conc SD	0.27430608[µg/l]	580.82720000[µg/l]	18846.39300	9189.78160	11.72425900[µg/l]	3.85049690[µg/l]	12.17878900[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	11355422	7739313	550397	426971	533690	12326520	140326590
Int RSD	0.31879151	0.69680136	0.39266335	0.45639459	0.41929189	0.31104571	0.00811363
Int SD	36200.12100	53927.63900	2161.20690	1948.67470	2237.71980	38341.11200	11385.58700
RelInt Mean	0.27659100	1.44596630	0.22883954	0.17685990	0.22054995	0.29955774	59.38501400
RelInt RSD	0.29874259	0.34006092	0.39333306	0.44872166	0.54977038	0.35621136	0.41367219
RelInt SD	0.00082630	0.00491717	0.00090010	0.00079361	0.00121252	0.00106706	0.24565929
Conc Mean	448.28915000[µg/l]	82875.88900[µg/l]	879.08429000[µg/l]	1017.69920[µg/l]	1590.75870[µg/l]	8733.07820[µg/l]	>220574[µg/l]
Conc RSD	0.29985035	0.34180441	0.39354094	0.44967970	0.54992242	0.35643335	0.41368467
Conc SD	1.34419660[µg/l]	283.27344000[µg/l]	3.45955660[µg/l]	4.57638670[µg/l]	8.74793870[µg/l]	31.12760300[µg/l]	912.48042000[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	3357612	38003.65100	818749	25982864	198495	304130	409840
Int RSD	0.84227237	0.86304079	0.57362869	0.21081760	0.56964078	0.46110238	0.42319656
Int SD	28280.24000	327.98701000	4696.58120	54776.45100	1130.70920	1402.35020	1734.42710
RelInt Mean	0.62110144	0.00640561	0.14642479	10.99584800	0.07822198	0.05341522	0.16904707
RelInt RSD	0.18655167	1.46599522	0.58317116	0.51369752	0.49300590	0.48223306	0.54079142
RelInt SD	0.00115868	0.00009391	0.00085391	0.05648540	0.00038564	0.00025759	0.00091419
Conc Mean	>454540[µg/l]	24698.73200[µg/l]	64891.35200[µg/l]	8666.27370[µg/l]	746.62113000[µg/l]	12912.88300[µg/l]	1407.04740[µg/l]
Conc RSD	0.18654659	1.47478907	0.58557268	0.51370935	0.49292019	0.49071367	0.54089660
Conc SD	847.92848000[µg/l]	364.25420000[µg/l]	379.98603000[µg/l]	44.51945800[µg/l]	3.68024630[µg/l]	63.36528200[µg/l]	7.61067160[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	269470	22835.17500	28736.18700	83989.02100	45750554	6417281	30363.27000
Int RSD	0.42504789	0.37211638	0.47503926	0.38209771	0.62068230	0.32822503	0.24877647
Int SD	1145.37460	84.97342600	136.50817000	320.92013000	283966	21063.12400	75.53667200
RelInt Mean	0.10847044	0.00281041	0.00743283	0.03028019	8.54825040	0.15591543	0.00839798
RelInt RSD	0.57191299	0.18574688	0.81392638	0.75515157	1.32642968	0.31981424	0.67359741
RelInt SD	0.00062036	0.00000522	0.00006050	0.00022866	0.11338653	0.00049864	0.00005657
Conc Mean	3778.38260[µg/l]	156.79581000[µg/l]	791.41430000[µg/l]	829.93306000[µg/l]	9052.29630[µg/l]	1521.83620[µg/l]	823.41010000[µg/l]
Conc RSD	0.57660021	0.21665993	0.81876557	0.75868695	1.32728355	0.31990896	0.67900927
Conc SD	21.78616200[µg/l]	0.33971370[µg/l]	6.47982780[µg/l]	6.29659380[µg/l]	120.14964000[µg/l]	4.86849030[µg/l]	5.59103090[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	417456	2376321	40980993	5386505	1676290	818284
Int RSD	0.29249133	0.39623749	0.12522087	1.02286198	0.30439721	0.50931263
Int SD	1221.02220	9415.87430	51316.75700	55096.51500	5102.57900	4167.62480
RelInt Mean	0.00930594	---	---	---	0.70353378	0.14897911
RelInt RSD	0.23177015	---	---	---	0.10712000	0.51670127
RelInt SD	0.00002157	---	---	---	0.00075363	0.00076978
Conc Mean	1391.18240[µg/l]	2359577	40803109	5352469	3756.15920[µg/l]	450.12651000[µg/l]
Conc RSD	0.23261703	---	---	---	0.10721839	0.51753242
Conc SD	3.23612720[µg/l]	9702.93350	49866.42900	55008.79800	4.02729360[µg/l]	2.32955060[µg/l]

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322_01	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	260184
Units:	mg/Kg	Prepared:	06/05/18
Diln Fac:	1.000	Analyzed:	06/05/18

Type: BS Lab ID: QC934620

Analyte	Spiked	Result	%REC	Limits
Antimony	48.22	42.58	88	80-120
Arsenic	48.22	43.07	89	80-120
Barium	48.22	44.56	92	80-120
Beryllium	24.11	22.49	93	80-120
Cadmium	48.22	41.94	87	80-120
Chromium	48.22	44.29	92	80-120
Cobalt	48.22	43.07	89	80-120
Copper	48.22	42.84	89	80-120
Lead	48.22	43.73	91	80-120
Molybdenum	48.22	43.44	90	80-120
Nickel	48.22	43.44	90	80-120
Selenium	48.22	41.64	86	80-120
Silver	4.822	4.278	89	80-120
Thallium	48.22	43.51	90	80-120
Vanadium	48.22	43.46	90	80-120
Zinc	48.22	44.67	93	80-120

Type: BSD Lab ID: QC934621

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	48.50	45.74	94	80-120	7	20
Arsenic	48.50	46.27	95	80-120	7	20
Barium	48.50	48.86	101	80-120	9	20
Beryllium	24.25	23.25	96	80-120	3	20
Cadmium	48.50	45.12	93	80-120	7	20
Chromium	48.50	47.43	98	80-120	6	20
Cobalt	48.50	46.19	95	80-120	6	20
Copper	48.50	45.73	94	80-120	6	20
Lead	48.50	46.78	96	80-120	6	20
Molybdenum	48.50	46.70	96	80-120	7	20
Nickel	48.50	46.50	96	80-120	6	20
Selenium	48.50	44.78	92	80-120	7	20
Silver	4.850	4.580	94	80-120	6	22
Thallium	48.50	46.80	97	80-120	7	20
Vanadium	48.50	46.73	96	80-120	7	20
Zinc	48.50	47.50	98	80-120	6	20

RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 300092 METALS Soil
EPA 6010B

Type : BS
 Inst : MET11
 Seqnum : 658225145153.1
 File : met11_060418
 IDF : 1.0
 Lab ID : QC934620
 Matrix : Soil
 Batch : 260184
 Time : 05-JUN-2018 20:09
 Cal : 658225145001
 Units : mg/Kg

Type : BSD
 Inst : MET11
 Seqnum : 658225145154.1
 File : met11_060418
 IDF : 1.0
 Lab ID : QC934621
 Matrix : Soil
 Batch : 260184
 Time : 05-JUN-2018 20:12
 Cal : 658225145001

BS: 10.37 g --> 500.0 ml = 48.22 ml/g PDF
 BSD: 10.31 g --> 500.0 ml = 48.50 ml/g PDF

Analyte	Spiked	BS	Ch	%Rec	Spiked	BSD	Ch	%Rec	Limits	RPD	Lim	Flags
Antimony	48.22	42.58	A	88	48.50	45.74	A	94	80-120	7	20	u
Arsenic	48.22	43.07	A	89	48.50	46.27	A	95	80-120	7	20	u
Barium	48.22	44.56	A	92	48.50	48.86	A	101	80-120	9	20	u
Beryllium	24.11	22.49	H	93	24.25	23.25	H	96	80-120	3	20	u
Beryllium	24.11	22.49	H	93	24.25	24.00	R	99	80-120	6	20	?LOD ?MDL u
Cadmium	48.22	41.94	A	87	48.50	45.12	A	93	80-120	7	20	u
Chromium	48.22	44.29	A	92	48.50	47.43	A	98	80-120	6	20	u
Cobalt	48.22	43.07	A	89	48.50	46.19	A	95	80-120	6	20	u
Copper	48.22	42.84	H	89	48.50	45.73	H	94	80-120	6	20	u
Lead	48.22	43.73	A	91	48.50	46.78	A	96	80-120	6	20	u
Molybdenum	48.22	43.44	A	90	48.50	46.70	A	96	80-120	7	20	u
Nickel	48.22	43.44	A	90	48.50	46.50	A	96	80-120	6	20	u
Selenium	48.22	41.64	A	86	48.50	44.78	A	92	80-120	7	20	u
Silver	4.822	4.278	H	89	4.850	4.580	H	94	80-120	6	22	u
Thallium	48.22	43.51	A	90	48.50	46.80	A	97	80-120	7	20	u
Vanadium	48.22	43.46	H	90	48.50	46.73	H	96	80-120	7	20	u
Zinc	48.22	44.67	A	93	48.50	47.50	A	98	80-120	6	20	u

ISTD (ICAL 002)	Ch	ICAL Abund	BS Abund	%Drift
Yttrium	H	41712256	41719434	0.02
Yttrium	A	2377788	2435724	2.44
Yttrium	R	5324215	5359105	0.66

ISTD (ICAL 002)	Ch	ICAL Abund	BSD Abund	%Drift
Yttrium	H	41712256	41919293	0.50
Yttrium	A	2377788	2443947	2.78
Yttrium	R	5324215	5445920	2.29

?LOD=no LOD ?MDL=no MDL u=use

Sample Name: qc934620,260184,1 Sample Type: Unknown Sample

Measure Date: 2018-06-05 20:09:19 Recalculation Date: State: Measured Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	129136	64847.39500	1463681	1403014	28771.09700	171528	729513
Int RSD	0.45787582	0.98922134	0.82475200	0.74108020	0.61801345	0.00834211	0.45359891
Int SD	591.28106000	641.48427000	12071.73500	10397.45900	177.80925000	14.30906000	3309.06470
RelInt Mean	0.00218232	0.00680277	---	---	0.01072777	0.06709314	0.29759509
RelInt RSD	0.96015204	1.04299883	---	---	0.74765687	0.77223758	0.68689073
RelInt SD	0.00002095	0.00007095	---	---	0.00008021	0.00051812	0.00204415
Conc Mean	88.72571100[µg/l]	1021.66690[µg/l]	1463681	1403014	893.27949000[µg/l]	854.45357000[µg/l]	924.12003000[µg/l]
Conc RSD	0.97761406	1.06791225	---	---	0.74480644	0.78094644	0.68711622
Conc SD	0.86739503[µg/l]	10.91050600[µg/l]	12071.73500	10397.45900	6.65320320[µg/l]	6.67282470[µg/l]	6.34977860[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	12000584	926482	556326	383216	316106	1317730	6042299
Int RSD	0.44427227	0.53783003	0.38182660	0.55192222	0.37406704	0.74937457	0.67279451
Int SD	53315.26700	4982.89710	2124.20070	2115.05430	1182.44690	9874.73430	40652.25700
RelInt Mean	0.28756564	0.17393385	0.22641257	0.15510930	0.12738294	0.03064360	2.48582740
RelInt RSD	0.42589821	0.46991030	0.66565218	0.72949256	0.45882606	0.71127514	0.16935177
RelInt SD	0.00122474	0.00081733	0.00150712	0.00113151	0.00058447	0.00021796	0.00420979
Conc Mean	466.53137000[µg/l]	9594.74390[µg/l]	869.75622000[µg/l]	893.23283000[µg/l]	918.58861000[µg/l]	888.46008000[µg/l]	9227.49970[µg/l]
Conc RSD	0.42881230	0.49074920	0.66600685	0.73085558	0.45904631	0.71564372	0.16945835
Conc SD	2.00054390[µg/l]	47.08612900[µg/l]	5.79263600[µg/l]	6.52824200[µg/l]	4.21674710[µg/l]	6.35820880[µg/l]	15.63676900[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	93247.48600	16511.78100	143182	2943125	232534	255503	270122
Int RSD	1.02051597	3.43870888	0.64208730	0.60798347	0.45713913	0.77513161	0.26248314
Int SD	951.60549000	567.79208000	919.35504000	17893.71600	1063.00610	1980.48730	709.02481000
RelInt Mean	0.01273616	0.00239272	0.02133874	1.20970330	0.09439566	0.04450912	0.10825524
RelInt RSD	1.33005142	2.46153958	0.37974695	0.17332869	0.58571189	0.77788239	0.66708272
RelInt SD	0.00016940	0.00005890	0.00008103	0.00209676	0.00055289	0.00034623	0.00072215
Conc Mean	<9332.53960[µg/l]	9133.00640[µg/l]	9228.20100[µg/l]	953.19666000[µg/l]	900.97055000[µg/l]	10722.01500[µg/l]	900.95314000[µg/l]
Conc RSD	1.32832654	2.50147805	0.39075526	0.17337494	0.58562758	0.79435642	0.66728605
Conc SD	123.9666000[µg/l]	228.46015000[µg/l]	36.05968100[µg/l]	1.65260410[µg/l]	5.27633200[µg/l]	85.17101400[µg/l]	6.01193460[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	68985.87800	40540.62000	22346.42000	84105.62000	45046575	3940489	25117.63500
Int RSD	0.22609598	0.48114180	0.71851970	0.12823251	0.08752679	0.62314435	1.11491603
Int SD	155.97430000	195.05787000	160.56343000	107.85075000	39427.82300	24554.93400	280.04054000
RelInt Mean	0.02577988	0.01504337	0.00798131	0.03355176	8.45718600	0.09374105	0.00914702
RelInt RSD	0.53899452	0.55234054	0.41619486	0.64980225	1.05075810	0.62083115	0.57404985
RelInt SD	0.00013895	0.00008309	0.00003322	0.00021802	0.08886457	0.00058197	0.00005251
Conc Mean	906.87685000[µg/l]	883.20947000[µg/l]	863.67408000[µg/l]	920.02154000[µg/l]	8955.93200[µg/l]	914.79127000[µg/l]	902.34582000[µg/l]
Conc RSD	0.53995892	0.55403107	0.41486266	0.65254642	1.05142945	0.62114183	0.57647893
Conc SD	4.89676240[µg/l]	4.89325490[µg/l]	3.58306130[µg/l]	6.00356760[µg/l]	94.16530700[µg/l]	5.68215120[µg/l]	5.20183350[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	264662	2435724	41719434	5359105	426967	840649
Int RSD	0.79647834	0.76904723	0.25246531	0.99405617	0.65269972	0.73870892
Int SD	2107.97630	18731.86400	105327	53272.51100	2786.81320	6209.95220
RelInt Mean	0.00604186	---	---	---	0.17434760	0.15430915
RelInt RSD	0.97982948	---	---	---	0.40455159	0.67020212
RelInt SD	0.00005920	---	---	---	0.00070533	0.00103418
Conc Mean	901.44572000[µg/l]	2425262	41546735	5326800	926.38936000[µg/l]	466.25663000[µg/l]
Conc RSD	0.98533459	---	---	---	0.40696156	0.67124017
Conc SD	8.88225650[µg/l]	18587.87000	107036	53504.72300	3.77004860[µg/l]	3.12970180[µg/l]

Sample Name: qc934621,260184,1 Sample Type: Unknown Sample

Measure Date: 2018-06-05 20:12:39 Recalculation Date: State: Measured Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	135774	69497.31400	1474665	1388316	30635.91500	183249	797483
Int RSD	0.68407688	0.55057027	0.69405596	0.50487494	0.30945623	0.64446080	0.41469754
Int SD	928.79923000	382.63155000	10235.00100	7009.26010	94.80474800	1180.96720	3307.14210
RelInt Mean	0.00232043	0.00745505	---	---	0.01146238	0.07167198	0.32446697
RelInt RSD	0.97298286	0.33228822	---	---	0.49973501	1.21133776	0.90429667
RelInt SD	0.00002258	0.00002477	---	---	0.00005728	0.00086819	0.00293414
Conc Mean	94.44228900[µg/l]	1121.96940[µg/l]	1474665	1388316	954.12919000[µg/l]	913.42425000[µg/l]	1007.59250[µg/l]
Conc RSD	0.99014970	0.33951644	---	---	0.49734784	1.22411607	0.90456908
Conc SD	0.93512004[µg/l]	3.80927060[µg/l]	10235.00100	7009.26010	4.74534090[µg/l]	11.18137300[µg/l]	9.11437020[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	12389391	1014303	596648	409588	337354	1402645	6403652
Int RSD	0.43184639	0.26815548	0.37876401	0.38256558	0.31470320	0.36515140	0.35907265
Int SD	53503.13800	2719.90830	2259.88690	1566.94120	1061.66240	5121.77680	22993.76200
RelInt Mean	0.29548449	0.18736958	0.24220092	0.16539124	0.13562454	0.03251426	2.62566990
RelInt RSD	0.36754396	1.11957774	0.85961808	0.85500719	0.80208243	0.36162145	0.12473645
RelInt SD	0.00108604	0.00209775	0.00208200	0.00141411	0.00108782	0.00011758	0.00327517
Conc Mean	479.39047000[µg/l]	10368.76900[µg/l]	930.43894000[µg/l]	952.44936000[µg/l]	978.04908000[µg/l]	943.02996000[µg/l]	9746.93100[µg/l]
Conc RSD	0.36833949	1.16552071	0.86004450	0.85679309	0.80244182	0.36371484	0.12481244
Conc SD	1.76578440[µg/l]	120.85015000[µg/l]	8.00218890[µg/l]	8.16052030[µg/l]	7.84827480[µg/l]	3.42993990[µg/l]	12.16538200[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	97230.66000	17362.08700	151281	3150194	249141	270415	288050
Int RSD	0.44287868	0.80994629	0.17566926	0.35869597	0.33539864	0.20566231	0.39461195
Int SD	430.61386000	140.62358000	265.75504000	11299.62000	835.61593000	556.14169000	1136.67940
RelInt Mean	0.01326726	0.00249271	0.02248892	1.29064700	0.10088681	0.04653548	0.11520183
RelInt RSD	0.77383708	1.05010612	0.95764016	0.13165738	0.78351897	0.93721120	0.88077125
RelInt SD	0.00010267	0.00002618	0.00021536	0.00169923	0.00079047	0.00043614	0.00101466
Conc Mean	<9721.20180[µg/l]	9520.84470[µg/l]	9740.03000[µg/l]	1016.99350[µg/l]	962.91727000[µg/l]	11220.49300[µg/l]	958.78372000[µg/l]
Conc RSD	0.77287240	1.06644960	0.98394191	0.13169238	0.78341641	0.93071456	0.88102381
Conc SD	75.13248600[µg/l]	101.53501000[µg/l]	95.83623700[µg/l]	1.33930290[µg/l]	7.54365190[µg/l]	107.28750000[µg/l]	8.44711290[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	73196.57500	43172.81600	23815.09800	93097.39900	48711732	4213078	26775.75300
Int RSD	0.17455274	0.56475656	0.79324532	0.19345822	0.63347259	0.28225428	0.64417400
Int SD	127.76663000	243.82131000	188.91215000	180.10457000	308575	11891.59200	172.48244000
RelInt Mean	0.02741572	0.01606273	0.00853476	0.03712213	8.99842480	0.09981626	0.00978246
RelInt RSD	0.55576736	0.47822555	0.40972163	0.59493791	1.29905136	0.30881507	0.31282074
RelInt SD	0.00015237	0.00007682	0.00003497	0.00022085	0.11689416	0.00030825	0.00003060
Conc Mean	964.52377000[µg/l]	943.07320000[µg/l]	923.33515000[µg/l]	1018.33790[µg/l]	9529.45480[µg/l]	974.10711000[µg/l]	965.11421000[µg/l]
Conc RSD	0.55683529	0.48082443	0.40865080	0.59720947	1.29983155	0.30895960	0.31334895
Conc SD	5.37080870[µg/l]	4.53452630[µg/l]	3.77321650[µg/l]	6.08161040[µg/l]	123.86686000[µg/l]	3.00959740[µg/l]	3.02417520[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	283513	2443947	41919293	5445920	452610	905742
Int RSD	0.59866661	0.47777628	0.08561074	0.99922549	0.24670809	0.16211333
Int SD	1697.29690	11676.60000	35887.41600	54417.01600	1116.62650	1468.32910
RelInt Mean	0.00645543	---	---	---	0.18427228	0.16377156
RelInt RSD	0.57553162	---	---	---	0.73147638	1.02000005
RelInt SD	0.00003715	---	---	---	0.00134791	0.00167047
Conc Mean	963.49747000[µg/l]	2433526	41744965	5413777	979.42920000[µg/l]	494.89243000[µg/l]
Conc RSD	0.57855764	---	---	---	0.73549802	1.02149417
Conc SD	5.57438820[µg/l]	11816.21100	35887.33400	54574.65100	7.20368240[µg/l]	5.05529730[µg/l]

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322.01	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC934619	Batch#:	260184
Matrix:	Soil	Prepared:	06/05/18
Units:	mg/Kg	Analyzed:	06/05/18

Analyte	Result	RL	MDL
Antimony	ND	2.0	0.068
Arsenic	ND	1.5	0.066
Barium	0.19 J	0.25	0.030
Beryllium	ND	0.099	0.012
Cadmium	ND	0.25	0.016
Chromium	0.17 J	0.25	0.049
Cobalt	ND	0.25	0.014
Copper	0.074 J	0.25	0.057
Lead	ND	0.99	0.056
Molybdenum	ND	0.25	0.026
Nickel	0.22 J	0.25	0.042
Selenium	ND	2.0	0.19
Silver	ND	0.25	0.030
Thallium	ND	0.50	0.089
Vanadium	ND	0.25	0.052
Zinc	0.66 J	0.99	0.21

J= Estimated value

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

ENTHALPY BLANK USER REPORT FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 Lab ID : QC934619
 Seqnum : 658225145152.1 Matrix : Soil
 File : met11_060418 Batch : 260184 Time : 05-JUN-2018 20:05
 Cal : 658225145001 Caldate : 05-JUN-2018
 IDF : 1.0 Units : mg/Kg

10.08 g --> 500.0 ml = 49.60 ml/g PDF

Analyte	Ch	Result	Conf	RPD	RL	Flags
Antimony	A	ND			2.0	u
Arsenic	A	ND			1.5	u
Barium	A	0.19 J			0.25	u
Beryllium	H	ND			0.099	u
Beryllium	R	ND			0.099	?LOD ?MDL b*
Cadmium	A	ND			0.25	u
Chromium	A	0.17 J			0.25	u
Cobalt	A	ND			0.25	u
Copper	H	0.074 J			0.25	u
Lead	A	ND			0.99	u
Molybdenum	A	ND			0.25	u
Nickel	A	0.22 J			0.25	u
Selenium	A	ND			2.0	u
Silver	H	ND			0.25	u
Thallium	A	ND			0.50	u
Vanadium	H	ND			0.25	u
Zinc	A	0.66 J			0.99	u

ISTD (ICAL 002)	Ch	ICAL Abund	BLANK Abund	%Drift
Yttrium	H	41712256	42615523	2.17
Yttrium	A	2377788	2446172	2.88
Yttrium	R	5324215	5441580	2.20

PRW 06/06/18 [Barium A]: Blank hit greater than 1/2 RL. [general version]
 PRW 06/06/18 [Chromium A]: Blank hit greater than 1/2 RL. [general version]
 PRW 06/06/18 [Nickel A]: Blank hit greater than 1/2 RL. [general version]
 PRW 06/06/18 [Zinc A]: Blank hit greater than 1/2 RL. [general version]

Sample Name: qc934619,260184,1 Sample Type: Unknown Sample

Measure Date: 2018-06-05 20:05:58 Recalculation Date: State: Measured Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	37187.75100	26385.41100	1411437	1391331	2422.64240	8541.48080	9965.20150
Int RSD	0.79130741	1.02125894	0.98935843	1.26111560	0.54141598	0.67795433	0.39085765
Int SD	294.26943000	269.46337000	13964.17000	17546.28600	13.11657300	57.90733900	38.94975200
RelInt Mean	0.00003193	0.00025271	---	---	-0.00004356	0.00066752	0.00130791
RelInt RSD	7.34854198	2.66248362	---	---	12.16577403	1.98501158	2.69129256
RelInt SD	0.00000235	0.00000673	---	---	0.00000530	0.00001325	0.00003520
Conc Mean	<0.29183852[µg/l]	14.45212100[µg/l]	1411437	1391331	<1.12046760[µg/l]	<-1.03860370[µg/l]	3.75931710[µg/l]
Conc RSD	33.30929550	7.15900317	---	---	39.23100855	16.43078876	2.90854501
Conc SD	0.09720935[µg/l]	1.03462780[µg/l]	13964.17000	17546.28600	0.43957074[µg/l]	0.17065078[µg/l]	0.10934143[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	66893.83000	51084.50800	6682.26680	6284.17690	7316.32300	45231.93100	51984.17200
Int RSD	0.18027778	0.44076866	0.22506882	0.69757451	0.72060081	0.90786392	0.24697643
Int SD	120.59471000	225.16450000	15.03969900	43.83681600	52.72148300	410.64438000	128.38865000
RelInt Mean	0.00086289	0.00944652	0.00014280	-0.00000194	0.00052357	0.00023840	0.01825211
RelInt RSD	1.65813136	2.04962280	6.96914449	338.82327120	3.53900411	1.64685171	0.19136621
RelInt SD	0.00001431	0.00019362	0.00000995	0.00000657	0.00001853	0.00000393	0.00003493
Conc Mean	<0.01624720[µg/l]	118.71165000[µg/l]	<0.08560064[µg/l]	<0.06192281[µg/l]	3.33899270[µg/l]	1.49591280[µg/l]	61.93546600[µg/l]
Conc RSD	145.28375467	9.39607781	44.68493979	61.24076088	4.00362870	7.65610736	0.20947395
Conc SD	0.02360455[µg/l]	11.15423900[µg/l]	0.03825059[µg/l]	0.03792200[µg/l]	0.13368087[µg/l]	0.11452869[µg/l]	0.12973867[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	25517.87900	4513.63920	32221.89600	11174.99200	3335.10180	67533.76800	8199.58010
Int RSD	1.27902182	2.30985698	1.22395411	0.48905159	0.92596043	0.76139970	0.69762294
Int SD	326.37924000	104.25861000	394.38122000	54.65147600	30.88172300	514.20191000	57.20215200
RelInt Mean	0.00001624	0.00012124	0.00055870	0.00142340	0.00000914	0.00918759	0.00056709
RelInt RSD	128.22950238	4.11404415	14.22427804	0.62666187	286.49629291	2.44444878	4.05845007
RelInt SD	0.00002082	0.00000499	0.00007947	0.00000892	0.00002617	0.00022459	0.00002302
Conc Mean	<23.98348100[µg/l]	<322.10606000[µg/l]	<-18.89125500[µg/l]	0.87515935[µg/l]	<0.21647102[µg/l]	2033.04890[µg/l]	4.44516620[µg/l]
Conc RSD	63.53139897	6.00664700	187.20118383	0.80331959	115.37954595	2.71746199	4.31033872
Conc SD	15.23704100[µg/l]	19.34777400[µg/l]	35.36465300[µg/l]	0.00703033[µg/l]	0.24976328[µg/l]	55.24733100[µg/l]	0.19160172[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	5921.76210	3761.44590	2621.17190	3815.78620	30246.97500	41115.82800	2670.23640
Int RSD	0.89461954	0.95289205	0.88385302	1.04092132	0.92376421	0.44528997	1.09529314
Int SD	52.97724100	35.84251900	23.16730700	39.71933200	279.41073000	183.08466000	29.24691600
RelInt Mean	0.00006148	0.00000721	-0.00006032	0.00059938	0.00559335	0.00008297	0.00001479
RelInt RSD	18.47524682	172.36543424	1.95553084	3.65565424	2.30958677	8.60096853	43.47968201
RelInt SD	0.00001136	0.00001243	0.00000118	0.00002191	0.00012918	0.00000714	0.00000643
Conc Mean	<0.47137635[µg/l]	<0.40729614[µg/l]	<-3.17282120[µg/l]	12.61907300[µg/l]	<0.21656131[µg/l]	0.35255710[µg/l]	<0.35341734[µg/l]
Conc RSD	84.94571906	180.22579590	4.01125818	4.78139432	63.20970722	19.76236473	179.97148923
Conc SD	0.40041403[µg/l]	0.73405271[µg/l]	0.12727005[µg/l]	0.60336764[µg/l]	0.13688777[µg/l]	0.06967362[µg/l]	0.63605045[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	11541.70800	2446172	42615523	5441580	12176.38100	15933.41800
Int RSD	1.13498279	0.23174672	0.65464232	1.74534474	1.68144960	0.97709795
Int SD	130.99640000	5668.92260	278979	94974.33400	204.73971000	155.68510000
RelInt Mean	0.00003003	---	---	---	0.00352433	0.00028631
RelInt RSD	8.79820135	---	---	---	2.04058884	5.26476271
RelInt SD	0.00000264	---	---	---	0.00007192	0.00001507
Conc Mean	<-0.55947591[µg/l]	2436175	42442368	5409041	13.39705200[µg/l]	<0.14210708[µg/l]
Conc RSD	70.84716480	---	---	---	2.87051427	32.10014308
Conc SD	0.39637282[µg/l]	5723.89810	278728	95035.81800	0.38456429[µg/l]	0.04561658[µg/l]

ENTHALPY INITIAL CALIBRATION FOR 300092 METALS Soil: EPA 6010B

Inst : MET11
 Calnum : 658225145001
 Units : ug/L

Date : 05-JUN-2018 08:25
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met11_060418	658225145002	L1	05-JUN-2018 08:28	S36876
L2	met11_060418	658225145003	L2	05-JUN-2018 08:32	S36877
L3	met11_060418	658225145004	L3	05-JUN-2018 08:35	S36878
L4	met11_060418	658225145005	L4	05-JUN-2018 08:38	S36879
L5	met11_060418	658225145006	L5	05-JUN-2018 08:42	S36880

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r ² %RSD	MnR ²	Flg
Antimony	A	1.8E-5	1.8E-5	1.7E-5	1.7E-5		WB1K	0.01449	58722.6		1.8E-5	1.000	0.995	
Arsenic	A	-1E-6	1.2E-5	1.2E-5	1.2E-5		WB1K	4.77303	82949.5		8.8E-6	1.000	0.995	
Barium	A	3.5E-4	3.4E-4	3.3E-4	3.2E-4		WB1K	-0.3036	3106.34		3.4E-4	1.000	0.995	
Cadmium	A	3.0E-4	2.7E-4	2.6E-4	2.6E-4		WB1K	-0.4633	3843.51		2.7E-4	1.000	0.995	
Chromium	A	1.7E-4	1.5E-4	1.4E-4	1.4E-4		WB1K	-0.4385	7214.76		1.5E-4	1.000	0.995	
Cobalt	A	1.8E-4	1.8E-4	1.8E-4	1.7E-4		WB1K	-0.0493	5759.29		1.8E-4	1.000	0.995	
Lead	A	3.9E-5	3.0E-5	3.0E-5	2.8E-5		WB1K	-1.6932	35244.7		3.2E-5	1.000	0.995	
Molybdenum	A	1.1E-4	1.1E-4	1.1E-4	1.0E-4		WB1K	0.13692	9543.26		1.1E-4	1.000	0.995	
Nickel	A	1.4E-4	1.3E-4	1.2E-4	1.2E-4		WB1K	-0.2760	8325.14		1.3E-4	1.000	0.995	
Selenium	A	7.8E-6	9.1E-6	9.4E-6	9.3E-6		WB1K	3.35398	107895		8.9E-6	1.000	0.995	
Thallium	A	1.4E-5	1.1E-5	1.0E-5	1.0E-5		WB1K	-1.1068	98773.9		1.1E-5	1.000	0.995	
Zinc	A	2.1E-4	2.1E-4	1.9E-4	1.9E-4		WB1K	-5.4461	5344.69		2.0E-4	1.000	0.995	
Beryllium	H	0.0010	6.2E-4	6.2E-4			WB1K	-1.4218	1628.40		7.6E-4	1.000	0.995	
Copper	H	7.2E-5	3.6E-5	3.4E-5	3.4E-5		WB1K	-5.4586	29171.5		4.4E-5	1.000	0.995	
Silver	H	3.2E-5	2.6E-5	2.5E-5	2.4E-5		WB1K	-1.6143	41422.1		2.7E-5	1.000	0.995	
Vanadium	H	1.3E-5	7.1E-6	6.7E-6	6.7E-6		WB1K	-5.0654	150038		8.3E-6	1.000	0.995	
Beryllium	R	5.0E-4	3.4E-4	3.3E-4	3.3E-4		WB1K	-0.7372	3048.79		3.7E-4	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	8	100.00	8	1000.0	2	10000	0		
Arsenic	A	5.0000	-16	100.00	7	1000.0	1	10000	0		
Barium	A	5.0000	4	100.00	5	1000.0	3	10000	0		
Cadmium	A	5.0000	5	100.00	3	1000.0	1	10000	0		
Chromium	A	5.0000	12	100.00	7	1000.0	3	10000	0		
Cobalt	A	5.0000	3	100.00	5	1000.0	3	10000	0		
Lead	A	5.0000	4	100.00	5	1000.0	4	10000	0		
Molybdenum	A	5.0000	11	100.00	6	1000.0	1	10000	0		
Nickel	A	5.0000	10	100.00	6	1000.0	3	10000	0		
Selenium	A	10.000	18	100.00	2	1000.0	1	10000	0		
Thallium	A	10.000	26	100.00	9	1000.0	3	10000	0		
Zinc	A	20.000	-14	100.00	5	1000.0	2	10000	0		
Beryllium	H	2.0000	-2	100.00	-1	1000.0	0				
Copper	H	5.0000	2	100.00	1	1000.0	0	10000	0		
Silver	H	5.0000	-1	20.000	0	200.00	1	2000.0	0		
Vanadium	H	5.0000	-11	100.00	2	1000.0	0	10000	0		
Beryllium	R	2.0000	16	100.00	2	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; WBLK=Linear regression with ICALBLK weighting factor of 1000

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
Calnum : 658225145001

Cal Date : 05-JUN-2018

ICV 658225145007 (05-JUN-2018) stds: S37184

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	2000	2082	ug/l	4	10	
Arsenic	A	2000	2069	ug/l	3	10	
Barium	A	2000	1979	ug/l	-1	10	
Cadmium	A	2000	1944	ug/l	-3	10	
Chromium	A	2000	2103	ug/l	5	10	
Cobalt	A	2000	2041	ug/l	2	10	
Lead	A	2000	1987	ug/l	-1	10	
Molybdenum	A	2000	2049	ug/l	2	10	
Nickel	A	2000	2075	ug/l	4	10	
Selenium	A	2000	2067	ug/l	3	10	
Thallium	A	2000	2072	ug/l	4	10	
Zinc	A	2000	2133	ug/l	7	10	
Beryllium	H	200.0	204.7	ug/l	2	10	
Copper	H	2000	2004	ug/l	0	10	
Silver	H	400.0	392.5	ug/l	-2	10	
Vanadium	H	2000	2011	ug/l	1	10	
Beryllium	R	200.0	200.8	ug/l	0	10	

Sample Name: ICALBLK,CALBLANK				Sample Type: Calibration Sample			
Measure Date: 2018-06-05 08:25:26		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	36661.65500	24920.07900	1388020	1361632	2332.80080	8437.35220	6793.05340
Int RSD	0.26525496	0.45972330	0.45241125	0.58973753	0.36977003	0.60810681	0.15902993
Int SD	97.24685900	114.56341000	6279.55730	8030.05250	8.62599820	51.30811300	10.80298800
RelInt Mean	0.00003893	0.00015530	---	---	-0.00005774	0.00074936	0.00008681
RelInt RSD	11.07045317	9.88701018	---	---	2.63834939	4.97645386	10.29409347
RelInt SD	0.00000431	0.00001535	---	---	0.00000152	0.00003729	0.00000894
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	65731.57900	39190.66300	6449.57320	6055.48360	5965.62520	42179.12800	11049.89300
Int RSD	0.83092598	1.45255563	0.82339565	0.30045242	0.53793435	0.43593997	40.57759835
Int SD	546.18077000	569.26618000	53.10550500	18.19384700	32.09114700	183.87568000	4483.78120
RelInt Mean	0.00087353	0.00738216	0.00011791	0.00000380	0.00005566	0.00018713	0.00156893
RelInt RSD	1.60339471	2.47247455	17.29758290	335.45589200	11.87606083	0.86012414	121.13605425
RelInt SD	0.00001401	0.00018252	0.00002040	0.00001275	0.00000661	0.00000161	0.00190054
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	24455.60200	4031.02290	31265.99300	7949.33110	3069.90890	22447.38300	6710.43010
Int RSD	0.71510115	3.39488347	0.60699284	6.75627450	0.84096026	0.73700226	0.56140591
Int SD	174.88229000	136.84853000	189.78234000	537.07863000	25.81671400	165.43772000	37.67275100
RelInt Mean	-0.00001678	0.00003817	0.00060053	0.00022561	-0.00001613	0.00092266	0.00002871
RelInt RSD	331.50245047	78.79627071	7.17501078	106.19373726	156.48459797	3.05891725	29.92311791
RelInt SD	0.00005561	0.00003007	0.00004309	0.00023958	0.00002524	0.00002822	0.00000859
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	5679.75220	3567.03130	2493.94810	2624.22180	28416.37200	38586.07400	2498.60360
Int RSD	1.01104247	0.51705563	0.82900286	2.08367052	1.13276206	0.44675320	0.82807521
Int SD	57.42470700	18.44353600	20.67490100	54.68013600	321.88988000	172.38452000	20.69031700
RelInt Mean	0.00004687	-0.00000070	-0.00003124	0.00014057	0.00535223	0.00004527	0.00001078
RelInt RSD	78.06169760	814.76189484	21.54545613	13.09691059	1.68216629	13.62890000	112.81451104
RelInt SD	0.00003659	0.00000568	0.00000673	0.00001841	0.00009003	0.00000617	0.00001217
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	11295.87200	2378353	41417633	5341484	5870.39160	15266.40100	
Int RSD	1.02656714	0.08845702	0.50425318	1.39144622	4.59869526	0.92495271	
Int SD	115.95971000	2103.82020	208850	74323.88000	269.96142000	141.20699000	
RelInt Mean	0.00003373	---	---	---	0.00101529	0.00023896	
RelInt RSD	10.33373579	---	---	---	10.98053936	5.85133363	
RelInt SD	0.00000349	---	---	---	0.00011148	0.00001398	

Sample Name: ICAL,L1,S36876				Sample Type: Calibration Sample			
Measure Date: 2018-06-05 08:28:47		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	42359.05200	28561.57400	1401532	1368526	2509.50350	26416.94300	10849.24900
Int RSD	0.84306507	0.22514823	0.55229915	0.60759339	0.87597355	0.73195600	0.33755020
Int SD	357.11437000	64.30587800	7740.64930	8315.07540	21.98258700	193.36040000	36.62166200
RelInt Mean	0.00015801	0.00080988	---	---	-0.00000692	0.00825193	0.00176570
RelInt RSD	1.88055996	3.65274199	---	---	174.40154195	0.97379879	0.99110856
RelInt SD	0.00000297	0.00002958	---	---	0.00001207	0.00008036	0.00001750
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	116728	55784.30300	9729.69400	8300.54750	7888.29940	50135.28300	75147.33100
Int RSD	0.38241062	0.14288498	0.23177076	0.38804395	0.30145631	0.92745020	0.57443227
Int SD	446.37855000	79.70738800	22.55058600	32.20977200	23.77977600	464.97978000	431.67052000
RelInt Mean	0.00207722	0.01054032	0.00148595	0.00090390	0.00083572	0.00036141	0.02858013
RelInt RSD	1.01859818	0.96054324	1.34874772	2.64292449	2.24591014	1.42878329	0.57836223
RelInt SD	0.00002116	0.00010124	0.00002004	0.00002389	0.00001877	0.00000516	0.00016530
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	25201.52900	4803.40720	33885.85200	24268.97600	4482.95920	33650.23600	8390.16230
Int RSD	0.54618464	1.30419389	0.17419170	0.06446039	0.43166757	0.52570101	0.18910452
Int SD	137.64688000	62.64574300	59.02634100	15.64387600	19.35148100	176.89963000	15.86617600
RelInt Mean	0.00008844	0.00018997	0.00103701	0.00710749	0.00056932	0.00302659	0.00069671
RelInt RSD	36.15696907	7.03875996	4.22888533	0.37454325	2.17964200	2.16142805	2.28872275
RelInt SD	0.00003198	0.00001337	0.00004385	0.00002662	0.00001241	0.00006542	0.00001595
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	6096.51960	4052.86530	2788.13410	6221.09190	51010.36300	83501.04400	2822.79460
Int RSD	0.20885139	0.33737341	0.65057886	0.52951582	0.37108675	0.43527488	0.45203278
Int SD	12.73266600	13.67329000	18.13901100	32.94166600	189.29270000	363.45907000	12.75995700
RelInt Mean	0.00019544	0.00018400	0.00007817	0.00164551	0.00963835	0.00110727	0.00013830
RelInt RSD	4.99744050	1.60034626	7.21583861	1.18948705	1.10412338	0.58373395	4.88461256
RelInt SD	0.00000977	0.00000294	0.00000564	0.00001957	0.00010642	0.00000646	0.00000676
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	12911.14400	2377788	41712256	5324215	13494.66000	19312.51600	
Int RSD	0.99488016	0.12896133	0.21292799	0.80664050	0.40089517	1.07745796	
Int SD	128.45041000	3066.42630	88817.06900	42947.27700	54.09944000	208.08424000	
RelInt Mean	0.00006350	---	---	---	0.00423531	0.00100525	
RelInt RSD	5.28527600	---	---	---	0.28453348	2.54808269	
RelInt SD	0.00000336	---	---	---	0.00001205	0.00002561	

Sample Name: ICAL,L2,S36877				Sample Type: Calibration Sample			
Measure Date: 2018-06-05 08:32:08		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	57178.50100	28378.77200	1393238	1360456	5412.50800	26192.47100	87388.89600
Int RSD	0.81651777	0.80895248	0.63490285	0.67420151	0.41314350	0.51102284	0.39611515
Int SD	466.87262000	229.57078000	8845.71030	9172.21560	22.36142500	133.84951000	346.16066000
RelInt Mean	0.00052310	0.00079100	---	---	0.00122903	0.00817460	0.03404793
RelInt RSD	1.43723887	4.21246870	---	---	0.72304275	0.75582476	0.37396337
RelInt SD	0.00000752	0.00003332	---	---	0.00000889	0.00006179	0.00012733
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	2597939	47747.46200	70010.66600	49276.70000	41182.96500	186423	76269.37700
Int RSD	0.21797182	1.01825159	0.56789740	0.35349173	0.28140876	0.29909114	0.25486315
Int SD	5662.77570	486.18929000	397.58875000	174.18906000	115.89247000	557.57507000	194.38254000
RelInt Mean	0.06185467	0.00899786	0.02689640	0.01818159	0.01486132	0.00364185	0.02903841
RelInt RSD	0.59191922	1.45611781	0.64763191	0.39076441	0.29152726	0.91699743	0.24103961
RelInt SD	0.00036613	0.00013102	0.00017419	0.00007105	0.00004332	0.00003340	0.00006999
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	25095.72500	4228.40410	32837.11000	331427	29364.80000	24342.72700	37108.60800
Int RSD	1.15504868	5.28990335	1.35386098	0.19538694	0.59954990	1.38574076	0.41918826
Int SD	289.86784000	223.67849000	444.56882000	647.56547000	176.05663000	337.32709000	155.55493000
RelInt Mean	0.00008054	0.00007142	0.00089797	0.13665503	0.01104861	0.00126542	0.01281615
RelInt RSD	20.03821247	35.59935373	5.50039465	0.20649498	0.67302623	1.43108121	0.57406571
RelInt SD	0.00001614	0.00002542	0.00004939	0.00028219	0.00007436	0.00001811	0.00007357
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	12847.20200	7994.30100	4770.80520	11431.82900	552353	477050	5168.47160
Int RSD	0.70124506	0.06592744	0.28727681	0.23262932	0.13657994	0.31495238	0.11704069
Int SD	90.09036900	5.27043790	13.70541700	26.59378600	754.40353000	1502.47960	6.04921480
RelInt Mean	0.00304032	0.00184352	0.00091282	0.00383395	0.10408639	0.01060180	0.00111579
RelInt RSD	1.20471056	0.31420401	2.00325634	0.36852885	0.53646207	0.89189106	0.26967683
RelInt SD	0.00003663	0.00000579	0.00001829	0.00001413	0.00055838	0.00009456	0.00000301
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	39755.32600	2380280	41599908	5338304	52379.19000	193056	
Int RSD	1.09570403	0.03335083	0.56206134	0.43598157	0.39860771	0.06796427	
Int SD	435.60071000	793.84305000	233817	23274.02000	208.78749000	131.20909000	
RelInt Mean	0.00071493	---	---	---	0.02061184	0.03360097	
RelInt RSD	0.92168883	---	---	---	0.42499966	0.18447774	
RelInt SD	0.00000659	---	---	---	0.00008760	0.00006199	

Sample Name: ICAL,L3,S36878				Sample Type: Calibration Sample			
Measure Date: 2018-06-05 08:35:29		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	241567	63105.23300	1466828	1365473	31736.36100	193821	804838
Int RSD	0.04209285	1.30965151	0.17020971	0.40914686	0.58035762	0.34596181	0.27948065
Int SD	101.68224000	826.45864000	2496.68420	5586.79160	184.18439000	670.54786000	2249.36610
RelInt Mean	0.00491348	0.00718558	---	---	0.01214030	0.07734888	0.33215129
RelInt RSD	0.45744355	1.39445656	---	---	0.47115774	0.28506864	0.23832880
RelInt SD	0.00002248	0.00010020	---	---	0.00005720	0.00022050	0.00079161
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	25689952	130667	636346	434071	350423	1476639	681409
Int RSD	0.30966979	0.55589128	0.13654972	0.26025702	0.23055114	0.49964126	0.17149252
Int SD	79554.02100	726.36390000	868.92873000	1129.69940	807.90437000	7377.89570	1168.56570
RelInt Mean	0.61501702	0.02438363	0.26230526	0.17801097	0.14323167	0.03442574	0.28049590
RelInt RSD	0.10486534	0.54685825	0.18888524	0.30206359	0.19615730	0.16816405	0.11418279
RelInt SD	0.00064494	0.00013334	0.00049546	0.00053771	0.00028096	0.00005789	0.00032028
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	31990.15000	5278.69840	44454.31500	3262900	257869	44359.42000	305424
Int RSD	0.29677562	1.77126369	0.86120803	0.15347814	0.32604151	1.04879868	0.33688759
Int SD	94.93896600	93.49966800	382.84413000	5007.83870	840.76040000	465.24101000	1028.93620
RelInt Mean	0.00137511	0.00026136	0.00297169	1.35597220	0.10604286	0.00497431	0.12417046
RelInt RSD	1.71135250	9.10917559	1.21670927	0.05161761	0.22039016	1.22514523	0.29971503
RelInt SD	0.00002353	0.00002381	0.00003616	0.00069992	0.00023371	0.00006094	0.00037216
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	76980.59600	45500.06600	25243.61000	91212.60600	5282994	4368047	27866.05900
Int RSD	0.40359591	0.61351065	0.70014661	0.54657949	0.55458322	0.42653486	0.77528882
Int SD	310.69054000	279.14775000	176.74228000	498.54940000	29298.59700	18631.24200	216.04244000
RelInt Mean	0.02954535	0.01736221	0.00937165	0.03694031	0.98584851	0.10385398	0.01047802
RelInt RSD	0.47267237	0.54054909	0.77550847	0.51551737	0.19214802	0.06145560	0.70554440
RelInt SD	0.00013965	0.00009385	0.00007268	0.00019043	0.00189429	0.00006382	0.00007393
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	290997	2410087	41800899	5390320	464354	1794923	
Int RSD	0.44217980	0.17147839	0.36729547	0.36391610	0.28351276	0.47028309	
Int SD	1286.72850	4132.77810	153533	19616.24100	1316.50260	8441.22030	
RelInt Mean	0.00672042	---	---	---	0.19183299	0.33064694	
RelInt RSD	0.32649086	---	---	---	0.22162466	0.14609977	
RelInt SD	0.00002194	---	---	---	0.00042515	0.00048307	

Sample Name: ICAL,L4,S36879					Sample Type: Calibration Sample		
Measure Date: 2018-06-05 08:38:51		Recalculation Date:			State: Measured		Quality:
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	2029399	391787	2060079	1467842	291504	1879263	7710898
Int RSD	0.30253292	1.46526708	0.18545142	0.12774596	0.30052138	0.37805085	0.27479570
Int SD	6139.59980	5740.72580	3820.44640	1875.10910	876.03134000	7104.57130	21189.21500
RelInt Mean	0.04831777	0.06843907	---	---	0.12048268	0.77731467	3.21828460
RelInt RSD	0.36391271	1.47120973	---	---	0.25485502	0.07636575	0.11213728
RelInt SD	0.00017583	0.00100688	---	---	0.00030706	0.00059360	0.00360890
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	136591180	985919	6232234	4162448	3324754	14172434	6453515
Int RSD	0.03903966	1.04451017	0.21364752	0.25890283	0.23270139	0.89187997	0.27371816
Int SD	53324.72900	10298.02300	13315.01300	10776.69600	7736.74910	126401	17664.44200
RelInt Mean	3.31931690	0.18588418	2.60169750	1.73588810	1.38564210	0.34299179	2.69279610
RelInt RSD	0.22055527	0.89680628	0.14074486	0.19299534	0.18240810	0.69595663	0.10606668
RelInt SD	0.00732093	0.00166702	0.00366176	0.00335018	0.00252752	0.00238707	0.00285616
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	99213.09200	18039.77100	155304	30327813	2509807	240958	2883391
Int RSD	0.77891951	1.88411433	0.48342689	0.59706280	0.25110903	1.11461723	0.21937810
Int SD	772.79013000	339.88991000	750.78314000	181076	6302.35150	2685.75960	6325.52780
RelInt Mean	0.01390705	0.00266783	0.02364297	12.67865100	1.04771280	0.04194297	1.20080520
RelInt RSD	0.56055791	1.81332180	0.18462230	0.52866348	0.13800724	0.91482992	0.24474259
RelInt SD	0.00007796	0.00004838	0.00004365	0.06702740	0.00144592	0.00038371	0.00293888
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	687909	412426	225359	872850	50061688	42057807	246280
Int RSD	0.11221586	0.15704725	0.28157205	0.14960782	0.91829530	0.17523235	0.07479772
Int SD	771.94347000	647.70318000	634.54750000	1305.85230	459714	73698.88200	184.21198000
RelInt Mean	0.28366487	0.17025727	0.09263764	0.36324188	9.43876260	1.02411700	0.10121731
RelInt RSD	0.46854614	0.27710316	0.09768075	0.26133557	1.06395821	0.07851346	0.32903990
RelInt SD	0.00132910	0.00047179	0.00009049	0.00094928	0.10042449	0.00080407	0.00033305
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	2754078	2402179	41151594	5335757	4482917	17496496	
Int RSD	0.29541562	0.35269134	0.25304038	0.24388836	0.31123685	0.71359871	
Int SD	8135.97670	8472.27550	104130	13013.29100	13952.48900	124855	
RelInt Mean	0.06668110	---	---	---	1.87165610	3.27998140	
RelInt RSD	0.25233614	---	---	---	0.44065124	0.83076096	
RelInt SD	0.00016826	---	---	---	0.00824748	0.02724881	

Sample Name: ICAL,L5,S36880

Sample Type: Calibration Sample

Measure Date: 2018-06-05 08:42:11

Recalculation Date:

State: Measured

Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	40077.43200	3396161	1401274	1348436	4802.11010	11472.42400	11015.92600
Int RSD	0.55644311	0.55112593	0.50307839	0.64251787	0.22022613	1.94633488	0.85472658
Int SD	223.00811000	18717.12500	7049.50720	8663.94290	10.57550100	223.29179000	94.15604800
RelInt Mean	0.00002258	0.65012589	---	---	-0.00008022	0.00079903	0.00141383
RelInt RSD	39.10459099	0.23394929	---	---	12.71063614	9.39492162	3.99274638
RelInt SD	0.00000883	0.00152096	---	---	0.00001020	0.00007507	0.00005645
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	76628.93300	8943875	8120.94300	8259.20440	7918.75030	49095.89400	56095004
Int RSD	1.82082909	0.47164456	0.29708843	0.60191879	1.84632088	0.20376769	0.40944377
Int SD	1395.28190	42183.29900	24.12638200	49.71370300	146.20554000	100.04157000	229677
RelInt Mean	0.00105866	1.74270930	0.00025074	0.00040573	-0.00001384	0.00028138	24.88689600
RelInt RSD	4.05121403	0.40401847	1.33674448	5.86474877	361.37426750	1.00654609	0.38334195
RelInt SD	0.00004289	0.00704087	0.00000335	0.00002380	0.00005000	0.00000283	0.09540191
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	728154	136463	1190516	16967.23300	7743.31000	2116885	8420.38290
Int RSD	0.51117133	0.40439663	0.58016109	0.04787179	2.09272146	0.57711698	0.63006257
Int SD	3722.11640	551.84991000	6906.90940	8.12251790	162.04591000	12216.90100	53.05368100
RelInt Mean	0.13660448	0.02581342	0.22526111	0.00137106	0.00030102	0.40739568	0.00013817
RelInt RSD	0.41597975	0.63907513	0.19183274	1.87562021	28.78844735	0.20439603	24.46480688
RelInt SD	0.00056825	0.00016497	0.00043212	0.00002572	0.00008666	0.00083270	0.00003380
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	9542.04930	8399.00000	5606.94660	5092.61490	38846.13700	51963.84100	5357.15370
Int RSD	0.28560993	0.64503361	0.60999876	0.42580956	0.19939683	1.61251048	0.49087147
Int SD	27.25304000	54.17637300	34.20230500	21.68484100	77.45796400	837.92238000	26.29673900
RelInt Mean	0.00058430	0.00007579	0.00003021	-0.00019092	0.00756938	0.00023791	0.00000543
RelInt RSD	3.62821751	57.77993194	69.34283010	10.47797667	0.94849881	12.71478550	170.43474192
RelInt SD	0.00002120	0.00004379	0.00002095	0.00002000	0.00007180	0.00003025	0.00000926
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	14082.97000	2263015	39111906	5163975	9224.15310	15715.29500	
Int RSD	0.64693690	0.02011117	0.38195973	0.77380652	0.71918658	0.46808304	
Int SD	91.10793000	455.11867000	149392	39959.17500	66.33887100	73.56063000	
RelInt Mean	-0.00006787	---	---	---	0.00052450	0.00024596	
RelInt RSD	8.61419079	---	---	---	4.05074055	10.69380204	
RelInt SD	0.00000585	---	---	---	0.00002125	0.00002630	

Sample Name: ICV,S37184 Sample Type: Control Sample

Measure Date: 2018-06-05 08:45:36 Recalculation Date: State: Check failed Quality: Failed

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	432929	307062	1552293	1386091	62650.33700	390209	1536644
Int RSD	0.43217127	0.62899303	1.00521119	0.79239398	0.60213360	0.29657578	0.44974555
Int SD	1870.99590	1931.39630	15603.82600	10983.30400	377.23873000	1157.26610	6910.98890
RelInt Mean	0.00951524	0.05205685	---	---	0.02492673	0.15858449	0.63708683
RelInt RSD	0.80461081	0.68085740	---	---	1.03288257	0.12798726	0.11318185
RelInt SD	0.00007656	0.00035443	---	---	0.00025746	0.00020297	0.00072107
Conc Mean	392.52053000[µg/l]	7980.47030[µg/l]	1552293	1386091	2069.38470[µg/l]	2032.76600[µg/l]	1978.68760[µg/l]
Conc RSD	0.80811773	0.68294008	---	---	1.03177065	0.12858959	0.11319959
Conc SD	3.17202800[µg/l]	54.50183000[µg/l]	15603.82600	10983.30400	21.35130400[µg/l]	2.61392550[µg/l]	2.23986630[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	5310209	790932	1220598	857313	706275	2899797	5260605
Int RSD	0.36696917	0.63219175	0.27171926	0.32809564	0.31237571	0.65983367	0.22059761
Int SD	19486.83100	5000.20550	3316.59980	2812.80610	2206.23280	19133.83500	11604.77000
RelInt Mean	0.12739086	0.14755814	0.50595938	0.35446437	0.29151138	0.06889899	2.18870500
RelInt RSD	0.36636888	0.77981804	0.15685676	0.26109006	0.21091006	0.66545403	0.24202745
RelInt SD	0.00046672	0.00115069	0.00079363	0.00092547	0.00061483	0.00045849	0.00529727
Conc Mean	204.70141000[µg/l]	8075.25250[µg/l]	1944.19780[µg/l]	2041.35690[µg/l]	2102.72260[µg/l]	2004.42560[µg/l]	8123.86780[µg/l]
Conc RSD	0.36920474	0.82090685	0.15689429	0.26223179	0.21095455	0.66726528	0.24220272
Conc SD	0.75576730[µg/l]	66.29030100[µg/l]	3.05033540[µg/l]	5.35308680[µg/l]	4.43578900[µg/l]	13.37483600[µg/l]	19.67622900[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	84008.77700	15127.30600	130182	6438047	518425	193572	605767
Int RSD	0.54477776	2.67150212	0.17801532	0.28139397	0.20363380	0.38298479	0.40285393
Int SD	457.66113000	404.12630000	231.74428000	18116.27600	1055.68910	741.35181000	2440.35490
RelInt Mean	0.01094050	0.00207912	0.01882245	2.68136690	0.21464975	0.03265167	0.24926158
RelInt RSD	0.68251933	2.85482720	0.81174659	0.22310926	0.21887670	0.58031316	0.29175301
RelInt SD	0.00007467	0.00005936	0.00015279	0.00598238	0.00046982	0.00018948	0.00072723
Conc Mean	<8018.45700[µg/l]	7916.56400[µg/l]	8108.45460[µg/l]	2113.10740[µg/l]	2048.58530[µg/l]	7805.12670[µg/l]	2074.83630[µg/l]
Conc RSD	0.68148741	2.90826285	0.83852903	0.22313836	0.21886205	0.499719560	0.29179170
Conc SD	54.64477500[µg/l]	230.23449000[µg/l]	67.99174600[µg/l]	4.71515310[µg/l]	4.48357570[µg/l]	46.61187300[µg/l]	6.05420010[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	142054	89417.73300	49050.32500	176419	1063091	8812416	53347.35800
Int RSD	0.35414296	0.76366092	0.21563054	0.25466235	1.09700253	0.55393302	0.25006421
Int SD	503.07467000	682.84828000	105.76748000	449.27290000	11662.13300	48814.88400	133.40265000
RelInt Mean	0.05644164	0.03544837	0.01914587	0.07234045	0.19832810	0.21200376	0.02098647
RelInt RSD	0.42840621	1.01982802	0.60910709	0.39227229	0.83472191	0.49897516	0.50260187
RelInt SD	0.00024180	0.00036151	0.00011662	0.00028374	0.00165549	0.00105785	0.00010548
Conc Mean	1986.55950[µg/l]	2081.56760[µg/l]	2067.14900[µg/l]	1988.13690[µg/l]	204.41420000[µg/l]	2069.45940[µg/l]	2071.71770[µg/l]
Conc RSD	0.42864173	1.02469168	0.60856382	0.39299540	0.85824434	0.49908561	0.50436051
Conc SD	8.51522300[µg/l]	21.32965000[µg/l]	12.57992100[µg/l]	7.81328660[µg/l]	1.75437330[µg/l]	10.32837400[µg/l]	10.44892600[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	568665	2407646	41496187	5392006	964107	373776
Int RSD	0.11693464	0.42261949	0.40333530	0.67557705	0.39249486	0.71559795
Int SD	664.96661000	10175.18300	167369	36427.15700	3784.06870	2674.73140
RelInt Mean	0.01343562	---	---	---	0.40013441	0.06659100
RelInt RSD	0.50229867	---	---	---	0.10793244	0.51538829
RelInt SD	0.00006749	---	---	---	0.00043187	0.00034320
Conc Mean	2010.79210[µg/l]	2397436	41320686	5360257	2133.16030[µg/l]	200.79794000[µg/l]
Conc RSD	0.50356419	---	---	---	0.10815136	0.51724540
Conc SD	10.12562900[µg/l]	10139.88200	168204	36467.08100	2.30704180[µg/l]	1.03861810[µg/l]

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145009 File : met11_060418 Time : 05-JUN-2018 08:52
 Cal : 658225145001 Caldate : 05-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	42245354	1.28
Yttrium	A	2377788	2485180	4.52
Yttrium	R	5324215	5393653	1.30

Sample Name: ICB,1				Sample Type: Control Sample			
Measure Date: 2018-06-05 08:52:15		Recalculation Date:		State: Checked		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	38499.47700	25825.43400	1459325	1404175	2502.48410	8081.78790	7185.92260
Int RSD	1.07401724	2.15881905	0.37143992	0.49665768	1.27604443	0.11787844	0.51516782
Int SD	413.49102000	557.52439000	5420.51530	6973.94440	31.93280900	9.52668530	37.01956100
RelInt Mean	0.00003479	0.00009099	---	---	-0.00006645	0.00039030	0.00003839
RelInt RSD	8.16856424	14.33966527	---	---	37.61848003	9.15013658	104.64723182
RelInt SD	0.00000284	0.00001305	---	---	0.00002500	0.00003571	0.00004017
Conc Mean	<-0.17314047[µg/l]	<-0.141619500[µg/l]	1459325	1404175	<-0.77400971[µg/l]	<-4.60887620[µg/l]	<-0.18422195[µg/l]
Conc RSD	68.02775804	19.26122351	---	---	267.85733735	9.97963842	67.73727561
Conc SD	0.11778358[µg/l]	2.00628660[µg/l]	5420.51530	6973.94440	2.07324180[µg/l]	0.45994918[µg/l]	0.12478693[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	68148.01200	36792.55100	6927.01680	6498.32940	6411.11810	43670.60000	8213.34030
Int RSD	0.56713216	1.68933187	0.79200804	0.55491090	0.81765957	1.34970200	0.59226059
Int SD	386.48929000	621.54829000	54.86253000	36.05993800	52.42112100	589.42296000	48.64437800
RelInt Mean	0.00087579	0.00686397	0.00012546	-0.00001095	0.00005624	0.00017631	0.00015001
RelInt RSD	0.81960502	2.44055611	6.13967231	62.45726259	41.62909252	3.17944147	6.24725799
RelInt SD	0.00000718	0.00016752	0.00000770	0.00000684	0.00002341	0.00000561	0.00000937
Conc Mean	<0.00501075[µg/l]	<-30.06762000[µg/l]	<0.01894995[µg/l]	<-0.11241176[µg/l]	<-0.03260808[µg/l]	<-0.31512337[µg/l]	<-5.30301140[µg/l]
Conc RSD	225.59476405	32.09663252	156.23180899	35.00454134	518.01046213	51.89402487	0.65640853
Conc SD	0.01130398[µg/l]	9.65069350[µg/l]	0.02960584[µg/l]	0.03934922[µg/l]	0.16891324[µg/l]	0.16353020[µg/l]	0.03480942[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	25641.17100	4307.39540	32621.70200	8212.60620	3408.59750	20440.28400	7181.27810
Int RSD	1.83451134	5.60698607	1.17048234	0.48593817	0.41619951	2.54240122	0.71888784
Int SD	470.39019000	241.51506000	381.83126000	39.90818800	14.18656600	519.67403000	51.62533500
RelInt Mean	-0.00002979	0.00003964	0.00053814	0.00013095	0.00000656	0.00038024	0.00002945
RelInt RSD	90.40161426	75.99168824	3.61302394	7.48813793	178.52929085	10.80364751	49.46762009
RelInt SD	0.00002693	0.00003012	0.00001944	0.00000981	0.00001171	0.00004108	0.00001457
Conc Mean	<-9.69617630[µg/l]	<5.56648340[µg/l]	<-28.04071600[µg/l]	<-0.14349905[µg/l]	<-0.19187956[µg/l]	<-133.52735000[µg/l]	<-0.03075802[µg/l]
Conc RSD	203.22302721	2098.89533	30.85581802	5.38581287	58.23249751	7.56812518	394.24158067
Conc SD	19.70486300[µg/l]	116.83466000[µg/l]	8.65219230[µg/l]	0.00772859[µg/l]	0.11173626[µg/l]	10.10551700[µg/l]	0.12126092[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	6095.92390	3899.75430	2690.06120	2707.41590	24533.32700	40827.60300	2692.08450
Int RSD	0.36097455	1.43066547	0.38797207	0.55802948	2.01200881	1.11089627	0.90663699
Int SD	22.00473400	55.79243800	10.43668600	15.10817900	493.61270000	453.55232000	24.40743400
RelInt Mean	0.00005044	0.00001502	-0.00003659	0.00008752	0.00457699	0.00004272	0.00000962
RelInt RSD	45.46859015	130.83901418	64.09602528	10.89183942	2.78249693	13.80779761	117.97484272
RelInt SD	0.00002294	0.00001965	0.00002345	0.00000953	0.00012735	0.00000590	0.00001135
Conc Mean	<0.08641432[µg/l]	<0.88742884[µg/l]	<-0.61074032[µg/l]	<-1.47591530[µg/l]	<-0.86038705[µg/l]	<-0.04042974[µg/l]	<-0.15652661[µg/l]
Conc RSD	935.20434814	130.91824917	414.28867837	17.78560667	15.68522911	142.44364706	717.61331827
Conc SD	0.80815045[µg/l]	1.16180630[µg/l]	2.53022800[µg/l]	0.26250049[µg/l]	0.13495368[µg/l]	0.05758960[µg/l]	1.12325580[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	11801.57900	2485180	42245354	5393653	4003.24900	16274.59800	
Int RSD	2.74968375	0.28660815	0.02010988	0.75299659	0.48970037	3.38622244	
Int SD	324.50610000	7122.72920	8495.49180	40614.02300	19.60392500	551.09409000	
RelInt Mean	0.00002782	---	---	---	0.00010662	0.00030360	
RelInt RSD	21.89801673	---	---	---	6.18991285	22.73039946	
RelInt SD	0.00000609	---	---	---	0.00000623	0.00006901	
Conc Mean	<-0.89036432[µg/l]	2474842	42070692	5360893	<-4.91155530[µg/l]	<-0.19443561[µg/l]	
Conc RSD	102.66383653	---	---	---	0.68042502	107.40946579	
Conc SD	0.91408217[µg/l]	6898.37340	8909.11420	40691.58100	0.03341945[µg/l]	0.20884225[µg/l]	

ENTHALPY INTERFERENCE CHECK STANDARD A FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145011 File : met11_060418 Time : 05-JUN-2018 08:59
 Cal : 658225145001 Caldate : 05-JUN-2018
 Standards: S37050

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-9.340]	10.00	ug/l	
Arsenic	A	[-4.373]	5.000	ug/l	
Barium	A	[-0.7754]	5.000	ug/l	
Cadmium	A	[0.9186]	5.000	ug/l	
Cobalt	A	[0.3987]	5.000	ug/l	
Lead	A	[2.015]	5.000	ug/l	
Molybdenum	A	[1.440]	5.000	ug/l	
Selenium	A	[-9.137]	10.00	ug/l	
Thallium	A	[-4.565]	10.00	ug/l	
Zinc	A	[-4.343]	20.00	ug/l	
Beryllium	H	[-1.653]	2.000	ug/l	
Silver	H	[-0.8000]	5.000	ug/l	
Beryllium	R	[1.142]	2.000	ug/l	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19560	ug/l	98	
Iron	A	200000	158000	ug/l	79	
Manganese	A	20000	18550	ug/l	93	
Nickel	A	20000	18320	ug/l	92	
Copper	H	20000	21230	ug/l	106	
Titanium	H	20000	19910	ug/l	100	
Vanadium	H	20000	19620	ug/l	98	
Aluminum	R	500000	481900	ug/l	96	
Calcium	R	500000	460700	ug/l	92	
Iron	R	200000	192400	ug/l	96	
Magnesium	R	500000	492000	ug/l	98	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	37925719	-9.08
Yttrium	A	2377788	2227491	-6.32
Yttrium	R	5324215	4983168	-6.41

Sample Name: ICSA,S37050 Sample Type: Control Sample

Measure Date: 2018-06-05 08:59:30 Recalculation Date: State: Checked Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	61574.85200	15655035	2612030	1563581	13158.74000	15793.69500	11575.47100
Int RSD	0.03728616	0.18956294	0.28426119	0.16643732	0.58440361	0.46805105	0.78047220
Int SD	22.95889500	29676.14400	7424.98840	2602.38290	76.90015200	73.92255500	90.34333300
RelInt Mean	0.00007778	3.13396950	---	---	0.00023388	0.00067365	-0.00015192
RelInt RSD	11.44932966	0.15361940	---	---	9.85093452	10.69017029	31.62336381
RelInt SD	0.00000891	0.00481439	---	---	0.00002304	0.00007201	0.00004804
Conc Mean	<-0.80000461[µg/l]	>481892[µg/l]	2612030	1563581	<-4.37333570[µg/l]	<-0.95972767[µg/l]	<-0.77537217[µg/l]
Conc RSD	47.25620394	0.15362724	---	---	44.81792011	96.63804837	19.24652519
Conc SD	0.37805181[µg/l]	740.31715000[µg/l]	7424.98840	2602.38290	1.96003810[µg/l]	0.92746209[µg/l]	0.14923220[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	396156	39618032	11572.84700	24711.07000	6017791	27660470	94200182
Int RSD	0.31523023	0.23672973	1.36637951	0.76135574	0.09413699	0.42853516	0.16961749
Int SD	1248.80320	93787.66000	158.12901000	188.13915000	5664.96770	118535	159780
RelInt Mean	0.00866296	8.00437180	0.00035953	0.00586490	2.71165560	0.72785094	42.53630400
RelInt RSD	0.65288612	0.07692536	18.52367197	1.98790872	0.25279067	0.38156135	0.42598118
RelInt SD	0.00005656	0.00615739	0.00006660	0.00011659	0.00685481	0.00277720	0.18119665
Conc Mean	<-1.65286130[µg/l]	>460702[µg/l]	0.91859041[µg/l]	<0.39872018[µg/l]	>19563.28600[µg/l]	>21227.01600[µg/l]	>157991[µg/l]
Conc RSD	8.75231152	0.07699690	27.86537473	178.22945405	0.25279866	0.38165813	0.42599882
Conc SD	0.14466357[µg/l]	354.72652000[µg/l]	0.25596866[µg/l]	0.71063680[µg/l]	49.45572500[µg/l]	81.01463300[µg/l]	673.03992000[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	1334960	3950.83620	5533125	52090021	20373.17600	22589.20200	4884727
Int RSD	0.12521791	1.74035590	0.33677799	0.14485001	0.45559190	1.07170696	0.14510677
Int SD	1671.60920	68.75861100	18634.34800	75452.40000	92.81854000	242.09005000	7088.06980
RelInt Mean	0.26292139	0.00002048	1.10629320	23.53244000	0.00013734	0.00105308	2.20106040
RelInt RSD	0.02962479	40.82225349	0.14514408	0.41274062	39.53571584	2.00759532	0.32200543
RelInt SD	0.00007789	0.00000836	0.00160572	0.09712794	0.00005430	0.00002114	0.00708753
Conc Mean	192420[µg/l]	<-68.74353000[µg/l]	>492032[µg/l]	>18547.15100[µg/l]	1.43994810[µg/l]	31.98919000[µg/l]	>18323.63600[µg/l]
Conc RSD	0.02962162	47.17217169	0.14522093	0.41274435	35.98581643	16.25787336	0.32201019
Conc SD	56.99803000[µg/l]	32.42781600[µg/l]	714.53304000[µg/l]	76.55231800[µg/l]	0.51817708[µg/l]	5.20076200[µg/l]	59.00397500[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	22312.89900	28690.45300	15767.70400	12944.18400	46972.85400	77096735	15620.83200
Int RSD	0.57651213	0.48256896	0.35196471	0.99710720	0.65223318	0.19554260	1.02422880
Int SD	128.63657000	138.45122000	55.49675300	129.06739000	306.37254000	150757	159.99306000
RelInt Mean	0.00234721	0.00176103	0.00014294	-0.00078400	0.00949043	2.03898470	0.00034497
RelInt RSD	3.23729808	4.14952831	42.17084022	4.27752789	0.82395046	0.11716991	21.75694729
RelInt SD	0.00007599	0.00007307	0.00006028	0.00003354	0.00007820	0.00238908	0.00007506
Conc Mean	<2.01518560[µg/l]	<-9.34036340[µg/l]	<-9.13701800[µg/l]	<-25.47476100[µg/l]	3.98844930[µg/l]	>19907.34500[µg/l]	<-4.56515440[µg/l]
Conc RSD	131.94476479	43.57129295	70.68972393	3.62502314	2.09422121	0.11717303	162.56396498
Conc SD	2.65893190[µg/l]	4.06971710[µg/l]	6.45893280[µg/l]	0.92346598[µg/l]	0.08352695[µg/l]	23.32604000[µg/l]	7.42129600[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	4978308	2227491	37925719	4983168	30988.93200	21910.27500
Int RSD	0.51917155	0.27030451	0.15928688	0.19313995	0.61770648	1.15337224
Int SD	25845.96100	6021.00750	60410.69600	9624.48920	191.42064000	252.70703000
RelInt Mean	0.13080604	---	---	---	0.00265807	0.00061665
RelInt RSD	0.37165257	---	---	---	4.16814465	1.88062101
RelInt SD	0.00048614	---	---	---	0.00011079	0.00001160
Conc Mean	>19620.84500[µg/l]	2212156	37723943	4949548	<-4.34323790[µg/l]	1.14180800[µg/l]
Conc RSD	0.37174886	---	---	---	12.96889332	3.07365529
Conc SD	72.94026700[µg/l]	6014.33880	58792.10200	9873.25090	0.56326989[µg/l]	0.03509524[µg/l]

ENTHALPY INTERFERENCE CHECK STANDARD AB FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145012 File : met11_060418 Time : 05-JUN-2018 09:02
 Cal : 658225145001 Caldate : 05-JUN-2018
 Standards: S36567

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	539.5	ug/l	8	20	
Arsenic	A	500.0	545.4	ug/l	9	20	
Barium	A	500.0	500.7	ug/l	0	20	
Cadmium	A	1000	1067	ug/l	7	20	
Chromium	A	500.0	477.9	ug/l	-4	20	
Cobalt	A	500.0	465.5	ug/l	-7	20	
Lead	A	1000	965.3	ug/l	-3	20	
Molybdenum	A	500.0	505.9	ug/l	1	20	
Nickel	A	1000	928.9	ug/l	-7	20	
Selenium	A	500.0	539.3	ug/l	8	20	
Thallium	A	500.0	476.6	ug/l	-5	20	
Zinc	A	1000	961.9	ug/l	-4	20	
Beryllium	H	500.0	515.6	ug/l	3	20	
Copper	H	500.0	528.0	ug/l	6	20	
Silver	H	1000	1087	ug/l	9	20	
Vanadium	H	500.0	457.0	ug/l	-9	20	
Beryllium	R	500.0	507.0	ug/l	1	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	37504779	-10.09
Yttrium	A	2377788	2190764	-7.87
Yttrium	R	5324215	5025528	-5.61

Sample Name: ICSAB,S36567 Sample Type: Control Sample

Measure Date: 2018-06-05 09:02:51 Recalculation Date: State: Checked Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	1034302	16006808	2617118	1553482	26960.00300	14471.53400	362075
Int RSD	0.20362007	0.25106734	0.40520072	0.73892113	0.39030485	0.75235300	0.10616886
Int SD	2106.04670	40187.86700	10604.58100	11479.00600	105.22620000	108.87702000	384.41050000
RelInt Mean	0.02627775	3.17742890	---	---	0.00652658	0.00042946	0.16129600
RelInt RSD	0.41984586	1.56048087	---	---	1.65880895	2.92687064	0.13165321
RelInt SD	0.00011033	0.04958317	---	---	0.00010826	0.00001257	0.00021235
Conc Mean	1087.47540[µg/l]	>488575[µg/l]	2617118	1553482	545.43014000[µg/l]	<-4.10457350[µg/l]	500.73240000[µg/l]
Conc RSD	0.42045074	1.56055853	---	---	1.64638778	3.94401635	0.13173157
Conc SD	4.57229840[µg/l]	7624.49370[µg/l]	10604.58100	11479.00600	8.97989520[µg/l]	0.16188505[µg/l]	0.65962267[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	11920788	40389861	614913	198304	155574	757789	96791714
Int RSD	0.53851079	0.18624303	0.12509329	0.16360779	0.25591991	0.41568825	0.24098201
Int SD	64194.73000	75223.30100	769.21470000	324.44003000	398.14410000	3150.04070	233251
RelInt Mean	0.31745544	8.09147250	0.27771202	0.08590191	0.06630409	0.01828695	44.42029700
RelInt RSD	0.98403363	1.54004664	0.28140257	0.21700630	0.07009137	0.17610602	0.45622808
RelInt SD	0.00312387	0.12461245	0.00078149	0.00018641	0.00004647	0.00003220	0.20265787
Conc Mean	515.56441000[µg/l]	>465720[µg/l]	1066.92630[µg/l]	465.47054000[µg/l]	477.92433000[µg/l]	527.99861000[µg/l]	>164989[µg/l]
Conc RSD	0.98697212	1.54145372	0.28152186	0.20875886	0.07015575	0.17792798	0.45624424
Conc SD	5.08847700[µg/l]	7178.86060[µg/l]	3.00363080[µg/l]	0.97171097[µg/l]	0.33529139[µg/l]	0.93945725[µg/l]	752.75254000[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	1380983	3924.34070	5743739	1398201	135776	22600.96000	253767
Int RSD	0.26400705	3.73801362	1.42793453	0.34616727	0.05776559	0.43313049	0.05024978
Int SD	3645.89200	146.69239000	82016.83700	4840.11530	78.43205000	97.89164800	127.51751000
RelInt Mean	0.27003728	0.00002679	1.13907810	0.63249138	0.05300068	0.00109405	0.11161066
RelInt RSD	1.08020207	106.13563294	0.07550478	0.19106336	0.19220721	2.34860228	0.28345182
RelInt SD	0.00291695	0.00002843	0.00086006	0.00120846	0.00010187	0.00002569	0.00031636
Conc Mean	>197628[µg/l]	<44.26133600[µg/l]	>506621[µg/l]	498.25958000[µg/l]	505.92799000[µg/l]	42.06705900[µg/l]	928.88713000[µg/l]
Conc RSD	1.08013491	249.19015097	0.07554140	0.19115797	0.19215863	15.02565107	0.28353415
Conc SD	2134.64730[µg/l]	110.29489000[µg/l]	382.70858000[µg/l]	0.95246292[µg/l]	0.97218427[µg/l]	6.32084950[µg/l]	2.63371220[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	81499.14400	44963.37300	26657.29600	12941.88300	2492598	77500839	26279.86300
Int RSD	0.40531530	0.19879395	0.62266593	0.84230293	1.60989487	0.56676259	0.37097093
Int SD	330.32850000	89.38446400	165.98590000	109.00986000	40128.20100	439246	97.49065100
RelInt Mean	0.02970598	0.00924209	0.00508484	-0.00063714	0.49927169	2.07136680	0.00519475
RelInt RSD	0.36257224	0.82542215	2.63490098	11.16644851	0.25455323	0.42844808	2.14704169
RelInt SD	0.00010771	0.00007629	0.00013398	0.00007115	0.00127091	0.00887473	0.00011153
Conc Mean	965.31274000[µg/l]	539.45849000[µg/l]	539.31402000[µg/l]	<-21.43083200[µg/l]	523.33396000[µg/l]	>20223.51000[µg/l]	476.59863000[µg/l]
Conc RSD	0.28815310	0.83473003	2.71164655	9.14167121	0.25733566	0.42845902	2.34273271
Conc SD	2.78157860[µg/l]	4.50302200[µg/l]	14.62429000[µg/l]	1.95913620[µg/l]	1.34672490[µg/l]	86.64945200[µg/l]	11.16543200[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	141519	2190764	37504779	5025528	418217	857951
Int RSD	0.11181265	0.21325426	0.62012884	1.35610704	0.26969859	0.72966435
Int SD	158.23597000	4671.89760	232578	68151.53200	1127.92490	6260.16060
RelInt Mean	0.00307967	---	---	---	0.18092968	0.16776171
RelInt RSD	0.85933110	---	---	---	0.19200261	2.10850205
RelInt SD	0.00002646	---	---	---	0.00034739	0.00353726
Conc Mean	457.00294000[µg/l]	2176607	37329322	4992355	961.88727000[µg/l]	506.96770000[µg/l]
Conc RSD	0.86885399	---	---	---	0.19313139	2.11151342
Conc SD	3.97068830[µg/l]	4722.74830	233773	68011.79900	1.85770630[µg/l]	10.70469100[µg/l]

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
 Seqnum : 658225145150
 Cal : 658225145001
 Standards: S37184

File : met11_060418
 Caldate : 05-JUN-2018

IDF : 1.0
 Time : 05-JUN-2018 19:57

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.8E-5	1.7E-5	2000	2006	ug/l	0	10	
Arsenic	A	8.8E-6	1.2E-5	2000	1994	ug/l	0	10	
Barium	A	3.4E-4	3.1E-4	2000	1901	ug/l	-5	10	
Cadmium	A	2.7E-4	2.4E-4	2000	1869	ug/l	-7	10	
Chromium	A	1.5E-4	1.4E-4	2000	2027	ug/l	1	10	
Cobalt	A	1.8E-4	1.7E-4	2000	1971	ug/l	-1	10	
Lead	A	3.2E-5	2.7E-5	2000	1925	ug/l	-4	10	
Molybdenum	A	1.1E-4	1.0E-4	2000	1964	ug/l	-2	10	
Nickel	A	1.3E-4	1.2E-4	2000	2001	ug/l	0	10	
Selenium	A	8.9E-6	9.2E-6	2000	1996	ug/l	0	10	
Thallium	A	1.1E-5	1.0E-5	2000	1994	ug/l	0	10	
Zinc	A	2.0E-4	2.0E-4	2000	2088	ug/l	4	10	
Beryllium	H	7.6E-4	6.2E-4	200.0	198.1	ug/l	-1	10	
Copper	H	4.4E-5	3.3E-5	2000	1911	ug/l	-4	10	
Silver	H	2.7E-5	2.3E-5	400.0	379.7	ug/l	-5	10	
Vanadium	H	8.3E-6	6.5E-6	2000	1945	ug/l	-3	10	
Beryllium	R	3.7E-4	3.3E-4	200.0	199.3	ug/l	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	42168741	1.09
Yttrium	A	2377788	2477163	4.18
Yttrium	R	5324215	5372840	0.91

Sample Name: CCV,S37184 Sample Type: Control Sample

Measure Date: 2018-06-05 19:57:29 Recalculation Date: State: Check failed Quality: Failed

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	426110	302870	1593463	1444674	62201.01800	381876	1519123
Int RSD	0.31122936	0.55030594	0.94508928	0.22621505	0.38118354	0.55761051	0.49514686
Int SD	1326.17910	1666.71310	15059.64700	3268.06950	237.10004000	2129.38000	7521.89130
RelInt Mean	0.00920452	0.05125394	---	---	0.02401918	0.15069134	0.61206018
RelInt RSD	0.72708465	0.50822293	---	---	0.28048971	0.27237872	0.10262759
RelInt SD	0.00006692	0.00026048	---	---	0.00006737	0.00041045	0.00062814
Conc Mean	379.65035000[µg/l]	7857.00480[µg/l]	1593463	1444674	1994.21080[µg/l]	1931.11060[µg/l]	1900.94700[µg/l]
Conc RSD	0.73015278	0.50980214	---	---	0.27979079	0.27373499	0.10264359
Conc SD	2.77202760[µg/l]	40.05517900[µg/l]	15059.64700	3268.06950	5.57961820[µg/l]	5.28612550[µg/l]	1.95120030[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	5224477	781442	1207364	852024	700646	2810740	5205857
Int RSD	0.25313151	0.51934454	0.59966226	0.41981179	0.44190265	0.30088904	0.40289419
Int SD	13224.79700	4058.37870	7240.10630	3576.89780	3096.17420	8457.20940	20974.09600
RelInt Mean	0.12331452	0.14634268	0.48634441	0.34231168	0.28097776	0.06568606	2.10522050
RelInt RSD	0.32498093	0.57395991	0.26559421	0.11289842	0.30195100	0.10022763	0.21106903
RelInt SD	0.00040075	0.00083995	0.00129170	0.00038646	0.00084842	0.00006584	0.00444347
Conc Mean	198.10672000[µg/l]	8005.23050[µg/l]	1868.80750[µg/l]	1971.38890[µg/l]	2026.72590[µg/l]	1910.69980[µg/l]	7813.77290[µg/l]
Conc RSD	0.32517714	0.60446655	0.26565882	0.11265888	0.30201625	0.10051338	0.21122667
Conc SD	0.64419776[µg/l]	48.38894100[µg/l]	4.96465200[µg/l]	2.22094470[µg/l]	6.12104150[µg/l]	1.92050890[µg/l]	16.50477200[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	83216.19100	15626.25200	129470	6375348	511453	247057	601196
Int RSD	0.34930106	2.45084279	0.32811384	0.46009106	0.50006661	1.04560406	0.41945900
Int SD	290.67504000	382.97487000	424.80994000	29332.40400	2557.60410	2583.24190	2521.77130
RelInt Mean	0.01065262	0.00215123	0.01852638	2.58068690	0.20575757	0.04266150	0.24039246
RelInt RSD	1.10880751	2.32914384	0.37166526	0.13137412	0.26453054	0.89021591	0.26322698
RelInt SD	0.00011812	0.00005011	0.00006886	0.00339035	0.00054429	0.00037978	0.00063278
Conc Mean	<7807.78490[µg/l]	8196.28680[µg/l]	7976.70340[µg/l]	2033.75520[µg/l]	1963.72500[µg/l]	10267.50800[µg/l]	2001.00050[µg/l]
Conc RSD	1.10708797	2.37125280	0.38413109	0.13138916	0.26451086	0.90990365	0.26326540
Conc SD	86.43904700[µg/l]	194.35468000[µg/l]	30.64099800[µg/l]	2.67213380[µg/l]	5.19426580[µg/l]	93.42443000[µg/l]	5.26794190[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	141711	88743.90800	48807.55000	176719	1042284	8590756	52870.79100
Int RSD	0.16957068	0.15506679	0.42164696	0.30075947	0.48621023	0.12706988	0.19702020
Int SD	240.30036000	137.61233000	205.79555000	531.49921000	5067.69000	10916.26300	104.16614000
RelInt Mean	0.05470614	0.03416286	0.01848940	0.07041447	0.19519032	0.20332832	0.02019975
RelInt RSD	0.24448111	0.47804414	0.44785809	0.09317128	0.42195396	0.27575786	0.20063745
RelInt SD	0.00013375	0.00016331	0.00008281	0.00006561	0.00082361	0.00056069	0.00004053
Conc Mean	1925.40350[µg/l]	2006.08150[µg/l]	1996.39020[µg/l]	1935.10170[µg/l]	201.09082000[µg/l]	1984.75590[µg/l]	1994.02260[µg/l]
Conc RSD	0.24468918	0.47985506	0.44742391	0.09335846	0.43401902	0.27582082	0.20131459
Conc SD	4.71125400[µg/l]	9.62628350[µg/l]	8.93232710[µg/l]	1.80658110[µg/l]	0.87277241[µg/l]	5.47436990[µg/l]	4.01425840[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	559161	2477163	42168741	5372840	970833	370259
Int RSD	0.40030761	0.39073099	0.38858813	0.48764043	0.22453102	0.71767917
Int SD	2238.36500	9679.04300	163863	26200.13900	2179.82170	2657.27330
RelInt Mean	0.01299741	---	---	---	0.39162226	0.06610211
RelInt RSD	0.78145356	---	---	---	0.22000498	0.54760158
RelInt SD	0.00010157	---	---	---	0.00086159	0.00036198
Conc Mean	1945.04360[µg/l]	2466584	41993085	5339866	2087.68610[µg/l]	199.31841000[µg/l]
Conc RSD	0.78348789	---	---	---	0.22059318	0.54959083
Conc SD	15.23918100[µg/l]	9834.90530	165043	26424.16900	4.60529310[µg/l]	1.09543570[µg/l]

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145151 File : met11_060418 Time : 05-JUN-2018 20:00
 Cal : 658225145001 Caldate : 05-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	43069701	3.25
Yttrium	A	2377788	2513429	5.70
Yttrium	R	5324215	5381925	1.08

Sample Name: CCB,1				Sample Type: Control Sample			
Measure Date: 2018-06-05 20:00:49		Recalculation Date:		State: Checked		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	38408.32400	25652.87700	1454034	1426997	2472.70780	7852.03340	7085.28360
Int RSD	0.75389650	0.57141755	0.45514367	0.44777325	1.17591306	0.28329338	0.65371039
Int SD	289.55901000	146.58504000	6617.94420	6389.71090	29.07689400	22.24429100	46.31723500
RelInt Mean	0.00004158	0.00004092	---	---	-0.00003646	0.00032195	0.00007985
RelInt RSD	7.46625679	101.94343827	---	---	27.89113573	3.84333684	26.03104813
RelInt SD	0.00000310	0.00004171	---	---	0.00001017	0.00001237	0.00002078
Conc Mean	<0.10806459[µg/l]	<18.11544000[µg/l]	1454034	1426997	<1.71333260[µg/l]	<5.48924160[µg/l]	<0.05544232[µg/l]
Conc RSD	119.09934605	35.40738950	---	---	49.24277633	2.90308537	116.45163359
Conc SD	0.12870422[µg/l]	6.41420440[µg/l]	6617.94420	6389.71090	0.84369254[µg/l]	0.15935737[µg/l]	0.06456349[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	68023.21200	36516.30400	6810.46340	6425.20110	6287.71930	43748.49100	8338.48140
Int RSD	0.88326304	0.17181325	0.50210163	0.60801812	0.65899052	0.83313502	0.82069622
Int SD	600.82389000	62.73984900	34.19544800	39.06638700	41.43547400	364.48400000	68.43360200
RelInt Mean	0.00086301	0.00682665	0.00012265	0.00000205	0.00004301	0.00017734	0.00026595
RelInt RSD	1.67292733	0.85026532	2.25664398	509.26911267	38.29680841	1.88210800	13.68274204
RelInt SD	0.00001444	0.00005804	0.00000277	0.00001042	0.00001647	0.00000334	0.00003639
Conc Mean	<0.01659332[µg/l]	<32.21790300[µg/l]	<0.00814400[µg/l]	<0.03801463[µg/l]	<0.12803451[µg/l]	<0.28513321[µg/l]	<4.87237670[µg/l]
Conc RSD	143.12333009	10.37907464	130.62144867	158.07297917	92.82416124	34.14831194	2.77405091
Conc SD	0.02374890[µg/l]	3.34392020[µg/l]	0.01063781[µg/l]	0.06009086[µg/l]	0.11884696[µg/l]	0.09736818[µg/l]	0.13516221[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	25551.81200	4737.71870	32499.05300	7918.63900	3480.43250	57937.94000	7090.23690
Int RSD	0.17704775	4.76091732	0.62110434	0.60805004	1.02638129	0.57916730	1.03425185
Int SD	45.23890900	225.55887000	201.85303000	48.14928800	35.72250800	335.55760000	73.33090600
RelInt Mean	-0.00004597	0.00013360	0.00056995	0.00007105	0.00007638	0.00744281	0.00004090
RelInt RSD	29.72370617	29.47725544	12.77143725	28.94052490	13.75522531	1.12939873	16.65003737
RelInt SD	0.00001366	0.00003938	0.00007279	0.00002056	0.00001051	0.00008406	0.00000681
Conc Mean	<21.54233100[µg/l]	<370.03221000[µg/l]	<13.88807500[µg/l]	<0.19071183[µg/l]	0.85820111[µg/l]	1603.83770[µg/l]	<0.06462348[µg/l]
Conc RSD	46.42023094	41.28148196	233.23284904	8.49774762	11.68292826	1.28929486	87.73222134
Conc SD	9.99999980[µg/l]	152.75478000[µg/l]	32.39155300[µg/l]	0.01620621[µg/l]	0.10026302[µg/l]	20.67819700[µg/l]	0.05669561[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	5999.54930	3849.45420	2650.02730	2603.31180	24849.52600	41967.54900	2634.57740
Int RSD	0.36410580	1.44723777	1.03658449	0.61261444	0.46714790	1.71507016	0.13535577
Int SD	21.84470700	55.71075500	27.46977200	15.94826400	116.08404000	719.77291000	3.56605250
RelInt Mean	0.00006471	0.00002731	-0.00002820	0.00007574	0.00464556	0.00008045	0.00000720
RelInt RSD	28.62352497	58.42878158	34.70303911	16.27132311	0.92724677	17.96066007	143.68837828
RelInt SD	0.00001852	0.00001596	0.00000979	0.00001232	0.00004308	0.00001445	0.00001035
Conc Mean	<0.59056288[µg/l]	<1.61355750[µg/l]	<0.29465696[µg/l]	<1.80044930[µg/l]	<0.78773223[µg/l]	0.32797220[µg/l]	<0.39681848[µg/l]
Conc RSD	110.57806918	58.42477693	358.28690420	18.84772151	5.79439526	43.01516409	257.95444305
Conc SD	0.65303303[µg/l]	0.94271737[µg/l]	1.05571730[µg/l]	0.33934367[µg/l]	0.04564432[µg/l]	0.14107778[µg/l]	1.02361090[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	11973.58200	2513429	43069701	5381925	3780.12780	16198.03300	
Int RSD	1.00509371	0.58382134	0.21732863	0.68382573	0.82009934	0.55678864	
Int SD	120.34572000	14673.93200	93602.79300	36802.99000	31.00080300	90.18880700	
RelInt Mean	0.00003496	---	---	---	0.00005051	0.00030266	
RelInt RSD	5.78129063	---	---	---	29.16853710	3.26119627	
RelInt SD	0.00000202	---	---	---	0.00001473	0.00000987	
Conc Mean	<0.18077673[µg/l]	2503472	42894010	5349289	<5.17951470[µg/l]	<0.19160055[µg/l]	
Conc RSD	167.74971535	---	---	---	1.51976109	15.59011548	
Conc SD	0.30325245[µg/l]	14433.22800	92979.36200	36493.65900	0.07871625[µg/l]	0.02987075[µg/l]	

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
 Seqnum : 658225145162
 Cal : 658225145001
 Standards: S37184

File : met11_060418
 Caldate : 05-JUN-2018

IDF : 1.0
 Time : 05-JUN-2018 20:39

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.8E-5	1.7E-5	2000	2015	ug/l	1	10	
Arsenic	A	8.8E-6	1.2E-5	2000	1985	ug/l	-1	10	
Barium	A	3.4E-4	3.1E-4	2000	1904	ug/l	-5	10	
Cadmium	A	2.7E-4	2.4E-4	2000	1869	ug/l	-7	10	
Chromium	A	1.5E-4	1.4E-4	2000	2033	ug/l	2	10	
Cobalt	A	1.8E-4	1.7E-4	2000	1973	ug/l	-1	10	
Lead	A	3.2E-5	2.7E-5	2000	1926	ug/l	-4	10	
Molybdenum	A	1.1E-4	1.0E-4	2000	1966	ug/l	-2	10	
Nickel	A	1.3E-4	1.2E-4	2000	1998	ug/l	0	10	
Selenium	A	8.9E-6	9.1E-6	2000	1960	ug/l	-2	10	
Thallium	A	1.1E-5	1.0E-5	2000	1987	ug/l	-1	10	
Zinc	A	2.0E-4	1.9E-4	2000	2047	ug/l	2	10	
Beryllium	H	7.6E-4	6.1E-4	200.0	196.6	ug/l	-2	10	
Copper	H	4.4E-5	3.3E-5	2000	1926	ug/l	-4	10	
Silver	H	2.7E-5	2.3E-5	400.0	379.1	ug/l	-5	10	
Vanadium	H	8.3E-6	6.5E-6	2000	1945	ug/l	-3	10	
Beryllium	R	3.7E-4	3.3E-4	200.0	199.5	ug/l	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	42708885	2.39
Yttrium	A	2377788	2465188	3.68
Yttrium	R	5324215	5407174	1.56

Sample Name: CCV,S37184				Sample Type: Control Sample			
Measure Date: 2018-06-05 20:39:19		Recalculation Date:		State: Check failed		Quality: Failed	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	429698	307751	1542999	1397530	61475.61100	381786	1514388
Int RSD	0.28818512	0.82906056	1.59058407	1.43956927	0.60636079	0.88973065	0.40494330
Int SD	1238.32550	2551.44580	24542.69000	20118.41100	372.76400000	3396.86930	6132.41230
RelInt Mean	0.00919206	0.05203585	---	---	0.02390467	0.15141811	0.61313301
RelInt RSD	0.89973298	1.84159038	---	---	0.44236755	0.43743084	0.14005057
RelInt SD	0.00008270	0.00095829	---	---	0.00010575	0.00066235	0.00085870
Conc Mean	379.13377000[µg/l]	7977.24050[µg/l]	1542999	1397530	1984.70410[µg/l]	1940.47050[µg/l]	1904.27960[µg/l]
Conc RSD	0.90350042	1.84722499	---	---	0.44125106	0.43960508	0.14007198
Conc SD	3.42547520[µg/l]	147.35758000[µg/l]	24542.69000	20118.41100	8.75752790[µg/l]	8.53040690[µg/l]	2.66736220[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	5251447	784926	1201499	848585	699353	2868490	5201433
Int RSD	0.34783762	1.04637076	0.70905932	0.77765904	0.79712570	0.60249081	0.49807399
Int SD	18266.50800	8213.24100	8519.33990	6599.09800	5574.72140	17282.38800	25906.98300
RelInt Mean	0.12240495	0.14603362	0.48634078	0.34264152	0.28184989	0.06621619	2.11338950
RelInt RSD	0.86517114	1.88379018	0.22834462	0.54204841	0.53245286	1.14202715	0.07134570
RelInt SD	0.00105901	0.00275097	0.00111053	0.00185728	0.00150072	0.00075621	0.00150781
Conc Mean	196.62445000[µg/l]	7987.42560[µg/l]	1868.79350[µg/l]	1973.27680[µg/l]	2033.01800[µg/l]	1926.16440[µg/l]	7844.11590[µg/l]
Conc RSD	0.87071430	1.98414142	0.22840304	0.54236608	0.53257059	1.14526247	0.07139982
Conc SD	1.71203720[µg/l]	158.48182000[µg/l]	4.26838120[µg/l]	10.70238400[µg/l]	10.82725600[µg/l]	22.05963800[µg/l]	5.60068460[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	83207.81900	14923.43400	129611	6360085	509391	204444	597386
Int RSD	0.94853976	2.06722642	0.22413271	0.46337450	0.69923897	1.11590996	0.93903000
Int SD	789.25925000	308.50117000	290.50017000	29471.01300	3561.85990	2281.41430	5609.63610
RelInt Mean	0.01073821	0.00207308	0.01864042	2.58655080	0.20595298	0.03464320	0.24005557
RelInt RSD	0.48153154	2.02813476	1.55150810	0.09878017	0.32988969	2.16521846	0.65143008
RelInt SD	0.00005171	0.00004204	0.00028921	0.00255500	0.00067942	0.00075010	0.00156379
Conc Mean	<7870.41690[µg/l]	7893.13310[µg/l]	8027.45210[µg/l]	2038.37680[µg/l]	1965.58990[µg/l]	8295.03510[µg/l]	1998.19590[µg/l]
Conc RSD	0.48079296	2.06620930	1.60321181	0.09879434	0.32986798	2.22448800	0.65152095
Conc SD	37.84041000[µg/l]	163.08865000[µg/l]	128.69706000[µg/l]	2.01380100[µg/l]	6.48385170[µg/l]	184.52206000[µg/l]	13.01866500[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	140888	88566.46800	47633.55600	174997	1065302	8744276	52325.11100
Int RSD	0.50013749	0.98067140	1.08940395	0.79567404	0.98810844	0.29642274	0.82831025
Int SD	704.63136000	868.54602000	518.92184000	1392.40410	10526.33900	25920.02100	433.41426000
RelInt Mean	0.05473165	0.03431696	0.01815628	0.07009854	0.19819631	0.20437960	0.02012688
RelInt RSD	0.15363774	0.86882391	1.13606256	0.53889566	1.83803235	0.90875244	0.72395651
RelInt SD	0.00008409	0.00029815	0.00020627	0.00037776	0.00364291	0.00185730	0.00014571
Conc Mean	1926.28300[µg/l]	2015.14600[µg/l]	1960.43930[µg/l]	1926.40220[µg/l]	204.27587000[µg/l]	1995.02030[µg/l]	1986.79640[µg/l]
Conc RSD	0.15293939	0.87093466	1.13500903	0.53998044	1.88953071	0.90896293	0.72456362
Conc SD	2.94604550[µg/l]	17.55060500[µg/l]	22.25116300[µg/l]	10.40219500[µg/l]	3.85985530[µg/l]	18.13399500[µg/l]	14.39560400[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	565847	2465188	42708885	5407174	947635	372272	
Int RSD	0.38260011	0.48086562	0.60738207	0.88554820	0.96142086	0.97644008	
Int SD	2164.93160	11854.24300	259406	47883.13300	9110.75830	3635.00930	
RelInt Mean	0.01299786	---	---	---	0.38407016	0.06614791	
RelInt RSD	1.00379532	---	---	---	0.89798856	1.82754908	
RelInt SD	0.00013047	---	---	---	0.00344891	0.00120889	
Conc Mean	1945.11170[µg/l]	2455239	42532920	5375557	2047.29140[µg/l]	199.45701000[µg/l]	
Conc RSD	1.00640698	---	---	---	0.90064941	1.83418673	
Conc SD	19.57574000[µg/l]	11857.21100	259355	47997.42500	18.43891800[µg/l]	3.65841400[µg/l]	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658225145163 File : met11_060418 Time : 05-JUN-2018 20:42
 Cal : 658225145001 Caldate : 05-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	41712256	43002897	3.09
Yttrium	A	2377788	2507817	5.47
Yttrium	R	5324215	5465417	2.65

Sample Name: CCB,1

Sample Type: Control Sample

Measure Date: 2018-06-05 20:42:38

Recalculation Date:

State: Checked

Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	36723.45700	25081.72400	1395338	1384101	2360.61810	7532.94710	6866.86880
Int RSD	1.40305680	2.12909176	0.23764124	0.24059675	0.77426150	0.41401969	0.40476237
Int SD	515.25096000	534.01292000	3315.89950	3330.10100	18.27735700	31.18788400	27.79450100
RelInt Mean	0.00003450	0.00005325	---	---	-0.00005308	0.00026808	0.00007808
RelInt RSD	20.78550202	75.15712076	---	---	35.88327443	3.73791499	18.34999133
RelInt SD	0.00000717	0.00004002	---	---	0.00001905	0.00001002	0.00001433
Conc Mean	<-0.18527981[µg/l]	<-16.21936300[µg/l]	1395338	1384101	<0.33432666[µg/l]	<-6.18303080[µg/l]	<-0.06093317[µg/l]
Conc RSD	160.38187863	37.94148143	---	---	472.67600496	2.08721182	73.03902323
Conc SD	0.29715524[µg/l]	6.15386660[µg/l]	3315.89950	3330.10100	1.58028190[µg/l]	0.12905295[µg/l]	0.04450499[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	66428.48900	36196.28700	6567.71390	6164.40070	6151.76090	42092.96500	9184.34070
Int RSD	0.72516492	1.89302953	0.18886604	0.93673348	0.38907089	0.50177294	7.06123162
Int SD	481.71610000	685.20640000	12.40418100	57.74400500	23.93471100	211.21111000	648.52757000
RelInt Mean	0.00085027	0.00666214	0.00011673	-0.00001725	0.00005647	0.00017328	0.00069346
RelInt RSD	1.43022311	1.53676480	5.01496928	86.62642435	17.45718645	1.75886640	38.34604660
RelInt SD	0.00001216	0.00010238	0.00000585	0.00001494	0.00000986	0.00000305	0.00026591
Conc Mean	<-0.03702428[µg/l]	<-41.69533400[µg/l]	<-0.01458833[µg/l]	<-0.14948936[µg/l]	<-0.03097118[µg/l]	<-0.40377997[µg/l]	<-3.28442470[µg/l]
Conc RSD	52.03132366	14.14580466	154.23657500	57.67711628	229.63165015	22.01830195	30.07255365
Conc SD	0.01926422[µg/l]	5.89814050[µg/l]	0.02250054[µg/l]	0.08622115[µg/l]	0.07111963[µg/l]	0.08890549[µg/l]	0.98771038[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	24980.17300	4307.18840	32002.86800	7696.64230	3354.49010	33519.15400	6867.77430
Int RSD	1.65003333	1.16308957	1.38930580	0.19257061	1.00467317	1.93255301	0.51598720
Int SD	412.18118000	50.09645900	444.61770000	14.82147100	33.70166200	647.77542000	35.43683600
RelInt Mean	-0.00005675	0.00007710	0.00059047	0.00007899	0.00007698	0.00293556	0.00004669
RelInt RSD	80.50536955	19.67129781	5.22736592	29.54809914	25.37819518	2.68457073	30.06140782
RelInt SD	0.00004569	0.00001517	0.00003087	0.00002334	0.00001954	0.00007881	0.00001404
Conc Mean	<-29.43146000[µg/l]	<150.88662000[µg/l]	<-4.75378350[µg/l]	<-0.18445134[µg/l]	0.86395855[µg/l]	495.07218000[µg/l]	<0.11283850[µg/l]
Conc RSD	113.60543446	38.98974873	288.93591810	9.97352364	21.58031771	3.91585223	103.56149718
Conc SD	33.43573800[µg/l]	58.83031400[µg/l]	13.73538800[µg/l]	0.01839630[µg/l]	0.18644500[µg/l]	19.38629500[µg/l]	0.11685724[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	5753.29170	3784.32700	2541.60380	2540.52710	24086.06800	41002.98000	2524.66380
Int RSD	0.32607340	0.33715961	0.16506999	1.05479575	1.54630843	1.19810243	0.75807789
Int SD	18.75995400	12.75922200	4.19542510	26.79737200	372.44490000	491.25770000	19.13891800
RelInt Mean	0.00003664	0.00005049	-0.00002737	0.00009393	0.00443319	0.00009011	0.00000815
RelInt RSD	24.97617697	18.44903206	28.48895743	8.68787920	1.11577033	1.67026240	117.14306033
RelInt SD	0.00000915	0.00000931	0.00000780	0.00000816	0.00004946	0.00000151	0.00000955
Conc Mean	<-0.39925063[µg/l]	2.98226410[µg/l]	<0.38428706[µg/l]	<-1.29950350[µg/l]	<-1.01276800[µg/l]	0.42230450[µg/l]	<-0.30257309[µg/l]
Conc RSD	80.56349466	18.43790059	218.86027856	17.29198806	5.17538054	3.47976638	312.33956397
Conc SD	0.32165026[µg/l]	0.54986689[µg/l]	0.84105173[µg/l]	0.22470999[µg/l]	0.05241460[µg/l]	0.01469521[µg/l]	0.94505547[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	11382.66900	2507817	43002897	5465417	3664.26260	15760.33200
Int RSD	1.73086391	0.13845053	0.38101340	0.49390818	0.19348948	2.21299672
Int SD	197.01851000	3472.08600	163847	26994.14300	7.08996280	348.77563000
RelInt Mean	0.00003188	---	---	---	0.00005805	0.00030400
RelInt RSD	15.81465997	---	---	---	8.19781797	16.07418409
RelInt SD	0.00000504	---	---	---	0.00000476	0.00004887
Conc Mean	<-0.28093336[µg/l]	2497915	42828191	5432962	<-5.13922930[µg/l]	<0.19563355[µg/l]
Conc RSD	269.29018683	---	---	---	0.49464051	75.58971863
Conc SD	0.75652597[µg/l]	3468.50820	163915	27072.00400	0.02542071[µg/l]	0.14787885[µg/l]

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658226625

Instrument : MET11
 Method : EPA 6010B

Begun : 06/06/18 09:05
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met11_060618	ICALBLK	CALBLANK			06/06/18 09:05	1.0		
002	met11_060618	ICAL	L1			06/06/18 09:08	1.0	1	
003	met11_060618	ICAL	L2			06/06/18 09:11	1.0	2	
004	met11_060618	ICAL	L3			06/06/18 09:15	1.0	3	
005	met11_060618	ICAL	L4			06/06/18 09:18	1.0	4	
006	met11_060618	ICAL	L5			06/06/18 09:22	1.0	5	
007	met11_060618	ICV				06/06/18 09:25	1.0	6	
008	met11_060618	CRI				06/06/18 09:28	1.0	7	
009	met11_060618	ICB				06/06/18 09:32	1.0		
010	met11_060618	ICSA				06/06/18 09:35	1.0	8	10:MG=500000
011	met11_060618	ICSAB				06/06/18 09:38	1.0	9	5:MG=510000
012	met11_060618	X	IB			06/06/18 09:42	1.0		
013	met11_060618	BLANK	QC934604	Water	260181	06/06/18 10:06	1.0		
014	met11_060618	BS	QC934605	Water	260181	06/06/18 10:11	1.0		1:FE=10000
015	met11_060618	BSD	QC934606	Water	260181	06/06/18 10:14	1.0		1:FE=10000
016	met11_060618	MSS	300230-001	Water	260181	06/06/18 10:18	1.0		
017	met11_060618	MS	QC934607	Water	260181	06/06/18 10:21	1.0		1:FE=12000
018	met11_060618	MSD	QC934608	Water	260181	06/06/18 10:24	1.0		1:FE=12000
019	met11_060618	SAMPLE	300230-002	Water	260181	06/06/18 10:28	1.0		
020	met11_060618	X	IB			06/06/18 10:31	1.0		
021	met11_060618	SAMPLE	300254-001	Water	260181	06/06/18 10:34	1.0		
022	met11_060618	X	IB			06/06/18 10:38	1.0		
023	met11_060618	SAMPLE	300290-001	Water	260181	06/06/18 10:41	1.0		6:K=35000000
024	met11_060618	X	IB			06/06/18 10:47	1.0		
025	met11_060618	SAMPLE	300291-001	Water	260181	06/06/18 10:50	1.0		
026	met11_060618	CCV				06/06/18 10:54	1.0	6	
027	met11_060618	CCB				06/06/18 10:57	1.0		
028	met11_060618	SAMPLE	300292-001	Water	260181	06/06/18 11:00	1.0		6:K=36000000
029	met11_060618	X	IB			06/06/18 11:04	1.0		
030	met11_060618	SAMPLE	300362-001	Water	260181	06/06/18 11:07	1.0		
031	met11_060618	SAMPLE	300362-003	Water	260181	06/06/18 11:10	1.0		
032	met11_060618	SAMPLE	300362-004	Water	260181	06/06/18 11:14	1.0		
033	met11_060618	SAMPLE	300362-005	Water	260181	06/06/18 11:17	1.0		
034	met11_060618	SAMPLE	300362-006	Water	260181	06/06/18 11:20	1.0		
035	met11_060618	SAMPLE	300362-007	Water	260181	06/06/18 11:24	1.0		
036	met11_060618	SAMPLE	300362-008	Water	260181	06/06/18 11:27	1.0		
037	met11_060618	SAMPLE	300362-009	Water	260181	06/06/18 11:30	1.0		
038	met11_060618	SAMPLE	300362-010	Water	260181	06/06/18 11:34	1.0		
039	met11_060618	CCV				06/06/18 11:37	1.0	6	
040	met11_060618	CCB				06/06/18 11:40	1.0		
041	met11_060618	SAMPLE	300362-011	Water	260181	06/06/18 11:43	1.0		
042	met11_060618	SAMPLE	300362-012	Water	260181	06/06/18 11:47	1.0		
043	met11_060618	CCV				06/06/18 11:50	1.0	6	
044	met11_060618	CCB				06/06/18 11:53	1.0		
045	met11_060618	BLANK	QC934719	Soil	260207	06/06/18 12:07	1.0		
046	met11_060618	BS	QC934720	Soil	260207	06/06/18 12:10	1.0		2:FE=10000
047	met11_060618	BSD	QC934721	Soil	260207	06/06/18 12:14	1.0		2:SR=10000
048	met11_060618	SAMPLE	300375-001	Soil	260207	06/06/18 12:17	1.0		7:FE=1600000
049	met11_060618	SAMPLE	300376-001	Soil	260207	06/06/18 12:20	1.0		7:FE=1600000
050	met11_060618	SAMPLE	300377-002	Soil	260207	06/06/18 12:24	1.0		5:FE=820000
051	met11_060618	MSS	300377-001	Soil	260207	06/06/18 12:27	1.0		5:FE=560000
052	met11_060618	MS	QC934722	Soil	260207	06/06/18 12:30	1.0		6:FE=640000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658226625

Instrument : MET11
 Method : EPA 6010B

Begun : 06/06/18 09:05
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met11_060618	MSD	QC934723	Soil	260207	06/06/18 12:34	1.0		6:FE=640000
054	met11_060618	SER	QC934724	Soil	260207	06/06/18 12:37	5.0		1:FE=110000
055	met11_060618	CCV				06/06/18 12:40	1.0	6	
056	met11_060618	CCB				06/06/18 12:44	1.0		
057	met11_060618	PDS	QC934725	Soil	260207	06/06/18 12:47	1.0	10 11 12	5:FE=550000
058	met11_060618	SAMPLE	300360-001	Soil	260207	06/06/18 12:50	1.0		3:FE=320000
059	met11_060618	SAMPLE	300360-002	Soil	260207	06/06/18 12:54	1.0		4:FE=440000
060	met11_060618	SAMPLE	300360-003	Soil	260207	06/06/18 12:57	1.0		4:FE=450000
061	met11_060618	SAMPLE	300360-004	Soil	260207	06/06/18 13:00	1.0		2:FE=390000
062	met11_060618	SAMPLE	300360-005	Soil	260207	06/06/18 13:04	1.0		4:FE=410000
063	met11_060618	SAMPLE	300360-006	Soil	260207	06/06/18 13:07	1.0		4:FE=440000
064	met11_060618	SAMPLE	300360-007	Soil	260207	06/06/18 13:10	1.0		4:FE=440000
065	met11_060618	SAMPLE	300360-008	Soil	260207	06/06/18 13:14	1.0		4:CA=570000
066	met11_060618	SAMPLE	300360-009	Soil	260207	06/06/18 13:17	1.0		4:FE=480000
067	met11_060618	CCV				06/06/18 13:20	1.0	6	
068	met11_060618	CCB				06/06/18 13:24	1.0		
069	met11_060618	SAMPLE	300360-010	Soil	260207	06/06/18 13:27	1.0		4:FE=420000
070	met11_060618	SAMPLE	300360-011	Soil	260207	06/06/18 13:30	1.0		4:FE=420000
071	met11_060618	SAMPLE	300360-012	Soil	260207	06/06/18 13:34	1.0		3:FE=380000
072	met11_060618	SAMPLE	300360-013	Soil	260207	06/06/18 13:37	1.0		4:FE=370000
073	met11_060618	SAMPLE	300360-014	Soil	260207	06/06/18 13:40	1.0		2:FE=350000
074	met11_060618	CCV				06/06/18 13:44	1.0	6	
075	met11_060618	CCB				06/06/18 13:47	1.0		
076	met11_060618	BLANK	QC934614	Miscell.	260183	06/06/18 15:29	1.0		
077	met11_060618	BLANK	QC934609	Soil	260182	06/06/18 15:33	1.0		
078	met11_060618	SAMPLE	300257-006	Soil	260168	06/06/18 15:36	1.0		4:FE=830000
079	met11_060618	SER	QC934790	Soil	260184	06/06/18 15:39	5.0		1:FE=95000
080	met11_060618	PDS	QC934791	Soil	260184	06/06/18 15:43	1.0	10 11 12	2:FE=470000
081	met11_060618	SER	QC934837	Soil	260183	06/06/18 15:46	5.0		1:FE=85000
082	met11_060618	PDS	QC934838	Soil	260183	06/06/18 15:49	1.0	10 11 12	4:FE=420000
083	met11_060618	MSS	300369-001	Soil	260182	06/06/18 15:53	1.0		5:FE=310000
084	met11_060618	CCV				06/06/18 15:56	1.0	6	
085	met11_060618	CCB				06/06/18 15:59	1.0		
086	met11_060618	BLANK	QC934291	Filtrate	260105	06/06/18 16:26	1.0		
087	met11_060618	BS	QC934292	Filtrate	260105	06/06/18 16:29	1.0		1:FE=10000
088	met11_060618	BSD	QC934293	Filtrate	260105	06/06/18 16:32	1.0		1:FE=11000
089	met11_060618	BLANK	QC934761	Soil	260220	06/06/18 16:36	1.0		
090	met11_060618	BS	QC934762	Soil	260220	06/06/18 16:39	1.0		2:FE=10000
091	met11_060618	BSD	QC934763	Soil	260220	06/06/18 16:42	1.0		2:FE=10000
092	met11_060618	MSS	300372-001	Soil	260220	06/06/18 16:46	1.0		2:FE=210000
093	met11_060618	MS	QC934764	Soil	260220	06/06/18 16:49	1.0		3:FE=250000
094	met11_060618	MSD	QC934765	Soil	260220	06/06/18 16:52	1.0		3:FE=260000
095	met11_060618	SAMPLE	300372-002	Soil	260220	06/06/18 16:56	1.0		5:FE=380000
096	met11_060618	CCV				06/06/18 16:59	1.0	6	
097	met11_060618	CCB				06/06/18 17:02	1.0		
098	met11_060618	SAMPLE	300372-003	Soil	260220	06/06/18 17:06	1.0		3:FE=340000
099	met11_060618	SAMPLE	300372-004	Soil	260220	06/06/18 17:09	1.0		2:FE=300000
100	met11_060618	SAMPLE	300372-005	Soil	260220	06/06/18 17:12	1.0		3:FE=340000
101	met11_060618	SAMPLE	300372-006	Soil	260220	06/06/18 17:16	1.0		3:FE=340000
102	met11_060618	SAMPLE	300372-007	Soil	260220	06/06/18 17:19	1.0		4:FE=420000
103	met11_060618	SAMPLE	300372-008	Soil	260220	06/06/18 17:22	1.0		5:FE=320000
104	met11_060618	SAMPLE	300372-009	Soil	260220	06/06/18 17:26	1.0		3:FE=610000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 658226625

Instrument : MET11
 Method : EPA 6010B

Begun : 06/06/18 09:05
 SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
105	met11_060618	SAMPLE	300372-010	Soil	260220	06/06/18 17:29	1.0	4:FE=490000
106	met11_060618	SAMPLE	300372-011	Soil	260220	06/06/18 17:32	1.0	3:FE=320000
107	met11_060618	SAMPLE	300372-012	Soil	260220	06/06/18 17:36	1.0	4:FE=480000
108	met11_060618	CCV				06/06/18 17:39	1.0	6
109	met11_060618	CCB				06/06/18 17:42	1.0	
110	met11_060618	SAMPLE	300372-013	Soil	260220	06/06/18 17:46	1.0	2:FE=380000
111	met11_060618	SAMPLE	300372-014	Soil	260220	06/06/18 17:49	1.0	4:FE=490000
112	met11_060618	SAMPLE	300372-015	Soil	260220	06/06/18 17:52	1.0	2:FE=340000
113	met11_060618	SAMPLE	300372-016	Soil	260220	06/06/18 17:55	1.0	4:FE=480000
114	met11_060618	BLANK	QC934803	Filtrate	260230	06/06/18 17:59	1.0	
115	met11_060618	PREPBLK	QC934808	Filtrate	260230	06/06/18 18:02	1.0	
116	met11_060618	BS	QC934804	Filtrate	260230	06/06/18 18:05	1.0	1:FE=10000
117	met11_060618	BSD	QC934805	Filtrate	260230	06/06/18 18:09	1.0	1:FE=10000
118	met11_060618	MSS	300394-020	Filtrate	260230	06/06/18 18:12	1.0	3:NA=130000
119	met11_060618	MS	QC934806	Filtrate	260230	06/06/18 18:15	1.0	3:NA=140000
120	met11_060618	CCV				06/06/18 18:19	1.0	6
121	met11_060618	CCB				06/06/18 18:22	1.0	
122	met11_060618	MSD	QC934807	Filtrate	260230	06/06/18 18:25	1.0	3:NA=140000
123	met11_060618	SAMPLE	300394-021	Filtrate	260230	06/06/18 18:29	1.0	1:NA=310000
124	met11_060618	SAMPLE	300394-022	Filtrate	260230	06/06/18 18:32	1.0	1:NA=280000
125	met11_060618	SAMPLE	300394-023	Filtrate	260230	06/06/18 18:35	1.0	1:NA=490000
126	met11_060618	SAMPLE	300394-024	Filtrate	260230	06/06/18 18:39	1.0	2:NA=300000
127	met11_060618	SAMPLE	300394-025	Filtrate	260230	06/06/18 18:42	1.0	3:NA=660000
128	met11_060618	SAMPLE	300290-001	Water	260181	06/06/18 18:45	100.0	3:NA=550000
129	met11_060618	SAMPLE	300292-001	Water	260181	06/06/18 18:49	100.0	2:NA=750000
130	met11_060618	X	IB			06/06/18 18:52	1.0	
131	met11_060618	SAMPLE	300291-001	Water	260181	06/06/18 18:55	1.0	
132	met11_060618	CCV				06/06/18 18:59	1.0	6
133	met11_060618	CCB				06/06/18 19:02	1.0	
134	met11_060618	SAMPLE	300290-001	Water	260181	06/06/18 19:29	10.0	4:K=5000000
135	met11_060618	SAMPLE	300292-001	Water	260181	06/06/18 19:32	10.0	4:NA=4300000
136	met11_060618	SAMPLE	300375-001	Soil	260207	06/06/18 19:35	100.0	1:FE=17000
137	met11_060618	SAMPLE	300376-001	Soil	260207	06/06/18 19:39	100.0	1:FE=17000
138	met11_060618	SAMPLE	300377-002	Soil	260207	06/06/18 19:42	1.0	5:FE=810000
139	met11_060618	MS	QC934722	Soil	260207	06/06/18 19:45	1.0	6:FE=630000
140	met11_060618	MSD	QC934723	Soil	260207	06/06/18 19:49	1.0	6:FE=640000
141	met11_060618	SAMPLE	300414-001	Miscell.	260219	06/06/18 19:52	100.0	
142	met11_060618	SAMPLE	300414-002	Miscell.	260219	06/06/18 19:55	100.0	1:BA=14000
143	met11_060618	CCV				06/06/18 19:59	1.0	6
144	met11_060618	CCB				06/06/18 20:02	1.0	

NBB 06/06/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 075.

KER 06/06/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 76 through 133.

NBB 06/07/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 134 through 144.

Standards used: 1=S36876 2=S36877 3=S36878 4=S36879 5=S36880 6=S37184 7=S36770 8=S37050 9=S37143 10=S36020 11=S36031
 12=S36713

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322.01	Analysis:	EPA 6010B
Field ID:	RFS-B180-DU01	Basis:	dry
Type:	Serial Dilution	Diln Fac:	5.000
MSS Lab ID:	300092-001	Batch#:	260184
Lab ID:	QC934790	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg	Analyzed:	06/06/18

Moisture: 9%

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim
Antimony	1.206	2.189	0.8006 J	2.736	NC	10
Arsenic	15.53	1.642	17.05	1.642	10	10
Barium	194.5	0.2736	210.6	1.368	8	10
Beryllium	0.3933	0.1095	0.4241 J	0.5473	NC	10
Cadmium	0.6502	0.2736	0.5768 J	1.368	NC	10
Chromium	36.05	0.2736	39.77	1.368	10	10
Cobalt	10.74	0.2736	11.61	1.368	8	10
Copper	437.2	0.2736	464.0	1.368	6	10
Lead	158.9	1.095	183.1	1.368	15 *	10
Molybdenum	1.625	0.2736	1.595	1.368	2	10
Nickel	30.43	0.2736	34.48	1.368	13 *	10
Selenium	ND	2.189	ND	3.092	NC	10
Silver	1.723	0.2736	1.945	1.368	13 *	10
Thallium	0.2247	0.5473	ND	2.736	NC	10
Vanadium	28.24	0.2736	31.93	1.368	13 *	10
Zinc	163.1	1.095	179.8	5.473	10	10

*= Value outside of QC limits; see narrative

J= Estimated value

NC= Not Calculated

ND= Not Detected at or above MDL

RL= Reporting Limit

ENTHALPY SERIAL DILUTION FOR 300092 METALS Soil
EPA 6010B

Type : MSS
 Inst : MET11
 Seqnum : 658225145155
 File : met11_060418
 IDF : 1.0
 Lab ID : 300092-001
 Matrix : Soil
 Batch : 260184
 Time : 05-JUN-2018 20:15
 Cal : 658225145001
 Units : mg/Kg

Type : SER
 Inst : MET11
 Seqnum : 658226625079.1
 File : met11_060618
 IDF : 5.0
 Lab ID : QC934790
 Matrix : Soil
 Batch : 260184
 Time : 06-JUN-2018 15:39
 Cal : 658226625001

MSS: 10.04 g --> 500.0 ml = 49.80 ml/g PDF
 SER: 10.04 g --> 500.0 ml = 49.80 ml/g PDF

Analyte	MSS	Ch	RL	SER	Ch	RL	%D	Lim	Flags
Antimony	1.097 J	A	1.992	0.7285 J	A	2.490		10	u
Arsenic	14.14	A	1.494	15.52	A	1.494	10	10	u
Barium	177.0	A	0.2490	191.6	A	1.245	8	10	u
Beryllium	0.3579	H	0.09960	0.3859 J	H	0.4980		10	u
Beryllium	0.3579	H	0.09960	0.2787 J	R	0.4980		10	?LOD ?MDL
Cadmium	0.5917	A	0.2490	0.5249 J	A	1.245		10	u
Chromium	32.80	A	0.2490	36.19	A	1.245	10	10	u
Cobalt	9.776	A	0.2490	10.57	A	1.245	8	10	u
Copper	397.9	H	0.2490	422.3	H	1.245	6	10	u
Lead	144.6	A	0.9960	166.6	A	1.245	15*	10	u
Molybdenum	1.479	A	0.2490	1.451	A	1.245	2	10	u
Nickel	27.69	A	0.2490	31.38	A	1.245	13*	10	u
Selenium	ND	A	1.992	ND	A	2.813		10	u
Silver	1.568	H	0.2490	1.770	H	1.245	13*	10	u
Thallium	0.2044 J	A	0.4980	ND	A	2.490		10	u
Vanadium	25.70	H	0.2490	29.06	H	1.245	13*	10	u
Zinc	148.4	A	0.9960	163.6	A	4.980	10	10	u

ISTD (ICAL 002)	Ch	ICAL Abund	SER Abund	%Drift
Yttrium	H	42506351	42559426	0.12
Yttrium	A	2294555	2336145	1.81
Yttrium	R	5350631	5534357	3.43

Sample Name: qc934790,260184,5 Sample Type: Unknown Sample

Measure Date: 2018-06-06 15:39:53 Recalculation Date: State: Measured Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	40037.88000	1668501	1136088	1190696	4918.82760	10127.48100	568921
Int RSD	0.41298405	0.72257188	0.49328518	1.01217153	1.16834444	0.95873731	0.56971362
Int SD	165.35006000	12056.11900	5604.15230	12051.88800	57.46884900	97.09593900	3241.21940
RelInt Mean	0.00019302	0.29786657	---	---	0.00064944	0.00089296	0.24178844
RelInt RSD	1.55357677	0.40743713	---	---	2.75707770	3.82063409	0.46267501
RelInt SD	0.00000300	0.00121362	---	---	0.00001791	0.00003412	0.00111869
Conc Mean	7.10802120[µg/l]	43339.99500[µg/l]	1136088	1190696	62.311103500[µg/l]	3.50906550[µg/l]	769.56216000[µg/l]
Conc RSD	1.86760009	0.40765111	---	---	2.56325400	12.71247345	0.46313808
Conc SD	0.13274941[µg/l]	176.67597000[µg/l]	5604.15230	12051.88800	1.59719010[µg/l]	0.44608902[µg/l]	3.56413540[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	102492	1344715	7732.25640	22605.32200	51981.58200	2453941	58453830
Int RSD	0.77453987	0.09462448	0.19634405	0.32018966	0.51836135	0.38092259	0.41993134
Int SD	793.84396000	1272.42990	15.18182500	72.37990400	269.45243000	9347.61710	245466
RelInt Mean	0.00170395	0.24421995	0.00073019	0.00719987	0.01954243	0.05687315	25.10073500
RelInt RSD	1.04052479	0.31198469	2.26406698	0.38203039	0.64320391	0.55787292	0.44404425
RelInt SD	0.00001773	0.00076193	0.00001653	0.00002751	0.00012570	0.00031728	0.11145837
Conc Mean	1.54981390[µg/l]	15561.98200[µg/l]	2.10811910[µg/l]	42.44364700[µg/l]	145.34010000[µg/l]	1695.81110[µg/l]	94661.57600[µg/l]
Conc RSD	2.03149746	0.32069031	3.10052354	0.38806517	0.64726687	0.55972228	0.44405914
Conc SD	0.03148443[µg/l]	49.90576900[µg/l]	0.06536273[µg/l]	0.16470901[µg/l]	0.94073831[µg/l]	9.49183250[µg/l]	420.35338000[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	798421	8277.34450	171797	5165890	6168.97050	32838.41700	40631.45600
Int RSD	0.84220567	1.50226791	0.42009357	0.74130202	0.47199769	1.39352680	0.64311648
Int SD	6724.34980	124.34789000	721.70740000	38294.85000	29.11739800	457.61214000	261.30759000
RelInt Mean	0.14103029	0.00107360	0.02670139	2.21508380	0.00060109	0.00339038	0.01462908
RelInt RSD	0.60477156	1.22994669	0.59317916	0.56940821	7.67699737	1.00484574	0.74188555
RelInt SD	0.00085291	0.00001320	0.00015839	0.01261287	0.00004615	0.00003407	0.00010853
Conc Mean	96389.53300[µg/l]	4042.24200[µg/l]	11241.73100[µg/l]	1763.97390[µg/l]	5.82878490[µg/l]	773.25908000[µg/l]	126.02566000[µg/l]
Conc RSD	0.60467984	1.24380834	0.60699859	0.56956863	7.83809229	1.05293944	0.74559087
Conc SD	582.84807000[µg/l]	50.27774300[µg/l]	68.23714900[µg/l]	10.04704200[µg/l]	0.45686554[µg/l]	8.14194980[µg/l]	0.93963581[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	48535.39800	5471.59530	3808.29720	5451.92400	623404	884971	3772.74850
Int RSD	0.85841441	0.38190323	1.15491223	0.33813899	0.68413732	0.09195410	1.00194129
Int SD	416.63485000	20.89619900	43.98249000	18.43508100	4264.93700	813.76725000	37.80072500
RelInt Mean	0.01828949	0.00006121	0.00003345	0.00061464	0.11321762	0.02008411	0.00001844
RelInt RSD	0.83832597	24.88713526	137.39275564	1.08418259	0.36405145	0.33825398	54.94227782
RelInt SD	0.00015333	0.00001523	0.00004596	0.00000666	0.00041217	0.00006794	0.00001013
Conc Mean	669.05725000[µg/l]	2.92574450[µg/l]	<1.84761630[µg/l]	11.84456600[µg/l]	120.04842000[µg/l]	204.53561000[µg/l]	<0.52690627[µg/l]
Conc RSD	0.84670990	32.01516264	284.96396681	1.67037754	0.37973190	0.33911276	198.94712963
Conc SD	5.66497400[µg/l]	0.93668186[µg/l]	5.26504070[µg/l]	0.19784897[µg/l]	0.45586215[µg/l]	0.69360636[µg/l]	1.04826490[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	45807.91500	2336145	42559426	5534357	265944	15334.44500
Int RSD	0.20543234	0.23634679	0.24644693	0.33680316	0.28593245	1.75790379
Int SD	94.10427300	5521.40370	104886	18639.89000	760.41968000	269.56479000
RelInt Mean	0.00075341	---	---	---	0.11206770	0.00064190
RelInt RSD	0.43680835	---	---	---	0.37076747	1.01740122
RelInt SD	0.00000329	---	---	---	0.00041551	0.00000653
Conc Mean	116.69976000[µg/l]	2326284	42389006	5506201	657.04075000[µg/l]	1.11932320[µg/l]
Conc RSD	0.45555671	---	---	---	0.37322400	1.95148175
Conc SD	0.53163359[µg/l]	5678.98970	105421	18351.52600	2.45223380[µg/l]	0.02184339[µg/l]

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	1035225322.01	Analysis:	EPA 6010B
Field ID:	RFS-B180-DU01	Basis:	dry
Type:	Post Digest Spike	Diln Fac:	1.000
MSS Lab ID:	300092-001	Batch#:	260184
Lab ID:	QC934791	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg	Analyzed:	06/06/18

Moisture: 9%

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	1.206	5.473	6.413	95	75-125
Arsenic	15.53	5.473	21.69	112	75-125
Barium	194.5	5.473	197.4	53 NM	75-125
Beryllium	0.3933	5.473	5.949	102	75-125
Cadmium	0.6502	5.473	6.285	103	75-125
Chromium	36.05	5.473	41.05	91 NM	75-125
Cobalt	10.74	5.473	15.91	94	75-125
Copper	437.2	5.473	450.7	247 NM	75-125
Lead	158.9	5.473	162.2	61 NM	75-125
Molybdenum	1.625	5.473	7.195	102	75-125
Nickel	30.43	5.473	35.44	92 NM	75-125
Selenium	<0.2061	5.473	5.453	100	75-125
Silver	1.723	5.473	7.375	103	75-125
Thallium	0.2247	2.736	2.772	93	75-125
Vanadium	28.24	5.473	33.83	102 NM	75-125
Zinc	163.1	5.473	174.5	210 NM	75-125

NM= Not Meaningful: Sample concentration > 4X spike concentration

ENTHALPY POST DIGEST SPIKE USER REPORT FOR 300092 METALS Soil
EPA 6010B

Type : MSS
 Inst : MET11
 Seqnum : 658225145155
 File : met11_060418
 IDF : 1.0
 Lab ID : 300092-001
 Matrix : Soil
 Batch : 260184
 Time : 05-JUN-2018 20:15
 Cal : 658225145001
 Units : ug/l

Type : PDS
 Inst : MET11
 Seqnum : 658226625080.1
 File : met11_060618
 IDF : 1.0
 Lab ID : QC934791
 Matrix : Soil
 Batch : 260184
 Time : 06-JUN-2018 15:43
 Cal : 658226625001

MSS: 10.04 g --> 500.0 ml = 49.80 ml/g PDF

PDS: 10.04 g --> 500.0 ml = 49.80 ml/g PDF

PDS standards: S36020 (100X), S36031 (100X), S36713 (100X)

Analyte	MSS	Ch	Spiked	PDS	Ch	%Rec	Limits	Flags
Antimony	22.03	A	100.0	117.2	A	95	75-125	u
Arsenic	283.8	A	100.0	396.3	A	112	75-125	u
Barium	3555	A	100.0	3608	A	53	75-125	: u
Beryllium	7.186	H	100.0	108.7	H	102	75-125	u
Beryllium	7.186	H	100.0	108.6	R	101	75-125	?LOD ?MDL
Cadmium	11.88	A	100.0	114.8	A	103	75-125	u
Chromium	658.7	A	100.0	750.1	A	91	75-125	: u
Cobalt	196.3	A	100.0	290.7	A	94	75-125	u
Copper	7989	H	100.0	8236	H	247	75-125	: u
Lead	2903	A	100.0	2964	A	61	75-125	: u
Molybdenum	29.69	A	100.0	131.5	A	102	75-125	u
Nickel	556.1	A	100.0	647.6	A	92	75-125	: u
Selenium	ND	A	100.0	99.64	A	100	75-125	u
Silver	31.48	H	100.0	134.8	H	103	75-125	u
Thallium	4.105	A	50.00	50.65	A	93	75-125	u
Vanadium	516.1	H	100.0	618.2	H	102	75-125	: u
Zinc	2980	A	100.0	3189	A	210	75-125	: u

ISTD (ICAL 002)	Ch	ICAL Abund	PDS Abund	%Drift
Yttrium	H	42506351	40871141	-3.85
Yttrium	A	2294555	2256732	-1.65
Yttrium	R	5350631	5438824	1.65

:=recovery not meaningful ?LOD=no LOD ?MDL=no MDL u=use

Sample Name: qc934791,260184,1				Sample Type: Unknown Sample			
Measure Date: 2018-06-06 15:43:14		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	166664	8350027	1207273	1189748	17644.25000	202065	2548587
Int RSD	0.33739361	0.52982317	0.82777144	0.40814674	0.14114695	0.03858311	0.25666241
Int SD	562.31362000	44240.37500	9993.45950	4855.91930	24.90432100	77.96302300	6541.26500
RelInt Mean	0.00307667	1.53286290	---	---	0.00440167	0.08275917	1.13262160
RelInt RSD	0.35136148	0.35443724	---	---	0.57565835	0.14404819	0.09738802
RelInt SD	0.00001081	0.00543304	---	---	0.00002534	0.00011921	0.00110304
Conc Mean	134.76301000[µg/l]	>223128[µg/l]	1207273	1189748	396.31971000[µg/l]	1073.94280[µg/l]	3607.73480[µg/l]
Conc RSD	0.35508909	0.35447331	---	---	0.56969276	0.14514121	0.09740563
Conc SD	0.47852875[µg/l]	790.92857000[µg/l]	9993.45950	4855.91930	2.25780470[µg/l]	1.55873360[µg/l]	3.51413690[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	2595263	7077612	74321.77500	118165	236620	11305632	140363530
Int RSD	0.57972473	0.41321118	0.12407805	0.16511279	0.16750450	0.57446972	0.00689004
Int SD	15045.37900	29245.48400	92.21701100	195.10528000	396.34848000	64947.43200	9671.09780
RelInt Mean	0.06250191	1.30848620	0.02924331	0.04905551	0.10035067	0.27549989	62.52595100
RelInt RSD	0.48323074	0.11763612	0.25630875	0.15901865	0.33483310	0.49723036	0.16665317
RelInt SD	0.00030203	0.00153925	0.00007495	0.00007801	0.00033601	0.00136987	0.10420148
Conc Mean	108.71381000[µg/l]	85271.03500[µg/l]	114.84078000[µg/l]	290.66704000[µg/l]	750.11916000[µg/l]	8236.30040[µg/l]	>235807[µg/l]
Conc RSD	0.48991956	0.11823510	0.25804722	0.15590787	0.33524526	0.49756944	0.16665664
Conc SD	0.53261022[µg/l]	100.82029000[µg/l]	0.29634344[µg/l]	0.45317278[µg/l]	2.51473890[µg/l]	40.98131400[µg/l]	392.98747000[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	3738425	43190.89300	851818	22820525	41763.22400	325020	177203
Int RSD	0.60324665	0.26413478	0.16714450	0.28238489	0.42855506	0.10134201	0.40957604
Int SD	22551.92300	114.08217000	1423.76660	64441.71500	178.97841000	329.38211000	725.77931000
RelInt Mean	0.68574682	0.00754898	0.15190473	10.16414700	0.01329199	0.05731218	0.07487817
RelInt RSD	0.34726251	0.43250834	0.35037927	0.42994612	1.22107227	0.53089282	0.30291731
RelInt SD	0.00238134	0.00003265	0.00053224	0.04370036	0.00016230	0.00030427	0.00022682
Conc Mean	>468629[µg/l]	28697.74500[µg/l]	65182.46900[µg/l]	8095.93240[µg/l]	131.47622000[µg/l]	13660.06900[µg/l]	647.64913000[µg/l]
Conc RSD	0.34725173	0.43319533	0.35178729	0.42997118	1.22220482	0.53233304	0.30321169
Conc SD	1627.32310[µg/l]	124.31729000[µg/l]	229.30364000[µg/l]	34.81017600[µg/l]	1.60690870[µg/l]	72.71706100[µg/l]	1.96374790[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	192265	18038.51700	11891.31000	89010.29000	3369990	7741341	10525.19200
Int RSD	0.09948815	0.35257896	0.53242577	0.09341164	0.61500756	0.69318088	0.91559837
Int SD	191.28054000	63.60001600	63.31239900	83.14597000	20725.69200	53661.49200	96.36848600
RelInt Mean	0.08090953	0.00197245	0.00097493	0.03472661	0.62303029	0.18900593	0.00055590
RelInt RSD	0.30134199	1.07775439	0.99118441	0.17970926	0.30944155	0.53260884	10.38361500
RelInt SD	0.00024381	0.00002126	0.00000966	0.00006241	0.00192791	0.00100666	0.00005772
Conc Mean	2964.29000[µg/l]	117.18459000[µg/l]	99.64267800[µg/l]	1024.63320[µg/l]	683.60207000[µg/l]	1929.20800[µg/l]	50.64946900[µg/l]
Conc RSD	0.30791331	1.13176212	1.11289110	0.18083577	0.31189936	0.53275069	11.76979210
Conc SD	9.12744350[µg/l]	1.32625080[µg/l]	1.10891450[µg/l]	1.85290330[µg/l]	2.13215050[µg/l]	10.27786900[µg/l]	5.96133720[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	190880	2256732	40871141	5438824	1226390	192144	
Int RSD	0.63339233	0.17424163	0.32189708	0.48230567	0.06964616	0.19968458	
Int SD	1209.02220	3932.16690	131563	26231.75400	854.13349000	383.68243000	
RelInt Mean	0.00385788	---	---	---	0.54109325	0.03277703	
RelInt RSD	0.34673930	---	---	---	0.08709720	0.44608443	
RelInt SD	0.00001338	---	---	---	0.00047128	0.00014621	
Conc Mean	618.20988000[µg/l]	2241788	40698377	5409022	3189.27960[µg/l]	108.60281000[µg/l]	
Conc RSD	0.34954901	---	---	---	0.08717883	0.45030470	
Conc SD	2.16094650[µg/l]	3701.07020	131235	26261.01500	2.78037670[µg/l]	0.48904356[µg/l]	

ENTHALPY INITIAL CALIBRATION FOR 300092 METALS Soil: EPA 6010B

Inst : MET11
 Calnum : 658226625001
 Units : ug/L

Date : 06-JUN-2018 09:05
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met11_060618	658226625002	L1	06-JUN-2018 09:08	S36876
L2	met11_060618	658226625003	L2	06-JUN-2018 09:11	S36877
L3	met11_060618	658226625004	L3	06-JUN-2018 09:15	S36878
L4	met11_060618	658226625005	L4	06-JUN-2018 09:18	S36879
L5	met11_060618	658226625006	L5	06-JUN-2018 09:22	S36880

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r ² %RSD	MnR ²	Flg
Antimony	A	1.7E-5	1.8E-5	1.7E-5	1.6E-5		WB1K	0.27777	61365.0		1.7E-5	1.000	0.995	
Arsenic	A	-2E-6	1.2E-5	1.1E-5	1.1E-5		WB1K	4.59433	89244.0		8.1E-6	1.000	0.995	
Barium	A	3.5E-4	3.3E-4	3.2E-4	3.1E-4		WB1K	-0.7700	3186.01		3.3E-4	1.000	0.995	
Cadmium	A	2.8E-4	2.6E-4	2.5E-4	2.5E-4		WB1K	-0.7788	3953.71		2.6E-4	1.000	0.995	
Chromium	A	1.6E-4	1.4E-4	1.4E-4	1.3E-4		WB1K	-0.9181	7484.22		1.4E-4	1.000	0.995	
Cobalt	A	1.8E-4	1.8E-4	1.7E-4	1.7E-4		WB1K	-0.3825	5984.01		1.7E-4	1.000	0.995	
Lead	A	3.9E-5	3.0E-5	2.9E-5	2.7E-5		WB1K	-2.8172	37119.4		3.1E-5	1.000	0.995	
Molybdenum	A	1.1E-4	1.1E-4	1.0E-4	1.0E-4		WB1K	-0.1223	9900.61		1.0E-4	1.000	0.995	
Nickel	A	1.3E-4	1.2E-4	1.2E-4	1.2E-4		WB1K	-0.6299	8657.89		1.2E-4	1.000	0.995	
Selenium	A	7.1E-6	9.1E-6	9.0E-6	8.7E-6		WB1K	0.66463	114291		8.5E-6	1.000	0.995	
Thallium	A	1.1E-5	1.1E-5	1.0E-5	9.7E-6		WB1K	-0.3739	103097		1.0E-5	1.000	0.995	
Zinc	A	2.0E-4	1.9E-4	1.7E-4	1.7E-4		WB1K	-4.4223	5899.31		1.8E-4	1.000	0.995	
Beryllium	H	9.5E-4	5.7E-4	5.7E-4			WB1K	-1.3776	1767.37		6.9E-4	1.000	0.995	
Copper	H	7.1E-5	3.5E-5	3.4E-5	3.3E-5		WB1K	-5.6194	29916.2		4.3E-5	1.000	0.995	
Silver	H	3.0E-5	2.5E-5	2.3E-5	2.3E-5		WB1K	-1.4253	44263.0		2.5E-5	1.000	0.995	
Vanadium	H	1.2E-5	6.7E-6	6.3E-6	6.2E-6		WB1K	-5.0087	161545		7.7E-6	1.000	0.995	
Beryllium	R	4.8E-4	3.0E-4	3.0E-4	3.0E-4		WB1K	-1.0505	3382.41		3.4E-4	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	9	100.00	9	1000.0	3	10000	0		
Arsenic	A	5.0000	-26	100.00	7	1000.0	3	10000	0		
Barium	A	5.0000	-3	100.00	4	1000.0	3	10000	0		
Cadmium	A	5.0000	-3	100.00	1	1000.0	0	10000	0		
Chromium	A	5.0000	2	100.00	6	1000.0	4	10000	0		
Cobalt	A	5.0000	-1	100.00	5	1000.0	3	10000	0		
Lead	A	5.0000	-12	100.00	8	1000.0	6	10000	0		
Molybdenum	A	5.0000	5	100.00	5	1000.0	1	10000	0		
Nickel	A	5.0000	2	100.00	6	1000.0	4	10000	0		
Selenium	A	10.000	-12	100.00	4	1000.0	3	10000	0		
Thallium	A	10.000	10	100.00	10	1000.0	6	10000	0		
Zinc	A	20.000	-5	100.00	5	1000.0	2	10000	0		
Beryllium	H	2.0000	-2	100.00	-1	1000.0	0				
Copper	H	5.0000	0	100.00	0	1000.0	0	10000	0		
Silver	H	5.0000	5	20.000	2	200.00	2	2000.0	0		
Vanadium	H	5.0000	-11	100.00	3	1000.0	1	10000	0		
Beryllium	R	2.0000	10	100.00	1	1000.0	1	10000	0		

Instrument amount = a0 + response * a1 + response^2 * a2; WBLK=Linear regression with ICALBLK weighting factor of 1000

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
Calnum : 658226625001

Cal Date : 06-JUN-2018

ICV 658226625007 (06-JUN-2018) stds: S37184

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	2000	2084	ug/l	4	10	
Arsenic	A	2000	2072	ug/l	4	10	
Barium	A	2000	1963	ug/l	-2	10	
Cadmium	A	2000	2029	ug/l	1	10	
Chromium	A	2000	2087	ug/l	4	10	
Cobalt	A	2000	2036	ug/l	2	10	
Lead	A	2000	1980	ug/l	-1	10	
Molybdenum	A	2000	2029	ug/l	1	10	
Nickel	A	2000	2068	ug/l	3	10	
Selenium	A	2000	2064	ug/l	3	10	
Thallium	A	2000	2085	ug/l	4	10	
Zinc	A	2000	2099	ug/l	5	10	
Beryllium	H	200.0	201.9	ug/l	1	10	
Copper	H	2000	1990	ug/l	-1	10	
Silver	H	400.0	395.6	ug/l	-1	10	
Vanadium	H	2000	2018	ug/l	1	10	
Beryllium	R	200.0	203.7	ug/l	2	10	

Sample Name: ICALBLK,CALBLANK				Sample Type: Calibration Sample			
Measure Date: 2018-06-06 09:05:15		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	29995.53300	20956.08500	1103250	1215581	1970.98150	7102.43780	5980.73930
Int RSD	1.34371165	1.08845106	0.74487280	0.29000413	1.25901973	1.79492061	0.60205883
Int SD	403.05347000	228.09673000	8217.81210	3525.23600	24.81504600	127.48312000	36.00756900
RelInt Mean	0.00003209	0.00015288	---	---	-0.00005182	0.00062553	0.00023100
RelInt RSD	22.68635175	10.08125710	---	---	19.56181808	7.01541135	7.15457488
RelInt SD	0.00000728	0.00001541	---	---	0.00001014	0.00004388	0.00001653
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	57838.02500	35613.33400	5523.30800	5172.19310	5123.92370	36570.95900	7759.90100
Int RSD	0.20231780	0.50045680	0.52972617	0.54936880	1.37933301	1.30182312	0.78144429
Int SD	117.01662000	178.22935000	29.25840800	28.41441500	70.67597100	476.08920000	60.63930300
RelInt Mean	0.00078021	0.00662788	0.00019633	0.00005883	0.00011754	0.00018773	0.00081030
RelInt RSD	0.59280831	0.95269989	5.47614963	40.24179984	20.96153755	3.66792342	6.59286475
RelInt SD	0.00000463	0.00006314	0.00001075	0.00002368	0.00002464	0.00000689	0.00005342
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	20536.75000	2326.94050	27347.73400	7202.88490	2606.30200	14961.81200	5623.65110
Int RSD	0.62842587	4.70828670	0.81653599	0.99132174	2.51109261	1.27735277	1.51753252
Int SD	129.05825000	109.55903000	223.30409000	71.40376400	65.44665700	191.11512000	85.34073400
RelInt Mean	-0.00002134	0.00001192	0.00060719	0.00052903	0.00001059	0.00015303	0.00006842
RelInt RSD	122.75306663	161.03499990	6.06691863	3.03946702	240.52639827	19.60913478	37.21876929
RelInt SD	0.00002620	0.00001920	0.00003684	0.00001608	0.00002548	0.00003001	0.00002546
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	4700.76220	2925.69670	2038.14480	2399.74050	24578.34000	31991.67200	2062.80140
Int RSD	0.38314233	2.11192285	2.47778916	3.31507978	1.45714584	1.42482465	2.22003994
Int SD	18.01061000	61.78845700	50.50093100	79.55331200	358.14226000	455.82523000	45.79501500
RelInt Mean	0.00007428	-0.00000516	-0.00000606	0.00021493	0.00457433	0.00004905	0.00000303
RelInt RSD	25.58406010	278.81390400	277.26585735	12.79412608	1.93115003	1.05520251	637.18504818
RelInt SD	0.00001900	0.00001440	0.00001681	0.00002750	0.00008834	0.00000052	0.00001928
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	9209.77930	2305203	42478462	5401552	4578.66580	12941.98700	
Int RSD	1.82691121	0.16970897	0.55826430	0.47326444	3.70537526	1.45352827	
Int SD	168.25449000	3912.13670	237142	25563.62600	169.65675000	188.11544000	
RelInt Mean	0.00003091	---	---	---	0.00074612	0.00030731	
RelInt RSD	2.38488095	---	---	---	8.08915085	15.96683187	
RelInt SD	0.00000074	---	---	---	0.00006036	0.00004907	

Sample Name: ICAL,L1,S36876				Sample Type: Calibration Sample			
Measure Date: 2018-06-06 09:08:36		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	35720.55700	25275.46200	1114118	1239054	2112.42880	24029.23800	9539.43230
Int RSD	0.73071394	1.09507296	0.47909733	1.04177719	0.93428389	0.23961279	0.77847371
Int SD	261.01509000	276.78475000	5337.71060	12908.18400	19.73608200	57.57712800	74.26197300
RelInt Mean	0.00015121	0.00082495	---	---	-0.00000975	0.00796434	0.00176083
RelInt RSD	2.43143768	1.70804025	---	---	100.91641690	0.41614268	1.63502676
RelInt SD	0.00000368	0.00001409	---	---	0.00000984	0.00003314	0.00002879
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	105619	51247.51100	8397.77950	7091.92240	6760.15810	44266.59200	70018.96700
Int RSD	0.36799298	0.52190529	0.78770465	0.24954474	0.49483184	0.11831879	0.18824564
Int SD	388.66944000	267.46347000	66.14970000	17.69751900	33.45141500	52.37569600	131.80765000
RelInt Mean	0.00189285	0.00962908	0.00142449	0.00089297	0.00080590	0.00035495	0.02797824
RelInt RSD	0.53089202	0.40549477	1.36696377	2.62073867	0.52997716	1.09391114	0.25726317
RelInt SD	0.00001005	0.00003905	0.00001947	0.00002340	0.00000427	0.00000388	0.00007198
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	21729.27000	3135.11840	30688.75400	21779.31000	3871.10040	27913.12900	7043.95520
Int RSD	1.23260257	3.86323974	0.86725808	0.58903749	0.94639772	0.93421662	0.93184850
Int SD	267.83554000	121.11714000	266.15070000	128.28830000	36.63600600	260.76909000	65.63899100
RelInt Mean	0.00008076	0.00012768	0.00110840	0.00687423	0.00054182	0.00249089	0.00065904
RelInt RSD	33.27788850	21.97693744	3.30209834	1.05329470	4.12174845	0.17953591	3.96169326
RelInt SD	0.00002688	0.00002806	0.00003660	0.00007241	0.00002233	0.00000447	0.00002611
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	5019.52870	3380.15740	2262.29790	5524.68320	47496.51700	75706.53500	2348.76230
Int RSD	0.26418209	0.98376182	0.31546002	0.64713788	0.51778371	0.67864985	0.62390477
Int SD	13.26069600	33.25269800	7.13664540	35.75231800	245.92923000	513.78229000	14.65404000
RelInt Mean	0.00019406	0.00017251	0.00007114	0.00157085	0.00892452	0.00106241	0.00011054
RelInt RSD	5.53476433	4.95848836	16.56907808	0.78399937	0.96936974	0.63968377	7.01002298
RelInt SD	0.00001074	0.00000855	0.00001179	0.00001232	0.00008651	0.00000680	0.00000775
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	10580.34600	2294555	42506351	5350631	11950.09900	16942.14800	
Int RSD	0.95239267	0.35384805	0.16045619	0.85308085	0.76255106	0.73842272	
Int SD	100.76644000	8119.23840	68204.07100	45645.20400	91.12560700	125.10467000	
RelInt Mean	0.00005864	---	---	---	0.00397173	0.00095917	
RelInt RSD	3.54770167	---	---	---	1.08487894	6.06914806	
RelInt SD	0.00000208	---	---	---	0.00004309	0.00005821	

Sample Name: ICAL,L2,S36877				Sample Type: Calibration Sample			
Measure Date: 2018-06-06 09:11:57		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	50060.44300	25184.17700	1138271	1228352	4753.75730	23937.48800	81138.53400
Int RSD	0.27124382	1.48287983	1.21914665	0.45761859	1.12064362	0.55858873	0.35781900
Int SD	135.78586000	373.45108000	13877.19400	5621.16850	53.27267800	133.71211000	290.32909000
RelInt Mean	0.00049482	0.00085866	---	---	0.00115297	0.00791680	0.03302210
RelInt RSD	1.37442231	1.60228731	---	---	1.51083330	0.95711817	0.71796486
RelInt SD	0.00000680	0.00001376	---	---	0.00001742	0.00007577	0.00023709
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	2429100	43076.23200	64279.20100	45321.67800	37782.09400	180010	71406.01900
Int RSD	1.28866072	1.48348874	0.30715755	0.24388832	0.53015529	0.82985933	0.37116976
Int SD	31302.85500	639.03105000	197.43842000	110.53428000	200.30377000	1493.83070	265.03755000
RelInt Mean	0.05653052	0.00803316	0.02583356	0.01757607	0.01434847	0.00353690	0.02856763
RelInt RSD	2.27832836	1.51861888	0.71518358	0.63382750	0.90754966	1.88411348	0.68216767
RelInt SD	0.00128795	0.00012199	0.00018476	0.00011140	0.00013022	0.00006664	0.00019488
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	21566.54700	2535.24990	29012.44200	315022	26988.80000	17707.88300	33716.70000
Int RSD	1.58311583	5.73578960	1.81078435	0.09814312	0.58448253	2.59226001	0.43433035
Int SD	341.42342000	145.41660000	525.35276000	309.17198000	157.74482000	459.03437000	146.44186000
RelInt Mean	0.00012317	0.00002688	0.00083895	0.13498771	0.01064585	0.00062119	0.01229535
RelInt RSD	16.36454075	74.91485804	2.33251744	0.44392570	0.83672475	7.34855639	0.37401804
RelInt SD	0.00002016	0.00002014	0.00001957	0.00059925	0.00008908	0.00004565	0.00004599
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	11464.31000	7056.47750	4195.74040	10443.96800	529235	461823	4533.25570
Int RSD	1.45145194	0.95306709	1.08905990	0.64441394	1.31067010	0.87318995	0.87248416
Int SD	166.39895000	67.25296500	45.69412600	67.30238600	6936.52450	4032.59620	39.55193800
RelInt Mean	0.00299741	0.00177807	0.00090741	0.00371544	0.09869993	0.01015807	0.00106994
RelInt RSD	2.55060432	0.76536209	3.44607505	1.12416647	1.78346658	1.94672207	1.09269138
RelInt SD	0.00007645	0.00001361	0.00003127	0.00004177	0.00176028	0.00019775	0.00001169
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	36547.36700	2296750	42599174	5390760	45498.74800	173715	
Int RSD	0.96774246	0.36157260	1.01917809	0.96736362	0.56059000	1.22720155	
Int SD	353.68439000	8304.41750	434161	52148.25500	255.06143000	2131.82740	
RelInt Mean	0.00067098	---	---	---	0.01860616	0.03007382	
RelInt RSD	2.20595060	---	---	---	1.00265525	1.48474401	
RelInt SD	0.00001480	---	---	---	0.00018656	0.00044652	

Sample Name: ICAL,L3,S36878				Sample Type: Calibration Sample			
Measure Date: 2018-06-06 09:15:19		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	221889	61188.58800	1192571	1264337	27936.42600	178633	735596
Int RSD	0.58359130	0.62734138	1.48105718	0.80684620	0.51790222	0.32364446	0.29834580
Int SD	1294.92490	383.86133000	17662.65700	10201.25500	144.68337000	578.13681000	2194.61870
RelInt Mean	0.00465514	0.00758870	---	---	0.01145445	0.07639344	0.32451047
RelInt RSD	1.23055848	2.00831062	---	---	0.51910233	0.25377065	0.32862912
RelInt SD	0.00005728	0.00015240	---	---	0.00005946	0.00019386	0.00106644
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	23398737	113760	575372	392032	316660	1425444	627621
Int RSD	0.31321894	0.47412769	0.22803701	0.15720174	0.32132115	0.55066371	0.21885007
Int SD	73289.27500	539.36937000	1312.06080	616.28053000	1017.49400	7849.40170	1373.54860
RelInt Mean	0.56667587	0.02183733	0.25352125	0.17195171	0.13847314	0.03372563	0.27636242
RelInt RSD	0.47868705	1.46983131	0.28009094	0.10049502	0.27595607	0.81629498	0.40649449
RelInt SD	0.00271260	0.00032097	0.00071009	0.00017280	0.00038213	0.00027530	0.00112340
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	29390.48100	3966.20680	41507.41200	3017522	232811	39016.31800	275025
Int RSD	0.26735077	2.75377446	0.39622622	0.19227720	0.39513124	0.49383525	0.06223026
Int SD	78.57567700	109.22039000	164.46325000	5802.00740	919.90895000	192.67633000	171.14873000
RelInt Mean	0.00147265	0.00026474	0.00313190	1.33984330	0.10236307	0.00462242	0.11964594
RelInt RSD	2.47888335	8.50095551	2.18829740	0.09151129	0.22590870	1.46540463	0.29182913
RelInt SD	0.00003651	0.00002251	0.00006854	0.00122611	0.00023125	0.00006774	0.00034916
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	69168.29600	40940.06000	22412.52400	79831.43900	4938657	4145456	25304.41500
Int RSD	0.11543376	0.53312247	0.65012258	0.46735351	1.09989743	0.20631499	0.31129759
Int SD	79.84356500	218.26066000	145.70888000	373.09503000	54320.15900	8552.69650	78.77203300
RelInt Mean	0.02857873	0.01681127	0.00898530	0.03459579	0.94792103	0.09980428	0.01024880
RelInt RSD	0.37394840	0.46584249	0.97312036	0.58570471	0.12271342	0.82683491	0.45282657
RelInt SD	0.00010687	0.00007831	0.00008744	0.00020263	0.00116323	0.00082522	0.00004641
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	268715	2255666	41326575	5238517	392842	1579383	
Int RSD	0.87889183	0.26920772	0.63422575	0.97842529	0.20798868	0.59751868	
Int SD	2361.71480	6072.42590	262104	51254.97000	817.06606000	9437.10600	
RelInt Mean	0.00630746	---	---	---	0.17335622	0.29929761	
RelInt RSD	1.51807922	---	---	---	0.24484703	0.38881152	
RelInt SD	0.00009575	---	---	---	0.00042446	0.00116370	

Sample Name: ICAL,L4,S36879				Sample Type: Calibration Sample			
Measure Date: 2018-06-06 09:18:40		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	1871728	391144	1768089	1363942	253503	1731239	7034999
Int RSD	0.09858115	0.65811068	0.75423897	0.39935365	0.25075474	0.38049172	0.35738209
Int SD	1845.17070	2574.16320	13335.61400	5446.95050	635.67063000	6587.21920	25141.82500
RelInt Mean	0.04520614	0.07170753	---	---	0.11196993	0.76549268	3.13790900
RelInt RSD	0.47984087	0.44530702	---	---	0.53244796	0.26698526	0.07771274
RelInt SD	0.00021692	0.00031932	---	---	0.00059618	0.00204375	0.00243856
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	136866970	832460	5669673	3748572	2998836	13638457	5945665
Int RSD	0.03434084	0.95108335	0.30334347	0.34168686	0.35366794	0.32149812	0.36961023
Int SD	47001.26400	7917.38640	17198.58400	12808.37800	10605.92200	43847.38300	21975.78500
RelInt Mean	3.37052820	0.16304830	2.52942240	1.67069970	1.33578440	0.33444327	2.65127570
RelInt RSD	0.47172060	0.62033723	0.16460726	0.12643481	0.12367536	0.11347858	0.14760844
RelInt SD	0.01589948	0.00101145	0.00416361	0.00211235	0.00165204	0.00037952	0.00391351
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	97486.06700	16299.25100	150726	28081628	2263742	237410	2594117
Int RSD	0.23452809	1.41957038	0.48491306	0.50304103	0.27335236	0.34681222	0.39243536
Int SD	228.63221000	231.37934000	730.88764000	141262	6187.99140	823.36770000	10180.23200
RelInt Mean	0.01477569	0.00271286	0.02434660	12.54544400	1.00991100	0.04344871	1.15467430
RelInt RSD	0.61432777	1.57287856	0.23711337	0.83185466	0.20070721	0.34414174	0.09582558
RelInt SD	0.00009077	0.00004267	0.00005773	0.10435986	0.00202696	0.00014953	0.00110647
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	610788	369058	198925	757777	46180995	39702520	220621
Int RSD	0.26150537	0.32171987	0.10148269	0.41310112	0.49140357	0.42841898	0.42084840
Int SD	1597.24300	1187.33430	201.87469000	3130.38420	226935	170093	928.48168000
RelInt Mean	0.26931845	0.16290130	0.08746585	0.33695533	9.04529770	0.97930643	0.09694407
RelInt RSD	0.53775098	0.63410034	0.41975565	0.78049076	0.41510009	0.00604797	0.70196953
RelInt SD	0.00144826	0.00103296	0.00036714	0.00262991	0.03754704	0.00005923	0.00068052
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	2524240	2247104	40620244	5134256	3800462	15176013	
Int RSD	0.30850552	0.37875811	0.43215927	0.33351576	0.47036278	0.64300411	
Int SD	7787.42040	8511.08930	175544	17123.55300	17875.95700	97582.38800	
RelInt Mean	0.06192452	---	---	---	1.69554390	2.95644680	
RelInt RSD	0.20209884	---	---	---	0.10587912	0.55014553	
RelInt SD	0.00012515	---	---	---	0.00179523	0.01626476	

Sample Name: ICAL,L5,S36880				Sample Type: Calibration Sample			
Measure Date: 2018-06-06 09:22:01		Recalculation Date:		State: Measured		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	32797.31800	3431558	1142369	1256420	4247.74180	9685.02130	9530.10780
Int RSD	0.77205063	0.35123840	0.31410148	0.40198518	0.57190225	2.40570798	0.65277823
Int SD	253.21190000	12052.95000	3588.19700	5050.62300	24.29293100	232.99333000	62.21046900
RelInt Mean	0.00002085	0.68677072	---	---	-0.00006329	0.00065109	0.00139016
RelInt RSD	6.89361062	0.27768834	---	---	17.25249636	20.48933697	1.73771059
RelInt SD	0.00000144	0.00190708	---	---	0.00001092	0.00013340	0.00002416
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	66898.10400	7544516	6831.22290	7001.50580	6692.04410	42694.62200	51517790
Int RSD	1.11450197	0.55247190	0.48624770	0.16033472	2.00773348	0.37781260	0.06384139
Int SD	745.58069000	41681.33300	33.21666400	11.22584500	134.35841000	161.30566000	32889.67100
RelInt Mean	0.00097044	1.53297410	0.00020869	0.00037719	-0.00004720	0.00027890	24.44284900
RelInt RSD	2.11131560	0.07192194	9.34127346	6.01109044	138.96113677	1.40401195	0.42982338
RelInt SD	0.00002049	0.00110254	0.00001949	0.00002267	0.00006560	0.00000392	0.10506108
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	743636	131878	1175819	14532.71700	6840.77050	2082408	7056.40490
Int RSD	0.29907294	0.64094545	0.33319651	0.98897508	2.11797765	0.43245704	1.95975035
Int SD	2224.01410	845.26348000	3917.78620	143.72495000	144.88599000	9005.51780	138.28792000
RelInt Mean	0.14629684	0.02626790	0.23266442	0.00130414	0.00029975	0.41842655	0.00010522
RelInt RSD	0.70628914	0.92348932	0.28189349	6.10480804	19.60807034	0.19816971	34.16453164
RelInt SD	0.00103328	0.00024258	0.00065587	0.00007962	0.00005878	0.00082919	0.00003595
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	8034.92100	7413.83970	4937.25210	4547.75450	34573.58600	44318.64700	4707.57570
Int RSD	0.89241252	0.61865009	0.74346123	1.17382609	1.68378079	1.27302555	0.43163418
Int SD	71.70464100	45.86572600	36.70655500	53.38272900	582.14340000	564.18770000	20.31950600
RelInt Mean	0.00057267	0.00007533	0.00006140	-0.00014097	0.00702567	0.00024457	-0.00000201
RelInt RSD	4.67241623	23.34281871	101.43705378	14.41839636	2.30146696	6.14778165	1053.07589
RelInt SD	0.00002676	0.00001758	0.00006229	0.00002033	0.00016169	0.00001504	0.00002116
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	11554.83300	2115390	38398660	4949482	8224.06710	13529.02400	
Int RSD	1.19006229	0.47255374	0.34800714	0.60355503	0.64816749	2.35779122	
Int SD	137.50971000	9996.35220	133630	29872.84600	53.30572900	318.98614000	
RelInt Mean	-0.00006573	---	---	---	0.00054702	0.00026948	
RelInt RSD	3.52449502	---	---	---	4.00161922	16.35683479	
RelInt SD	0.00000232	---	---	---	0.00002189	0.00004408	

Sample Name: ICV,S37184				Sample Type: Control Sample			
Measure Date: 2018-06-06 09:25:25		Recalculation Date:		State: Check failed		Quality: Failed	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	398447	312206	1262301	1286251	54684.51000	359358	1395478
Int RSD	0.42826278	0.45197866	0.88976794	1.03369156	0.23742899	0.14811769	0.48426631
Int SD	1706.40090	1411.10270	11231.54600	13295.86700	129.83688000	532.27271000	6757.82890
RelInt Mean	0.00897060	0.05592796	---	---	0.02320531	0.15559599	0.61631766
RelInt RSD	1.05285806	0.83811012	---	---	0.54146438	0.33144530	0.13743930
RelInt SD	0.00009445	0.00046874	---	---	0.00012565	0.00051572	0.00084706
Conc Mean	395.63295000[µg/l]	8119.15120[µg/l]	1262301	1286251	2072.49560[µg/l]	2026.31370[µg/l]	1962.80310[µg/l]
Conc RSD	1.05662387	0.84045378	---	---	0.54077215	0.33278046	0.13749353
Conc SD	4.18035220[µg/l]	68.23771300[µg/l]	11231.54600	13295.86700	11.20747900[µg/l]	6.74317610[µg/l]	2.69872720[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	4769785	675870	1162399	772465	634164	2771784	4856714
Int RSD	1.10662438	0.08215635	0.21266118	0.38307381	0.27841754	1.06128397	0.55653363
Int SD	52783.59800	555.27037000	2471.97060	2959.11240	1765.62390	29416.49600	27029.24400
RelInt Mean	0.11574856	0.13122983	0.51351193	0.34031708	0.27894975	0.06670466	2.15227070
RelInt RSD	1.63051540	0.55569704	0.22748519	0.36164773	0.24376923	1.69370423	0.31457003
RelInt SD	0.00188730	0.00072924	0.00116816	0.00123075	0.00067999	0.00112978	0.00677040
Conc Mean	201.86529000[µg/l]	8161.17030[µg/l]	2029.49940[µg/l]	2036.03130[µg/l]	2086.77720[µg/l]	1989.93310[µg/l]	8113.95960[µg/l]
Conc RSD	1.64589638	0.58527365	0.22757303	0.36135862	0.24387823	1.69848770	0.31468921
Conc SD	3.32249350[µg/l]	47.76517900[µg/l]	4.61859320[µg/l]	7.35737460[µg/l]	5.08919520[µg/l]	33.79876900[µg/l]	25.53375500[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	82388.58400	13648.59800	126754	5937146	464662	192468	544659
Int RSD	0.91130940	2.63190117	0.21659295	0.45168867	0.50065192	0.53965905	0.26431319
Int SD	750.81491000	359.21761000	274.54120000	26817.41600	2326.33680	1038.66930	1439.60510
RelInt Mean	0.01173309	0.00215659	0.01963557	2.63359020	0.20496500	0.03437118	0.23891321
RelInt RSD	1.39931507	3.07349975	0.46606104	0.21189969	0.45426267	1.08722183	0.34283695
RelInt SD	0.00016418	0.00006628	0.00009151	0.00558057	0.00093108	0.00037369	0.00081908
Conc Mean	<8032.46860[µg/l]	8165.80650[µg/l]	8197.59850[µg/l]	2097.34210[µg/l]	2029.15220[µg/l]	8177.38270[µg/l]	2067.82870[µg/l]
Conc RSD	1.39678878	3.09064659	0.48095167	0.21195128	0.45429213	1.09214223	0.34294186
Conc SD	112.19662000[µg/l]	252.37622000[µg/l]	39.42648700[µg/l]	4.44534340[µg/l]	9.21827880[µg/l]	89.30865000[µg/l]	7.09145020[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	125749	80083.66900	43211.71900	153479	997154	8269043	48110.72300
Int RSD	0.43537448	0.87678779	0.42433355	0.56665253	0.56633861	0.99944909	0.45312838
Int SD	547.47783000	702.16383000	183.36182000	869.69496000	5647.26720	82644.87700	218.00334000
RelInt Mean	0.05345150	0.03395248	0.01806813	0.06706133	0.19361616	0.20124097	0.02022819
RelInt RSD	0.13428855	1.04616273	0.48768952	0.67416763	1.15474783	1.57840970	0.55994812
RelInt SD	0.00007178	0.00035520	0.00008812	0.00045211	0.00223578	0.00317641	0.00011327
Conc Mean	1980.19460[µg/l]	2083.59030[µg/l]	2063.95380[µg/l]	1984.65480[µg/l]	208.93445000[µg/l]	2054.12630[µg/l]	2085.00560[µg/l]
Conc RSD	0.13513387	1.05076151	0.48780603	0.67634246	1.18287468	1.57881217	0.55969015
Conc SD	2.67591350[µg/l]	21.89356500[µg/l]	10.06809100[µg/l]	13.42306300[µg/l]	2.47143270[µg/l]	32.43079600[µg/l]	11.66957100[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	522502	2260154	41040575	5178669	806798	329440	
Int RSD	0.42709143	0.37583912	0.74557586	0.63020657	0.40048794	0.16934275	
Int SD	2231.56070	8494.54290	305989	32636.30900	3231.12910	557.88302000	
RelInt Mean	0.01252304	---	---	---	0.35660077	0.06122139	
RelInt RSD	1.11458508	---	---	---	0.47194511	0.38164446	
RelInt SD	0.00013958	---	---	---	0.00168296	0.00023365	
Conc Mean	2018.01930[µg/l]	2251442	40874455	5150400	2099.27910[µg/l]	203.74163000[µg/l]	
Conc RSD	1.11735294	---	---	---	0.47309316	0.38357011	
Conc SD	22.54839800[µg/l]	8528.36630	306217	32545.28700	9.93154590[µg/l]	0.78149199[µg/l]	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625009 File : met11_060618 Time : 06-JUN-2018 09:32
 Cal : 658226625001 Caldate : 06-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	41808102	-1.64
Yttrium	A	2294555	2282842	-0.51
Yttrium	R	5350631	5227947	-2.29

Sample Name: ICB,1				Sample Type: Control Sample			
Measure Date: 2018-06-06 09:32:06		Recalculation Date:		State: Checked		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	30673.31300	21464.07600	1149469	1259449	1984.99970	6504.65800	5770.74370
Int RSD	0.76873114	0.65082732	0.46680732	1.23770307	1.23747490	0.53472493	0.96130677
Int SD	235.79531000	139.69407000	5365.80500	15588.23900	24.56387300	34.78202800	55.47455000
RelInt Mean	0.00003244	0.00008054	---	---	-0.00008476	0.00029279	0.00007111
RelInt RSD	5.79169146	57.80466754	---	---	12.98046858	8.37012816	19.70140671
RelInt SD	0.00000188	0.00004655	---	---	0.00001100	0.00002451	0.00001401
Conc Mean	<0.01046434[µg/l]	<-10.98335300[µg/l]	1149469	1259449	<-3.00554880[µg/l]	<-4.33836800[µg/l]	<-0.54332872[µg/l]
Conc RSD	794.98838102	61.70564308	---	---	32.66261722	7.38613875	8.21525393
Conc SD	0.08319031[µg/l]	6.77734860[µg/l]	5365.80500	15588.23900	0.98169090[µg/l]	0.32043788[µg/l]	0.04463583[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	58993.19300	32871.74300	5567.51460	5187.88540	5154.94040	36770.77900	6508.43770
Int RSD	0.60620579	0.88506804	1.12383743	0.51051116	0.32501658	0.37360832	0.30969259
Int SD	357.62015000	290.93729000	62.56981300	26.48473400	16.75441100	137.37869000	20.15614900
RelInt Mean	0.00080660	0.00632339	0.00011539	-0.00000472	0.00006184	0.00017934	0.00017342
RelInt RSD	1.20788900	1.81816083	2.17107971	304.50480769	26.94145960	1.53008680	7.56247477
RelInt SD	0.00000974	0.00011497	0.00000251	0.00001437	0.00001666	0.00000274	0.00001312
Conc Mean	0.04816568[µg/l]	<-20.15628400[µg/l]	<-0.32261441[µg/l]	<-0.41112984[µg/l]	<-0.45514881[µg/l]	<-0.25404097[µg/l]	<-2.43940440[µg/l]
Conc RSD	35.92377676	37.36033140	3.07024283	20.95142036	27.39359024	32.31510846	2.02764531
Conc SD	0.01730293[µg/l]	7.53045450[µg/l]	0.00990505[µg/l]	0.08613754[µg/l]	0.12468160[µg/l]	0.08209361[µg/l]	0.04946247[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	21692.49500	2424.91150	28212.42600	6194.34060	2694.08380	14912.09900	5753.23200
Int RSD	0.76096544	5.30835703	1.45405053	0.34323900	0.86092645	1.29152683	0.78907202
Int SD	165.07239000	128.72296000	410.22293000	21.26139300	23.19408000	192.59376000	45.39714400
RelInt Mean	-0.00000203	-0.00001920	0.00060539	0.00001033	0.00000127	0.00000551	0.00004123
RelInt RSD	3095.36175	144.05370693	8.06204584	136.76880091	668.74189476	470.58223107	28.96565342
RelInt SD	0.00006279	0.00002766	0.00004881	0.00001412	0.00000846	0.00002591	0.00001194
Conc Mean	<13.11297200[µg/l]	<-118.66938000[µg/l]	<-1.07984880[µg/l]	<-0.47978948[µg/l]	<-0.10978578[µg/l]	<-35.69337900[µg/l]	<-0.27276154[µg/l]
Conc RSD	327.19854812	88.74385288	1947.24039	2.34455891	76.30331906	17.35147659	37.91138956
Conc SD	42.90545400[µg/l]	105.31178000[µg/l]	21.02725200[µg/l]	0.01124895[µg/l]	0.08377019[µg/l]	6.19332830[µg/l]	0.10340769[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	4873.73980	3061.90120	2107.40550	2178.49090	20663.17700	32521.70100	2132.18470
Int RSD	0.72273339	0.69930251	0.32640265	1.55736808	1.42679313	0.52820690	1.86176207
Int SD	35.22414500	21.41195200	6.87862740	33.92712200	294.82079000	171.78187000	39.69620600
RelInt Mean	0.00008708	-0.0000188	-0.00002644	0.00009000	0.00397452	0.00004319	0.0000062
RelInt RSD	18.69014547	23.37347338	48.97127805	10.73219031	1.34423595	4.28784113	3063.08645
RelInt SD	0.00001628	0.00000044	0.00001295	0.00000966	0.00005343	0.00000185	0.00001899
Conc Mean	<0.41726954[µg/l]	<-0.11361245[µg/l]	<-2.44548510[µg/l]	<-3.73211400[µg/l]	<-0.70537196[µg/l]	<-0.07993809[µg/l]	<-0.30933676[µg/l]
Conc RSD	144.57235244	23.84659692	60.52294901	7.68360827	8.37448458	23.65103051	633.98860194
Conc SD	0.60325639[µg/l]	0.02709270[µg/l]	1.48007970[µg/l]	0.28676102[µg/l]	0.05907127[µg/l]	0.01890618[µg/l]	1.96115980[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	9384.60030	2282842	41808102	5227947	3475.73280	13312.43700	
Int RSD	1.37482499	0.45596140	0.50538434	1.30379798	1.12997835	1.54499721	
Int SD	129.02183000	10408.87600	211292	68161.86500	39.27502800	205.67678000	
RelInt Mean	0.00002991	---	---	---	0.00021395	0.00025223	
RelInt RSD	5.07148560	---	---	---	8.10993756	2.58002425	
RelInt SD	0.00000152	---	---	---	0.00001735	0.00000651	
Conc Mean	<-0.17748366[µg/l]	2274589	41643428	5199176	<-3.16196230[µg/l]	<-0.18401308[µg/l]	
Conc RSD	138.05557650	---	---	---	3.24104212	11.82857545	
Conc SD	0.24502609[µg/l]	10226.89200	211740	68379.43200	0.10248053[µg/l]	0.02176613[µg/l]	

ENTHALPY INTERFERENCE CHECK STANDARD A FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625010 File : met11_060618 Time : 06-JUN-2018 09:35
 Cal : 658226625001 Caldate : 06-JUN-2018
 Standards: S37050

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-17.63]	10.00	ug/l	!a-
Arsenic	A	[-2.245]	5.000	ug/l	
Barium	A	[-1.200]	5.000	ug/l	
Cadmium	A	[0.2035]	5.000	ug/l	
Cobalt	A	[-0.5275]	5.000	ug/l	
Lead	A	[2.474]	5.000	ug/l	
Molybdenum	A	[0.9015]	5.000	ug/l	
Selenium	A	[-13.08]	10.00	ug/l	!a-
Thallium	A	[-3.375]	10.00	ug/l	
Zinc	A	[-2.251]	20.00	ug/l	
Beryllium	H	[-1.677]	2.000	ug/l	
Silver	H	[-0.1828]	5.000	ug/l	
Beryllium	R	[0.7283]	2.000	ug/l	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19640	ug/l	98	
Iron	A	200000	159500	ug/l	80	
Manganese	A	20000	18640	ug/l	93	
Nickel	A	20000	18320	ug/l	92	
Copper	H	20000	21850	ug/l	109	
Titanium	H	20000	20070	ug/l	100	
Vanadium	H	20000	19940	ug/l	100	
Aluminum	R	500000	476900	ug/l	95	
Calcium	R	500000	453700	ug/l	91	
Iron	R	200000	191600	ug/l	96	
Magnesium	R	500000	495100	ug/l	99	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	36113631	-15.04
Yttrium	A	2294555	2029626	-11.55
Yttrium	R	5350631	4847445	-9.40

!=warning --low bias a=ICSA

Sample Name: ICSA,S37050				Sample Type: Control Sample			
Measure Date: 2018-06-06 09:35:25		Recalculation Date:		State: Checked		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	52368.85900	15913994	2218519	1395074	11596.06100	13604.10600	9843.27000
Int RSD	1.00989325	1.12566418	0.19986385	0.56938923	0.60087602	0.64042168	1.19743297
Int SD	528.86957000	179138	4434.01780	7943.40170	69.67795000	87.12364400	117.86656000
RelInt Mean	0.00008335	3.27608510	---	---	0.00024508	0.00056851	-0.00013498
RelInt RSD	23.04885728	1.37262158	---	---	12.43432947	5.18061086	49.36081823
RelInt SD	0.00001921	0.04496825	---	---	0.00003047	0.00002945	0.00006663
Conc Mean	<-0.18281110[µg/l]	>476902[µg/l]	2218519	1395074	<-2.24451970[µg/l]	<-0.73319056[µg/l]	<-1.19992360[µg/l]
Conc RSD	468.28164701	1.37268698	---	---	121.27075115	52.52415825	17.69011960
Conc SD	0.85607083[µg/l]	6546.37070[µg/l]	4434.01780	7943.40170	2.72194590[µg/l]	0.38510217[µg/l]	0.21226792[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	351413	33406465	9740.29950	21215.23100	5309232	26442829	85367447
Int RSD	0.61072676	0.82148647	0.43875675	0.31070973	0.57976360	0.28990108	0.50992327
Int SD	2146.17470	274430	42.73622200	65.91778700	30780.99300	76658.04800	435308
RelInt Mean	0.00807664	6.93320540	0.00024846	0.00558661	2.62470210	0.73072364	42.28995800
RelInt RSD	0.74151397	1.25849472	15.30363179	1.47112764	0.17806031	0.29963540	0.55423304
RelInt SD	0.00005989	0.08725402	0.00003802	0.00008219	0.00467355	0.00218951	0.23438492
Conc Mean	<-1.67713580[µg/l]	>453688[µg/l]	<0.20348482[µg/l]	<-0.52752268[µg/l]	>19642.68300[µg/l]	>21854.88100[µg/l]	>159489[µg/l]
Conc RSD	4.78224632	1.25968992	73.87852322	115.88799746	0.17806858	0.29971143	0.55424216
Conc SD	0.08020476[µg/l]	5715.10410[µg/l]	0.15033158[µg/l]	0.61133547[µg/l]	34.97744700[µg/l]	65.50157700[µg/l]	883.95444000[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	1379469	2168.22650	592659	47222761	18243.81300	14338.52300	4281613
Int RSD	0.25994291	1.55337023	0.52794650	0.45604572	0.37528934	0.93062465	0.62949571
Int SD	3585.83130	33.68058500	29526.24700	215357	68.46708500	133.43783000	26952.56700
RelInt Mean	0.28034387	-0.00000941	1.14979640	23.40638600	0.00010341	0.00008049	2.11662700
RelInt RSD	0.38339055	132.30120201	0.15335692	0.57482830	48.42298215	35.53426857	0.21202269
RelInt SD	0.00107481	0.00001246	0.00176329	0.13454653	0.00005008	0.00002860	0.00448773
Conc Mean	191591[µg/l]	<-81.40890400[µg/l]	>495099[µg/l]	>18644.25900[µg/l]	<0.90153338[µg/l]	<-17.77270000[µg/l]	>18324.66500[µg/l]
Conc RSD	0.38335948	18.25401236	0.15343545	0.57484269	54.99260050	38.46150951	0.21203219
Conc SD	734.48387000[µg/l]	47.42395300[µg/l]	759.65774000[µg/l]	107.17516000[µg/l]	0.49577665[µg/l]	6.83564870[µg/l]	38.85418800[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	18668.51900	25495.16900	13823.40300	11465.06600	41283.98300	70789255	13770.61600
Int RSD	0.31854265	0.61229125	0.62499867	1.33739160	0.71252820	0.45207641	1.22367649
Int SD	59.46719600	156.10469000	86.39608500	153.33283000	294.16002000	320022	168.50779000
RelInt Mean	0.00224928	0.00155856	0.00012475	-0.00078504	0.00856779	1.96580740	0.00033682
RelInt RSD	0.97526534	3.25931426	25.33733865	8.90372579	0.51672578	0.39284989	21.76959493
RelInt SD	0.00002194	0.00005080	0.00003161	0.00006990	0.00004427	0.00772267	0.00007333
Conc Mean	<2.47355260[µg/l]	<-17.63011300[µg/l]	<-13.07867400[µg/l]	<-29.71205700[µg/l]	4.00481870[µg/l]	>20070.14700[µg/l]	<-3.37486520[µg/l]
Conc RSD	75.34249322	16.63477653	28.35212346	6.98463287	1.22826244	0.39286071	223.18061178
Conc SD	1.86363620[µg/l]	2.93272990[µg/l]	3.70808180[µg/l]	2.07527810[µg/l]	0.04918968[µg/l]	78.84772300[µg/l]	7.53204480[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	4475060	2029626	36113631	4847445	27710.60500	18444.30100	
Int RSD	0.36975455	0.42536361	0.15406353	0.55720646	0.24275268	0.70026302	
Int SD	16546.73800	8633.29000	55637.93600	27010.27600	67.26823600	129.15862000	
RelInt Mean	0.12348921	---	---	---	0.00259804	0.00052500	
RelInt RSD	0.30166530	---	---	---	3.49536435	5.67961030	
RelInt SD	0.00037252	---	---	---	0.00009081	0.00002982	
Conc Mean	>19943.98700[µg/l]	2016419	35929518	4818524	<-2.25114890[µg/l]	0.72834631[µg/l]	
Conc RSD	0.30174068	---	---	---	24.61906718	13.69320605	
Conc SD	60.17912100[µg/l]	8634.09010	55333.61500	26802.45400	0.55421186[µg/l]	0.09973396[µg/l]	

ENTHALPY INTERFERENCE CHECK STANDARD AB FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625011 File : met11_060618 Time : 06-JUN-2018 09:38
 Cal : 658226625001 Caldate : 06-JUN-2018
 Standards: S37143

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	546.2	ug/l	9	20	
Arsenic	A	500.0	545.5	ug/l	9	20	
Barium	A	500.0	498.3	ug/l	0	20	
Cadmium	A	1000	1072	ug/l	7	20	
Chromium	A	500.0	475.5	ug/l	-5	20	
Cobalt	A	500.0	463.0	ug/l	-7	20	
Lead	A	1000	952.3	ug/l	-5	20	
Molybdenum	A	500.0	499.8	ug/l	0	20	
Nickel	A	1000	920.0	ug/l	-8	20	
Selenium	A	500.0	537.7	ug/l	8	20	
Thallium	A	500.0	466.2	ug/l	-7	20	
Zinc	A	1000	949.2	ug/l	-5	20	
Beryllium	H	500.0	511.4	ug/l	2	20	
Copper	H	500.0	535.6	ug/l	7	20	
Silver	H	1000	1113	ug/l	11	20	
Vanadium	H	500.0	464.4	ug/l	-7	20	
Beryllium	R	500.0	510.2	ug/l	2	20	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	36264265	-14.69
Yttrium	A	2294555	2000050	-12.83
Yttrium	R	5350631	4809675	-10.11

Sample Name: ICSAB,S37143 Sample Type: Control Sample

Measure Date: 2018-06-06 09:38:46 Recalculation Date: State: Checked Quality:

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	953509	16536545	2211543	1402578	23430.36200	12431.09700	320836
Int RSD	0.39913964	0.16792667	0.72045424	0.29207515	0.88173094	1.20870556	0.19580647
Int SD	3805.83100	27769.27000	15933.15600	4096.58210	206.59275000	150.25536000	628.21826000
RelInt Mean	0.02517170	3.43167360	---	---	0.00606918	0.00036486	0.15665149
RelInt RSD	0.36957562	0.20788696	---	---	1.33417630	13.72358953	0.24326353
RelInt SD	0.00009303	0.00713400	---	---	0.00008097	0.00005007	0.00038108
Conc Mean	1113.36890[µg/l]	>499552[µg/l]	2211543	1402578	545.51332000[µg/l]	<-3.39606420[µg/l]	498.31794000[µg/l]
Conc RSD	0.37004297	0.20789644	---	---	1.32424118	19.27834727	0.24364112
Conc SD	4.11994330[µg/l]	1038.55110[µg/l]	15933.15600	4096.58210	7.22391200[µg/l]	0.65470505[µg/l]	1.21410740[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	10536012	34657589	547956	173099	136162	717401	87553021
Int RSD	0.18754378	0.27337774	0.39466198	0.28771208	0.54725036	0.61822977	0.19155141
Int SD	19759.63500	94746.13300	2162.57580	498.02691000	745.14901000	4435.18640	167709
RelInt Mean	0.29013299	7.24923120	0.27125188	0.08225969	0.06366142	0.01809009	43.99805300
RelInt RSD	0.28988860	0.33269100	0.11846603	0.12692008	0.54780018	0.63261112	0.26887865
RelInt SD	0.00084106	0.02411754	0.00032134	0.00010440	0.00034874	0.00011444	0.11830137
Conc Mean	511.42751000[µg/l]	>474388[µg/l]	1071.67290[µg/l]	463.03969000[µg/l]	475.53214000[µg/l]	535.56817000[µg/l]	>165931[µg/l]
Conc RSD	0.29060195	0.33299549	0.11855160	0.13365910	0.54885800	0.63924768	0.26888335
Conc SD	1.48621830[µg/l]	1579.68960[µg/l]	1.27048540[µg/l]	0.61889469[µg/l]	2.60999620[µg/l]	3.42360710[µg/l]	446.16013000[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	1409498	2233.35730	5705342	1253976	118483	14261.42900	220492
Int RSD	0.37204746	3.95223205	0.13579790	0.42503919	0.38740709	1.27734696	0.26621937
Int SD	5244.00070	88.26746300	7747.73490	5329.89110	459.01077000	182.16793000	586.99305000
RelInt Mean	0.28884051	-0.00000315	1.18255890	0.62158532	0.05049549	0.00008957	0.10633287
RelInt RSD	0.42969672	690.66029590	0.09452555	0.15028703	0.32010652	36.13562068	0.38578604
RelInt SD	0.00124114	0.00002173	0.00111782	0.00093416	0.00016164	0.00003237	0.00041022
Conc Mean	197398[µg/l]	<-57.54414600[µg/l]	>509214[µg/l]	494.64613000[µg/l]	499.81288000[µg/l]	<-15.60394700[µg/l]	919.97711000[µg/l]
Conc RSD	0.42966388	143.79542447	0.09457499	0.15043575	0.32018471	49.57093035	0.38604825
Conc SD	848.14670000[µg/l]	82.74584900[µg/l]	481.58922000[µg/l]	0.74412462[µg/l]	1.60032440[µg/l]	7.73502170[µg/l]	3.55155550[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	69606.82300	40153.13700	23439.07500	11445.53500	2277151	70714624	22938.03500
Int RSD	0.30059489	0.27179174	0.46473050	0.69077061	0.12605676	0.17677038	0.20566372
Int SD	209.23455000	109.13291000	108.92853000	79.06239200	2870.50330	125003	47.17521700
RelInt Mean	0.02793493	0.00895210	0.00481201	-0.00061278	0.47630474	1.95443340	0.00486685
RelInt RSD	0.46159738	0.88069773	1.66089331	4.85390197	0.09660834	0.26092400	1.61110531
RelInt SD	0.00012895	0.00007884	0.00007992	0.00002974	0.00046015	0.00509959	0.00007841
Conc Mean	952.31761000[µg/l]	546.19843000[µg/l]	537.69400000[µg/l]	<-24.59764800[µg/l]	521.50776000[µg/l]	>19954.02000[µg/l]	466.23531000[µg/l]
Conc RSD	0.48518190	0.89426030	1.70312691	3.59017175	0.09754316	0.26093172	1.73555345
Conc SD	4.62047270[µg/l]	4.88443570[µg/l]	9.15761120[µg/l]	0.88309781[µg/l]	0.50869517[µg/l]	52.06636700[µg/l]	8.09176300[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	127687	2000050	36264265	4809675	343092	748060
Int RSD	0.32460818	0.30117612	0.27766541	0.10797489	0.38596243	0.97754730
Int SD	414.48196000	6023.67290	100693	5193.24110	1324.20560	7312.63870
RelInt Mean	0.00290578	---	---	---	0.16160123	0.15284018
RelInt RSD	0.49782799	---	---	---	0.11526909	1.02100285
RelInt SD	0.00001447	---	---	---	0.00018628	0.00156050
Conc Mean	464.40426000[µg/l]	1987820	36100818	4780872	949.22817000[µg/l]	510.18211000[µg/l]
Conc RSD	0.50319713	---	---	---	0.11574166	1.02306012
Conc SD	2.33686890[µg/l]	6046.64620	100130	5419.69870	1.09865240[µg/l]	5.21946970[µg/l]

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
 Seqnum : 658226625074
 Cal : 658226625001
 Standards: S37184

File : met11_060618
 Caldate : 06-JUN-2018

IDF : 1.0
 Time : 06-JUN-2018 13:44

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.7E-5	1.7E-5	2000	2103	ug/l	5	10	
Arsenic	A	8.1E-6	1.2E-5	2000	2080	ug/l	4	10	
Barium	A	3.3E-4	3.1E-4	2000	1952	ug/l	-2	10	
Cadmium	A	2.6E-4	2.4E-4	2000	1920	ug/l	-4	10	
Chromium	A	1.4E-4	1.4E-4	2000	2092	ug/l	5	10	
Cobalt	A	1.7E-4	1.7E-4	2000	2042	ug/l	2	10	
Lead	A	3.1E-5	2.7E-5	2000	1995	ug/l	0	10	
Molybdenum	A	1.0E-4	1.0E-4	2000	2031	ug/l	2	10	
Nickel	A	1.2E-4	1.2E-4	2000	2069	ug/l	3	10	
Selenium	A	8.5E-6	9.1E-6	2000	2075	ug/l	4	10	
Thallium	A	1.0E-5	1.0E-5	2000	2067	ug/l	3	10	
Zinc	A	1.8E-4	1.8E-4	2000	2093	ug/l	5	10	
Beryllium	H	6.9E-4	5.8E-4	200.0	202.8	ug/l	1	10	
Copper	H	4.3E-5	3.4E-5	2000	2012	ug/l	1	10	
Silver	H	2.5E-5	2.3E-5	400.0	397.3	ug/l	-1	10	
Vanadium	H	7.7E-6	6.3E-6	2000	2023	ug/l	1	10	
Beryllium	R	3.4E-4	3.0E-4	200.0	200.8	ug/l	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	42502600	-0.01
Yttrium	A	2294555	2330266	1.56
Yttrium	R	5350631	5348029	-0.05

Sample Name: **CCV,S37184** Sample Type: Control Sample

Measure Date: 2018-06-06 13:44:17 Recalculation Date: State: Check failed Quality: Failed

	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	413527	319542	1254106	1217507	56595.07700	373238	1430923
Int RSD	0.25488667	0.83829488	1.57130546	0.34103826	0.43819705	0.50601975	0.29433997
Int SD	1054.02560	2678.70540	19705.83600	4152.16610	247.99796000	1888.65940	4211.77780
RelInt Mean	0.00900880	0.05578424	---	---	0.02329175	0.15701788	0.61304265
RelInt RSD	0.54401623	1.43315571	---	---	0.41310709	0.32712468	0.20034202
RelInt SD	0.00004901	0.00079948	---	---	0.00009622	0.00051364	0.00122818
Conc Mean	397.32433000[µg/l]	8098.22820[µg/l]	1254106	1217507	2080.20360[µg/l]	2044.90540[µg/l]	1952.36900[µg/l]
Conc RSD	0.54608476	1.43717400	---	---	0.41263920	0.32843021	0.20042095
Conc SD	2.16972760[µg/l]	116.38563000[µg/l]	19705.83600	4152.16610	8.58373550[µg/l]	6.71608700[µg/l]	3.91295640[µg/l]

	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	4962817	692931	1133995	798774	655263	2901588	4985977
Int RSD	0.35679760	0.50875181	0.55125197	0.77760102	0.72808961	0.64704338	0.37996303
Int SD	17707.21000	3525.29690	6251.16700	6211.27340	4770.90300	18774.53300	18944.86800
RelInt Mean	0.11629258	0.13024425	0.48575034	0.34136023	0.27958781	0.06745214	2.14301520
RelInt RSD	0.66767886	0.90150797	0.37580478	0.60070100	0.55651049	0.73106229	0.20866168
RelInt SD	0.00077646	0.00117416	0.00182547	0.00205055	0.00155594	0.00049312	0.00447165
Conc Mean	202.82410000[µg/l]	8096.61480[µg/l]	1919.73810[µg/l]	2042.27330[µg/l]	2091.55250[µg/l]	2012.29490[µg/l]	8079.05350[µg/l]
Conc RSD	0.67538468	0.94986907	0.37595700	0.60250736	0.55675557	0.73310532	0.20874111
Conc SD	1.36984290[µg/l]	76.90724000[µg/l]	7.21738970[µg/l]	12.30484700[µg/l]	11.64483500[µg/l]	14.75224100[µg/l]	16.86430600[µg/l]

	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	83080.34900	15553.71000	128441	6088287	479574	202902	561664
Int RSD	0.91860961	1.86447388	0.31264072	0.36979698	0.63021060	0.87151441	0.51355169
Int SD	763.18407000	289.99486000	401.55849000	22514.30100	3022.32580	1768.31860	2884.43720
RelInt Mean	0.01177390	0.00247647	0.01955456	2.61935200	0.20517273	0.03532753	0.23903581
RelInt RSD	0.71422326	1.85414356	0.92276550	0.19475061	0.45661686	1.49678330	0.33460787
RelInt SD	0.00008409	0.00004592	0.00018044	0.00510120	0.00093685	0.00052878	0.00079983
Conc Mean	<8060.35790[µg/l]	9383.79580[µg/l]	8162.69910[µg/l]	2086.00050[µg/l]	2031.20890[µg/l]	8405.94120[µg/l]	2068.89020[µg/l]
Conc RSD	0.71293721	1.86314604	0.95237144	0.19479585	0.45664127	1.50337300	0.33470736
Conc SD	57.46529100[µg/l]	174.83382000[µg/l]	77.73921500[µg/l]	4.06344240[µg/l]	9.27533810[µg/l]	126.37265000[µg/l]	6.92427280[µg/l]

	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	130534	83261.54000	44782.65700	158543	1034713	8592495	49154.01600
Int RSD	0.86292225	0.58181483	1.00659746	0.96576928	0.78506016	0.51874067	0.45156115
Int SD	1126.40590	484.42799000	450.78109000	1531.16190	8123.11870	44572.76800	221.96044000
RelInt Mean	0.05384993	0.03426901	0.01816612	0.06719971	0.19448864	0.20192680	0.02005406
RelInt RSD	0.72969489	0.45789224	0.87794314	0.79944512	1.24749281	0.69468481	0.25516639
RelInt SD	0.00039294	0.00015692	0.00015949	0.00053722	0.00242623	0.00140275	0.00005117
Conc Mean	1994.98930[µg/l]	2103.09940[µg/l]	2075.16070[µg/l]	1988.76340[µg/l]	209.89872000[µg/l]	2061.12850[µg/l]	2067.01540[µg/l]
Conc RSD	0.73034266	0.45777377	0.87832268	0.80201778	1.27806234	0.69486172	0.25645698
Conc SD	14.57025800[µg/l]	9.62743750[µg/l]	18.22660700[µg/l]	15.95023600[µg/l]	2.68263650[µg/l]	14.32199300[µg/l]	5.30100520[µg/l]

	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107
Int Mean	542281	2330266	42502600	5348029	829540	334180
Int RSD	0.14374961	0.18049071	0.38606464	0.50680877	1.11165504	0.56227570
Int SD	779.52734000	4205.91300	164088	27104.28200	9221.62820	1879.01480
RelInt Mean	0.01255162	---	---	---	0.35561641	0.06032888
RelInt RSD	0.35957892	---	---	---	0.95607987	1.01061051
RelInt SD	0.00004513	---	---	---	0.00339998	0.00060969
Conc Mean	2022.63550[µg/l]	2321336	42330646	5320383	2093.46500[µg/l]	200.75640000[µg/l]
Conc RSD	0.36047165	---	---	---	0.95838087	1.01578510
Conc SD	7.29102750[µg/l]	4200.99990	165425	27013.39500	20.06336800[µg/l]	2.03925360[µg/l]

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625075 File : met11_060618 Time : 06-JUN-2018 13:47
 Cal : 658226625001 Caldate : 06-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	43430222	2.17
Yttrium	A	2294555	2369057	3.25
Yttrium	R	5350631	5401886	0.96

Sample Name: CCB,1				Sample Type: Control Sample			
Measure Date: 2018-06-06 13:47:38		Recalculation Date:		State: Checked		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	30742.98100	20121.06300	1137997	1211943	2056.38430	6441.98790	5786.28650
Int RSD	0.77144656	0.24179350	1.47441870	0.80472005	1.01518311	0.96821388	0.68841111
Int SD	237.16567000	48.65142200	16778.84500	9752.74750	20.87606600	62.37222100	39.83343900
RelInt Mean	0.00002974	0.00009968	---	---	-0.00005517	0.00027970	0.00006694
RelInt RSD	11.27623253	3.32089628	---	---	9.19449389	13.24304299	26.11389037
RelInt SD	0.00000335	0.00000331	---	---	0.00000507	0.00003704	0.00001748
Conc Mean	<-0.10924771[µg/l]	<-8.19653180[µg/l]	1137997	1211943	<-0.36531366[µg/l]	<-4.50955390[µg/l]	<-0.55660981[µg/l]
Conc RSD	135.97122539	5.87941915	---	---	124.00679186	10.73986387	10.00626615
Conc SD	0.14854545[µg/l]	0.48190846[µg/l]	16778.84500	9752.74750	0.45301375[µg/l]	0.48431995[µg/l]	0.05569586[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	59441.04600	32599.69000	5533.34070	5156.12640	5087.61280	37694.58800	7479.92270
Int RSD	0.33523409	0.54049526	0.74115997	0.25495248	1.29229487	0.83612918	0.46308560
Int SD	199.26665000	176.19978000	41.01090600	13.14567200	65.74695900	315.17545000	34.63844500
RelInt Mean	0.00078213	0.00606579	0.00011122	-0.00002014	0.00004931	0.00018836	0.00059073
RelInt RSD	0.80645126	0.28199594	21.08766254	126.44695090	48.08738300	2.90431310	3.73358029
RelInt SD	0.00000631	0.00001711	0.00002345	0.00002547	0.00002371	0.00000547	0.00002206
Conc Mean	<0.00498281[µg/l]	<-37.02885400[µg/l]	<-0.33912163[µg/l]	<-0.50429869[µg/l]	<-0.54890457[µg/l]	<0.01555407[µg/l]	<-0.86557134[µg/l]
Conc RSD	220.13115658	3.02572367	27.34317448	30.25718746	32.32939015	1052.16700	9.60982003
Conc SD	0.01096871[µg/l]	1.12039080[µg/l]	0.09272662[µg/l]	0.15258660[µg/l]	0.17745750[µg/l]	0.16365476[µg/l]	0.08317985[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	20139.43800	3858.75520	26757.29200	6263.32380	2819.45940	20132.82600	5734.21930
Int RSD	0.31037602	2.56931598	0.39817740	0.54644087	1.66650547	0.79971679	0.59447034
Int SD	62.50798600	99.14361400	106.54149000	34.22536100	46.98644500	161.00559000	34.08823300
RelInt Mean	-0.00002484	0.00025804	0.00060439	0.00004834	0.00005189	0.00109858	0.00002097
RelInt RSD	36.26589175	10.56245044	5.13863052	15.66137728	26.49927332	1.37730565	28.50677010
RelInt SD	0.00000901	0.00002726	0.00003106	0.00000757	0.00001375	0.00001513	0.00000598
Conc Mean	<-2.47772370[µg/l]	936.94628000[µg/l]	<-1.51223290[µg/l]	<-0.44951180[µg/l]	<-0.39147462[µg/l]	225.54053000[µg/l]	<-0.44820309[µg/l]
Conc RSD	248.48589050	11.07610033	884.80068116	1.34145893	34.77870417	1.60331046	11.544761093
Conc SD	6.15679380[µg/l]	103.77711000[µg/l]	13.38024700[µg/l]	0.00603002[µg/l]	0.13614980[µg/l]	3.61611490[µg/l]	0.05175675[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	4822.89530	3131.34850	2137.45990	2219.92670	19427.76900	34709.01900	2179.23590
Int RSD	0.51530038	0.47694560	3.00627942	1.16314449	0.52958376	1.40652474	0.96570766
Int SD	24.85239800	14.93482900	64.25801700	25.82095500	102.88631000	488.19094000	21.04504800
RelInt Mean	0.00006158	0.00001739	-0.00001725	0.00010081	0.00361490	0.00009278	0.00000882
RelInt RSD	21.90332559	16.64018138	175.61585520	11.25955357	0.19072395	8.97942232	245.18961675
RelInt SD	0.00001349	0.00000289	0.00003030	0.00001135	0.00000689	0.00000833	0.00002163
Conc Mean	<-0.52977302[µg/l]	<1.07630360[µg/l]	<-1.39590380[µg/l]	<-3.41112750[µg/l]	<-1.10297920[µg/l]	<0.42636310[µg/l]	<0.53678840[µg/l]
Conc RSD	94.50947880	16.62001131	248.13876142	9.87924433	0.69121734	19.94907416	416.09421888
Conc SD	0.50068572[µg/l]	0.17888178[µg/l]	3.46377840[µg/l]	0.33699362[µg/l]	0.00762398[µg/l]	0.08505549[µg/l]	2.23354550[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	9433.53950	2369057	43430222	5401886	3088.41420	12569.73200	
Int RSD	1.41814766	1.07962315	0.57373715	0.34851122	0.55972075	1.07824121	
Int SD	133.78152000	25576.89100	249175	18826.17800	17.28649500	135.53203000	
RelInt Mean	0.00002905	---	---	---	0.00004249	0.00027418	
RelInt RSD	7.96521802	---	---	---	32.29443704	14.27137754	
RelInt SD	0.00000231	---	---	---	0.00001372	0.00003913	
Conc Mean	<-0.31600983[µg/l]	2360417	43258984	5374333	<-4.17407780[µg/l]	<-0.11059900[µg/l]	
Conc RSD	118.28787415	---	---	---	1.94247369	118.33410790	
Conc SD	0.37380131[µg/l]	25415.45600	250244	19021.31900	0.08108036[µg/l]	0.13087634[µg/l]	

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 6010B

Inst : MET11
 Seqnum : 658226625084
 Cal : 658226625001
 Standards: S37184

File : met11_060618
 Caldate : 06-JUN-2018

IDF : 1.0
 Time : 06-JUN-2018 15:56

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.7E-5	1.7E-5	2000	2116	ug/l	6	10	
Arsenic	A	8.1E-6	1.2E-5	2000	2062	ug/l	3	10	
Barium	A	3.3E-4	3.0E-4	2000	1940	ug/l	-3	10	
Cadmium	A	2.6E-4	2.4E-4	2000	1907	ug/l	-5	10	
Chromium	A	1.4E-4	1.4E-4	2000	2076	ug/l	4	10	
Cobalt	A	1.7E-4	1.7E-4	2000	2024	ug/l	1	10	
Lead	A	3.1E-5	2.7E-5	2000	1979	ug/l	-1	10	
Molybdenum	A	1.0E-4	1.0E-4	2000	2003	ug/l	0	10	
Nickel	A	1.2E-4	1.2E-4	2000	2050	ug/l	2	10	
Selenium	A	8.5E-6	9.0E-6	2000	2048	ug/l	2	10	
Thallium	A	1.0E-5	10.0E-6	2000	2054	ug/l	3	10	
Zinc	A	1.8E-4	1.8E-4	2000	2066	ug/l	3	10	
Beryllium	H	6.9E-4	5.8E-4	200.0	202.6	ug/l	1	10	
Copper	H	4.3E-5	3.4E-5	2000	1999	ug/l	0	10	
Silver	H	2.5E-5	2.2E-5	400.0	395.2	ug/l	-1	10	
Vanadium	H	7.7E-6	6.3E-6	2000	2016	ug/l	1	10	
Beryllium	R	3.4E-4	3.0E-4	200.0	202.3	ug/l	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	42875120	0.87
Yttrium	A	2294555	2355165	2.64
Yttrium	R	5350631	5426360	1.42

Sample Name: CCV,S37184				Sample Type: Control Sample			
Measure Date: 2018-06-06 15:56:37		Recalculation Date:		State: Check failed		Quality: Failed	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	415443	319432	1272144	1225182	56667.86600	371389	1436947
Int RSD	0.33850269	0.57909689	0.87334003	0.18403983	0.39317930	0.30061961	0.34161061
Int SD	1406.28710	1849.82270	11110.14100	2254.82300	222.80632000	1116.46680	4908.76370
RelInt Mean	0.00895990	0.05484398	---	---	0.02308483	0.15448404	0.60909808
RelInt RSD	0.63575611	0.86154976	---	---	0.72658832	0.43091846	0.09618677
RelInt SD	0.00005696	0.00047251	---	---	0.00016773	0.00066570	0.00058587
Conc Mean	395.15910000[µg/l]	7961.34720[µg/l]	1272144	1225182	2061.75780[µg/l]	2011.77450[µg/l]	1939.80170[µg/l]
Conc RSD	0.63799895	0.86400689	---	---	0.72574839	0.43266767	0.09622218
Conc SD	2.52111090[µg/l]	68.78658800[µg/l]	11110.14100	2254.82300	14.96317400[µg/l]	8.70429790[µg/l]	1.86651950[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	5000974	703017	1138272	800254	657383	2908801	5009618
Int RSD	0.51332910	0.48743920	0.41126067	0.17384984	0.21505495	0.49559652	0.42307840
Int SD	25671.45500	3426.77880	4681.26550	1391.24100	1413.73530	14415.91500	21194.61200
RelInt Mean	0.11616745	0.13023014	0.48240802	0.33837805	0.27752124	0.06701704	2.13041270
RelInt RSD	0.74244398	0.67215508	0.27459560	0.44255004	0.13794444	0.69243547	0.21674885
RelInt SD	0.00086248	0.00087535	0.00132467	0.00149749	0.00038283	0.00046405	0.00461765
Conc Mean	202.60735000[µg/l]	8095.69060[µg/l]	1906.52360[µg/l]	2024.39930[µg/l]	2076.08590[µg/l]	1999.27830[µg/l]	8031.52440[µg/l]
Conc RSD	0.74742476	0.70821597	0.27470885	0.44243213	0.13800441	0.69437982	0.21683255
Conc SD	1.51433750[µg/l]	57.33497400[µg/l]	5.23738900[µg/l]	8.95659290[µg/l]	2.86509000[µg/l]	13.88258500[µg/l]	17.41495900[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	82960.94500	14463.47600	128966	6121462	477878	198646	562509
Int RSD	0.56528581	1.17067370	0.34269210	0.39512260	0.25058145	0.15109808	0.15179605
Int SD	468.96645000	169.32011000	441.95585000	24187.28100	1197.47400	300.15007000	853.86668000
RelInt Mean	0.01149052	0.00222136	0.01933079	2.60575010	0.20228179	0.03400040	0.23682968
RelInt RSD	1.01539669	1.51553834	0.58288078	0.18551137	0.34752495	0.31349410	0.22914918
RelInt SD	0.00011667	0.00003367	0.00011268	0.00483396	0.00070298	0.00010659	0.00054269
Conc Mean	<7866.70690[µg/l]	8412.41570[µg/l]	8066.28930[µg/l]	2075.16560[µg/l]	2002.58690[µg/l]	8088.77130[µg/l]	2049.79000[µg/l]
Conc RSD	1.01352646	1.52374733	0.60180780	0.18555445	0.34754751	0.31492935	0.22921855
Conc SD	79.73115600[µg/l]	128.18396000[µg/l]	48.54355800[µg/l]	3.85056210[µg/l]	6.95994090[µg/l]	25.47391500[µg/l]	4.69849900[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	130977	84679.21500	44706.92800	159792	1039039	8674851	49390.54900
Int RSD	0.23251645	0.23050229	0.22706145	0.21813691	0.68666615	0.53780044	0.34684964
Int SD	304.54289000	195.18753000	101.51220000	348.56443000	7134.72640	46653.38700	171.31094000
RelInt Mean	0.05342416	0.03448133	0.01792774	0.06701963	0.19247711	0.20208644	0.01992482
RelInt RSD	0.32123069	0.56310971	0.31077212	0.49642264	0.89038265	0.76041777	0.17955140
RelInt SD	0.00017161	0.00019417	0.00005571	0.00033270	0.00171378	0.00153670	0.00003578
Conc Mean	1979.20520[µg/l]	2116.29100[µg/l]	2047.92390[µg/l]	1983.41670[µg/l]	207.67494000[µg/l]	2062.75850[µg/l]	2053.66990[µg/l]
Conc RSD	0.32146980	0.56544062	0.31076208	0.49802452	0.91240831	0.76061051	0.17894878
Conc SD	6.36254700[µg/l]	11.96636900[µg/l]	6.36417100[µg/l]	9.87790150[µg/l]	1.89484340[µg/l]	15.68955800[µg/l]	3.67501720[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	545504	2355165	42875120	5426360	827679	341648	
Int RSD	0.51163703	0.32602906	0.22470238	0.25882188	0.17592930	0.71265568	
Int SD	2791.00180	7678.52090	96341.41600	14044.60700	1456.12930	2434.77380	
RelInt Mean	0.01251308	---	---	---	0.35104224	0.06079288	
RelInt RSD	0.75703652	---	---	---	0.19008044	0.91295600	
RelInt SD	0.00009473	---	---	---	0.00066726	0.00055501	
Conc Mean	2016.40960[µg/l]	2346154	42701914	5398314	2066.47280[µg/l]	202.30838000[µg/l]	
Conc RSD	0.75891649	---	---	---	0.19056138	0.91759279	
Conc SD	15.30286500[µg/l]	7608.69060	95678.83700	13923.92500	3.93789910[µg/l]	1.85636710[µg/l]	

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 6010B

Inst : MET11 IDF : 1.0
 Seqnum : 658226625085 File : met11_060618 Time : 06-JUN-2018 15:59
 Cal : 658226625001 Caldate : 06-JUN-2018

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/l	
Arsenic	A	ND	5.000	5.000	ug/l	
Barium	A	ND	5.000	1.250	ug/l	
Cadmium	A	ND	5.000	1.250	ug/l	
Chromium	A	ND	5.000	1.250	ug/l	
Cobalt	A	ND	5.000	1.250	ug/l	
Lead	A	ND	5.000	4.000	ug/l	
Molybdenum	A	ND	5.000	1.250	ug/l	
Nickel	A	ND	5.000	4.000	ug/l	
Selenium	A	ND	10.00	8.000	ug/l	
Thallium	A	ND	10.00	5.000	ug/l	
Zinc	A	ND	20.00	5.000	ug/l	
Beryllium	H	ND	2.000	0.5000	ug/l	
Copper	H	ND	5.000	2.500	ug/l	
Silver	H	ND	5.000	1.250	ug/l	
Vanadium	H	ND	5.000	1.250	ug/l	
Beryllium	R	ND	2.000	---	ug/l	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	H	42506351	43068983	1.32
Yttrium	A	2294555	2371367	3.35
Yttrium	R	5350631	5456491	1.98

Sample Name: CCB,1				Sample Type: Control Sample			
Measure Date: 2018-06-06 15:59:55		Recalculation Date:		State: Checked		Quality:	
	Ag 328.068	Al_R 396.152	Ar 430.0_A	Ar 430.0_R	As 189.042	B 249.677	Ba 230.424
Int Mean	30345.04500	19703.41000	1123189	1189446	2039.08710	6436.65370	5765.22760
Int RSD	1.363625669	2.82769313	1.21584321	0.46219218	1.86777451	0.11313636	1.73373891
Int SD	413.79283000	557.15197000	13656.21600	5497.52500	38.08554900	7.28219560	99.95399400
RelInt Mean	0.00003150	0.00009329	---	---	-0.00005185	0.00026857	0.00006023
RelInt RSD	12.72093867	13.92529237	---	---	29.16477391	7.66722698	37.09854600
RelInt SD	0.00000401	0.00001299	---	---	0.00001512	0.00002059	0.00002234
Conc Mean	<-0.03093477[µg/l]	<-9.12697680[µg/l]	1123189	1189446	<-0.06894477[µg/l]	<-4.65506750[µg/l]	<-0.57801078[µg/l]
Conc RSD	573.54211069	20.72084154	---	---	1957.32346	5.78393869	12.31543536
Conc SD	0.17742395[µg/l]	1.89118640[µg/l]	13656.21600	5497.52500	1.34947210[µg/l]	0.26924625[µg/l]	0.07118454[µg/l]
	Be 313.042	Ca_R 317.933	Cd 228.802	Co 228.616	Cr 267.716	Cu 324.754	Fe 259.941
Int Mean	59481.81000	32006.21300	5545.29010	5146.24210	5112.14270	37024.43000	7663.75640
Int RSD	0.49776017	2.26503151	0.80243156	1.81533578	0.97856944	1.53217589	0.88781924
Int SD	296.07676000	724.95081000	44.49715800	93.42157400	50.02586600	567.27939000	68.04030400
RelInt Mean	0.00079655	0.00589559	0.00012105	-0.00001758	0.00005710	0.00018151	0.00067343
RelInt RSD	1.32977470	1.77874841	20.27715658	112.25855624	12.54120456	3.10439720	2.48122357
RelInt SD	0.00001059	0.00010487	0.00002455	0.00001973	0.00000716	0.00000563	0.00001671
Conc Mean	0.03047659[µg/l]	<-48.17711100[µg/l]	<-0.30023605[µg/l]	<-0.48905381[µg/l]	<-0.49060873[µg/l]	<-0.18931848[µg/l]	<-0.55370546[µg/l]
Conc RSD	62.50513263	14.25738272	32.32375126	24.19109259	10.92356754	89.04008737	11.38094015
Conc SD	0.01904943[µg/l]	6.86879510[µg/l]	0.09704755[µg/l]	0.11830746[µg/l]	0.05359198[µg/l]	0.16856934[µg/l]	0.06301689[µg/l]
	Fe_R 373.486	K_R 769.896	Mg_R 383.230	Mn 257.611	Mo 202.095	Na_R 589.592	Ni 231.604
Int Mean	19550.11800	2621.24980	26195.29500	6293.78470	2832.90720	16179.04600	5703.86960
Int RSD	2.64405069	9.30602150	1.84231775	0.60792439	1.44131061	3.24772394	1.12474957
Int SD	516.91503000	243.93407000	482.60057000	38.26145200	40.83099200	525.45075000	64.15424900
RelInt Mean	-0.00003412	0.00006772	0.00058761	0.00006182	0.00005479	0.00043871	0.00003073
RelInt RSD	62.26829807	26.36014330	5.93760835	19.66498121	25.83402925	3.76620003	47.35632072
RelInt SD	0.00002125	0.00001785	0.00003489	0.00001216	0.00001416	0.00001652	0.00001455
Conc Mean	<-8.81667710[µg/l]	<212.29868000[µg/l]	<-8.74123120[µg/l]	<-0.43877352[µg/l]	<-0.42017651[µg/l]	67.83901200[µg/l]	<-0.36372109[µg/l]
Conc RSD	164.66899984	32.01754481	171.96019252	2.20687486	33.35424915	5.82084539	34.63847807
Conc SD	14.51833400[µg/l]	67.97282500[µg/l]	15.03143800[µg/l]	0.00968316[µg/l]	0.14014672[µg/l]	3.94880400[µg/l]	0.12598745[µg/l]
	Pb 220.353	Sb 206.833	Se 196.090	Sn 189.991	Sr_R 407.771	Ti 334.941	Tl 190.864
Int Mean	4782.85850	3079.40140	2131.89770	2205.06360	18865.77600	34813.60400	2178.04720
Int RSD	1.37557245	1.80398720	1.70381487	1.04063157	2.16645480	1.06480142	2.22608298
Int SD	65.79168400	55.55200700	36.32359000	22.94658800	408.71851000	370.69575000	48.48513800
RelInt Mean	0.00005583	0.00001520	-0.00001606	0.00009439	0.00347505	0.00010125	0.00001844
RelInt RSD	12.50040115	144.25892873	53.69249918	12.73895085	1.49250551	4.29659856	70.46701631
RelInt SD	0.00000698	0.00002192	0.00000863	0.00001202	0.00005187	0.00000435	0.00001299
Conc Mean	<-0.74300578[µg/l]	<0.94067842[µg/l]	<-1.25975720[µg/l]	<-3.60157960[µg/l]	<-1.25760400[µg/l]	0.51287158[µg/l]	<-1.52946980[µg/l]
Conc RSD	34.83096053	143.85800410	78.26120303	9.91259085	4.55992045	8.66015173	87.70995674
Conc SD	0.25879605[µg/l]	1.35324120[µg/l]	0.98590114[µg/l]	0.35700985[µg/l]	0.05734574[µg/l]	0.04441546[µg/l]	1.34149730[µg/l]
	V 292.464	Y 224.3_A	Y 371.0_A	Y_R 371.030	Zn 206.200	Be_R 313.107	
Int Mean	9335.39100	2371367	43068983	5456491	3079.82790	12068.07200	
Int RSD	1.79199789	0.35958390	0.37712042	0.91997795	1.29766845	2.63046922	
Int SD	167.29001000	8527.05320	162422	50198.51400	39.96595500	317.44692000	
RelInt Mean	0.00002919	---	---	---	0.00005491	0.00024897	
RelInt RSD	13.61178426	---	---	---	29.72824215	11.44814221	
RelInt SD	0.00000397	---	---	---	0.00001632	0.00002850	
Conc Mean	<-0.29264221[µg/l]	2362906	42898216	5428632	<-4.10081330[µg/l]	<-0.19491182[µg/l]	
Conc RSD	219.37056175	---	---	---	2.35039298	48.91107835	
Conc SD	0.64197086[µg/l]	8228.60350	162998	49913.24900	0.09638523[µg/l]	0.09533347[µg/l]	

SAMPLE PREPARATION SUMMARY

Batch # : 260184
 Started By : AS2
 Method : 3050B
 Spike #1 ID : S36450

Prep Date : 05-JUN-2018 09:40
 Spike #2 ID : S36449

Analysis : ICP
 Finished By : AS2
 Units : g
 Spike #3 ID : S36709

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
300092-001		Soil	10.04	500	1	49.80						6010	
QC934619	BLANK	Soil	10.08	500	1	49.60							
QC934620	BS	Soil	10.37	500	1	48.22	5	5	5				
QC934621	BSD	Soil	10.31	500	1	48.50	5	5	5				
QC934622	MS	Soil	10.01	500	1	49.95	5	5	5				
QC934623	MSD	Soil	10.24	500	1	48.83	5	5	5				
QC934790	SER	Soil	10.04	500	1	49.80							
QC934791	PDS	Soil	10.04	500	1	49.80							

Analyst: KER

Date: 06/06/18

Reviewer: PRW

Date: 06/06/18

Soil Digestion for ICP & ICP-MS Enthalpy Analytical LLC - Berkeley

Version 11.2, July.2017

LIMS Batch #: 260184
 Date Digested: 6.5.18
 Digested by: AS2

Digestion Method: Time ON: 0940
 EPA 3050b Time OFF: 1410

BK 4275
 Page 69

Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
BLANK		10.08	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	yes	✓	QC 934619
BS		10.37	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	934620
BSD		10.31	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	1
MS		10.01	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	2
MSP		10.24	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	3
300092-001 *		10.04	<input checked="" type="checkbox"/> 50 <input type="checkbox"/>	↓	✓	MSS*
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
			<input type="checkbox"/> 50 <input type="checkbox"/>			
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			<input type="checkbox"/> 50 <input type="checkbox"/>			

Balance ID: B13 calibration has been checked? Yes No

Reagent ID or LIMS # Initials / Date

SCP Digestion tubes / ESS Watch glass, lot#

Blank 'matrix' lot#

- 5 mL of spike solution (Std1) was added to all spikes
- 5 mL of spike solution (Std2) was added to all spikes
- 5 mL of spike solution (Std3) was added to all spikes

spettes

Vol.(mL) ID

<u>5</u>	<u>L556969</u>

Digestion Block ID, Probe Location

Temperature (°C), Thermometer ID

1:1 HNO3 Reagent ID

concentrated HNO3 lot#

3mL 30% hydrogen peroxide lot#

concentrated HCl lot#

filtered thru' Whatman 541, lot#

Relinquished to ICP group

		AS2/6.5.18
chemware: 23228917		
S 36450		
S 36449		
S 36709		
GLACIER	AS2 6.5.18	
93°C	6412392	
JTB 193289	060518	
JTB 193289		
EMD 57054803		
JTB 190962		
11401069		
ICP		

Alypashin 6.5.18
Digestion Chemist / Date

Continued from page 8
 Continued on page _____

Reviewed Online/ See LIMS

Mercury Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 388228541

Instrument : MET45
 Method : EPA 7470A

Begun : 06/07/18 17:01
 SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				06/07/18 17:01	1.0		
002	met45	ICAL	ICAL1			06/07/18 17:02	1.0	1	
003	met45	ICAL	ICAL2			06/07/18 17:03	1.0	1	
004	met45	ICAL	ICAL3			06/07/18 17:04	1.0	1	
005	met45	ICAL	ICAL4			06/07/18 17:05	1.0	1	
006	met45	ICAL	ICAL5			06/07/18 17:07	1.0	1	
007	met45	ICV				06/07/18 17:08	1.0	2	
008	met45	ICB				06/07/18 17:09	1.0		
009	met45	BLANK	QC934998	Soil	260280	06/07/18 17:10	1.0		
010	met45	BS	QC934999	Soil	260280	06/07/18 17:12	1.0		
011	met45	BSD	QC935000	Soil	260280	06/07/18 17:13	1.0		
012	met45	MSS	300377-001	Soil	260280	06/07/18 17:14	1.0		
013	met45	MS	QC935001	Soil	260280	06/07/18 17:15	1.0		
014	met45	MSD	QC935002	Soil	260280	06/07/18 17:17	1.0		
015	met45	SER	QC935003	Soil	260280	06/07/18 17:18	5.0		
016	met45	SAMPLE	300358-001	Miscell.	260280	06/07/18 17:19	1.0		
017	met45	SAMPLE	300358-002	Miscell.	260280	06/07/18 17:20	10.0		
018	met45	SAMPLE	300358-003	Miscell.	260280	06/07/18 17:21	1.0		
019	met45	CCV				06/07/18 17:23	1.0	3	
020	met45	CCB				06/07/18 17:24	1.0		
021	met45	SAMPLE	300358-002	Miscell.	260280	06/07/18 17:25	1.0		
022	met45	SAMPLE	300377-002	Soil	260280	06/07/18 17:27	1.0		
023	met45	SAMPLE	300414-001	Miscell.	260280	06/07/18 17:28	1.0		1:HG=13
024	met45	SAMPLE	300414-002	Miscell.	260280	06/07/18 17:29	1.0		
025	met45	SAMPLE	300257-001	Soil	260280	06/07/18 17:31	1.0		
026	met45	SAMPLE	300257-002	Soil	260280	06/07/18 17:32	1.0		
027	met45	SAMPLE	300257-003	Soil	260280	06/07/18 17:33	1.0		
028	met45	SAMPLE	300257-004	Soil	260280	06/07/18 17:34	1.0		
029	met45	SAMPLE	300257-005	Soil	260280	06/07/18 17:35	1.0		
030	met45	SAMPLE	300414-001	Miscell.	260280	06/07/18 17:37	5.0		
031	met45	CCV				06/07/18 17:38	1.0	3	
032	met45	CCB				06/07/18 17:39	1.0		
033	met45	SAMPLE	300414-002	Miscell.	260280	06/07/18 17:40	1.0		
034	met45	SAMPLE	300257-006	Soil	260280	06/07/18 17:42	1.0		
035	met45	SAMPLE	300442-001	Soil	260280	06/07/18 17:43	1.0		
036	met45	SAMPLE	300447-001	Soil	260280	06/07/18 17:44	10000		
037	met45	SAMPLE	300447-002	Soil	260280	06/07/18 17:45	10000		
038	met45	SAMPLE	300447-003	Soil	260280	06/07/18 17:47	10000		
039	met45	SAMPLE	300447-004	Soil	260280	06/07/18 17:48	10000		
040	met45	SAMPLE	300447-005	Soil	260280	06/07/18 17:49	10000		
041	met45	X	RINSE			06/07/18 17:50	1.0		
042	met45	BLANK	QC935009	Soil	260282	06/07/18 17:51	1.0		
043	met45	CCV				06/07/18 17:53	1.0	3	
044	met45	CCB				06/07/18 17:54	1.0		
045	met45	BS	QC935010	Soil	260282	06/07/18 17:55	1.0		
046	met45	BSD	QC935011	Soil	260282	06/07/18 17:56	1.0		
047	met45	MSS	300092-001	Soil	260282	06/07/18 17:58	1.0		1:HG=97
048	met45	MS	QC935012	Soil	260282	06/07/18 17:59	1.0		1:HG=92
049	met45	MSD	QC935013	Soil	260282	06/07/18 18:01	1.0		1:HG=97
050	met45	SER	QC935014	Soil	260282	06/07/18 18:02	5.0		1:HG=35
051	met45	SAMPLE	300260-001	Soil	260282	06/07/18 18:04	1.0		
052	met45	SAMPLE	300244-001	Soil	260282	06/07/18 18:05	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 388228541

Instrument : MET45 Begun : 06/07/18 17:01
 Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	300244-002	Soil	260282	06/07/18 18:06	1.0		
054	met45	SAMPLE	300244-003	Soil	260282	06/07/18 18:08	1.0		
055	met45	CCV				06/07/18 18:09	1.0	3	
056	met45	CCB				06/07/18 18:10	1.0		
057	met45	SAMPLE	300244-004	Soil	260282	06/07/18 18:11	1.0		
058	met45	SAMPLE	300244-005	Soil	260282	06/07/18 18:13	1.0		
059	met45	SAMPLE	300244-006	Soil	260282	06/07/18 18:14	1.0		
060	met45	SAMPLE	300244-007	Soil	260282	06/07/18 18:15	1.0		
061	met45	SAMPLE	300244-008	Soil	260282	06/07/18 18:16	1.0		
062	met45	SAMPLE	300244-009	Soil	260282	06/07/18 18:18	1.0		
063	met45	SAMPLE	300244-010	Soil	260282	06/07/18 18:19	1.0		1:HG=12
064	met45	SAMPLE	300244-011	Soil	260282	06/07/18 18:20	1.0		
065	met45	SAMPLE	300244-012	Soil	260282	06/07/18 18:22	1.0		
066	met45	SAMPLE	300244-013	Soil	260282	06/07/18 18:23	1.0		
067	met45	CCV				06/07/18 18:24	1.0	3	
068	met45	CCB				06/07/18 18:25	1.0		
069	met45	SAMPLE	300244-017	Soil	260282	06/07/18 18:27	1.0		
070	met45	SAMPLE	300244-016	Soil	260282	06/07/18 18:28	1.0		
071	met45	SAMPLE	300244-015	Soil	260282	06/07/18 18:29	1.0		
072	met45	SAMPLE	300244-014	Soil	260282	06/07/18 18:30	1.0		
073	met45	X	RINSE			06/07/18 18:32	1.0		
074	met45	MSS	300092-001	Soil	260282	06/07/18 18:33	20.0		
075	met45	SER	QC935014	Soil	260282	06/07/18 18:34	100.0		
076	met45	SAMPLE	300447-001	Soil	260280	06/07/18 18:35	100.0		1:HG=33
077	met45	SAMPLE	300447-002	Soil	260280	06/07/18 18:37	100.0		1:HG=23
078	met45	X	RINSE			06/07/18 18:38	1.0		
079	met45	CCV				06/07/18 18:40	1.0	3	
080	met45	CCB				06/07/18 18:41	1.0		
081	met45	SAMPLE	300447-004	Soil	260280	06/07/18 18:42	100.0		1:HG=56
082	met45	SAMPLE	300447-001	Soil	260280	06/07/18 18:44	1000		
083	met45	SAMPLE	300447-002	Soil	260280	06/07/18 18:45	1000		
084	met45	SAMPLE	300447-004	Soil	260280	06/07/18 18:46	1000		
085	met45	X	RINSE			06/07/18 18:47	1.0		
086	met45	SAMPLE	300244-010	Soil	260282	06/07/18 18:49	1.0		1:HG=12
087	met45	SAMPLE	300244-011	Soil	260282	06/07/18 18:50	1.0		
088	met45	X	RINSE			06/07/18 18:51	1.0		
089	met45	SAMPLE	300244-010	Soil	260282	06/07/18 18:53	5.0		
090	met45	SAMPLE	300244-011	Soil	260282	06/07/18 18:54	1.0		
091	met45	CCV				06/07/18 18:55	1.0	3	
092	met45	CCB				06/07/18 18:56	1.0		
093	met45	SAMPLE	300447-001	Soil	260280	06/07/18 19:14	1000		
094	met45	CCV				06/07/18 19:15	1.0	3	
095	met45	CCB				06/07/18 19:16	1.0		

SL 06/07/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 92.

Standards used: 1=S37243 2=S37245 3=S37246

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst : MET45 Lab ID : 300092-001 Client ID : RFS-B180-DU01
 Seqnum : 388228541074 Matrix : Soil Acct : TTEMI (MJD)
 File : met45 Batch : 260282 Time : 07-JUN-2018 18:33
 Cal : 388228541001 Caldate : 07-JUN-2018
 IDF : 20.0 Units : mg/Kg

0.57 g --> 50.0 ml = 87.72 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	17	0.35		u

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 74

Sample ID: 300092-001,260282,20

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 74

Date Collected: 6/7/2018 6:33:18 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: 300092-001,260282,20

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	9.443	9.443	0.3387	0.3450	0.1329	6:34:14 PM	Yes

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225322.01	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	RFS-B180-DU01	Batch#:	260282
MSS Lab ID:	300092-001	Sampled:	05/25/18
Matrix:	Soil	Received:	05/25/18
Units:	mg/Kg	Prepared:	06/07/18
Basis:	dry	Analyzed:	06/07/18

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
MS	QC935012	18.21	0.1962	9.066 >LR	-4659 NM	61-157	9%		
MSD	QC935013		0.1863	9.066 >LR	-4908 NM	61-157	9%	NC	57

NC= Not Calculated

NM= Not Meaningful: Sample concentration > 4X spike concentration

>LR= Response exceeds instrument's linear range

RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 300092 METALS Soil
EPA 7470A

Type : MSS	Type : MS	Type : MSD
Inst : MET45	Inst : MET45	Inst : MET45
Seqnum : 388228541074	Seqnum : 388228541048.3	Seqnum : 388228541049.3
File : met45	File : met45	File : met45
IDF : 20.0	IDF : 1.0	IDF : 1.0
Lab ID : 300092-001	Lab ID : QC935012	Lab ID : QC935013
Matrix : Soil	Matrix : Soil	Matrix : Soil
Batch : 260282	Batch : 260282	Batch : 260282
Time : 07-JUN-2018 18:33	Time : 07-JUN-2018 17:59	Time : 07-JUN-2018 18:01
Cal : 388228541001	Cal : 388228541001	Cal : 388228541001
Units : mg/Kg		

MSS: 0.57 g --> 50.0 ml = 87.72 ml/g PDF
 MS: 0.56 g --> 50.0 ml = 89.29 ml/g PDF
 MSD: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	MSS	Spiked	MS	%Rec	Spiked	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	16.57	0.1786	8.250 >LR	-4659	0.1695	8.250 >LR	-4908	61-157		57	: >LR u

:=recovery not meaningful >LR=overrange u=use

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 48

Sample ID: QC935012,260282,1

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 75

Date Collected: 6/7/2018 5:59:43 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: QC935012,260282,1

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StdConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	92.40	92.40	3.3030	3.3094	0.9979	6:00:39 PM	Yes

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 49

Sample ID: QC935013,260282,1

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 76

Date Collected: 6/7/2018 6:01:18 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: QC935013,260282,1

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	97.35	97.35	3.4798	3.4861	1.0332	6:02:14 PM	Yes

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225322.01	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Field ID:	RFS-B180-DU01	Diln Fac:	100.0
Type:	Serial Dilution	Batch#:	260282
MSS Lab ID:	300092-001	Sampled:	05/25/18
Lab ID:	QC935014	Received:	05/25/18
Matrix:	Soil	Analyzed:	06/07/18
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	Moisture %	Diff	Lim
18.21	0.3856	16.40	1.928	9%	10	10

RL= Reporting Limit

ENTHALPY SERIAL DILUTION FOR 300092 METALS Soil
EPA 7470A

Type : MSS
 Inst : MET45
 Seqnum : 388228541074
 File : met45
 IDF : 20.0
 Lab ID : 300092-001
 Matrix : Soil
 Batch : 260282
 Time : 07-JUN-2018 18:33
 Cal : 388228541001
 Units : mg/Kg

Type : SER
 Inst : MET45
 Seqnum : 388228541075.2
 File : met45
 IDF : 100.0
 Lab ID : QC935014
 Matrix : Soil
 Batch : 260282
 Time : 07-JUN-2018 18:34
 Cal : 388228541001

MSS: 0.57 g --> 50.0 ml = 87.72 ml/g PDF
 SER: 0.57 g --> 50.0 ml = 87.72 ml/g PDF

Analyte	MSS	RL	SER	RL	%D	Lim	Flags
Mercury	16.57	0.3509	14.92	1.754	10	10	u

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 75

Sample ID: QC935014,260282,100

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 77

Date Collected: 6/7/2018 6:34:31 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: QC935014,260282,100

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StdConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.702	1.702	0.0620	0.0684	0.0257	6:35:27 PM	Yes

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225322.01	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	260282
Matrix:	Soil	Prepared:	06/07/18
Units:	mg/Kg	Analyzed:	06/07/18
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC935010	0.1724	0.1698	98	80-126		
BSD	QC935011	0.1667	0.1550	93	80-126	6	45

RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 300092 METALS Soil
EPA 7470A

Type : BS
 Inst : MET45
 Seqnum : 388228541045.3
 File : met45
 IDF : 1.0
 Lab ID : QC935010
 Matrix : Soil
 Batch : 260282
 Time : 07-JUN-2018 17:55
 Cal : 388228541001
 Units : mg/Kg

Type : BSD
 Inst : MET45
 Seqnum : 388228541046.3
 File : met45
 IDF : 1.0
 Lab ID : QC935011
 Matrix : Soil
 Batch : 260282
 Time : 07-JUN-2018 17:56
 Cal : 388228541001

BS: 0.58 g --> 50.0 ml = 86.21 ml/g PDF
 BSD: 0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Spiked	BS	%Rec	Spiked	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.1724	0.1698	98	0.1667	0.1550	93	80-126	6	45	u

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 45

Sample ID: QC935010,260282,1

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 72

Date Collected: 6/7/2018 5:55:42 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: QC935010,260282,1

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StdConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.969	1.969	0.0716	0.0780	0.0284	5:56:38 PM	Yes

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 46

Sample ID: QC935011,260282,1

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 73

Date Collected: 6/7/2018 5:56:55 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: QC935011,260282,1

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StdConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.860	1.860	0.0677	0.0741	0.0280	5:57:51 PM	Yes

Batch QC Report

California Title 22 Metals			
Lab #:	300092	Location:	RFS Corp Yard
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	1035225322.01	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	260282
Lab ID:	QC935009	Prepared:	06/07/18
Matrix:	Soil	Analyzed:	06/07/18
Units:	mg/Kg		

Result	RL	MDL
ND	0.016	0.0028

ND= Not Detected at or above MDL

RL= Reporting Limit

MDL= Method Detection Limit

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 42

Sample ID: QC935009,260282,1

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 71

Date Collected: 6/7/2018 5:51:56 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: QC935009,260282,1

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	Blncorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.069	-0.069	-0.0012	0.0052	0.0023	5:52:52 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 300092 METALS Soil: EPA 7470A

Inst : MET45
 Calnum : 388228541001
 Units : ug/L

Date : 07-JUN-2018 17:01
 X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	388228541002	ICAL1	07-JUN-2018 17:02	S37243 (500X)
L2	met45	388228541003	ICAL2	07-JUN-2018 17:03	S37243 (200X)
L3	met45	388228541004	ICAL3	07-JUN-2018 17:04	S37243 (50X)
L4	met45	388228541005	ICAL4	07-JUN-2018 17:05	S37243 (20X)
L5	met45	388228541006	ICAL5	07-JUN-2018 17:07	S37243 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0465	0.0368	0.0371	0.0359	0.0359	LIN0	-0.0342	27.9861		0.0384	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	13	0.5000	-4	2.0000	2	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 388228541001

Cal Date : 07-JUN-2018

ICV 388228541007 (07-JUN-2018) stds: S37245

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.819	ug/L	-4	10	

=====
Analysis Begun

Logged In Analyst: mercury
Spectrometer: FIMS-100, S/N B050-9550

Technique: AA FIMS-MHS
Autosampler: Cetac

Sample Information File:

Batch ID:
Results Data Set: 060718s3
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

=====
Method Loaded

Method Name: MET45
Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

=====
Sequence No.: 1
Sample ID: ICALBLK
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 1
Date Collected: 6/7/2018 5:01:00 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: ICALBLK

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0064	0.0064	0.0024	5:01:56 PM	Yes

Auto-zero performed.

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 2

Sample ID: ICAL, ICAL1,S37243,500

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 2

Date Collected: 6/7/2018 5:02:12 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: ICAL, ICAL1,S37243,500

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0093	0.0157	0.0052	5:03:08 PM	Yes

Standard number 1 applied. [0.2]

Correlation Coef.: 1.000000 Slope: 0.04664 Intercept: 0.00000

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 3

Sample ID: ICAL, ICAL2,S37243,200

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 3

Date Collected: 6/7/2018 5:03:25 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: ICAL, ICAL2,S37243,200

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0184	0.0248	0.0093	5:04:21 PM	Yes

Standard number 2 applied. [0.5]

Correlation Coef.: 0.992593 Slope: 0.03636 Intercept: 0.00077

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 4

Sample ID: ICAL, ICAL3,S37243,50

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 4

Date Collected: 6/7/2018 5:04:39 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: ICAL, ICAL3,S37243,50

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	[2.0]	[2.0]	0.0742	0.0806	0.0297	5:05:35 PM	Yes

Standard number 3 applied. [2.0]

Correlation Coef.: 0.999621 Slope: 0.03673 Intercept: 0.00069

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 5

Sample ID: ICAL, ICAL4,S37243,20

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 5

Date Collected: 6/7/2018 5:05:53 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: ICAL, ICAL4,S37243,20

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1794	0.1858	0.0695	5:06:49 PM	Yes

Standard number 4 applied. [5.0]

Correlation Coef.: 0.999882 Slope: 0.03575 Intercept: 0.00121

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 6

Sample ID: ICAL, ICAL5,S37243,10

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 6

Date Collected: 6/7/2018 5:07:07 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

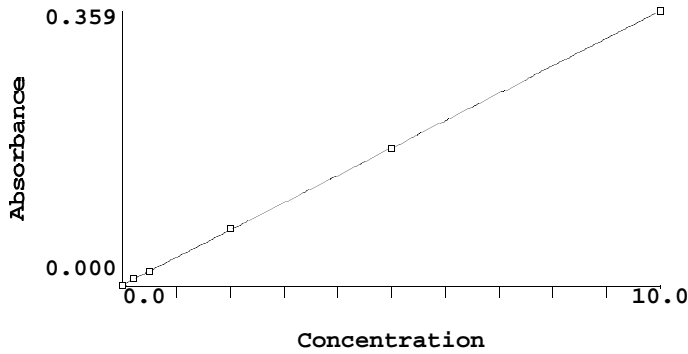
Replicate Data: ICAL, ICAL5,S37243,10

Analyte: Hg 253.7

Repl #	Sample Conc ug/L	Std Conc ug/L	Blk Corr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.3585	0.3649	0.1337	5:08:04 PM	Yes

Standard number 5 applied. [10.0]

Correlation Coef.: 0.999973 Slope: 0.03573 Intercept: 0.00123



Calibration data for Hg 253.7

Equation: Linear, Calculated Intercept

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	-0.035	----	----
ICAL, ICAL1,S37243,500	0.0093	0.2	0.226	----	----
ICAL, ICAL2,S37243,200	0.0184	0.5	0.481	----	----
ICAL, ICAL3,S37243,50	0.0742	2.0	2.041	----	----
ICAL, ICAL4,S37243,20	0.1794	5.0	4.987	----	----
ICAL, ICAL5,S37243,10	0.3585	10.0	9.999	----	----

Correlation Coef.: 0.999973 Slope: 0.03573 Intercept: 0.00123

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 7

Sample ID: ICV,S37245

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 8

Date Collected: 6/7/2018 5:08:22 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: ICV,S37245

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.817	4.817	0.1734	0.1798	0.0673	5:09:20 PM	Yes

QC value within limits for Hg 253.7 Recovery = 96.34%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541008
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 17:09

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 8

Sample ID: ICB

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 9

Date Collected: 6/7/2018 5:09:39 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: ICB

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	Blncorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.071	-0.071	-0.0013	0.0051	0.0022	5:10:36 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated

All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
 Seqnum : 388228541031
 Cal : 388228541001
 Standards: S37246

IDF : 1.0
 Time : 07-JUN-2018 17:38

File : met45
 Caldate : 07-JUN-2018

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0357	5.000	4.964	ug/L	-1	20	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 31

Sample ID: CCV,S37246

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 7

Date Collected: 6/7/2018 5:38:22 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCV,S37246

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	Blncorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.965	4.965	0.1786	0.1850	0.0676	5:39:19 PM	Yes

QC value within limits for Hg 253.7 Recovery = 99.30%

All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388228541032 File : met45 Time : 07-JUN-2018 17:39
Cal : 388228541001 Caldate : 07-JUN-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 32

Sample ID: CCB

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 10

Date Collected: 6/7/2018 5:39:38 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCB

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.029	-0.029	0.0002	0.0066	0.0022	5:40:36 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated

All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
 Seqnum : 388228541043 File : met45 Time : 07-JUN-2018 17:53
 Cal : 388228541001 Caldate : 07-JUN-2018
 Standards: S37246

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0355	5.000	4.939	ug/L	-1	20	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 43

Sample ID: CCV,S37246

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 7

Date Collected: 6/7/2018 5:53:09 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCV,S37246

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.939	4.939	0.1777	0.1841	0.0666	5:54:06 PM	Yes

QC value within limits for Hg 253.7 Recovery = 98.77%

All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541044
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 17:54

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 44

Sample ID: CCB

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 10

Date Collected: 6/7/2018 5:54:24 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCB

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.063	-0.063	-0.0010	0.0054	0.0021	5:55:23 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated

All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
 Seqnum : 388228541055
 Cal : 388228541001
 Standards: S37246

IDF : 1.0
 Time : 07-JUN-2018 18:09

File : met45
 Caldate : 07-JUN-2018

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0365	5.000	5.079	ug/L	2	20	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 55

Sample ID: CCV,S37246

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 7

Date Collected: 6/7/2018 6:09:25 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCV,S37246

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	Blncorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.078	5.078	0.1827	0.1891	0.0692	6:10:22 PM	Yes

QC value within limits for Hg 253.7 Recovery = 101.56%

All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388228541056 File : met45 Time : 07-JUN-2018 18:10
Cal : 388228541001 Caldate : 07-JUN-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 56

Sample ID: CCB

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 10

Date Collected: 6/7/2018 6:10:41 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCB

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StdConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.047	-0.047	-0.0004	0.0060	0.0023	6:11:39 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
 Seqnum : 388228541067
 Cal : 388228541001
 Standards: S37246

IDF : 1.0
 Time : 07-JUN-2018 18:24

File : met45
 Caldate : 07-JUN-2018

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0368	5.000	5.112	ug/L	2	20	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 67

Sample ID: CCV,S37246

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 7

Date Collected: 6/7/2018 6:24:38 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCV,S37246

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	Blncorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.112	5.112	0.1839	0.1903	0.0689	6:25:35 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.24%

All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541068
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 18:25

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 68

Sample ID: CCB

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 10

Date Collected: 6/7/2018 6:25:53 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCB

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StdConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.060	-0.060	-0.0009	0.0055	0.0023	6:26:51 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 300092 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
 Seqnum : 388228541079 File : met45 Time : 07-JUN-2018 18:40
 Cal : 388228541001 Caldate : 07-JUN-2018
 Standards: S37246

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0384	0.0369	5.000	5.132	ug/L	3	20	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 79

Sample ID: CCV,S37246

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 7

Date Collected: 6/7/2018 6:40:06 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCV,S37246

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StndConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.133	5.133	0.1846	0.1910	0.0694	6:41:04 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.66%

All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 300092 METALS Soil
EPA 7470A

Inst : MET45
Seqnum : 388228541080
Cal : 388228541001
File : met45
Caldate : 07-JUN-2018
IDF : 1.0
Time : 07-JUN-2018 18:41

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

Method Loaded

Method Name: MET45

Method Description: MET 45

Method Last Saved: 6/7/2018 4:55:57 PM

Sequence No.: 80

Sample ID: CCB

Analyst:

Initial Sample Wt:

Dilution:

Autosampler Location: 10

Date Collected: 6/7/2018 6:41:22 PM

Data Type: Original

Initial Sample Vol:

Sample Prep Vol:

Replicate Data: CCB

Analyte: Hg 253.7

Repl #	SampleConc ug/L	StdConc ug/L	BlkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.050	-0.050	-0.0005	0.0059	0.0022	6:42:20 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated

All analyte(s) passed QC.

SAMPLE PREPARATION SUMMARY

Batch # : 260282
 Started By : SL
 Method : METHOD
 Spike #1 ID : S37224

Prep Date : 07-JUN-2018 13:45

Analysis : HG
 Finished By : SL
 Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
300092-001		Soil	.57	50	1	87.72						T22/HG	
300244-001		Soil	.57	50	1	87.72						T22/HG	
300244-002		Soil	.6	50	1	83.33						T22/HG	
300244-003		Soil	.59	50	1	84.75						T22/HG	
300244-004		Soil	.58	50	1	86.21						T22/HG	
300244-005		Soil	.55	50	1	90.91						T22/HG	
300244-006		Soil	.61	50	1	81.97						T22/HG	
300244-007		Soil	.61	50	1	81.97						T22/HG	
300244-008		Soil	.59	50	1	84.75						T22/HG	
300244-009		Soil	.57	50	1	87.72						T22/HG	
300244-010		Soil	.6	50	1	83.33						T22/HG	
300244-011		Soil	.58	50	1	86.21						T22/HG	
300244-012		Soil	.62	50	1	80.65						T22/HG	
300244-013		Soil	.57	50	1	87.72						T22/HG	
300244-014		Soil	.62	50	1	80.65						T22/HG	
300244-015		Soil	.59	50	1	84.75						T22/HG	
300244-016		Soil	.6	50	1	83.33						T22/HG	
300244-017		Soil	.57	50	1	87.72						T22/HG	
300260-001		Soil	.58	50	1	86.21						T22/HG	
QC935009	BLANK	Soil	.63	50	1	79.37							
QC935010	BS	Soil	.58	50	1	86.21	1						
QC935011	BSD	Soil	.6	50	1	83.33	1						
QC935012	MS	Soil	.56	50	1	89.29	1						
QC935013	MSD	Soil	.59	50	1	84.75	1						
QC935014	SER	Soil	.57	50	1	87.72							

Analyst: SL

Date: 06/08/18

Reviewer: PRW

Date: 06/08/18

Soil Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 260282
 Date Digested: 6-7-18

Digestion Method: EPA 7471A/ 7471B

BK 4255

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Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		0.63	50 <input type="checkbox"/>	Y	QC 935009
BS		0.58	50 <input type="checkbox"/>		10
BSD		0.60	50 <input type="checkbox"/>		11
MS		0.56	50 <input type="checkbox"/>		12
5 MSD		0.59	50 <input type="checkbox"/>		13
300092.001		0.57	50 <input type="checkbox"/>		MSS
300260.001	B	0.58	50 <input type="checkbox"/>		
300244.001	F	0.57	50 <input type="checkbox"/>		
		0.60	50 <input type="checkbox"/>		
10		0.59	50 <input type="checkbox"/>		
		0.58	50 <input type="checkbox"/>		
		0.55	50 <input type="checkbox"/>		
		0.61	50 <input type="checkbox"/>		
		0.61	50 <input type="checkbox"/>		
15		0.59	50 <input type="checkbox"/>		
		0.57	50 <input type="checkbox"/>		
		0.60	50 <input type="checkbox"/>		
		0.58	50 <input type="checkbox"/>		
		0.62	50 <input type="checkbox"/>		
20		0.57	50 <input type="checkbox"/>		
		0.62	50 <input type="checkbox"/>		
		0.59	50 <input type="checkbox"/>		
		0.60	50 <input type="checkbox"/>		
		0.57	50 <input type="checkbox"/>		
		0.62	50 <input type="checkbox"/>		
		0.59	50 <input type="checkbox"/>		
		0.60	50 <input type="checkbox"/>		
		0.57	50 <input type="checkbox"/>		

Balance ID: B-9 calibration has been checked? Yes No

Reagent ID/ LIMS# / Time Initials / Date

Standards prepared per SOP: MET 5.2, rev. 20

Digestion Tubes, Lot #

EK18058 SL 6-7-18

Blank/LCS 'matrix' ID

R263-54013

1 mL of spike standard was added to all spikes

S37244

CAL digested with this batch? ICAL Std S#

S37243

ICV / CCV LIMS S#

S37245 / S37246

Pipettes

Digestion Temperature (°C), and Probe Location

94° 10

Vol.(mL) ID

Digestion block ID

.1	J281530
.2-1	G15693E
1.5	2424335
5-10	4645146

Thermometer #

SEQU01A

Thermometer #

6412091

Digestion Started at (time)

1355

1-[Aqua Regia (HNO3+ HCl) Reagent ID

060718

5% KMnO4 / Granular KMnO4 reagent ID

060718 -

NaCl.hydroxylamine hydrochloride Reagent ID

060518

Stannous Chloride Reagent ID

060718

Digestion Completed at (time)

1430

filtered thru' 0.45 um syringe filter (lot #)

SS71618103

[Signature] 6-7-18
 Prep Chemist / Date

Continued from page 0
 Continued on page _____

Reviewed Online / See LIMS
 Version 7.2, July.2017

Standards

S 32481

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CLPP-ICS-B
 Lot Number: K2-MEB652734
 Matrix: 7% (v/v) HNO3
 Value / Analyte(s): 100 µg/mL ea:
 Silver, Cadmium, Nickel,
 Lead, Zinc,
 50 µg/mL ea:
 Barium, Beryllium, Cobalt,
 Chromium+3, Copper, Manganese,
 Vanadium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Barium, Ba	50.00 ± 0.21 µg/mL	Beryllium, Be	50.00 ± 0.28 µg/mL
Cadmium, Cd	100.0 ± 0.4 µg/mL	Chromium+3, Cr3	50.01 ± 0.26 µg/mL
Cobalt, Co	50.02 ± 0.24 µg/mL	Copper, Cu	50.02 ± 0.20 µg/mL
Lead, Pb	100.0 ± 0.4 µg/mL	Manganese, Mn	50.00 ± 0.20 µg/mL
Nickel, Ni	100.0 ± 0.4 µg/mL	Silver, Ag	100.0 ± 0.5 µg/mL
Vanadium, V	49.99 ± 0.21 µg/mL	Zinc, Zn	100.0 ± 0.4 µg/mL

Certified Density: 1.035 g/mL (measured at 20 ± 1 °C)

Assay Information:

ICP interferences B SRC
 CLPP-ICS-B in Water
 KER 09-MAR-17 50-100 µg/mL
 S32481 B | Expires: 21-OCT-20

KER 3/9/17



300 Technology Drive
 Christiansburg, VA 24073 - USA
 info@inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 - 540.585.3030
 fax: 540.585.3017
 info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
 Catalog Number: CGMO1
 Lot Number: M2-MO657085
 Matrix: H2O
 tr. NH4OH
 Value / Analyte(s): 1 000 µg/mL ea:
 Molybdenum
 Starting Material: Ammonium Molybdate
 Starting Material Lot#: 2052
 Starting Material Purity: 99.9933%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1003 ± 6 µg/mL
 Certified Density: 1.000 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 **1005 ± 3 µg/mL**
 ICP Assay NIST SRM 3134 Lot Number: 130418

Assay Method #2 **1000 ± 4 µg/mL**
 Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

1000 ppm mo std SRC

IV MO

TLO 05-JUN-17

S33333 A | Expires: 05-JUN-18

TLO 6/5/17



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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGSE(4)1
Lot Number: M2-SE02058R
Matrix: 2% (v/v) HNO3
Value / Analyte(s): 1 000 µg/mL ea:
Selenium
Starting Material: Se Shot
Starting Material Lot#: 1616
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 4 µg/mL
Certified Density: 1.011 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	1004 ± 4 µg/mL ICP Assay NIST SRM 3149 Lot Number: 100901
Assay Method #2	1000 ± 5 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

TW 6/5/17

cal srted SRC
IV SE
TLO 05-JUN-17
S33338 A | Expires: 05-JUN-18

1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
 Catalog Number: CGCA1
 Lot Number: J2-CA04115
 Matrix: 0.1% (v/v) HNO3
 Value / Analyte(s): 1 000 µg/mL ea:
 Calcium
 Starting Material: CaO
 Starting Material Lot#: 1748
 Starting Material Purity: 99.9971%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1006 ± 2 µg/mL
 Certified Density: 1.002 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 1006 ± 3 µg/mL
 EDTA NIST SRM 928 Lot Number: 928
 Assay Method #2 1006 ± 6 µg/mL
 ICP Assay NIST SRM 3109a Lot Number: 130213

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

TW 6/5/17

STD 1000PPM SRC
 IV CA
 TLO 05-JUN-17 1000 ug/mL
 S33339 B | Expires: 05-JUN-18

1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
 Catalog Number: CGAS1
 Lot Number: K2-AS650402
 Matrix: 2% (v/v) HNO3
 Value / Analyte(s): 1 000 µg/mL ea:
 Arsenic
 Starting Material: As Pieces
 Starting Material Lot#: 1851
 Starting Material Purity: 99.9992%

TUO 6/20/17
 cal std SRC
 IV AS
 TLO 20-JUN-17 1000 µg/mL
 S33470 B | Expires: 20-JUN-18

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1000 ± 6 µg/mL
 Certified Density: 1.010 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 1000 ± 4 µg/mL
 ICP Assay NIST SRM 3103a Lot Number: 100818

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.



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1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
 Catalog Number: CGSB1
 Lot Number: K2-SB03048
 Matrix: 1% (v/v) HNO₃
 3% Tartaric Acid
 Value / Analyte(s): 1 000 µg/mL ea:
 Antimony
 Starting Material: Sb Pieces
 Starting Material Lot#: 1857/1647
 Starting Material Purity: 99.9835%

MNA 206 JUN 17
 cal std SRC
 IV SB
 MNA 06-JUN-17
 S33475 A 1 Expires: 06-JUN-18

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1000 ± 8 µg/mL
 Certified Density: 1.020 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 1000 ± 5 µg/mL
 ICP Assay NIST SRM 3102a Lot Number: 061229 Sb

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.



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2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
 Catalog Number: CGSR1
 Lot Number: K2-SR02059
 Matrix: 0.1% (v/v) HNO₃
 Value / Analyte(s): 1 000 µg/mL ea: Strontium
 Starting Material: SrCO₃
 Starting Material Lot#: 1922
 Starting Material Purity: 99.9967%

MNA 20 JUN 17

CPI STRONTIUM STANDARD 100 SRC
 CPI SR in Water
 MNA 20-JUN-17 1000 µg/mL
 S33476 A 1 Expires: 20-JUN-18

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1005 ± 5 µg/mL
 Certified Density: 1.001 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 1003 ± 4 µg/mL
 ICP Assay NIST SRM 3153a Lot Number: 990906

Assay Method #2 1005 ± 3 µg/mL
 EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.



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2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGTL1
Lot Number: K2-TL651554
Matrix: 1% (v/v) HNO3
Value / Analyte(s): 1 000 µg/mL ea:
Thallium
Starting Material: Thallium Nitrate
Starting Material Lot#: 2093
Starting Material Purity: 99.9964%

MNA 20 JUN 17
cal std SRC
IV TL
MNA 20-JUN-17 1000 ug/mL
S33477 A 1 Expires: 20-JUN-18

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 5 µg/mL
Certified Density: 1.005 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 1001 ± 5 µg/mL
ICP Assay NIST SRM 3158 Lot Number: 993012
Assay Method #2 1002 ± 6 µg/mL
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.



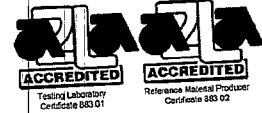
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2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGT11
Lot Number: J2-TI02102R
Matrix: 2% (v/v) HNO3
tr. HF
Value / Analyte(s): 1 000 µg/mL ea:
Ti
Starting Material: Ti Powder
Starting Material Lot#: 1836
Starting Material Purity: 99.9990%

MNA 20 JUN 17

10,000 ppm Ti SRC in None
TI 10K IV 10000 µg/mL
MNA 20-JUN-17
533478 A 1 Expires: 20-JUN-18

3.0 CERTIFIED VALUES AND UNCERTAINTIES

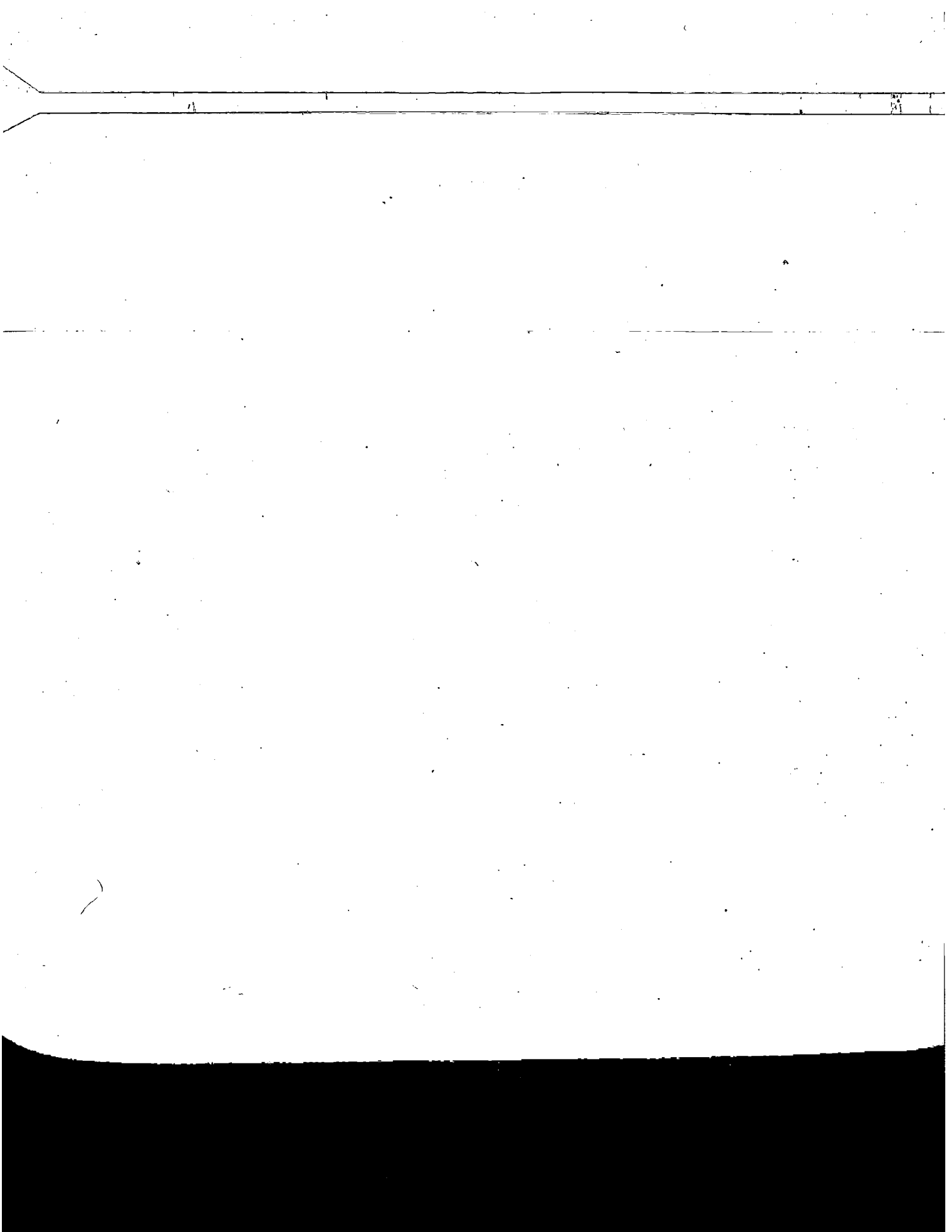
Certified Value: 1002 ± 4 µg/mL
Certified Density: 1.012 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	1002 ± 2 µg/mL ICP Assay NIST SRM 3162a Lot Number: 060808
Assay Method #2	1002 ± 4 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.





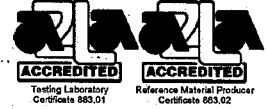
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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution

Catalog Number: CTL-18

Lot Number: M2-MEB660460

Matrix: 5% (v/v) HNO₃

Value / Analyte(s):

500 mg/L ea:	Potassium,	Sodium,	
200 mg/L ea:	Magnesium,	Calcium,	
100 mg/L ea:	Aluminum,	Boron,	Iron,
Phosphorus,			
20 mg/L ea:	Zinc,		
10 mg/L ea:	Selenium,	Thallium,	
5 mg/L ea:	Vanadium,	Strontium,	Lead,
Nickel,	Barium,	Silver,	Manganese,
Barium,	Cobalt,	Arsenic,	Cadmium,
Cobalt,	2 mg/L ea:	Chromium,	Copper,
Beryllium			

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Mult Level Multi Analyte C SRC
IV-ICAP-CTL-18 in Other
NBB 04-AUG-17 2-500 mg/L
S33885 B | Expires: 04-AUG-18
NBB 08-04-17

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	100.0 ± 0.3 mg/L	Arsenic, As	5.000 ± 0.030 mg/L
Barium, Ba	5.000 ± 0.030 mg/L	Beryllium, Be	2.000 ± 0.012 mg/L
Boron, B	100.0 ± 0.6 mg/L	Cadmium, Cd	5.000 ± 0.030 mg/L
Calcium, Ca	200.0 ± 0.9 mg/L	Chromium, Cr	5.000 ± 0.026 mg/L
Cobalt, Co	5.001 ± 0.026 mg/L	Copper, Cu	5.000 ± 0.030 mg/L
Iron, Fe	100.0 ± 0.4 mg/L	Lead, Pb	5.000 ± 0.022 mg/L
Magnesium, Mg	200.0 ± 0.8 mg/L	Manganese, Mn	5.000 ± 0.026 mg/L
Nickel, Ni	5.000 ± 0.030 mg/L	Phosphorus, P	100.0 ± 0.6 mg/L
Potassium, K	500.0 ± 1.9 mg/L	Selenium, Se	10.00 ± 0.05 mg/L
Silver, Ag	5.000 ± 0.034 mg/L	Sodium, Na	500.0 ± 1.9 mg/L
Strontium, Sr	5.000 ± 0.030 mg/L	Thallium, Tl	10.00 ± 0.06 mg/L
Vanadium, V	5.000 ± 0.030 mg/L	Zinc, Zn	20.00 ± 0.12 mg/L

Density: 1.031 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	992212
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Co	ICP Assay	3113	000630 Co
Co	EDTA	928	928
Cr	ICP Assay	3112a	030730Cr3
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Sr	EDTA	928	928
Sr	ICP Assay	3153a	990906
Tl	ICP Assay	3158	993012
Tl	Calculated		See Sec. 4.2
V	EDTA	928	928
V	ICP Assay	3165	992706
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a \& b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Low Silver Note: This solution contains "LOW" levels of Silver. Please store this entire bottle inside a sealed glass jar.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 02, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 02, 2020**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Michael Booth
Supervisor, Quality Control

Michael Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R. Gaines



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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CTL-19
Lot Number: M2-MEB660461
Matrix: 5% (v/v) HNO3
tr. HF
Value / Analyte(s): 40 mg/L ea:
Tin,
10 mg/L ea:
Titanium, Antimony,
5 mg/L ea:
Molybdenum

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	10.00 ± 0.07 mg/L	Molybdenum, Mo	5.000 ± 0.030 mg/L
Tin, Sn	40.00 ± 0.19 mg/L	Titanium, Ti	10.00 ± 0.06 mg/L

Density: 1.023 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
Sb	Calculated		See Sec. 4.2
Sn	ICP Assay	3161a	070330
Ti	ICP Assay	3162a	130925
Ti	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Muti level Multi Analyte C SRC
IV-ICAP-CTL-19 in Other
NBB 04-AUG-17 5-40 mg/L
S33887 B | Expires: 04-AUG-18

NBB 08-04-17

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{\text{CRM/RM}}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{\text{CRM/RM}} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{\text{char a}}$

X_b = mean of Assay Method B with standard uncertainty $u_{\text{char b}}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{\text{char a}})^2 / ((1/u_{\text{char a}})^2 + (1/u_{\text{char b}})^2)$$

$$w_b = (1/u_{\text{char b}})^2 / ((1/u_{\text{char a}})^2 + (1/u_{\text{char b}})^2)$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char a\&b}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{\text{char a\&b}} = [(w_a)^2 (u_{\text{char a}})^2 + (w_b)^2 (u_{\text{char b}})^2]^{1/2}$ where $u_{\text{char a}}$ and $u_{\text{char b}}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = \text{mean of Assay Method A with standard uncertainty } u_{\text{char a}}$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char a}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{\text{char a}} = \text{square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume}$

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 02, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 02, 2020**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R Gaines

S33979



1000 Technology Drive
Chandler, AZ 85073, USA
www.inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800 669 6799 / 540 560 1071
fax: 540 565 1072
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGAL10
Lot Number: K2-AL653003
Matrix: 7% (v/v) HNO3
Value / Analyte(s): 10 000 µg/mL ea.
Aluminum
Starting Material: Al Shot
Starting Material Lot#: 1834
Starting Material Purity: 99.9965%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10030 ± 33 µg/mL
Certified Density: 1.083 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 10008 ± 39 µg/mL
ICP Assay NIST SRM 3101a Lot Number: 140903
Assay Method #2 10039 ± 26 µg/mL
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Exp date updated NBB 06-04-18

~~10,000 ppm Al SRC
IV AL 10K in Other
KER 15-AUG-17 10000 ug/mL
S33979 | Expires: 21-MAR-18~~

OPENED on 03-21-18 by MNA.
CoA scanned into LIMS 06-04-18 NBB

NBB 06-04-18
10,000 ppm Al SRC
IV AL 10K in Other
KER 15-AUG-17 10000 ug/mL
S33979 | Expires: 21-MAR-19



Characterization of CRM by two independent methods

Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a\&b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a\&b} = [(w_a)^2(u_{char a})^2 + (w_b)^2(u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.000521	M Eu < 0.000521	O Na 0.039566	M Se < 0.003648	M Zn 0.030987
s Al <	O Fe 0.031494	M Nb < 0.000521	O Si 0.185691	O Zr 0.000399
M As < 0.012509	M Ga 0.002264	M Nd 0.004290	M Sm < 0.002085	
M Au < 0.000518	M Gd < 0.004170	O Ni < 0.012890	M Sn < 0.005212	
O B 0.008253	M Ge < 0.002606	M Os < 0.000518	O Sr 0.000202	
O Ba < 0.000659	M Hf < 0.000521	n P <	M Ta < 0.000521	
O Be < 0.000258	M Hg < 0.001555	M Pb 0.001549	M Tb < 0.000521	
M Bi < 0.005212	M Ho < 0.000521	M Pd < 0.000521	M Te < 0.014072	
O Ca 0.013185	M In < 0.002085	M Pr 0.000953	M Th < 0.007297	
M Cd < 0.004170	M Ir < 0.000518	M Pt < 0.000521	O Ti 0.001589	
M Ce 0.011680	O K 0.026175	M Rb < 0.000521	M Tl 0.003099	
M Co < 0.000521	O La 0.007115	M Re < 0.000521	M Tm < 0.000521	
O Cr 0.001038	O Li < 0.000103	M Rh < 0.000521	M U < 0.005212	
M Cs < 0.000521	M Lu < 0.000521	M Ru < 0.000518	M V 0.001549	
O Cu 0.030608	O Mg 0.016615	i S <	M W < 0.000521	
M Dy < 0.003127	O Mn 0.000589	M Sb < 0.018763	O Y < 0.002578	
M Er 0.000834	M Mo < 0.002085	O Sc 0.000548	M Yb < 0.000521	

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 26.98 +3 6 Al(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, HF and H₂SO₄. Avoid neutral media. Soluble in strongly basic NaOH forming the Al(OH)₄(H₂O)₂- species. Stable with most metals and inorganic anions. The phosphate is insoluble in water and only slightly soluble in acid.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

Al Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); a- Al₂O₃ (Na₂CO₃ fusion in PtO);

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 27 amu	30 ppt	N/A	12C15N, 13C14N, 1H12C14N, 11B16O, 54Cr2+, 54Fe2+
ICP-OES 167.078 nm	0.1/0.009 µg/mL	1	Fe
ICP-OES 394.401 nm	0.05/0.006 µg/mL	1	U, Ce
ICP-OES 396.152 nm	0.03/0.006 µg/mL	1	Mo, Zr, Ce

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 08, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 08, 2020**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Donna Senn
Product Documentation Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



S33996



300 Technology Drive
Christiansburg, VA 24073 - USA
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGNI10
Lot Number: M2-NI659619
Matrix: 3% (v/v) HNO3
Value / Analyte(s): 10 000 µg/mL ea:
Nickel
Starting Material: Ni metal
Starting Material Lot#: 2099
Starting Material Purity: 99.9983%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9979 ± 29 µg/mL
Density: 1.040 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 9967 ± 42 µg/mL
ICP Assay NIST SRM 3136 Lot Number: 120619
Assay Method #2 9985 ± 32 µg/mL
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

1000 ppm ni cal std SRC
IV NI in Other
NBB 16-AUG-17 1000 ug/mL
S33996 B | Expires: 02-OCT-18

NBB 10-02-17

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a}^2) / ((1/u_{char a}^2) + (1/u_{char b}^2))$$

$$w_b = (1/u_{char b}^2) / ((1/u_{char a}^2) + (1/u_{char b}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{tst}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2 (u_{char a}^2) + (w_b)^2 (u_{char b}^2)]^{1/2}$, where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{tst} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{tst}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{tst} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag	0.001262	M Eu	< 0.000854	O Na	0.007573	O Se	0.104282	O Zn	0.017477
O Al	0.010874	O Fe	0.012816	M Nb	< 0.000854	O Si	0.017865	M Zr	< 0.003418
O As	< 0.021040	M Ga	< 0.000854	M Nd	< 0.000854	M Sm	< 0.003418		
M Au	< 0.009400	M Gd	< 0.000854	s Ni	<	M Sn	< 0.000854		
O B	0.001747	M Ge	< 0.001709	M Os	< 0.005127	M Sr	0.000504		
M Ba	< 0.000854	M Hf	< 0.000854	i P	< 0.000001	M Ta	< 0.000854		
M Be	< 0.000854	O Hg	< 0.019988	M Pb	0.013127	M Tb	< 0.000854		
M Bi	< 0.001709	M Ho	< 0.000854	M Pd	< 0.000854	M Te	< 0.005128		
O Ca	0.004660	M In	< 0.018804	M Pr	< 0.000854	M Th	< 0.000854		
M Cd	0.001262	M Ir	0.003155	M Pt	< 0.000854	M Ti	< 0.011966		
M Ce	< 0.000854	O K	0.006214	M Rb	< 0.001709	M Tl	< 0.000854		
O Co	0.008932	M La	< 0.003418	M Re	< 0.017094	M Tm	< 0.000854		
O Cr	< 0.007890	O Li	0.000038	M Rh	< 0.005128	M U	< 0.000854		
M Cs	< 0.003418	M Lu	< 0.000854	M Ru	< 0.017092	M V	< 0.001709		
O Cu	< 0.013150	O Mg	0.000427	O S	< 0.065750	M W	< 0.001709		
M Dy	< 0.000854	O Mn	< 0.005260	M Sb	0.008204	M Y	< 0.000854		
M Er	< 0.000854	M Mo	< 0.005128	M Sc	< 0.001709	M Yb	< 0.000854		

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 58.69 +2 6 Ni(H₂O)₆²⁺
Chemical Compatibility - Stable in HCl, HNO₃, H₂SO₄, HF, H₃PO₄. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO₃ / LDPE container.

Ni Containing Samples (Preparation and Solution) -Metal (Soluble in HNO₃); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO₃).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 60 amu	100 ppt	n/a	43Ca16O1H , 44Ca16O, 23Na37Cl
ICP-OES 221.647 nm	0.01 / 0.0009 µg/mL	1	Si
ICP-OES 231.604 nm	0.02 / 0.002 µg/mL	1	Sb, Ta, Co
ICP-OES 232.003 nm	0.02 / 0.006 µg/mL	1	Cr, Re, Os, Nb, Ag, Pt, Fe

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 600.868.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 06, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **July 06, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



S33997



300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGCR(3)10
Lot Number: K2-CR03122
Matrix: 10% (v/v) HNO3
Value / Analyte(s): 10 000 µg/mL ea.: Chromium+3
Starting Material: Cr Flake
Starting Material Lot#: 1661
Starting Material Purity: 99.9899%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10030 ± 54 µg/mL
Certified Density: 1.076 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 10030 ± 53 µg/mL
ICP Assay NIST SRM 3112a Lot Number: 030730Cr3

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Cr std SRC
IV CR
NBB 16-AUG-17 1000 ug/mL
S33997 B | Expires: 02-OCT-18

NBB 10-02-17

TPP222

Characterization of CRM by two independent methods

Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$
 X_b = mean of Assay Method B with standard uncertainty $u_{char b}$
 w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:
 $w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$
 $w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$

CRM/RM Expanded Uncertainty (\pm) = $U_{CRM/RM} = k(u^2_{char a \& b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures
 $u_{char a \& b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume
 u_{bb} = bottle to bottle homogeneity standard uncertainty
 u_{lts} = long term stability standard uncertainty (storage)
 u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char a}$

CRM/RM Expanded Uncertainty (\pm) = $U_{CRM/RM} = k(u^2_{char a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures
 $u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume
 u_{bb} = bottle to bottle homogeneity standard uncertainty
 u_{lts} = long term stability standard uncertainty (storage)
 u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm .

M Ag < 0.001009	M Eu < 0.025220	O Na 0.167171	M Se < 0.050441	O Zn < 0.036630
O Al 0.025633	O Fe 0.378922	M Nb < 0.025220	n Si <	M Zr < 0.015132
M As < 0.025220	O Ga < 0.024420	M Nd < 0.001009	M Sm < 0.000504	
M Au < 0.000504	M Gd < 0.000504	O Ni 0.011423	M Sn < 0.015132	
O B 0.008080	M Ge < 0.005044	n Os <	M Sr < 0.025220	
M Ba < 0.025220	M Hf < 0.000504	i P <	M Ta < 0.000504	
M Be < 0.002522	O Hg < 0.003663	M Pb 0.005410	M Tb < 0.000504	
M Bi < 0.010088	M Ho < 0.000504	M Pd < 0.005044	M Te < 0.010088	
O Ca 0.070212	M In < 0.001009	M Pr < 0.001513	M Th < 0.000504	
M Cd < 0.001513	M Ir < 0.000504	M Pt < 0.000504	O Ti 0.022290	
M Ce < 0.001513	O K 0.089158	i Rb <	M Tl < 0.000504	
O Co 0.072720	M La < 0.000504	M Re < 0.015132	M Tm < 0.030264	
s Cr <	O Li < 0.004274	M Rh < 0.100881	M U < 0.000504	
M Cs < 0.005044	M Lu < 0.000504	M Ru < 0.050441	M V < 0.075661	
O Cu 0.059624	O Mg 0.006687	i S <	M W 0.051565	
M Dy < 0.000504	O Mn 0.007523	M Sb < 0.020176	M Y < 0.001513	
M Er < 0.010088	M Mo 0.189685	M Sc < 0.020176	M Yb < 0.000504	

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 52.00 +3 6 Cr(H₂O)₆³⁺
Chemical Compatibility - Stable in HCl, HNO₃, H₂SO₄, HF, H₃PO₄. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO₃ / LDPE container.

Cr₃ Containing Samples (Preparation and Solution) -Metal (soluble in HCl); Oxides/Ores (Chrome ore/oxides are very difficult to dissolve. The following procedures [A-D] are commonly used: A. Fusion with KH₂SO₄ and extraction with hot KCl. The residue fused with Na₂CO₃ and KClO₃, 3:1. B. Fusion with NaKSO₄ and NaF 2:1, C. Fusion with magnesia or lime and sodium or potassium carbonates, 4:1. D. Fusion with Na₂O₂ or NaOH and KNO₃ or NaOH and Na₂O₂. Nickel, iron, copper, or silver crucibles should be used for D. Platinum may be used for A, B, C); Organic Matrices (ash at 4500C followed by one of the fusion methods above or sulfuric/hydrogen peroxide acid digestions may be applicable to non oxide containing samples).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 52 amu	40 ppt	N/A	36S16O, 36Ar16O - The 50Cr, 53Cr, 54Cr lines suffer from many more potential interferences from sulfur, chlorine and argon compounds of oxygen, nitrogen and carbon.
ICP-OES 205.552 nm	0.006/0.0008 µg/mL	1	Os
ICP-OES 276.654 nm	0.01/0.001 µg/mL	1	Cu, Ta, V
ICP-OES 284.325 nm	0.008/0.0007 µg/mL	1	

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 14, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 14, 2020**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Donna Senn
Product Documentation Technician




Certificate Approved By:

Michael Booth
QC Supervisor



Certifying Officer:

Paul Gaines
PhD., Senior Technical Director



S33998



CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGCU10
Lot Number: M2-CU03008R
Matrix: 3% (v/v) HNO3
Value / Analyte(s): 10 000 µg/mL ea.
Copper
Starting Material: Cu shot
Starting Material Lot#: 1718
Starting Material Purity: 100.0000%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10047 ± 22 µg/mL
Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 10042 ± 36 µg/mL
ICP Assay NIST SRM 3114 Lot Number: 121207
Assay Method #2 10050 ± 25 µg/mL
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

~~Cu std SRC
IV CU
NBB 16-AUG-17 1000 ug/mL
S33998 B | Expires: 02-OCT-17~~

Cu std SRC
IV CU
NBB 16-AUG-17 1000 ug/mL
S33998 B | Expires: 02-OCT-18

~~NBB 10-OCT-17~~
NBB 10-02-17

899822

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a \& b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.017868	M Eu < 0.026802	O Na	0.001685	M Se < 0.071472	O Zn < 0.010000
O Al < 0.000900	O Fe < 0.001100	M Nb < 0.004467	O Si < 0.003400	M Zr < 0.044670	
M As < 0.089340	M Ga < 0.008934	M Nd < 0.017868	M Sm < 0.008934		
M Au < 0.026802	M Gd < 0.008934	O Ni < 0.003000	O Sn < 0.004000		
M B < 0.625382	M Ge < 0.053604	n Os <	M Sr < 0.004467		
M Ba < 0.089340	M Hf < 0.017868	O P < 0.002500	M Ta < 0.062538		
M Be < 0.004467	O Hg < 0.015000	O Pb < 0.010000	M Tb < 0.002680		
M Bi < 0.003573	M Ho < 0.004467	M Pd < 0.044670	M Te < 0.268021		
O Ca < 0.000786	M In < 0.089340	M Pr < 0.002680	M Th < 0.008934		
M Cd < 0.026802	M Ir < 0.044670	M Pt < 0.017868	M Ti < 0.446701		
M Ce < 0.044670	O K < 0.002247	M Rb < 0.008934	M Tl < 0.008934		
M Co < 0.026802	M La < 0.004467	M Re < 0.008934	M Tm < 0.003573		
M Cr < 0.044670	O Li < 0.000020	M Rh < 0.008934	M U < 0.017868		
M Cs < 0.002680	M Lu < 0.003573	M Ru < 0.017868	O V < 0.003000		
s Cu <	O Mg < 0.000033	n S <	M W < 0.089340		
M Dy < 0.053604	O Mn < 0.000200	M Sb < 0.004467	M Y < 0.357361		
M Er < 0.044670	M Mo < 0.017868	M Sc < 0.089340	M Yb < 0.008934		

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 63.55 +2 6 Cu(H₂O)₆²⁺
Chemical Compatibility - Stable in HCl, HNO₃, H₂SO₄, HF, H₃PO₄. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO₃ / LDPE container.

Cu Containing Samples (Preparation and Solution) -Metal (soluble in HNO₃); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO₃).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 63 amu	10 ppt	n/a	40Ar23Na 47Ti16O, 14N12C37Cl, 16O12C35Cl, 23Na40Ca
ICP-OES 219.958 nm	0.01/.002 µg/mL	1	Th, Ta, Nb, U, Hf
ICP-OES 224.700 nm	0.01/.001 µg/mL	1	Pb, Ir, Ni, W
ICP-OES 324.754 nm	0.06/.001 µg/mL		Nb, U, Th, Mo, Hf

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 08, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 08, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

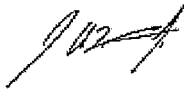
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

James King Jr
Chemist, Technical Manager



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO; Senior Technical Director



533999



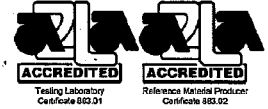
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGMN10
Lot Number: K2-MN653474
Matrix: 3% (v/v) HNO3
Value / Analyte(s): 10 000 µg/mL ea:
Manganese
Starting Material: Mn Flake
Starting Material Lot#: 1909 and 1573
Starting Material Purity: 99.9920%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9.976 ± 22 µg/mL
Certified Density: 1.034 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 9.978 ± 42 µg/mL
ICP Assay NIST SRM 3132 Lot Number: 050429
Assay Method #2 9.975 ± 25 µg/mL
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Mn std SRC
IV MN
NBB 16-AUG-17
S33999 B | Expires: 02-OCT-18

NBB 10-02-17

PPP287

Characterization of CRM by two independent methods

Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char a\&b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a\&b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.000671	M Eu < 0.000671	O Na 0.119747	M Se < 0.014098	O Zn < 0.023580
O Al 0.036105	O Fe 0.009227	M Nb < 0.000671	O Si 0.126366	M Zr < 0.004699
M As < 0.006713	M Ga <	M Nd < 0.006713	M Sm < 0.004028	
M Au < 0.000671	M Gd < 0.006713	M Ni 0.014048	M Sn < 0.004028	
M B 0.114555	M Ge < 0.100699	M Os < 0.000650	O Sr 0.001544	
M Ba < 0.003357	M Hf < 0.000671	i P <	M Ta < 0.000671	
M Be < 0.001343	M Hg < 0.003249	M Pb 0.010850	M Tb < 0.000671	
M Bi < 0.000671	M Ho < 0.000671	M Pd < 0.006713	M Te < 0.040280	
O Ca 0.050145	M In < 0.000671	M Pr < 0.002685	M Th < 0.000671	
M Cd < 0.001343	M Ir < 0.000650	M Pt < 0.000671	O Ti < 0.001179	
M Ce < 0.013427	O K 0.019055	M Rb < 0.010741	M Tl < 0.000671	
M Co 0.019416	M La < 0.006713	M Re < 0.000671	M Tm < 0.000671	
M Cr 0.009137	O Li 0.000802	M Rh < 0.020140	M U < 0.004028	
M Cs < 0.000671	M Lu < 0.000671	M Ru < 0.000650	M V < 0.000671	
M Cu 0.013134	O Mg 0.365058	i S <	M W < 0.006713	
M Dy < 0.003357	s Mn <	M Sb < 0.013427	M Y < 0.033566	
M Er < 0.003357	O Mo < 0.011790	O Sc < 0.001179	M Yb < 0.002014	

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 54.94 +2 6 Mn(H₂O)₆²⁺

Chemical Compatibility - Stable in HCl, HNO₃, H₂SO₄, HF, H₃PO₄. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5 % HNO₃/LDPE container.

Mn Containing Samples (Preparation and Solution) -Metal (Soluble in dilute acids); Oxides (Soluble in dilute acids); Ores (Dissolve with HCl. If silica is present add HF and then fume off silica by adding H₂SO₄ and heat to SO₃ fumes - dense white fumes).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 55 amu	10 ppt	n/a	40Ar14N1H,39K16 O,37Cl18O,40Ar15 N,38Ar17O,36Ar18O 1H ,38Ar16O1H,37Cl17 O1H,23Na32S
ICP-OES 257.610 nm	0.0014 / 0.00002 µg/mL	1	Ce, W, Re
ICP-OES 259.373 nm	0.0016 / 0.00002 µg/mL	1	U, Ta, Mo, Fe, Nb
ICP-OES 260.569 nm	0.0021 / 0.00002 µg/mL	1	Co

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.659.6795; 540.585.3030, Fax: 540.585.3012; Inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 23, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 23, 2020**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

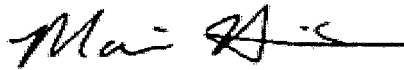
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

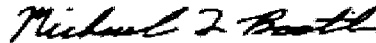
Certificate Prepared By:

Maurice Harris
Product Documentation Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



534293

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
 Catalog Number: CGV10
 Lot Number: M2-V655653
 Matrix: 7% (v/v) HNO3
 Value / Analyte(s): 10 000 µg/mL ea:
 Vanadium
 Starting Material: V2O5
 Starting Material Lot#: 1782
 Starting Material Purity: 99.9931%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10010 ± 28 µg/mL
 Certified Density: 1.105 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1 9993 ± 44 µg/mL
 ICP Assay NIST SRM 3165 Lot Number: 992706

Assay Method #2 10019 ± 30 µg/mL
 EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

10,000 ppm Vanadium SRC
 IV V 10K in Water
 NBB 18-SEP-17 10000 ug/mL
 534293 B | Expires: 17-NOV-18

NBB 11-17-17

SP 0482
Characterization of CRM by two independent methods

Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a\&b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a\&b} = ((w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2)^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.001011	M Eu < 0.000101	O Na 0.072598	M Se < 0.007079	O Zn < 0.005525
M Al 0.074535	O Fe 0.354042	M Nb < 0.002427	O Si 0.210392	M Zr < 0.002427
M As < 0.002326	M Ga 0.004652	M Nd < 0.000101	M Sm < 0.000101	
M Au < 0.000606	M Gd < 0.000101	M Ni < 0.005461	M Sn < 0.002629	
M B < 0.018507	M Ge < 0.000606	n Os <	O Sr 0.001215	
M Ba 0.001314	M Hf < 0.000101	O P < 0.055250	M Ta < 0.000101	
M Be < 0.000101	M Hg < 0.001416	M Pb 0.001011	M Tb < 0.000101	
M Bi < 0.000202	M Ho < 0.000101	M Pd < 0.000101	M Te < 0.011023	
O Ca 0.092599	M In < 0.000101	M Pr < 0.000101	M Th < 0.000202	
M Cd < 0.000202	M Ir < 0.000101	M Pt < 0.000101	O Ti 0.014696	
M Ce < 0.000101	M K 0.086671	M Rb < 0.000404	M Tl < 0.000202	
O Co < 0.009945	M La < 0.000202	M Re < 0.000101	M Tm < 0.000101	
O Cr 0.158899	O Li < 0.002099	M Rh < 0.000101	M U < 0.000202	
M Cs 0.006877	M Lu < 0.000101	M Ru < 0.000101	s V <	
M Cu < 0.000606	M Mg 0.010113	n S <	M W 0.001112	
M Dy < 0.000101	M Mn 0.007382	M Sb 0.075951	M Y < 0.000202	
M Er < 0.000101	O Mo 0.072709	M Sc < 0.000202	M Yb < 0.000101	

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 50.94 +5 6 H2V10O284-

Chemical Compatibility -Soluble in HCl, HNO3, H2SO4, HF, H3PO4 and strong basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.

V Containing Samples (Preparation and Solution) -Metal (Fusion with NaOH or KOH in NiO or Na2CO3 / KNO3); Oxides (V2O3 - use HCl, V2O4 - use HCl or HNO3, V2O5 - use concentrated acids); Ores (Na2CO3 / KNO3 in PtO caution - nitrates attack PtO followed by water extraction of fuseate); Organic Matrices (Ash at 450 EC followed by dissolving according to V2O5 above).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 51 amu	4 ppt	N/A	34S16O1H, 35Cl16O, 38Ar13C, 36Ar15N, 36Ar14N1H, 37Cl14N,36S15N, 33S18O, 34S17O, 102Ru+2,02Pd+2
ICP-OES 290.882 nm	0.008 / 0.0008 µg/mL	1	Hf, Nb
ICP-OES 292.402 nm	0.006 / 0.001 µg/mL	1	Th
ICP-OES 309.311 nm	0.005 / 0.001 µg/mL	1	Mg, U, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 06, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **March 06, 2021**

- The date after which this CRM/RM should not be used.
- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Donna Senn
Product Documentation Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director





300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

~~S34456~~ NBB 10-02-17
~~S34455~~ NBB 10-02-17
~~S34456~~ NBB 10-02-17

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories".
Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CTL-16
Lot Number: K2-MEB651894
Matrix: 7% (v/v) HNO3
Value / Analyte(s): 1 000 mg/L ea:
Aluminum, Arsenic, Boron,
Barium, Beryllium, Calcium,
Cadmium, Cobalt, Chromium+3,
Copper, Iron, Potassium,
Magnesium, Manganese, Sodium,
Nickel, Phosphorus, Lead,
Selenium, Strontium, Thallium,
Vanadium, Zinc,
200 mg/L ea:
Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	1 000 ± 5 mg/L	Arsenic, As	1 000 ± 9 mg/L
Barium, Ba	1 000 ± 4 mg/L	Beryllium, Be	1 000 ± 6 mg/L
Boron, B	1 000 ± 6 mg/L	Cadmium, Cd	1 000 ± 4 mg/L
Calcium, Ca	1 000 ± 4 mg/L	Chromium+3, Cr3	1 000 ± 5 mg/L
Cobalt, Co	1 000 ± 4 mg/L	Copper, Cu	1 000 ± 4 mg/L
Iron, Fe	1 000 ± 4 mg/L	Lead, Pb	1 000 ± 4 mg/L
Magnesium, Mg	1 000 ± 4 mg/L	Manganese, Mn	1 000 ± 4 mg/L
Nickel, Ni	1 000 ± 4 mg/L	Phosphorus, P	1 000 ± 4 mg/L
Potassium, K	1 000 ± 4 mg/L	Selenium, Se	1 000 ± 6 mg/L
Silver, Ag	200.0 ± 1.0 mg/L	Sodium, Na	1 000 ± 4 mg/L
Strontium, Sr	1 000 ± 4 mg/L	Thallium, Tl	1 000 ± 7 mg/L
Vanadium, V	1 000 ± 4 mg/L	Zinc, Zn	1 000 ± 4 mg/L

~~1000 mg/L Multi Analyte Cu SRC~~
~~IV-ICAP-CTL-17 in Water~~
~~NBB 02-OCT-17 1000 mg/L~~
~~S34456 B | Expires: 02-OCT-18~~

NBB 10-02-17

1000 mg/L, 200 mg/L Multi SRC
IV-ICAP-CTL-16 in Water
NBB 02-OCT-17 200-1000 mg/L
S34455 A | Expires: 02-OCT-18

NBB 10-02-17

7-1-00-01 88M

22.122 Certified Density:

1.114 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	992212
Ag	Volhard	999b	999b
Al	ICP Assay	3101a	060502
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
Ba	ICP Assay	3104a	070222
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	050825
Ca	EDTA	928	928
Cd	ICP Assay	3108	060531
Cd	EDTA	928	928
Co	ICP Assay	3113	000630 Co
Co	EDTA	928	928
Cr3	ICP Assay	3112a	030730
Cr3	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	050302
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	Gravimetric		
Na	ICP Assay	3152a	120715
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101028
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	3153a	990906
Tl	ICP Assay	3158	993012
V	EDTA	928	928
V	ICP Assay	3165	992706
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a\&b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a\&b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume.

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 19, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 19, 2019**

- The date after which this CRM/RM should not be used.
- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

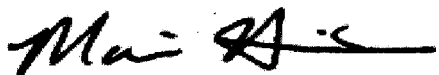
11.3 Period of Validity

- Sealed TCT Bag Open Date: _____
- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

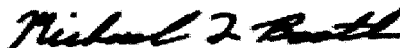
Certificate Prepared By:

Maurice Harris
Product Documentation Technician



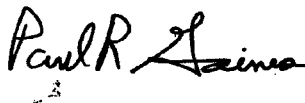
Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



NBB 10-02-17
~~S34455~~ S34456

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CTL-17
 Lot Number: K2-MEB652000
 Matrix: 5% (v/v) HNO3
 2.3% (v/v) HF
 Value / Analyte(s): 1 000 mg/L ea:
 Molybdenum, Antimony, Tin,
 Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	1 000 ± 7 mg/L	Molybdenum, Mo	1 000 ± 5 mg/L
Tin, Sn	1 000 ± 4 mg/L	Titanium, Ti	1 000 ± 6 mg/L

Density: 1.036 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102A	061229
Sn	ICP Assay	3161a	070330
Sn	Calculated		See Sec. 4.2
Ti	ICP Assay	3162a	130925

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

~~1000 mg/L, 200 mg/L Multi SRC
 IV-ICAP-CTL-16 in Water
 NBB 02-OCT-17 200-1000 mg/L
 S34455 B | Expires: 02-OCT-18~~

NBB 10-02-17

NBB 10-02-17

1000 mg/L Multi Analyte Cu SRC
 IV-ICAP-CTL-17 in Water
 NBB 02-OCT-17 1000 mg/L
 34456 A | Expires: 02-OCT-18

NBB 10-02-17

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$
 X_b = mean of Assay Method B with standard uncertainty $u_{char b}$
 w_a and w_b = the weighing factors for each method calculated using the inverse square of the variance:
 $w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$
 $w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$

CRM/RM Expanded Uncertainty (\pm) = $U_{CRM/RM} = k (u_{char a \& b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$
 k = coverage factor = 2 in all cases at Inorganic Ventures
 $u_{char a \& b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume
 u_{bb} = bottle to bottle homogeneity standard uncertainty
 u_{lts} = long term stability standard uncertainty (storage)
 u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

CRM/RM Expanded Uncertainty (\pm) = $U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$
 k = coverage factor = 2 in all cases at Inorganic Ventures
 $u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume
 u_{bb} = bottle to bottle homogeneity standard uncertainty
 u_{lts} = long term stability standard uncertainty (storage)
 u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.
- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 22, 2019**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

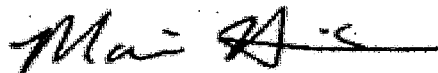
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Maurice Harris
Product Documentation Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J. Booth

Certifying Officer:

Paul R. Zaina
CEO, Senior Technical Director

Paul R. Zaina

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gama
CEO, Senior Technical Director

Paul R Gama



Certificate of Analysis

Product Description:

Part Number: **C1-141001RH08-Vol**
 Solution A
 Lot Number: **1728433**
 Matrix: **5% HNO₃**
 Purity: **99.98% - 99.9999%**

Muti level 22 Element Cust SRC
 ESI-ICV-SOL A in Other
 NBB 02-NOV-17 50-2000 mg/L
 S34844 B | Expires: 01-OCT-18

NBB 11-02-17

Certified Values:

Element	(mg/L)	SRM ID	SRM Lot#	Element	(mg/L)	SRM ID	SRM Lot#
Al	2000 ± 10	3101a	140903	Pb	500 ± 3	3128	101026
As	500 ± 5	3103a	100818	Mg	2000 ± 10	3131a	140110
Ba	500 ± 3	3104a	140909	Mn	500 ± 5	3132	050429
Be	50.0 ± 0.5	3105a	090514	Ni	500 ± 3	3136	120619
B	500 ± 3	3107	110830	K	2000 ± 10	3141a	140813
Cd	500 ± 3	3108	130116	Se	500 ± 5	3149	100901
Ca	2000 ± 10	3109a	130213	Na	2000 ± 10	3152a	120715
Cr	500 ± 3	3112a	030730	Sr	50.00 ± 0.25	3153a	990906
Co	500 ± 3	3113	000630	Tl	500 ± 3	3158	993012
Cu	500 ± 3	3114	121207	V	500 ± 3	*	
Fe	2000 ± 10	3126a	140812	Zn	500 ± 3	3168a	120629

Certified values are based on gravimetric and volumetric preparation, and verified against NIST SRM 3100 series when available via inductively coupled plasma optical emission spectrometry (ICP-OES) and/or inductively coupled plasma mass spectrometry (ICP-MS) using an internal laboratory-developed method. The uncertainty in the certified value is calculated for a 95% confidence interval and coverage factor *k* is about 2.

* Refer to Traceability Information, Section d

Packaging and Storage Conditions:

The standard is packaged in a pre-cleaned polyethylene bottle. To maintain the integrity of this product, the solution should be kept tightly capped and stored under normal laboratory conditions.

Expiration Information:

The expiry date is guaranteed to be valid for twelve months from the shipping date provided and is guaranteed through the month of expiration. For this reason, standards from the same lot may have different expiration dates.

Shipped Date: **October 2017**
 Expiration Date: **October 2018**
 Certificate Issue Date: **October 10, 2017**

Robert Howard, Product Manager-Standard Solutions

Lot No.: **1728433**
 Rev. No.: 1.0.0
 Page 1 of 2

Preparation Information:

The standard is generally prepared from single element standard solutions that are ISO Guide 34 certified reference materials and manufactured under appropriate laboratory conditions using the methods developed at NIST for SRM Spectrometric Standard Solutions. Sub-boiling distilled high-purity acid has been used to place the materials in solution and to stabilize the standard. The matrix is as noted above in 18 megaohm deionized water.

Stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. This testing includes, but is not limited to, the effect of temperature and packaging on the product.

Intended Use:

This product is intended for use as a calibration standard, quality control standard, and/or for the validation of analytical methods.

Traceability Information:

The traceability of this standard is maintained through an unbroken chain of comparisons to appropriate standards with suitable procedure and measurement uncertainties. The maintenance of the base and derived units of International System of Units (SI) with traceability of measurement results (contemporary metrology) to SI ensures their comparability over time as follows.

a. Standard Weight and Analytical Balance

The standard weights (NBS weights Inventory No 20231A) are calibrated every two years by South Carolina Metrology Laboratory that is a participant in "NIST Weights and Measures Measurement Assurance Program" with a certificate of measurement traceability to NIST primary standards.

The balances are calibrated yearly by the ISO 17025 accredited metrology service, and are verified weekly by an in-house method using standard weights.

b. Volumetric Device

The calibration of volumetric vessels is checked annually using the ASTM method E542.

c. Thermometer

The standard thermometers are calibrated every year by the ISO 17025 accredited metrology service. The thermometers used in-house are verified against the standard thermometers yearly.

d. Calibration Standards

The Calibration Standard is traceable to SRM 3100 Series Spectrometric Standard Solutions. If a SRM is not available, a second source standard or independent lot is used.

Accreditation:

This product has been manufactured by an ISO 9001:2008 registered and ISO/IEC 17025:2005 and ISO Guide 34:2009 accredited laboratory.

Refer to Safety Datasheet (SDS) for hazardous information.

NOTICE: HPS products are intended for laboratory use only. All products should be handled and used by trained professional personnel. The responsibility for the safe handling and use of these products rests solely with the buyer and/or user. The data and information as stated was furnished by the manufacturer of the product. The information provided in this certificate pertains only to the lot number specified. None of the information provided in this certificate may be used, reproduced or transmitted in any form or by any means without written approval from High Purity Standards.

Lot No.: **1728433**

Rev. No.: 1.0.0

Page 2 of 2



Certificate of Analysis

Product Description:

Part Number: C1-141001RH08xVol
Solution B
Lot Number: 1728302
Matrix: 2% HNO₃ + Tr HF
Purity: 99.98% - 99.9999%

Muti level 5 Element Custo SRC
ESI-ICV-SOL B in Other
NBB 02-NOV-17 100-500 mg/L
S34845 B | Expires: 01-OCT-18

NBB 11-02-17

Certified Values:

Element	(mg/L)	SRM ID	SRM Lot#	Element	(mg/L)	SRM ID	SRM Lot#
Sb	500 ± 3	3102a	140911	Sn	500 ± 3	3161a	140917
Mo	500 ± 3	3134	130418	Ti	500 ± 3	3162a	130925
Ag	100.0 ± 0.5	3151	160729				

Certified values are based on gravimetric and volumetric preparation, and verified against NIST SRM 3100 series when available via inductively coupled plasma optical emission spectrometry (ICP-OES) and/or inductively coupled plasma mass spectrometry (ICP-MS) using an internal laboratory-developed method. The uncertainty in the certified value is calculated for a 95% confidence interval and coverage factor *k* is about 2.

* Refer to Traceability Information, Section d

Packaging and Storage Conditions:

The standard is packaged in a pre-cleaned polyethylene bottle. To maintain the integrity of this product, the solution should be kept tightly capped and stored under normal laboratory conditions.

Expiration Information:

The expiry date is guaranteed to be valid for twelve months from the shipping date provided and is guaranteed through the month of expiration. For this reason, standards from the same lot may have different expiration dates.

Shipped Date: October 2017
Expiration Date: October 2018
Certificate Issue Date: October 10, 2017

Robert Howard, Product Manager-Standard Solutions

Lot No.: 1728302
Rev. No.: 1.0.0
Page 1 of 2

Preparation Information:

The standard is generally prepared from single element standard solutions that are ISO Guide 34 certified reference materials and manufactured under appropriate laboratory conditions using the methods developed at NIST for SRM Spectrometric Standard Solutions. Sub-boiling distilled high-purity acid has been used to place the materials in solution and to stabilize the standard. The matrix is as noted above in 18 megaohm deionized water.

Stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. This testing includes, but is not limited to, the effect of temperature and packaging on the product.

Intended Use:

This product is intended for use as a calibration standard, quality control standard, and/or for the validation of analytical methods.

Traceability Information:

The traceability of this standard is maintained through an unbroken chain of comparisons to appropriate standards with suitable procedure and measurement uncertainties. The maintenance of the base and derived units of International System of Units (SI) with traceability of measurement results (contemporary metrology) to SI ensures their comparability over time as follows.

a. Standard Weight and Analytical Balance

The standard weights (NBS weights Inventory No 20231A) are calibrated every two years by South Carolina Metrology Laboratory that is a participant in "NIST Weights and Measures Measurement Assurance Program" with a certificate of measurement traceability to NIST primary standards.

The balances are calibrated yearly by the ISO 17025 accredited metrology service, and are verified weekly by an in-house method using standard weights.

b. Volumetric Device

The calibration of volumetric vessels is checked annually using the ASTM method E542.

c. Thermometer

The standard thermometers are calibrated every year by the ISO 17025 accredited metrology service. The thermometers used in-house are verified against the standard thermometers yearly.

d. Calibration Standards

The Calibration Standard is traceable to SRM 3100 Series Spectrometric Standard Solutions. If a SRM is not available, a second source standard or independent lot is used.

Accreditation:

This product has been manufactured by an ISO 9001:2008 registered and ISO/IEC 17025:2005 and ISO Guide 34:2009 accredited laboratory.

Refer to Safety Datasheet (SDS) for hazardous information.

NOTICE: HPS products are intended for laboratory use only. All products should be handled and used by trained professional personnel. The responsibility for the safe handling and use of these products rests solely with the buyer and/or user. The data and information as stated was furnished by the manufacturer of the product. The information provided in this certificate pertains only to the lot number specified. None of the information provided in this certificate may be used, reproduced or transmitted in any form or by any means without written approval from High Purity Standards.

Lot No.:1728302

Rev. No.: 1.0.0

Page 2 of 2

535114



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CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGHG1
Lot Number: M2-HG659110
Matrix: 5% (v/v) HNO3
Value / Analyte(s): 1 000 µg/mL ea.
Mercury
Starting Material: Hg Metal
Starting Material Lot#: 1780
Starting Material Purity: 99.9965%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1006 ± 4 µg/mL
Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 1005 ± 6 µg/mL
ICP Assay NIST SRM 3133 Lot Number: 061204
Assay Method #2 1006 ± 3 µg/mL
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

1000 ppm Hg SRC
IV HG in Water
KER 30-NOV-17 1000 mg/L
S35114 | Expires: 06-JUN-21

KER 11/30/17

411252

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a \& b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2(u_{char a})^2 + (w_b)^2(u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.000604	M Eu < 0.000201	O Na 0.007645	M Se < 0.005040	O Zn < 0.000591
O Al 0.003992	O Fe 0.000159	O Nb 0.007490	O Si 0.007783	M Zr 0.000146
M As < 0.001008	M Ga < 0.000201	M Nd < 0.000201	M Sm < 0.000201	
O Au < 0.003207	M Gd < 0.000201	O Ni < 0.001318	M Sn < 0.000403	
O B 0.007090	M Ge < 0.001209	M Os < 0.000201	O Sr < 0.000558	
O Ba < 0.000853	M Hf < 0.000201	O P < 0.021340	M Ta < 0.000201	
M Be < 0.000604	s Hg < 0.000201	M Pb < 0.000201	M Tb < 0.000201	
M Bi < 0.001613	M Ho < 0.000201	M Pd < 0.001209	M Te < 0.001613	
O Ca 0.001151	M In < 0.000201	M Pr < 0.000201	M Th < 0.000201	
M Cd < 0.001209	M Ir < 0.000201	M Pt < 0.000201	M Ti < 0.001008	
M Ce < 0.000403	O K 0.000913	M Rb < 0.000201	O Tl < 0.019206	
M Co < 0.000201	M La < 0.000201	M Re < 0.000604	M Tm < 0.000201	
O Cr < 0.001666	O Li < 0.000242	M Rh < 0.000201	M U < 0.002822	
M Cs < 0.000403	M Lu < 0.000201	M Ru < 0.000201	M V < 0.000604	
M Cu < 0.000604	O Mg 0.000249	O S < 0.012481	M W < 0.000403	
M Dy < 0.000201	O Mn < 0.001280	M Sb < 0.002016	M Y < 0.000201	
M Er < 0.000201	O Mo < 0.001525	M Sc < 0.000403	M Yb < 0.000201	

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO₃. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO₃ / LDPE container, stable in 10% HNO₃ packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO₃ packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO₃ / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxide (Soluble in HNO₃); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	<u>186W16O</u>
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th, Rh, Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 06, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **July 06, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



S36090,
2
KER 14-18

S36035,

S36036



300 Technology Drive
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution		
Catalog Number:	CTL-20-REV1		
Lot Number:	N2-MEB665142		
Matrix:	5% (v/v) HNO3		
Value / Analyte(s):	1 000 mg/L ea:		
	Aluminum,	Calcium,	Iron,
	Potassium,	Magnesium,	Phosphorus,
	Sodium,		
	100 mg/L ea:		
	Boron,		
	10 mg/L ea:		
	Barium,	Beryllium,	Arsenic,
	Cadmium,	Cobalt,	Chromium,
	Copper,	Lead,	Selenium,
	Strontium,	Manganese,	Nickel,
	Uranium,	Vanadium,	Zinc,
	5 mg/L ea:		
	Thallium		

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Multi Level Multi Analyte SRC
 IV CTL 20R in Other
 KER 14-FEB-18 5-1000 mg/L
 S36020 B | Expires: 14-FEB-19

Multi Level Multi Analyte SRC
 IV CTL 20R in Other
 KER 14-FEB-18 5-1000 mg/L
 S36035 | Expires: 01-FEB-21

Multi Level Multi Analyte SRC
 IV CTL 20R in Other
 KER 14-FEB-18 5-1000 mg/L
 S36036 | Expires: 01-FEB-21

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	1 000 ± 3 mg/L	Arsenic, As	10.00 ± 0.09 mg/L
Barium, Ba	10.00 ± 0.04 mg/L	Beryllium, Be	10.00 ± 0.05 mg/L
Boron, B	100.0 ± 0.6 mg/L	Cadmium, Cd	10.00 ± 0.04 mg/L
Calcium, Ca	1 000 ± 4 mg/L	Chromium, Cr	10.00 ± 0.07 mg/L
Cobalt, Co	10.00 ± 0.05 mg/L	Copper, Cu	10.00 ± 0.05 mg/L
Iron, Fe	1 000 ± 4 mg/L	Lead, Pb	10.00 ± 0.05 mg/L
Magnesium, Mg	1 000 ± 4 mg/L	Manganese, Mn	10.00 ± 0.05 mg/L
Nickel, Ni	10.00 ± 0.05 mg/L	Phosphorus, P	1 000 ± 5 mg/L
Potassium, K	1 000 ± 4 mg/L	Selenium, Se	10.00 ± 0.06 mg/L
Sodium, Na	1 000 ± 4 mg/L	Strontium, Sr	10.00 ± 0.04 mg/L
Thallium, Tl	5.000 ± 0.026 mg/L	Uranium, U	10.00 ± 0.05 mg/L
Vanadium, V	10.00 ± 0.05 mg/L	Zinc, Zn	10.00 ± 0.05 mg/L

Density: 1.049 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Co	ICP Assay	3113	000630 Co
Co	EDTA	928	928
Cr	ICP Assay	3112a	030730Cr3
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	050302
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Sr	EDTA	928	928
Sr	ICP Assay	3153a	990906
Tl	ICP Assay	3158	993012
Tl	Calculated		See Sec. 4.2
U	ICP Assay	3164	080521
U	Calculated		See Sec. 4.2
V	EDTA	928	928
V	ICP Assay	3165	992706
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a\&b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Certified Abundance:

IV's Certified Abundance

<u>isotope</u>	<u>Atom %</u>
Uranium 238U	99.6 ± 0.1
Uranium 235U	0.37 ± 0.05

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Uranium Note: If uranium is present in this standard, it is natural abundance unless specified in Section 3

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 01, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **February 01, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



S36030



CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Mass Spec Solution
Catalog Number: MSHG-10PPM
Lot Number: M2-HG657392
Matrix: 10% (v/v) HCl
Value / Analyte(s): 10 µg/mL ea:
Mercury
Starting Material: Hg metal
Starting Material Lot#: 05214TX, R307HGA1, 1780
Starting Material Purity: 99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.052 µg/mL
Certified Density: 1.020 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

KER 2/14/18

10ppm Hg SRC
IV HG 10PPM in Water
KER 14-FEB-18 10 ug/mL
S36030 B | Expires: 14-FEB-19

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a \& b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

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u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

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$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag	0.000017	M Eu	< 0.000203	O Na	0.000007	M Se	< 0.013813	O Zn	0.000001
O Al	0.000001	O Fe	0.000001	M Nb	< 0.000203	O Si	0.000004	M Zr	< 0.001218
M As	< 0.002844	M Ga	< 0.000203	M Nd	< 0.000203	M Sm	< 0.000203		
O Au	< 0.003219	M Gd	< 0.000203	O Ni	< 0.001812	M Sn	< 0.000203		
O B	< 0.002478	M Ge	< 0.000609	M Os	< 0.000201	O Sr	< 0.000152		
M Ba	< 0.000203	M Hf	< 0.000203	O P	< 0.010730	M Ta	< 0.000203		
O Be	< 0.000321	s Hg	<	M Pb	< 0.000203	M Tb	< 0.000203		
M Bi	< 0.013001	M Ho	< 0.000203	M Pd	< 0.000403	M Te	< 0.001422		
O Ca	0.000017	M In	< 0.004062	M Pr	< 0.000203	M Th	< 0.000203		
M Cd		M Ir	< 0.000201	M Pt	< 0.000203	O Ti	< 0.000530		
M Ce	< 0.000203	M K	0.000004	M Rb	< 0.001218	O Tl	< 0.002787		
M Co	< 0.000406	M La	< 0.000203	M Re	< 0.001015	M Tm	< 0.000203		
O Cr	0.000001	O Li	< 0.000180	M Rh	< 0.000203	M U	< 0.000812		
M Cs	< 0.000203	M Lu	< 0.000203	M Ru	< 0.000201	M V	< 0.000406		
M Cu	< 0.000406	O Mg	0.000003	O S	< 0.023508	M W	< 0.000609		
M Dy	< 0.000203	M Mn	< 0.000203	O Sb	< 0.009657	M Y	< 0.000203		
M Er	< 0.000203	O Mo	< 0.002152	M Sc	< 0.000406	M Yb	< 0.000203		

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO₃. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO₃ / LDPE container, stable in 10% HNO₃ packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO₃ packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO₃ / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxide (Soluble in HNO₃); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W160
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th, Rh, Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 18, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **April 18, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

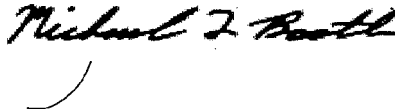
Certificate Prepared By:

Maurice Harris
Product Documentation Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



S36031



CERTIFICATE OF ANALYSIS

tel: 800.669.6779 - 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CTL-21
Lot Number: N2-MEB665140
Matrix: 5% (v/v) HNO3
tr. HF
Value / Analyte(s): 100 mg/L ea: Tin, Titanium,
10 mg/L ea: Molybdenum, Antimony

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	10.00 ± 0.07 mg/L	Molybdenum, Mo	10.00 ± 0.05 mg/L
Tin, Sn	100.0 ± 0.4 mg/L	Titanium, Ti	100.0 ± 0.6 mg/L

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
Sb	Calculated		See Sec. 4.2
Sn	ICP Assay	3161a	070330
Sn	Calculated		See Sec. 4.2
Ti	ICP Assay	3162a	130925

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

~~100 mg/L, 10 mg/L Multi An SRC
IV CTL 21 in Other
KER 14-FEB-18 10-100 mg/L
S36031 | Expires: 01-FEB-21~~

100 mg/L, 10 mg/L Multi An SRC
IV CTL 21 in Other
KER 14-FEB-18 10-100 mg/L
S36031 | Expires: 04-APR-19

NBB 04-04-18
Expiration Date updated

NBB 04-04-18

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{\text{CRM/RM}}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{\text{CRM/RM}} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{\text{char a}}$

X_b = mean of Assay Method B with standard uncertainty $u_{\text{char b}}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{\text{char a}})^2 / ((1/u_{\text{char a}})^2 + (1/u_{\text{char b}})^2)$$

$$w_b = (1/u_{\text{char b}})^2 / ((1/u_{\text{char a}})^2 + (1/u_{\text{char b}})^2)$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char a\&b}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{\text{char a\&b}} = [(w_a)^2 (u_{\text{char a}})^2 + (w_b)^2 (u_{\text{char b}})^2]^{1/2}$ where $u_{\text{char a}}$ and $u_{\text{char b}}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = \text{mean of Assay Method A with standard uncertainty } u_{\text{char a}}$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char a}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{\text{char a}}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 01, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **February 01, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R Gaines

OFFICE OF CERTIFICATION SERVICES



300 Technology Drive
Christiansburg, VA 24017, USA
info@inorganicventures.com

CERTIFICATE OF ANALYSIS

Tel: 703.652.6776 Fax: 703.652.6777
Email: info@inorganicventures.com
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CLPP-ICS-A
 Lot Number: K2-MEB643109
 Matrix: 2% (v/v) HNO₃
 Value / Analyte(s): 5 000 µg/mL ea:
 Aluminum, Calcium, Magnesium,
 2 000 µg/mL ea:
 Iron



Interference Check Cal Std SRC
 CLPP-ICS-A in Water
 MNA 07-MAR-18 2000-5000 ug/mL
 S36223 A Expires: 07-SEP-18

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	5 000 ± 22 µg/mL	Calcium, Ca	5 000 ± 20 µg/mL
Iron, Fe	2 000 ± 8 µg/mL	Magnesium, Mg	5 000 ± 20 µg/mL

Certified Density: 1.085 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Al	ICP Assay	3101a	060502
Al	EDTA	928	928
Ca	ICP Assay	3109a	050825
Ca	EDTA	928	928
Fe	ICP Assay	3126a	051031
Fe	EDTA	928	928
Mg	ICP Assay	3131a	050302
Mg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighing factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a \& b}^2 + u_{bb}^2 + u_{its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.000400	M Eu < 0.000100	O Na 0.027559	M Se < 0.002091	M Zn 0.008219
s Al <	s Fe <	M Nb < 0.000100	O Si 0.217000	M Zr < 0.001002
M As < 0.005613	M Ga < 0.000100	M Nd < 0.000601	M Sm < 0.000100	
M Au < 0.000199	M Gd < 0.000100	M Ni < 0.005613	M Sn < 0.000200	
M B < 0.008420	M Ge < 0.000400	M Os < 0.000099	M Sr 0.043302	
M Ba < 0.001603	M Hf < 0.000100	O P < 0.108500	M Ta < 0.000100	
O Be < 0.000217	M Hg < 0.000597	M Pb 0.003408	M Tb < 0.000100	
M Bi < 0.000400	M Ho < 0.000100	M Pd < 0.000100	M Te < 0.003107	
s Ca <	M In < 0.000400	M Pr < 0.000200	M Th < 0.000100	
M Cd < 0.000100	M Ir < 0.000099	M Pt < 0.000100	M Ti < 0.000801	
M Ce < 0.002004	O K 0.011718	M Rb < 0.000100	M Tl < 0.000100	
M Co < 0.003207	M La < 0.000801	M Re < 0.000100	M Tm < 0.000100	
M Cr 0.024658	O Li 0.005425	M Rh < 0.000100	M U < 0.000100	
M Cs < 0.000601	M Lu < 0.000100	M Ru < 0.000099	M V < 0.000400	
M Cu < 0.004610	s Mg <	O S 0.422173	M W < 0.000100	
M Dy < 0.000100	M Mn 0.002606	M Sb < 0.000200	M Y < 0.000100	
M Er < 0.000100	M Mo < 0.000400	M Sc < 0.001403	M Yb < 0.000100	

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.
- For more information, visit www.inorganicventures.com/TCT

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.869.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION, PERIOD OF VALIDITY AND REVISION HISTORY

11.1 Certification Issue Date

July 01, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- July 01, 2020

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

11.4 Revision Status

- Revision 1 - Wednesday, Apr 26, 2017. Added TMI data

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Joseph Burns
Technical Support Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



536430



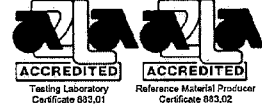
20000 Inorganic Ventures
Charlottesville, VA 22903-1154
info@inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.4799 540.545.3030
fax: 540.536.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-ICS-A
Lot Number: K2-MEB643109
Matrix: 2% (v/v) HNO3
Value / Analyte(s): 5 000 µg/mL ea: Calcium, Magnesium,
Aluminum, Iron
2 000 µg/mL ea: Iron

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	5 000 ± 22 µg/mL	Calcium, Ca	5 000 ± 20 µg/mL
Iron, Fe	2 000 ± 8 µg/mL	Magnesium, Mg	5 000 ± 20 µg/mL

Certified Density: 1.085 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Al	ICP Assay	3101a	060502
Al	EDTA	928	928
Ca	ICP Assay	3109a	050825
Ca	EDTA	928	928
Fe	ICP Assay	3126a	051031
Fe	EDTA	928	928
Mg	ICP Assay	3131a	050302
Mg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Interference Check Cal Std SRC
CLPP-ICS-A in Water
KER 26-MAR-18 2000-5000 µg/mL
S36430 A | Expires: 01-JUL-20

KER 2/26/18

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$
 X_b = mean of Assay Method B with standard uncertainty $u_{char b}$
 w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a\&b}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a\&b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.000400	M Eu < 0.000100	O Na 0.027559	M Se < 0.002091	M Zn 0.008219
s Al <	s Fe <	M Nb < 0.000100	O Si 0.217000	M Zr < 0.001002
M As < 0.005613	M Ga < 0.000100	M Nd < 0.000601	M Sm < 0.000100	
M Au < 0.000199	M Gd < 0.000100	M Ni < 0.005613	M Sn < 0.000200	
M B < 0.008420	M Ge < 0.000400	M Os < 0.000099	M Sr 0.043302	
M Ba < 0.001603	M Hf < 0.000100	O P < 0.108500	M Ta < 0.000100	
O Be < 0.000217	M Hg < 0.000597	M Pb 0.003408	M Tl < 0.000100	
M Bi < 0.000400	M Ho < 0.000100	M Pd < 0.000100	M Te < 0.003107	
s Ca <	M In < 0.000400	M Pr < 0.000200	M Th < 0.000100	
M Cd < 0.000100	M Ir < 0.000099	M Pt < 0.000100	M Ti < 0.000801	
M Ce < 0.002004	O K 0.011718	M Rb < 0.000100	M Tl < 0.000100	
M Co < 0.003207	M La < 0.000801	M Re < 0.000100	M Tm < 0.000100	
M Cr 0.024658	O Li 0.005425	M Rh < 0.000100	M U < 0.000100	
M Cs < 0.000601	M Lu < 0.000100	M Ru < 0.000099	M V < 0.000400	
M Cu < 0.004610	s Mg <	O S 0.422173	M W < 0.000100	
M Dy < 0.000100	M Mn 0.002606	M Sb < 0.000200	M Y < 0.000100	
M Er < 0.000100	M Mo < 0.000400	M Sc < 0.001403	M Yb < 0.000100	

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION, PERIOD OF VALIDITY AND REVISION HISTORY

11.1 Certification Issue Date

July 01, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **July 01, 2020**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

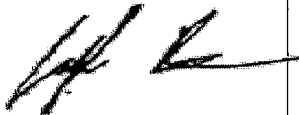
11.4 Revision Status

- Revision 1 - Wednesday, Apr 26, 2017. Added TMI data

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

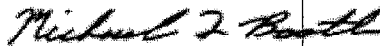
Certificate Prepared By:

Joseph Burns
Technical Support Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



S3649



P.O. Box 41727
Charleston, SC 29423
Phone (843) 767-7900
Fax (843) 767-7906

Certificate of Analysis

Certified Reference Material

Product Description:

Name: Montrose Soil Spike B
Part Number: C1-151015RH02xVol
Lot Number: 1807516
Matrix: 5% HNO₃
Purity: 99.98% - 99.999%



ISO Guide 34:2009 (RMP) Accreditation
Certificate Number AR-1436

ISO/IEC 17025:2005 Accreditation
Certificate Number AT-1529

Certified Values:

Element	(mg/L)	SRM ID	SRM Lot#	Element	(mg/L)	SRM ID	SRM Lot#
Ca	1000 ± 6	3109a	130213	P	1000 ± 15	3139a	060717
Fe	1000 ± 6	3126a	140812	K	1000 ± 10	3141a	140813
Mg	1000 ± 6	3131a	140110	Na	1000 ± 6	3152a	120715

Certified values are based on gravimetric and volumetric preparation, and verified against NIST SRM 3100 series when available via inductively coupled plasma optical emission spectrometry (ICP-OES) and/or inductively coupled plasma mass spectrometry (ICP-MS) using an internal laboratory-developed method. The uncertainty in the certified value is calculated for a 95% confidence interval and coverage factor *k* is about 2.

* Refer to Traceability Information, Section d

Packaging and Storage Conditions:

The standard is packaged in a pre-cleaned polyethylene bottle. To maintain the integrity of this product, the solution should be kept tightly capped and stored under normal laboratory conditions.

Expiration Information:

The expiry date is guaranteed to be valid for twelve months from the shipping date provided and is guaranteed through the month of expiration. For this reason, standards from the same lot may have different expiration dates.

Shipped Date: March 2018

Certificate Issue Date: March 16, 2018

Moven Mututuvvari
Moven Mututuvvari PhD., Laboratory Manager

ICPMS Soil Spike B SRC
HP SOIL SPIKE B in Water
KER 27-MAR-18 1000 ug/mL
S36449 E | Expires: 31-MAR-19

KER 3/27/18

Preparation Information:

The Certified Reference Material (CRM) is generally prepared from single element standard solutions that are ISO Guide 34 certified reference materials and manufactured under appropriate laboratory conditions using the methods developed at NIST for SRM Spectrometric Standard Solutions. Sub-boiling distilled high-purity acid has been used to place the materials in solution and to stabilize the standard. The matrix is as noted above in 18 megaohm deionized water.

Stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. This testing includes, but is not limited to, the effect of temperature and packaging on the product. If during the period of validity, a recall is instituted due to substantial changes in the stability of this product, the purchaser will be notified.

Homogeneity:

This product is determined to be homogeneous following in-house procedures developed in accordance with the requirements of ISO Guide 34 and ISO Guide 35.

Intended Use:

This product is intended for use as a calibration standard, quality control standard, and/or for the validation of analytical methods.

Traceability Information:

The traceability of this standard is maintained through an unbroken chain of comparisons to appropriate standards with suitable procedure and measurement uncertainties. The maintenance of the base and derived units of International System of Units (SI) with traceability of measurement results (contemporary metrology) to SI ensures their comparability over time as follows.

a. Standard Weight and Analytical Balance

The standard weights (NBS weights Inventory No 20231A) are calibrated every two years by South Carolina Metrology Laboratory that is a participant in "NIST Weights and Measures Measurement Assurance Program" with a certificate of measurement traceability to NIST primary standards.

The balances are calibrated yearly by the ISO 17025 accredited metrology service, and are verified weekly by an in-house method using standard weights.

b. Volumetric Device

The calibration of volumetric vessels is checked annually using the ASTM method E542.

c. Thermometer

The standard thermometers are calibrated every year by the ISO 17025 accredited metrology service. The thermometers used in-house are verified against the standard thermometers yearly.

d. Calibration Standards

The Calibration Standard is traceable to SRM 3100 Series Spectrometric Standard Solutions. If a SRM is not available, a second source standard or independent lot is used.

Refer to Safety Datasheet (SDS) for hazardous information.

NOTICE: HPS products are intended for laboratory use only. All products should be handled and used by trained professional personnel. The responsibility for the safe handling and use of these products rests solely with the buyer and/or user. The data and information as stated was furnished by the manufacturer of the product. The information provided in this certificate pertains only to the lot number specified. None of the information provided in this certificate may be used, reproduced or transmitted in any form or by any means without written approval from High Purity Standards.

Lot No.: **1807516**

Rev. No.: 1.0.0

Page 2 of 2

S36450



P.O. Box 41727
Charleston, SC 29423
Phone (843) 767-7900
Fax (843) 767-7906

Certificate of Analysis

Certified Reference Material

Product Description:

Name: Montrose Soil Spike A
Part Number: C1-151015RH01xVol
Lot Number: 1807515
Matrix: 5% HNO₃ + Tr HF
Purity: 99.64% - 99.9999%



ISO Guide 34:2009 (RMP) Accreditation
Certificate Number AR-1436

ISO/IEC 17025:2005 Accreditation
Certificate Number AT-1529

Certified Values:

Element	(mg/L)	SRM ID	SRM Lot#	Element	(mg/L)	SRM ID	SRM Lot#
Al	100 ± 1	3101a	140903	Pb	100 ± 1	3128	101026
As	100 ± 1	3103a	100818	Sb	100 ± 1	3102a	140911
B	100 ± 1	3107	110830	Se	100 ± 1	3149	100901
Ba	100 ± 1	3104a	140909	Sn	100 ± 1	3161a	140917
Be	50.0 ± 0.5	3150	090514	Sr	1000 ± 6	*	
Cd	100 ± 1	3108	130116	Ti	100 ± 1	3162a	130925
Co	100 ± 1	3113	000630	Tl	100 ± 1	3158	993012
Cr	100 ± 1	3112a	030730	U	100 ± 1	3164	080521
Cu	100 ± 1	3114	121207	V	100 ± 1	3165	160906
Mn	100 ± 1	3132	050429	Zn	100 ± 1	3168a	120629
Mo	100 ± 1	3134	130418				
Ni	100 ± 1	3136	120619				

Certified values are based on gravimetric and volumetric preparation, and verified against NIST SRM 3100 series when available via inductively coupled plasma optical emission spectrometry (ICP-OES) and/or inductively coupled plasma mass spectrometry (ICP-MS) using an internal laboratory-developed method. The uncertainty in the certified value is calculated for a 95% confidence interval and coverage factor *k* is about 2.

* Refer to Traceability Information, Section d

Packaging and Storage Conditions:

The standard is packaged in a pre-cleaned polyethylene bottle. To maintain the integrity of this product, the solution should be kept tightly capped and stored under normal laboratory conditions.

Expiration Information:

The expiry date is guaranteed to be valid for twelve months from the shipping date provided and guaranteed through the month of shipment. For this reason, standards from the same lot may have different expiration dates.

Shipped Date: March 2018

Certificate Issue Date: March 16, 2018

Moven Mututuvvari
Moven Mututuvvari PhD., Laboratory Manager

ICPMS Soil Spike A SRC
HP SOIL SPIKE A in Water
KER 27-MAR-18 50-1000 ug/mL
S36450 C | Expires: 31-MAR-19

KER 3/27/18

Lot No.: 1807515
Rev. No.: 2.0.0
Page 1 of 2

Preparation Information:

The Certified Reference Material (CRM) is generally prepared from single element standard solutions that are ISO Guide 34 certified reference materials and manufactured under appropriate laboratory conditions using the methods developed at NIST for SRM Spectrometric Standard Solutions. Sub-boiling distilled high-purity acid has been used to place the materials in solution and to stabilize the standard. The matrix is as noted above in 18 megaohm deionized water.

Stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. This testing includes, but is not limited to, the effect of temperature and packaging on the product. If during the period of validity, a recall is instituted due to substantial changes in the stability of this product, the purchaser will be notified.

Homogeneity:

This product is determined to be homogeneous following in-house procedures developed in accordance with the requirements of ISO Guide 34 and ISO Guide 35.

Intended Use:

This product is intended for use as a calibration standard, quality control standard, and/or for the validation of analytical methods.

Traceability Information:

The traceability of this standard is maintained through an unbroken chain of comparisons to appropriate standards with suitable procedure and measurement uncertainties. The maintenance of the base and derived units of International System of Units (SI) with traceability of measurement results (contemporary metrology) to SI ensures their comparability over time as follows.

a. Standard Weight and Analytical Balance

The standard weights (NBS weights Inventory No 20231A) are calibrated every two years by South Carolina Metrology Laboratory that is a participant in "NIST Weights and Measures Measurement Assurance Program" with a certificate of measurement traceability to NIST primary standards.

The balances are calibrated yearly by the ISO 17025 accredited metrology service, and are verified weekly by an in-house method using standard weights.

b. Volumetric Device

The calibration of volumetric vessels is checked annually using the ASTM method E542.

c. Thermometer

The standard thermometers are calibrated every year by the ISO 17025 accredited metrology service. The thermometers used in-house are verified against the standard thermometers yearly.

d. Calibration Standards

The Calibration Standard is traceable to SRM 3100 Series Spectrometric Standard Solutions. If a SRM is not available, a second source standard or independent lot is used.

Refer to Safety Datasheet (SDS) for hazardous information.

NOTICE: HPS products are intended for laboratory use only. All products should be handled and used by trained professional personnel. The responsibility for the safe handling and use of these products rests solely with the buyer and/or user. The data and information as stated was furnished by the manufacturer of the product. The information provided in this certificate pertains only to the lot number specified. None of the information provided in this certificate may be used, reproduced or transmitted in any form or by any means without written approval from High Purity Standards.

NBB 04-09-18 Metals

Notebook No. BK 2570

PROJECT Metals Std Prep Log

Continued From Page _____

Date initials	Working Std ID	Source Std ID	Source Std name	Vol (ml)	Exp	Pipette
4-4-18	ICSABT	S32481	CLPPICS-B	10.0	6-5-18	363425Z
DLC	S36567	S36223	CLPPICS-A	100.0		104856Z
		S33478	Ti 10K IV	2.0		1109947
		S33470	IU AS	0.5		
		S33333	IU Mo	0.5		
		S33475	IU Sb	0.5		
		S33338	IU Se	0.5		
		S33477	IU TI	0.5		
		S33476	CPI Sr	0.5		
		HCl JTB 189306		885.0		
		HNO ₃ JTB 192717	5% R ₁ rise	1000.0		

intf. check std AB WRK
 ICSAB-T
 DLC 04-APR-18 500-500000 ug/L
 S36567 A | Expires: 05-JUN-18

DLC 4/4/18

04-09-18	IVMS ICV/CCV	S36021	ICVMSAA	2.5	08-JUL-18	1109947
NBB	S36633	S36022	ICVMS2A	2.5		
		HCl JTB 189306	1% Rinse	495.0		
		HNO ₃ JTB 192717		500.0		



ICVMS ICV/CCV WRK
 IVMS ICV/CCV in Water
 NBB 09-APR-18 0.0250-5 ug/mL
 S36633 | Expires: 08-JUL-18

4-10-18	IV Ag WRK SPK	IV Ag S34000	IV Ag	1ml		104856Z
KER	S36650	JTB 192717	conc. HNO ₃	5ml		1109947
			DF H ₂ O	94ml		
			total	100		

10 ug/mL Ag Working Standard WRK
 IV AG WRK SPK in Water
 KER 10-APR-18 10 ug/mL
 S36650 B | Expires: 16-AUG-18

Continued on Page _____

Read and Understood By _____

Signed _____

Date _____

Signed _____

Date _____

S36708 / S36709 / S36710 / S36711 / S36712 / S36713 / S36714



300 Technology Drive
Christiansburg, VA 24013 - USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number 010105).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Mass Spec Solution
Catalog Number: MSAG-10PPM
Lot Number: K2-AG03060
Matrix: 5% (v/v) HNO3
Value / Analyte(s): 10 µg/mL ea:
Silver
Starting Material: Ag shot
Starting Material Lot#: 1641
Starting Material Purity: 99.9999%

10 ug/mL Silver SRC
IV AG 10PPM in Other
KER 16-APR-18 10 ug/mL
S36708 | Expires: 06-APR-20

*8/10/18
KER 16-APR-18*

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.081 µg/mL
Certified Density: 1.024 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	992212
Ag	Volhard	999b	999b

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

*8/10/18
KER 16-APR-18*
10 ug/mL Silver SRC
IV AG 10PPM in Other
KER 16-APR-18 10 ug/mL
S36709 | Expires: 06-APR-20

*8/10/18
KER 16-APR-18*
10 ug/mL Silver SRC
IV AG 10PPM in Other
KER 16-APR-18 10 ug/mL
S36710 | Expires: 06-APR-20

*8/10/18
KER 16-APR-18*
10 ug/mL Silver SRC
IV AG 10PPM in Other
KER 16-APR-18 10 ug/mL
S36711 | Expires: 06-APR-20

*8/10/18
KER 16-APR-18*
10 ug/mL Silver SRC
IV AG 10PPM in Other
KER 16-APR-18 10 ug/mL
S36712 | Expires: 06-APR-20

*8/10/18
KER 16-APR-18*
10 ug/mL Silver SRC
IV AG 10PPM in Other
KER 16-APR-18 10 ug/mL
S36713 | Expires: 06-APR-20

*8/10/18
KER 16-APR-18*
10 ug/mL Silver SRC
IV AG 10PPM in Other
KER 16-APR-18 10 ug/mL
S36714 | Expires: 06-APR-20

Characterization of CRM by two independent methods

Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (t) = U_{CRM/RM} = k(u^2_{char a \& b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2(u_{char a})^2 + (w_b)^2(u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{sts} = short term stability standard uncertainty (transportation)

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (t) = U_{CRM/RM} = k(u^2_{char a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{sts} = short term stability standard uncertainty (transportation)

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

s Ag <	M Eu <	0.007546	O Na <	0.000001	M Se <	0.020123	O Zn <	0.000001	
O Al <	0.000001	O Fe <	0.001000	M Nb <	0.001257	O Si <	0.003400	M Zr <	0.012577
M As <	0.025154	M Ga <	0.002515	M Nd <	0.005030	M Sm <	0.002515		
O Au <	0.003000	M Gd <	0.002515	O Ni <	0.003000	M Sn <	0.012577		
M B <	0.176078	M Ge <	0.015092	n Os <		M Sr <	0.001257		
M Ba <	0.025154	M Hf <	0.005030	O P <	0.003000	M Ta <	0.017607		
M Be <	0.001257	O Hg <	0.015000	M Pb <	0.007546	M Tb <	0.000754		
M Bi <	0.001006	M Ho <	0.001257	O Pd <	0.004000	M Te <	0.075462		
O Ca <	0.000008	M In <	0.025154	M Pr <	0.000754	M Th <	0.002515		
O Cd <	0.005000	M Ir <	0.012577	O Pt <	0.017000	M Ti <	0.125770		
M Ce <	0.012577	O K <	0.000001	M Rb <	0.002515	M Tl <	0.002515		
M Co <	0.007546	M La <	0.001257	M Re <	0.002515	M Tm <	0.001006		
M Cr <	0.012577	O Li <	0.000020	M Rh <	0.002515	M U <	0.005030		
M Cs <	0.000754	M Lu <	0.001006	M Ru <	0.005030	M V <	0.005030		
O Cu <	0.003000	O Mg <	0.000030	O S <	0.025000	M W <	0.025154		
M Dy <	0.015092	M Mn <	0.010081	M Sb <	0.001257	M Y <	0.100616		
M Er <	0.012577	M Mo <	0.005030	M Sc <	0.025154	M Yb <	0.002515		

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 107.87 +1 6 Ag(H₂O)₆⁺

Chemical Compatibility - Stable in HNO₃, and HF. Avoid basic media. Ag forms more insoluble salts than any other metal. It also is subject to photochemical reduction to the metal in HCl media although 10 µg/mL solutions in 10% HCl [AgCl_x1-x] are commonly used in the analytical laboratory. The most common solubility problems exist with arsenate, arsenite, bromide, chloride, iodide, carbonate, chromate, cyanide, iodate, oxalate, oxide, sulfate, sulfide, tartrate, and thiocyanate in aqueous media. The addition of nitric acid renders many of these salts soluble.

Stability - 2-100 ppb levels stable for 75+ days when mixed with equivalent levels of all other elements including the precious metals (where chloride is present) when in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO₃ / LDPE container.

Ag Containing Samples (Preparation and Solution) - Metal (Soluble in HNO₃); Oxides (Soluble in HNO₃); Ores (Digestion with conc. HNO₃).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 107 amu	1 ppt	N/A	91Zr16O
ICP-OES 243.779 nm	0.12/0.01 µg/mL	1	Mn, Th, Ni, Rh
ICP-OES 328.068 nm	0.007/0.0007 µg/mL	1	Ce, Rh, V
ICP-OES 338.289 nm	0.013/0.001 µg/mL	1	Ce, Cr, Th

Low Silver Note: This solution contains "LOW" levels of Silver. Please store this entire bottle inside a sealed glass jar.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- SAI Global File Number 010105

10.4 ISO/IEC Guide 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 06, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- April 06, 2020

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

James King Jr
Product Documentation Supervisor



Certificate Approved By:

Michael Booth
QC Supervisor



Certifying Officer:

Paul Gaines
PhD., Senior Technical Director



S36708 / S36709 / S36710 / S36711 / S36712 / S36713 / S36714



300 Technology Drive
 Christiansburg, VA 24073 - USA
 info@inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.869.6799 • 540.585.3030
 fax: 540.585.3012
 info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number 010105).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Mass Spec Solution
 Catalog Number: MSAG-10PPM
 Lot Number: K2-AG03060
 Matrix: 5% (v/v) HNO3
 Value / Analyte(s): 10 µg/mL ea:
 Silver
 Starting Material: Ag shot
 Starting Material Lot#: 1641
 Starting Material Purity: 99.9999%

10 ug/mL Silver SRC
 IV AG 10PPM
 KER 16-APR-18
 S36708 | Expires: 06-APR-20
 in Other
 10 ug/mL

*8/19/18
 KER*

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.081 µg/mL
 Certified Density: 1.024 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	992212
Ag	Volhard	999b	999b

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

*8/19/18
 KER*
 10 ug/mL Silver SRC
 IV AG 10PPM
 KER 16-APR-18
 S36709 | Expires: 06-APR-20
 in Other
 10 ug/mL

*8/19/18
 KER*
 10 ug/mL Silver SRC
 IV AG 10PPM
 KER 16-APR-18
 S36712 | Expires: 06-APR-20
 in Other
 10 ug/mL

*8/19/18
 KER*
 10 ug/mL Silver SRC
 IV AG 10PPM
 KER 16-APR-18
 S36710 | Expires: 06-APR-20
 in Other
 10 ug/mL

*8/19/18
 KER*
 10 ug/mL Silver SRC
 IV AG 10PPM
 KER 16-APR-18
 S36713 | Expires: 06-APR-20
 in Other
 10 ug/mL

*8/19/18
 KER*
 10 ug/mL Silver SRC
 IV AG 10PPM
 KER 16-APR-18
 S36711 | Expires: 06-APR-20
 in Other
 10 ug/mL

*8/19/18
 KER*
 10 ug/mL Silver SRC
 IV AG 10PPM
 KER 16-APR-18
 S36714 | Expires: 06-APR-20
 in Other
 10 ug/mL

Characterization of CRM by two independent methods

Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (t) = U_{CRM/RM} = k(u^2_{char a \& b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2(u_{char a})^2 + (w_b)^2(u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{sts} = short term stability standard uncertainty (transportation)

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

$$CRM/RM \text{ Expanded Uncertainty } (t) = U_{CRM/RM} = k(u^2_{char a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{sts} = short term stability standard uncertainty (transportation)

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

s Ag <	M Eu < 0.007546	O Na < 0.000001	M Se < 0.020123	O Zn < 0.000001
O Al < 0.000001	O Fe < 0.001000	M Nb < 0.001257	O Si < 0.003400	M Zr < 0.012577
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O Au < 0.003000	M Gd < 0.002515	O Ni < 0.003000	M Sn < 0.012577	
M B < 0.176078	M Ge < 0.015092	n Os <	M Sr < 0.001257	
M Ba < 0.025154	M Hf < 0.005030	O P < 0.003000	M Ta < 0.017607	
M Be < 0.001257	O Hg < 0.015000	M Pb < 0.007546	M Tb < 0.000754	
M Bi < 0.001006	M Ho < 0.001257	O Pd < 0.004000	M Te < 0.075462	
O Ca < 0.000008	M In < 0.025154	M Pr < 0.000754	M Th < 0.002515	
O Cd < 0.005000	M Ir < 0.012577	O Pt < 0.017000	M Ti < 0.125770	
M Ce < 0.012577	O K < 0.000001	M Rb < 0.002515	M Tl < 0.002515	
M Co < 0.007546	M La < 0.001257	M Re < 0.002515	M Tm < 0.001006	
M Cr < 0.012577	O Li < 0.000020	M Rh < 0.002515	M U < 0.005030	
M Cs < 0.000754	M Lu < 0.001006	M Ru < 0.005030	M V < 0.005030	
O Cu < 0.003000	O Mg < 0.000030	O S < 0.025000	M W < 0.025154	
M Dy < 0.015092	M Mn < 0.010081	M Sb < 0.001257	M Y < 0.100616	
M Er < 0.012577	M Mo < 0.005030	M Sc < 0.025154	M Yb < 0.002515	

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

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- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 107.87 +1 6 Ag(H₂O)₆⁺

Chemical Compatibility - Stable in HNO₃, and HF. Avoid basic media. Ag forms more insoluble salts than any other metal. It also is subject to photochemical reduction to the metal in HCl media although 10 µg/mL solutions in 10% HCl [AgClx1-x] are commonly used in the analytical laboratory. The most common solubility problems exist with arsenate, arsenite, bromide, chloride, iodide, carbonate, chromate, cyanide, iodate, oxalate, oxide, sulfate, sulfide, tartrate, and thiocyanate in aqueous media. The addition of nitric acid renders many of these salts soluble.

Stability - 2-100 ppb levels stable for 75+ days when mixed with equivalent levels of all other elements including the precious metals (where chloride is present) when in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO₃ / LDPE container.

Ag Containing Samples (Preparation and Solution) -Metal (Soluble in HNO₃); Oxides (Soluble in HNO₃); Ores (Digestion with conc. HNO₃).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 107 amu	1 ppt	N/A	91Zr16O
ICP-OES 243.779 nm	0.12/0.01 µg/mL	1	Mn, Th, Ni, Rh
ICP-OES 328.068 nm	0.007/0.0007 µg/mL	1	Ce, Rh, V
ICP-OES 338.289 nm	0.013/0.001 µg/mL	1	Ce, Cr, Th

Low Silver Note: This solution contains "LOW" levels of Silver. Please store this entire bottle inside a sealed glass jar.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- SAI Global File Number 010105

10.4 ISO/IEC Guide 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 06, 2016

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- April 06, 2020

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS


Certificate Prepared By:

James King Jr
Product Documentation Supervisor



Certificate Approved By:

Michael Booth
QC Supervisor



Certifying Officer:

Paul Gaines
PhD., Senior Technical Director



Date & Initials	Working Std Name (LIMS #)	Source Std Name	Source Std LIMS #	Volume (mL)	Expiration Date	Pipette/Dispenser ID
5-1-18 DC	IV-CAL1 S36876	IV-ICAP-CAL-18	S33885	1.0	7-30-18	104856Z
		IV-ICAP-CAL-19	S33887	1.0		↓
		Conc HCl	STB189306	50.0		09M65656
		Conc HNO ₃	STB192777	50.0		12M16484
				VP=1000mL		
	DC S/H/18 Low ICAP CAL std 1 WRK IV-CAL1 in Other DLC 01-MAY-18 S36876 A Expires: 30-JUL-18					
5-1-18 DC	IV-100 S36877	IV-ICAP-CAL-16	S34455	0.100	7-30-18	3457417
		IV-ICAP-CAL-17	S34456	0.100		↓
		Conc HCl	STB189306	50.0		09M65656
		Conc HNO ₃	STB192777	50.0		12M16484
				VP=1000mL		
	DC S/H/18 100 ?g/L, 20 ?g/L ICAP std WRK IV100 in Other DLC 01-MAY-18 0.0200-0.100 mg/L S36877 A Expires: 30-JUL-18					
5-1-18 DC	IV-1000 S36878	IV-ICAP-CAL-16	S34455	1.0	7-30-18	104856Z
		IV-ICAP-CAL-17	S34456	1.0		↓
		Conc HCl	STB189306	50.0		09M65656
		Conc HNO ₃	STB192777	50.0		12M16484
				VP=1000mL		
	DC S/H/18 1000 ?g/L, 200 ?g/L ICAP St WRK IV1000 in Other DLC 01-MAY-18 0.200-1 mg/L S36878 A Expires: 30-JUL-18					
5-1-18 DC	IV 10000 S36879	IV-ICAP-CAL-16	S34455	10.0	7-30-18	363425Z
		IV-ICAP-CAL-17	S34456	10.0		↓
		Conc HNO ₃	STB192777	50.0		12M16484
		Conc HCl	STB189306	50.0		09M65656
				VP=1000mL		
	DC S/H/18 10,000 ?g/L, 2000 ?/L ICAP WRK IV10000 in Other DLC 01-MAY-18 2-10 mg/L S36879 A Expires: 30-JUL-18 MDE -NBB for DC 05-02-18					

Reviewed by / Date: _____

Date & Initials	Working Std Name (LIMS #)	Source Std Name	Source Std LIMS #	Volume (mL)	Expiration Date	Pipette/Dispenser ID
5-1-18 DC	CS100K S36880	FV Al 10K HPSol/Sol/Kc-B Conc HCl Conc HNO ₃	S33979 S36449 JTB189306 JTB192717	10.0 100.0 0.9M65656 12M16484	7-30-18 5.0 50.0 5.0-1-18	363425 Z ↓ 09M65656 12M16484 VP=1000ml
<p>100ppm pe icp std5 WRK CS100K DLC 01-MAY-18 100000 ug/L S36880 A Expires: 30-JUL-18</p>						
05-02-18 NBB	IVMS ICV/CCV S36902	ICVMS 4A ICVMS 2A Conc HCl Conc HNO ₃	S36021 S36022 JTB189306 JTB192717	2.5 2.5 5.0 5.0	31-JUL-18	1109947 ↓ 09M65656 12M16484
<p>ICPMS ICV/CCV WRK IVMS ICV/CCV in Water NBB 02-MAY-18 0.0250-5 ug/mL S36902 Expires: 31-JUL-18</p>						
05-03-18 NBB	ICPMS ICSA S36918	6020 ICS-9A Conc HCl Conc HNO ₃	S36419 JTB189306 JTB192717	50.0 5.0 5.0	01-AUG-18	363425 Z 09M65656 12M16484
<p>ICPMS ICSA WRK ICPMS ICSA in Other NBB 03-MAY-18 2-2120 ug/ml S36918 Expires: 01-AUG-18</p>						
05-03-18 NBB	ICPMS ICSAB S36919	6020 ICS-9A 6020 ICS-9B Conc HCl Conc HNO ₃	S36419 S36419 JTB189306 JTB192717	50.0 5.0 5.0 5.0	01-AUG-18	363425 Z 1109947 09M65656 12M16484
<p>ICPMS ICSAB revision WRK ICPMS ICSAB in Other NBB 03-MAY-18 0.0500-2120 ug/ml S36919 Expires: 01-AUG-18</p>						

Reviewed by / Date: _____

Date & Initials	Working Std Name (LIMS #)	Source Std Name	Source Std LIMS #	Volume (mL)	Expiration Date	Pipette/Dispenser ID
5-16-18	ICP ICV/CCV S37037	ESI-ICV-SOL A	S34894	4.0	8-14-18	1109947
		ESI-ICV-SOL B	S34845	4.0		↓
		Conc HCl	JTB189699	50.0		09M65656
		Conc HNO ₃	JTB193289	50.0		12M16484
				V _f = 1000ul		
<p>ICP ICV/CCV STD WRK ICP ICV/CCV in Other DLC 16-MAY-18 0.200-8 mg/L S37037 Expires: 14-AUG-18</p>						
5-17-18	ICP ICV/CCV S37040	ESI-ICV-SOL A	S34894	4.0	8-10-18	1109947
		ESI-ICV-SOL B	S34845	4.0		↓
		Conc HCl	JTB189699	50.0		09M65656
		Conc HNO ₃	JTB193289	50.0		12M16484
				V _f = 1000ul		
<p>ICP ICV/CCV STD WRK ICP ICV/CCV in Other DLC 17-MAY-18 0.200-8 mg/L S37040 B Expires: 15-AUG-18</p>						
05-17-18 NBB	6020 CRI S37049	6020 CRI Stock	S35129	2.5	30-MAY-18	1109947
		Conc HCl	JTB189699	↓		09M65656
		Conc HNO ₃	JTB193289	↓		12M16484
				V _f = 250mL m DI		
<p>Low Level ICV / CRI for 60 WRK 6020 CRI in Water NBB 17-MAY-18 S37049 Expires: 30-MAY-18</p>						
5-17-18 DL	ICSA08 S37050	Ti 10K IV	S33478	2.0	6-20-18	1109947
		Mn 10K IV	S33996	2.0		↓
		Cr 10K IV	S33997	2.0		↓
		Cu 10K IV	S33998	2.0		↓
		IV Mn	S33999	2.0		↓
		IV V 10K	S34293	2.0		↓
		Conc HCl	JTB189699	50.0		09M65656
		Conc HNO ₃	JTB193289	50.0		12M16484
		CLPP-ICSA	S36223	100ul		0634252
				V _f = 1000ul		
<p>ICS-A 10 interferent eleme WRK ICSA08 DLC 17-MAY-18 20000-500000 ug/L S37050 Expires: 20-JUN-18</p>						

ANALYST DATE	STD Name	SOURCE S#	STD S#	SOURCE VOL	HNO ₃ LOT#	HNO ₃ VOL	FINAL VOL	SOURCE PIPETTE	HNO ₃ PIPETTE
1/2 5-23-18	Hg 0.1 STD	S36030	S37090	1ml	JTB191695	5mL	100mL	G15693E	2924335
	Hg 0.1 REF	S36849	S37091	↓	↓	↓	↓	↓	↓
	1CV Hg	S36849	S37092	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg	S36030	S37093	↓	↓	↓	↓	↓	↓
	1CV Hg (2)	S36849	S37094	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg (2)	S36030	S37095	↓	↓	↓	↓	↓	↓
5-24-18 4/6	Hg 0.1 STD	S36030	S37105	1ml	JTB191695	5mL	100mL	G15693E	2924335
	Hg 0.1 REF	S36849	S37106	↓	↓	↓	↓	↓	↓
	1CV Hg	S36849	S37107	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg	S36030	S37108	↓	↓	↓	↓	↓	↓
	1CV Hg (2)	S36849	S37109	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg (2)	S36030	S37110	↓	↓	↓	↓	↓	↓
5-25-18 4/6	Hg 0.1 STD	S36030	S37113	1ml	JTB191695	5mL	100mL	G15693E	2924335
	Hg 0.1 REF	S36849	S37114	↓	↓	↓	↓	↓	↓
	1CV Hg	S36849	S37115	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg	S36030	S37116	↓	↓	↓	↓	↓	↓
	1CV Hg (2)	S36849	S37117	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg (2)	S36030	S37118	↓	↓	↓	↓	↓	↓
5-24-18 1/2	Hg 0.1 STD	S36030	S37119	1ml	JTB191695	5mL	100mL	G15693E	2924335
	Hg 0.1 REF	S36849	S37120	↓	↓	↓	↓	↓	↓
	1CV Hg	S36849	S37121	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg	S36030	S37122	↓	↓	↓	↓	↓	↓
	1CV Hg (2)	S36849	S37123	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg (2)	S36030	S37124	↓	↓	↓	↓	↓	↓
5-30-18 5/6	10 ppm Hg REF	S35114	S37136	1mL	JTB191695	5mL	100mL	G15693E	2924335
	Hg 0.1 STD	S36030	S37137	1mL	JTB191695	5mL	100mL	G15693E	2924335
	Hg 0.1 REF	S37136	S37138	↓	↓	↓	↓	↓	↓
	1CV Hg	S37136	S37139	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg	S36030	S37140	↓	↓	↓	↓	↓	↓
	1CV Hg (2)	S37136	S37141	↓	↓	↓	↓	↓	↓
5-31-18 4/6	CCV ₂ Hg (2)	S36030	S37142	↓	↓	↓	↓	↓	↓
	Hg 0.1 STD	S36030	S37153	1mL	JTB191695	5mL	100mL	G15693E	2924335
	Hg 0.1 REF	S37136	S37154	↓	↓	↓	↓	↓	↓
	1CV Hg	S37136	S37155	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg	S36030	S37156	↓	↓	↓	↓	↓	↓
	1CV Hg (2)	S37136	S37157	↓	↓	↓	↓	↓	↓
	CCV ₂ Hg (2)	S36030	S37158	↓	↓	↓	↓	↓	↓

Continued on Page

Read and Understood By

Signed

Date

Signed

Date



Date & Initials	Working Std Name (LIMS #)	Source Std Name	Source Std LIMS #	Volume (mL)	Expiration Date	Pipette/Dispenser ID
5-30-18	S37143	CLPP-ICS-A	S36430	100.0	05-Jun-18	3634252
DR	ICS-AB-T	CLPP-ICS-B	S32481	10.0		↓
	TI 10K IV DC	TI 10KIU	S33478	2		1109947
		IV Mo	S33337	0.5		1048562
		IV Se	S33338	0.5		
		IV As	S33470	0.5		
		IV Sb	S33475	0.5		
		CPI Sr	S32476	0.5		
		IV TI	S33477	0.5		
		HCl 500mL	JTB190962	Vp=1000mL		09M65656
		HNO3 50.0mL	JTB193289			12M16484
intf. check std AB WRK ICSAB-T DLC 30-MAY-18 500-500000 ug/L S37143 A Expires: 05-JUN-18						
05-30-18	ICPMS-CAL5	IV CTL 20R	S36020	1.25	27-AUG-18	1048562
NBB	S37129	IV CTL 21	S36031	↓		↓
(prepped on 05-29-18)		IV AG 10PPM	S36713	↓		↓
		Conc. HCl	JTB 190962	2.5		09M65656
		Conc. HNO3	JTB 193289	↓		12M16484
ICPMS calibration level 5 WRK ICPMS-CAL5 in Water NBB 29-MAY-18 0.0250-5 mg/L S37129 Expires: 27-AUG-18						
05-30-18	ICPMS-CAL6	IV CTL 20R	S36020	2.5	27-AUG-18	1109947
NBB	S37130	IV CTL 21	S36031	↓		↓
(prepped on 05-29-18)		IV AG 10PPM	S36713	↓		↓
		Conc. HCl	JTB 190962	2.5		09M65656
		Conc. HNO3	JTB 193289	↓		12M16484
ICPMS calibration level 6 WRK ICPMS-CAL6 in Water NBB 29-MAY-18 0.0500-10 mg/L S37130 Expires: 27-AUG-18						
05-30-18	ICPMS-CAL7	IV CTL 20R	S36020	5.0	27-AUG-18	1109947
NBB	S37131	IV CTL 21	S36031	↓		↓
(prepped on 05-29-18)		IV AG 10PPM	S36713	↓		↓
		Conc. HCl	JTB 190962	2.5		09M65656
		Conc. HNO3	JTB 193289	↓		12M16484
ICPMS calibration level 7 WRK ICPMS-CAL7 in Water NBB 29-MAY-18 0.100-20 mg/L S37131 Expires: 27-AUG-18						

S/3/18

Reviewed by / Date: [Signature] 5.30.18

ANALYST DATE	STD Name	SOURCE #	STD #	SOURCE VOL	HNO ₃	LOT #	HAZ VOL	FINAL VOL	SOURCE PIPETTE	HNO ₃ PIPETTE
K.C. 1-18	Hg 0.1 STD	S36030	S37170	1ml	JTB	191695	5ml	100ml	G15693E	2924335
	Hg 0.1 REF	S37136	S37171							
	1CV Hg	S37136	S37172							
	CCV ₂ Hg	S36030	S37173							
	1CV Hg (2)	S37136	S37174							
	CCV ₂ Hg (2)	S36030	S37175	✓			✓	✓		✓
K.C. 4-18	Hg 0.1 STD	S36030	S37185	1ml	JTB	191695	5ml	100ml	G15693E	2924335
	Hg 0.1 REF	S37136	S37186							
	1CV Hg	S37136	S37187							
	CCV ₂ Hg	S36030	S37188							
	1CV Hg (2)	S37136	S37189							
	CCV ₂ Hg (2)	S36030	S37190	✓			✓	✓		✓
K.C. 5-18	Hg 0.1 STD	S36030	S37199	1ml	JTB	191695	5ml	100ml	G15693E	2924335
	Hg 0.1 REF	S37136	S37200							
	1CV Hg	S37136	S37201							
	CCV ₂ Hg	S36030	S37202							
	1CV Hg (2)	S37136	S37203							
	CCV ₂ Hg (2)	S36030	S37204	✓			✓	✓		✓
K.C. 6-18	Hg 0.1 STD	S36030	S37224	1ml	JTB	191695	5ml	100ml	G15693E	2924335
	Hg 0.1 REF	S37136	S37225							
	1CV Hg	S37136	S37226							
	CCV ₂ Hg	S36030	S37227							
	1CV Hg (2)	S37136	S37228							
	CCV ₂ Hg (2)	S36030	S37229	✓			✓	✓		✓
K.C. 7-18	Hg 0.1 STD	S36030	S37243	1ml	JTB	191695	5ml	100ml	G15693E	2924335
	Hg 0.1 REF	S37136	S37244							
	1CV Hg	S37136	S37245							
	CCV ₂ Hg	S36030	S37246							
	1CV Hg (2)	S37136	S37247							
	CCV ₂ Hg (2)	S36030	S37248	✓			✓	✓		✓
K.C. 7-18	Hg 0.1 STD	S36030	S37250							
	Hg 0.1 REF	S37136	S37251							
	1CV Hg	S37136	S37252							
	1CV Hg (2)	S37136	S37253							
	CCV ₂ Hg	S36030	S37254							
	CCV ₂ Hg (2)	S36030	S37255							

Continued on Page _____

Read and Understood By _____

Signed _____

Date _____

Signed _____

Date _____



Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 300092

ANALYTICAL REPORT

Wet Chemistry

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 1035225322.01
Location : RFS Corp Yard
Level : IV

Sample ID
RFS-B180-DU01

Lab ID
300092-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____

Mike Dahlquist
Project Manager
mike.dahlquist@enthalpy.com
(510) 204-2225 Ext 13101

Date: 06/11/2018

CA ELAP# 2896, NELAP# 4044-001

**CASE NARRATIVE
WET CHEMISTRY (ASTM D2216-98/CLP)**

Laboratory number: 300092
Client: Tetra Tech EMI
Project: 1035225322.01
Location: RFS Corp Yard
Request Date: 05/25/18
Samples Received: 05/25/18

This data package contains sample and QC results for one soil sample, requested for the above referenced project on 05/25/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Moisture (ASTM D2216-98/CLP):

No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY



Formerly Curtis & Tompkins Labs

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Page 1 of 1
Chain of Custody # _____

C&T LOGIN # 700092

Project No: 103S225322.01 Sampler: J BRADDERSEN
 Project Name: RFS B180 Trawl Report To: J BRADDERSEN
 Project P. O. No.: _____ Company: TEMA TECH
 EDD Format: Report Level I III IV Telephone: 415-497-9060
 Turnaround Time: RUSH Standard Email: Jason.Braddersen@TemaTech.com

ANALYTICAL REQUEST																					
ISM PAPER / 100 SUBSTRATES	X																				
CAM 17 METALS 6010	X																				
MERCURY 7471	X																				
PAP SIM 8170	X																				
PLB 8082 + SCHLETT EXT	X																				

Lab No.	Sample ID.	SAMPLING		MATRIX		CHEMICAL PRESERVATIVE					# of Containers	
		Date Collected	Time Collected	Water	Solid	HCl	H2SO4	HNO3	NaOH	None		
	RFS-15180-DU01	5/25/18	1130	X								3

Notes:

<p>RELINQUISHED BY: _____</p> <p>DATE: <u>5/25</u> TIME: <u>1235</u></p>	<p>RECEIVED BY: <u>Pat Hansen</u></p> <p>DATE: <u>5/25/18</u> TIME: <u>12:35</u></p>
<p>SAMPLE RECEIPT</p> <p><input checked="" type="checkbox"/> Intact</p> <p><input type="checkbox"/> Cold</p> <p><input type="checkbox"/> On Ice</p> <p><input checked="" type="checkbox"/> Ambient</p>	<p>DATE: _____ TIME: _____</p> <p>DATE: _____ TIME: _____</p> <p>DATE: _____ TIME: _____</p>

SAMPLE RECEIPT CHECKLIST



Section 1: Login # 300092 Client: Tetra Tech
 Date Received: 5-25-18 Project: RFS B180

Section 2: Samples received in a cooler? Yes, how many? _____ No (skip Section 3 below)
 If no cooler Sample Temp (°C): _____ using IR Gun # A, or B
 Samples received on ice directly from the field. Cooling process had begun
 If in cooler: Date Opened 5-25-18 By (print) sp (sign) sp
 Shipping info (if applicable) _____
 Are custody seals present? No, or Yes. If yes, where? on cooler, on samples, on package
 Date: _____ How many _____ Signature, Initials, None
 Were custody seals intact upon arrival? Yes No N/A

Section 3: Important : Notify PM if temperature exceeds 6°C or arrive frozen.

Packing in cooler: (if other, describe) _____
 Bubble Wrap, Foam blocks, Bags, None, Cloth material, Cardboard, Styrofoam, Paper towels
 Samples received on ice directly from the field. Cooling process had begun
 Type of ice used : Wet, Blue/Gel, None Temperature blank(s) included? Yes, No
 Temperature measured using Thermometer ID: _____, or IR Gun # A B
 Cooler Temp (°C): #1: _____, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	X		
Were Method 5035 sampling containers present?		X	
If YES, what time were they transferred to freezer?			
Did all bottles arrive unbroken/unopened?	X		
Are there any missing / extra samples?		X	
Are samples in the appropriate containers for indicated tests?	X		
Are sample labels present, in good condition and complete?	X		
Does the container count match the COC?	X		
Do the sample labels agree with custody papers?	X		
Was sufficient amount of sample sent for tests requested?	X		
Did you change the hold time in LIMS for unpreserved VOAs?			X
Did you change the hold time in LIMS for preserved terracoeres?			X
Are bubbles > 6mm absent in VOA samples?			X
Was the client contacted concerning this sample delivery?		X	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (if N/A, skip the rest of section 5)			X
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			
pH strip lot# _____, pH strip lot# _____, pH strip lot# _____			
Preservative added:			
<input type="checkbox"/> H2SO4 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HCL lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HNO3 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> NaOH lot# _____ added to samples _____ on/at _____			

Section 6:
 Explanations/Comments: _____

Date Logged in 5-25-18 By (print) sp (sign) sp
 Date Labeled 5-25-18 By (print) sp (sign) sp

Results & QC Summary

Percent Moisture Summary Report

Batch: 260017
 Date: 05/30/18
 Method: CLP SOW 390
 Analyst: MFV

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
300027-001	11.30	17.01	15.96	82	18
300027-002	11.36	17.57	16.61	85	15
300027-003	11.33	16.93	16.01	84	16
300027-004	11.31	17.66	16.79	86	14
300084-001	11.31	17.71	16.57	82	18
300084-002	11.42	16.88	16.18	87	13
300084-003	11.63	17.78	17.06	88	12
300084-004	11.35	17.41	16.34	82	18
300084-005	11.29	17.58	16.34	80	20
300084-006	11.64	16.99	16.21	85	15
300084-007	11.31	18.10	17.10	85	15
300084-008	11.02	17.22	15.98	80	20
300084-009	11.09	17.41	16.16	80	20
300084-010	11.12	16.80	15.75	82	18
300084-011	11.30	16.71	15.82	84	16
300084-012	11.60	17.42	16.22	79	21
300092-001	11.00	16.06	15.62	91	9
0139-001	10.98	16.83	15.51	77	23
0181-001	11.22	16.35	15.80	89	11
300181-006	11.14	16.93	16.03	84	16
QC933940	11.34	18.16	17.57	91	9
of 300092-001			RPD:	0.0%	0.5%

LIMS Batch #: 260017
 Date: 5-30-18

Page: 30
 Benchbook#: BK 4277

Balance ID: B-13
 calibration has been checked? Yes No

ents	Sample # / Letter	Dish #	Dish Weight (g)	Sample + Dish Wt (g)	Final Weight (g)	*Comments
	BLK	74	11.35	∅	11.35	
	300027-001 A	95	11.30	17.01	15.96	299752-5,9,11,299725-12(6,8)
	↓ -002 ↓	71	11.36	17.57	16.61	299752-6,10,12,15
	↓ -003 ↓	2	11.33	16.93	16.01	299725-6,10,299752-13,15
	↓ -004 ↓	17	11.31	17.66	16.79	299725-7,11,299752-14,16
	300084-001 F	9	11.31	17.71	16.57	
	↓ -002 ↓	65	11.42	16.88	16.18	
	↓ -003 ↓	15	11.63	17.78	17.06	
	↓ -004 ↓	81	11.35	17.41	16.34	
	↓ -005 ↓	91	11.29	17.58	16.34	
	↓ -006 ↓	31	11.64	16.99	16.21	
	↓ -007 ↓	87	11.31	18.10	17.10	
	↓ -008 ↓	34	11.02	17.22	15.98	
	↓ -009 ↓	40	11.09	17.41	16.16	
	↓ -010 ↓	79	11.12	16.80	15.75	
	↓ -011 ↓	61	11.30	16.71	15.82	
	↓ -012 ↓	66	11.60	17.42	16.22	
	300092-001 A⇒C	23	11.00	16.06	15.62	POST-MIS
	300139-001 G	7	10.98	16.83	15.51	300118-008
	300181-001 A	67	11.22	16.35	15.80	(CORR A⇒D 15GRA.)
	↓ -006 A ↓	47	11.14	16.93	16.03	↓
	300092-001 A⇒C	50	11.34	18.16	17.57	SDUP / POST-MIS

	In	Out	In-2	Out-2
Date:	5-30-18	5-30-18		
Time:	0150	14.23		
Min/Max Range (°C)	104	104		
Thermometer ID:	P49096	P49094		
Weighed by:	TAN	VER		

TAN 5-30-18
 Analyst Initials / Date

Reviewed Online / See LIMS

DATE	0.2g	SET #	500g	SET #	INITIALS
5-2-18	0.20	40417	499.88	28659	✓✓
5-3-18	0.20	40417	499.93	28659	MV
5-4-18	0.20	40417	499.93	28659	MV
5-5-18	0.20	40417	499.92	28659	MV
5-6-18	0.20	40417	499.93	28659	MV
5-7-18	0.20	40417	499.88	28659	DES
5-8-18	0.20	40417	499.91	28659	MV
5-9-18	0.20	40417	499.93	28659	MV
5-10-18	0.20	40417	499.93	28659	MV
5-11-18	0.20	40417	499.93	28659	MV
5-12-18	0.20	40417	499.92	28659	MV
5-13-18	0.20	40417	499.92	28659	✓✓
5-14-18	0.20	40417	499.93	28659	MV
5-15-18	0.20	40417	499.93	28659	MV
5-16-18	0.20	40417	499.95	28659	MV
5-17-18	0.20	40417	499.93	28659	MV
5-18-18	0.20	40417	499.91	28659	MV
5-19-18	0.20	40417	499.92	28659	MV
5-20-18	0.20	40417	499.87	28659	✓✓
5-21-18	0.20	40417	499.92	28659	DES
5-22-18	0.20	40417	499.89	28659	✓✓
5-23-18	0.20	40417	499.93	28659	✓✓
5-24-18	0.20	40417	499.90	28659	1002
5-25-18	0.20	40417	499.92	28659	MV
5-26-18	0.20	40417	499.91	28659	MV
5-27-18	0.20	40417	499.91	28659	✓✓
5-30-18	0.20	40417	499.95	28659	MV

Page _____
Date _____

Continued on _____

Read and Understood By _____

Signed _____

Date _____

Signed _____