MEMORANDUM

TO: ███████████

FROM: JOEL I. CEHN

SUBJECT: 2017 TESTING RESULTS

DATE: MARCH 27, 2017

CC: ███████, █████████████

BACKGROUND & APPROACH

Environmental testing of the Brandeis Bardin Campus (BBC) occurs periodically, as part of an ongoing program to confirm the safety of the property. This year's testing included sediments and surface water near the property line with Boeing. There are a limited number of ravines that carry surface water runoff towards BBC. If contaminants are migrating from SSFL Area IV, they would be found in these ravines. Thus, the testing occurs there.

I collected fine sediments from the bottom of the ravines, since most contaminants would attach to these sediments. This campaign I visited four ravines: drainages from the old "sodium burn pit" (FSDF), from the old reactor area, from an old waste facility (RMDF), and from the sodium reactor area (SRE). Locations are listed in Tables 1 and 2, and shown in Figure 1. In December 2015, I placed sediment traps in two ravines that would catch any runoff occurring the rainy season. The trap in the reactor area drainage survived, but the one in the burn pit drainage did not. That trap (labeled BB-17) yielded fine sediments and rainwater runoff.

Groundwater springs near the property line were also tested, as was spring OS-10. Testing occurred the week of January 16th.

SUMMARY OF TESTING RESULTS

Radioactivity in Sediments

Sediments closest to the property line were tested for strontium-90, and gamma-emitting nuclides. Strontium-90 (a beta-emitting nuclide) is a reactor byproduct and a known Area IV contaminant. All results were negative for Sr-90. Results for gamma-emitting nuclides showed the presence of natural radioactivity (e.g., thorium and radium). Eleven nuclides were included in the analysis. Cesium-137 was detected at very low levels (up to 0.08 pCi/g). However, one sample result (BB-16L) was flagged as "All peaks have bad shape," which suggests a false positive result. This nuclide is present in the Northern Hemisphere, due to past nuclear weapons testing in the Pacific and elsewhere. Levels in

these samples are well within this background, given in DTSC's Lookup Table as 0.225 pCi/g.

PCBs in Sediments

Polychlorinated biphenyls (PCBs) were not detected in any sediment samples. In 2015, PCBs were detected at 14 and 18 parts per billion (ppb), which is in line with DTSC's Lookup Table value of 17 ppb.

Dioxins in Sediments

Samples from three drainages were tested for dioxins and furans. SSFL's sodium burn pit had the potential for creating these compounds. Results are given in parts per trillion (ppt), toxicity equivalent (TEQ), the measure used by California DTSC.[*]

Burn Pit Drainage – 0.505 ppt.
Reactor Area Drainage – 0.564 ppt.
SRE Drainage – 1.14 ppt.

The levels in the burn pit and reactor area drainages are at or below natural background levels. The level in the SRE drainage is in line with those found by DOE's contractor in this drainage in 2013.[†] This level is slightly above the Lookup Table's background value of 0.912 ppt, but may still be due to natural sources (i.e., forest fires). The level is below action levels found in the literature (7 ppt up to 1,000 ppt)[‡].

Hydrocarbons in Sediments

In 2013, DOE's contractor detected very low levels of SVOCs at BBC. In the current campaign, six sediment samples were taken; four from drainage ravines and two from background areas. These were analyzed for semi-volatile organic compounds (SVOCs) using EPA method 8270. No hydrocarbons were detected. .

TCE in Groundwater

Trichloroethene (TCE) is a known SSFL contaminant. Water from springs OS-3 and OS-10 was collected before exposing the water to air, which would result in the loss of this volatile chemical. Other springs could not be sampled in this way. Tests of both springs were negative for TCE.

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[*] DTSC Human Health Risk Assessment, Note 2, Dioxins, May 2009.
[†] Phase 3 Chemical Data Gap Investigation, CDM Federal Programs, October 2014.
[‡] Review of State Soil Cleanup Levels For Dioxin, U.S. EPA, National Center for Environmental Assessment, December 2009.

Tritium in Water

Water was collected from three flowing springs, and three ravines. Two ravines had standing water, most likely spring-fed. The third ravine sample came from the sediment and rain runoff trap (see Table 2). Springs OS-3, OS-10, and spring water from the SRE drainage were negative for tritium. Tritium was detected in the three other samples.

Water from the reactor area sediment trap showed tritium at 29.0 ± 9.7 pCi/L. This is consistent with natural tritium in rainwater[§], which was the source of the sample. Spring OS-7 contained tritium at 16.1 ± 6.4 pCi/L. A spring northeast of OS-7 (BB-16A) contained tritium at 41.9 ± 6.4 pCi/L. Both of these are slightly elevated, due to past releases from SSFL. Tritium levels continue to fall—OS-7 tested at 25 pCi/L in 2015—and will eventually become not detectable.

Other Radioactivity in Water

In 2012, EPA's contractor detected gross alpha radioactivity in spring OS-10.[**] That result was attributed to sediment in the water sample (see discussion below). That test was repeated here and OS-10 was negative for gross alpha radiation. The spring was also tested for radioactive strontium-90, and none was detected.

Water collected in the sediment trap in the reactor area drainage was also tested for radioactivity. The test was negative for strontium-90, while the gross alpha test showed 16.2 ± 6.9 pCi/L. This sample sat in the sediment trap, in contact with soil, for up to a year. This would account for a positive finding, with the most likely source of radioactivity being natural radioactive minerals dissolved out of the soil (e.g., thorium, radium). Reactor products can be largely ruled out since very few of these emit alpha radiation, and since Sr-90 was not detected. On the other hand, thorium, radium, and nearly all naturally radioactive minerals emit alpha radiation. There was insufficient volume to test for gamma-emitting nuclides.

CONCLUSIONS AND RECOMMENDATIONS

Results are unremarkable. Analytes are at or near background levels, or not present at all. Results continue to show that the BBC property is free of contamination. Drainage ravine sediments that could potentially carry contaminants toward BBC are free of contamination. Groundwater near the property line contains trace levels of tritium, but these are diminishing. I wouldn't recommend further testing for at least another year.

Copies of the lab reports are attached. Please contact me if you have any questions.

[§] A 2006 rainwater sample also contained 29 pCi/L tritium.
[**] Final Groundwater Report Area IV Radiological Study, HydroGeologic, Inc., July 24, 2012. See also DTSC's re-test showing no radioactivity, (page 27)
http://www.dtsc-ssfl.com/files/lib_offsite_investig/bbi/Reports/67220_Feb_2014_OS-10_lab_results.pdf

Table 1. Ravine Sediments Tested

Locations	Sample Code	Analyzed for:*	Comments
Boeing Runoff from old sodium burn pit area	BB-18	Rad, PCBs, dioxins, SVOCs	Just below the property line
Boeing Runoff from old reactor areas	BB-17	Rad, PCBs, dioxins	Very near the SW property line
Boeing Runoff from old RMDF areas	BB-16L	Rad, SVOCs	Below the property line
Downstream from the above runoffs.	OS-2	PCBs, SVOCs	Well below the property line, near the Red Tank
Boeing Runoff from old sodium reactor area (SRE)	BB-19M	Rad, PCBs, dioxins, SVOCs	Below the property line
Southwest corner of BBC, but not in drainages from Boeing	BB-16A and 16B	SVOCs	Background locations

Note: Locations shown on Figure 1.
* Rad = radioactivity; SVOC = semi-volatile organic compounds

Table 2. Water Tested

Location	Analyzed for:	Comments
Spring OS-3	TCE, Tritium	Southwest corner of property
Spring OS-7	Tritium	Southwest corner of property
Spring OS-10	TCE, Tritium, Stronium-90, Gross alpha rad.	Near Old Well campsite
BB-16A*	Tritium	Southwest corner of property
BB-17*	Tritium, Stronium-90, Gross alpha rad.	Rainwater runoff collected in sediment trap, reactor area drainage
BB-19M *	Tritium	SRE drainage ravine

Note: Locations shown on Figure 1.

* Surface water from ravines.

THE BRANDEIS-BARDIN
INSTITUTE PROPERTIES
FIGURE 1

Key: Garden
Testing Locations for soil,
water, and/or vegetation. Blue
indicates testing this campaign

Disclaimer: The County does not warrant the accuracy of this map and no decision involving a risk of economic loss or physical injury should be made in reliance therein.

Labels visible on map:
- Main Gate Garden
- Development Area
- Main House
- BCI Area
- Avocado Grove
- Gan Area
- CIT Hill
- House of the Book
- New Bldg. Site
- Organic Garden
- Meyer Creek
- Spring OS9
- Dining Hall
- Bunk Area
- Spring OS10
- T'sha B'av Camp
- Hidden Valley
- Spring OS8
- New BCI Camp
- Spring OS1
- Red Tank
- Boeing SRE Runoff
- Springs OS3,5,7
- Boeing Reactor & RMDF Runoffs
- Boeing Burn Pit Runoff
- Boeing Property

0   1,000   2,000
Feet

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LABORATORY REPORTS

ARS and Eurofin Labs

Note: Contents are shown and linked with pdf bookmarks.

ΘARS

INTERNATIONAL

ARS International, LLC

Laboratory Analysis Report

ARS1-17-00216
Revision 1

Prepared for:

Applied Sciences Company

Joel I. Cehn
4714 Windsor Blvd
Cambria, CA 93428

cehn@aol.com

Phone: (510) 863-1570

_____
Project Manager Review

_____
Management Review

2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277   FAX (225) 381-2996

INTERNATIONAL

Case Narrative

SDG# ARS1-17-00216

COC SOLID SAMPLES

CASE NARRATIVE

Client:	Applied Sciences Company
Project:	BBI
SDG Number:	ARS1-17-00216
Received Date:	1/24/2017
Report Date:	2/24/2017

SAMPLE RECEIPT

The samples were received in good condition and the samples were screened for radioactive contamination as per procedure **ARS-062 "Sample Receiving"**. The temperature of the samples upon receipt was 15 degrees C. After a discussion with the client, the decision was made to proceed with analysis.
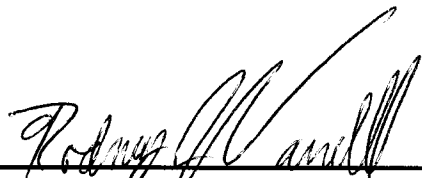Sample OS-10 (VOA) collected 1/16/2017---not preserved---received 1/24/2017 with hold time exceeded. Decision made by client to proceed with all analysis.

ANALYTICAL DATA

This data package contains sample and QC results for eight (8) soil samples requested for the above referenced project on 1/23/2017.

The analysis for gamma spectroscopy were performed using **SOP ARS-007/EPA 901.1M**.

The analysis for Strontium was performed using **SOP ARS-032/Eichrom SRW-01**.

The analytical method utilized for the PCB analysis was **ARS-159/SW846 8082.**

The analytical method utilized for the PAH analysis was **ARS-159/SW846 8270D.**

The following analytical batches are associated with these samples: ARS1-B17-000169, batch ARS1-B17-00157 for Strontium, batch ARS1-17-00184 for PCB's and batch number ARS1-17-00170 for the PAH's.

The result data that are flagged with "U" indicate that the activity is below the MDC.

Sample results are being reported on "dry weight" basis.

The dioxin analyses were subcontracted to Eurofins Lancaster Laboratories Environmental, the report is attached as the Addendum Subcontract Work. Eurofins received the sample shipment on 1/26/17 and notified ARS that the samples were received above the 6 degree C maximum. Based on the previous discussion about the samples being received at ARS above the maximum temperature, the decision was made to authorize proceeding with the analysis.

Sample ARS1-17-00170 (BB-16L) and its MS/MSD had low surrogate recoveries and low MS/MSD recoveries due to sample matrix interference. The PCB analysis also had surrogate recoveries that exceeded the limits due to matrix interference as well as high MS and MSD recoveries and failing RSD results for Aroclor-1016.

ARS International, LLC.
2609 North River Road │ Port Allen, Louisiana 70767 │PH│ 225.381.2991 │FX │ 225.381.2996
www.amrad.com

Lastly, the CS-134 results for all samples were reported based on the most abundant peak which was at 604.7 keV.

American Radiation Services Project Manager/Laboratory Director's Comments:

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the company specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

_____   Laboratory Manager, ARS International   3-8-17
Signature   **Title**   **Date**

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Technical Note Report

SDG **ARS1-17-00216**

#	SDG/ABatch	Date	Dept	Technical Note	User ID
1	ARS1-17-00216	01/25/2017 9:23 AM	MGMT	Environmental Samples, shipped in Plastic containers.	RVARNELL
2	ARS1-B17-00170	02/16/2017 3:22 PM	CHEMISTRY	Samples ARS1-17-00216-001 and its MS/MSD exhibited low surrogate recoveries and low matrix spike recoveries for several compounds due to sample matrix effects.	CSTRINGER
3	ARS1-B17-00170	02/16/2017 3:24 PM	CHEMISTRY	CRDLs were not met; MDLs and DLs used for this method can be found in the report.	CSTRINGER
4	ARS1-B17-00184	02/22/2017 1:13 PM	CHEMISTRY	Surrogate recoveries exceeded limits due to sample matrix. -DWC 02/22/2017 approved by JPB 02/22/2017	JBYRD

Notes (Case Narrative):

Comments:

1.0) All MDA/MDC values are calculated on a sample specific basis.
2.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.
3.0) Data in this report are within the limits of uncertainty specified in the reference method unless otherwise specified.
4.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matrix. Modified analyses are indicated by the subsequent addition of "m" to the procedure number (i.e. 900.0M).
5.0) Total activity is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.
6.0) Ra-228 is determined via secular equilibrium with its daughter, Actinium 228 (Gamma Spectroscopy only).
7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234 (Gamma Spectroscopy only).
8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (**HPGe**).
9.0) ARS makes every attempt to match sample density to calibrated density; however, in some cases, it is not practical or possible to do so and data results may be affected (Gamma Spectroscopy only).
10.0) Gamma spectroscopy results are calculated values based on the **ORTEC**® GammaVision ENV32 Analysis Engine.
11.0) ACLASS DOD and ISO 17025 certification applies only to the following analytes and methods: Gross Alpha and Gross Beta (EPA 900, SM7110B&C, SW846 9310); Radium 226 (EPA 903, EPA 903.1, SM 7500 Ra-B, SW846 9315); Radium 228 (EPA 904, SM 7500 Ra-B SW846 9320); Iodine-131(EPA 901.1); Uranium by ICPMS (EPA 200.8); Strontium 89/90 (EPA 905, Eichrom SRW01, HASL 300 Sr-03-RC); Tritium (EPA 906, EPA 906M); Gamma Emitters (EPA 901.1, SM7120B, HASL 300 Ga-01-R); Americium-241, Curium 242/244, Plutonium 239/240 and 241, Thorium 228/230/232, Uranium 234/233 and 238 (Eichrom ACW03 VBS); Lead 210 (HASL 300 Pb-01-RC, Eichrom OTW01); Polonium 210 (HASL 300 Po-01-RC, HASL 300 Po-02-RC); Technetium-99 (Eichrom TCW02, Eichrom TCS01M).

Method References:

1.0) **EPA 600/4-80-032**; Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.
2.0) **Standard Methods for the Examination of Water and Wastewater** (On-Line Edition)
3.0) **EPA SW-846**; Test Methods for Evaluating Solid Waste, (On-Line edition)
4.0) **EPA 600/4/79-020**; Methods for Chemical Analysis of Water and Waste, March 1983.
5.0) **HASL 300**; The Procedures Manual of the Environmental Measurements Laboratory, Volume I, 28th Edition February, 1997.

Definitions:

CRDL	Contract Required Detection Limit
CSU	Combined Standard Uncertainty
DLC	Decision Level Concentration (ANSI N42.23) or critical level
DO	Duplicate Original
DUP	Method Duplicate
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MDC	(Minimum Detectable Concentration) minimum concentration of the analyte that ARS can detect utilizing the specific analysis
MBL	Method Blank
MS/MSD	Matrix Spike/Matrix Spike Duplicate
N/A	Not Applicable
NP	Not Provided
NR	Not Referenced

Data Qualifiers:

B	The analyte is found in both the associated method blank and the sample. This flag indicates probable blank contamination.
D	Sample analysis accomplished through dilution.
J	The reported result is an estimated value (e.g., matrix interference was observed or the analyte was detected at a concentration outside the quantitation range).
Q	One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery, or CCV recovery).
S	Spike
*SC	Subcontracted out to another qualified laboratory
U	Activity is below the MDC or MDL

Sample Identification

Cross Reference

SDG# ARS1-17-00216
COC SOLID SAMPLES

SAMPLE IDENTIFICATION CROSS-REFERENCE

Applied Sciences Company SAMPLE ID's	ARS SAMPLE ID NUMBER(s)
BB-16L	ARS1-17-00216-001
BB-18	ARS1-17-00216-002
OS-2	ARS1-17-00216-003
BB-19M	ARS1-17-00216-004
BB16-B	ARS1-17-00216-005
BB-16A	ARS1-17-00216-006
BB17	ARS1-17-00216-007
BB-17 Mud/Sludge	ARS1-17-00216-008

Chain of Custody

and Supporting Documentation

SDG# ARS1-17-00216

COC SOLID SAMPLES

Chain of Custody Record

Quote Number	161115 SL
Project Name	BBI
Project Manager	Joel I. Cehn
Project Phone	

Project Fax	
Req'd Report Date	ASAP
Lab Contact	Virgene Mulligan
Lab Phone	225.381.2991

BILLING ADDRESS: Joel I. Cehn, CHP

SEND REPORT TO: Joel I. Cehn, CHP

LAB ADDRESS: ARS International, 2609 North River Rd., Port Allen, LA 70767-3469

#	Sample ID# and Description	AQUEOUS	SOIL	CONTAINER TYPE (G, P)	VOLUME	NO. OF CONTAINERS	PRESERV-ATIVE	PCBs 8082	Dioxins 8290	Sr-90	Gamma 901.1	Gross alpha	TCE 8260B	PAH 8270	DATE & TIME COLLECTED	SPECIAL INSTRUCTIONS / NOTES
1	OS-3	x		VOA	40 ml	1	none						X		1/17/2017	
2	OS-10	x		VOA +	40ml + 1L	2	none			x		x	x		1/16/2017	
3	Trip blank	x		VOA	40ml	1	none						x		1/18/2017	
4	BB-16L		x	Poly bag+jar	1 gal + 4oz	2	none			x	x			x	1/18/2017	
5	BB-18		x	Poly bag + 3 jars	1 gal + 3x4oz	4	none	X	x	x	x			x	1/17/2017	
6	OS-2		x	2 jars	2x4oz	2	none	x	x					x	1/17/2017	
7	BB-19M		x	Poly bag + 3 jars	1 gal + 3x4oz	4	none	x	x	x	x			x	1/18/2017	
8	BB-16B		x	Jar	4oz	1	none			x	x			x	1/17/2017	

Sample TAT Req'd: 21d

Sample Disposal: [ ] Archive for _____ Months. [x] Disposal by Lab [ ] Return to origin

QC Requirements:

Notes/Comments:

CUSTODY TRACKING

1) Relinquished By: _(signature)_	Date: 1/22/17	Time: 14:00	Received By: _(signature)_	Date: 1-24-17	Time: 11/2
2) Relinquished By:	Date:	Time:	Received By:	Date:	Time:
3) Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Chain of Custody Record

Quote Number	**161115 SL**		
Project Name	BBI	**BILLING ADDRESS:**	Joel I. Cehn, CHP
Project Manager	Joel I. Cehn	**SEND REPORT TO:**	Joel I. Cehn, CHP
Project Phone		**LAB ADDRESS:**	ARS International, 2609 North River Rd., Port Allen, LA 70767-3469

Project Fax	
Req'd Report Date	ASAP
Lab Contact	Virgene Mulligan
Lab Phone	225.381.2991

#	Sample ID# and Description	MATRIX SOIL	MATRIX AQUEOUS	CONTAINER TYPE (G, P)	VOLUME	NO. OF CONTAINERS	PRESERVATIVE	PCBs 8082	Dioxins 8290	Sr-90	Gamma 901.1	Gross alpha	TCE 8260B	PAH 8270	DATE & TIME COLLECTED	SPECIAL INSTRUCTIONS / NOTES
9	BB-16A	x		Jar	4 oz	1	none							x	1/17/2017	
10	BB-17		X	Bottle	0.5L	1	none			x		x			1/17/2017	Limited to 0.5L
11	BB-17	x		Jars	4oz	2	none	x	x						1/17/2017	
12	BB-17	x		Bottle	~.25L	1	none			x					1/17/2017	Mud—do what you can with this
13							none									
14							none									

Sample TAT Req'd:	21d	Sample Disposal:	☐ Archive for _____ Months.	☒ Disposal by Lab	☐ Return to origin	QC Requirements:

Notes/Comments:

CUSTODY TRACKING

1) Relinquished By: _(signature)_	Date: 1/23/17	Time: 16:00	Received By: _(signature)_	Date: 1-24-17	Time: 142
2) Relinquished By:	Date:	Time:	Received By:	Date:	Time:
3) Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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COMPANY NAME: Applied Science Co.

SDG: ARSI-17-00216

SHIPPING CONTAINER

	Yes	No
Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☐ Yes	☑ No
Seals Intact	☐ Yes ☐ No	☑ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☐ Yes	☑ No
Seal Intact	☐ Yes ☐ No	☑ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv __17__

Matrix [AF , AQ , BI , FE , LT , SI , (SO) , UR , VG]

External and Internal Surveys

Exposure Rate Meter:	M3 250816	Serial No.:	RN 20034	Calibration Due Date:	5/23/17
Count Rate Meter:	M3 237983	Serial No.:	PR165363	Calibration Due Date:	2/3/17

Background Exposure Rate (µR/hr)	20	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	20	µR/hr
Background Count Rate (cpm)	100	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	100	cpm
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	100	cpm

Acceptance Limits
$<500\ ^{µR}/_{hr}$ $<100\ ^{cpm}/_{cm^2}$

pH ≤ 2 is Acceptable

Sample Label/Comments/Notes	pH Orig	pH Final	Mark if Preserve	Acid Lot #	Weight(g) Volume(mL)	µR/hr	cpm
BB-16 L			☐		211	15	90
↓			☐		1195	12	80
BB-18			☐		218	15	80
			☐		237	13	80
			☐	MC	234	15	80
↓			☐		1366	13	100
OS-2			☐		226	14	90
↓			☐		206	14	90
BB-19 M			☐		1266	15	90
			☐		238	13	90
			☐		211	16	100
↓			☐		216	15	70
BB-16 B			☐		214	14	90
BB-16 A			☐		228	15	80
BB-17			☐		206	16	100
↓			☐		215	15	90
BB-17			☐		352	16	80
			☐				
			☐				

Surveyors' Name: _(signature)_

Date/Time Surveyed: 1-24-17

DQO Report for SDG
ARS1-17-00216

Client Name: Applied Sciences Company

Profile Name: AJU-BBC Project (Other)

Report Level: 4

Analysis Code	Prep Type	Units	Aliquot	Prep Code	Procedure	Count Time	Analyte	RDL	LCS LL/UL	MS LL/UL	RadY LL/UL	GravY LL/UL	RER	RPD	Surr LL/UL
GAM-A-020	DGAM	pCi	g	N/A	ARS-007		Ac-228	0	75/125	60/140	30/110	40/110	1	25	N/A
							Bi-212	0	75/125	60/140	30/110	40/110	1	25	N/A
							Bi-214	0	75/125	60/140	30/110	40/110	1	25	N/A
							Cs-137	0	75/125	60/140	30/110	40/110	1	25	N/A
							K-40	0	75/125	60/140	30/110	40/110	1	25	N/A
							Pb-212	0	75/125	60/140	30/110	40/110	1	25	N/A
							Pb-214	0	75/125	60/140	30/110	40/110	1	25	N/A
							Th-234	0	75/125	60/140	30/110	40/110	1	25	N/A
							Tl-208	0	75/125	60/140	30/110	40/110	1	25	N/A
							Cs-134	0	75/125	60/140	30/110	40/110	1	25	
GCMS-8270D-SO	DSVO	ug	kg	3550C	ARS-160		Acenaphthene (83-32-9)	3 ug/kg	40/123	40/123	30/110	40/110	1	25	N/A
							Acenaphthylene (208-96-8)	3 ug/kg	32/132	32/132	30/110	40/110	1	25	N/A
							Anthracene (120-12-7)	3 ug/kg	47/123	47/123	30/110	40/110	1	25	N/A
							Benzo(a)anthracene (56-55-3)	3 ug/kg	49/126	49/126	30/110	40/110	1	25	N/A
							Benzo(a)pyrene (50-32-8)	3 ug/kg	45/129	45/129	30/110	40/110	1	25	N/A
							Benzo(b)fluoranthene (205-99-2)	3 ug/kg	45/132	45/132	30/110	40/110	1	25	N/A
							Benzo(g,h,i)perylene (191-24-2)	3 ug/kg	43/134	43/134	30/110	40/110	1	25	N/A
							Benzo(k)fluoranthene (207-08-9)	3 ug/kg	47/132	47/132	30/110	40/110	1	25	N/A
							Chrysene (218-01-9)	3 ug/kg	50/124	50/124	30/110	40/110	1	25	N/A
							Dibenz(a,h)anthracene (53-70-3)	3 ug/kg	45/134	45/134	30/110	40/110	1	25	N/A
							Fluoranthene (206-44-0)	3 ug/kg	50/127	50/127	30/110	40/110	1	25	N/A
							Fluorene (86-73-7)	3 ug/kg	43/125	43/125	30/110	40/110	1	25	N/A
							Indeno(1,2,3-cd)pyrene (193-39-5)	3 ug/kg	45/133	45/133	30/110	40/110	1	25	N/A
							1-Methylnaphthalene (90-12-0)	3 ug/kg	40/119	40/119	30/110	40/110	1	25	N/A
							2-Methylnaphthalene (91-57-6)	3 ug/kg	38/122	38/122	30/110	40/110	1	25	N/A
							Naphthalene (91-20-3)	3 ug/kg	35/123	35/123	30/110	40/110	1	25	N/A

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DQO Report for SDG

ARS1-17-00216

GCMS-8270D-SO

Analyte	RDL	LCS LL/UL	MS LL/UL	RadY LL/UL	GravY LL/UL	RER	RPD	Surr LL/UL
Phenanthrene (85-01-8)	3 ug/kg	50/121	50/121	30/110	40/110	1	25	N/A
Pyrene (129-00-0)	3 ug/kg	47/127	47/127	30/110	40/110	1	25	N/A
2,4,6-Tribromophenol (Surr)		N/A	N/A	N/A	N/A	N/A	N/A	80/120
2-Fluorobiphenyl (Surr)		N/A	N/A	N/A	N/A	N/A	N/A	80/120
2-Fluorophenol (Surr)		N/A	N/A	N/A	N/A	N/A	N/A	80/120
Nitrobenzene-d5 (Surr)		N/A	N/A	N/A	N/A	N/A	N/A	80/120
Phenol-d5 (Surr)		N/A	N/A	N/A	N/A	N/A	N/A	80/120
Terphenyl-d14 (Surr)		N/A	N/A	N/A	N/A	N/A	N/A	80/120

GCSV-8082A-SO

DPCB — ug — kg — 3550C — ARS-157

Analyte	RDL	LCS LL/UL	MS LL/UL	RadY LL/UL	GravY LL/UL	RER	RPD	Surr LL/UL
Aroclor-1016 (12674-11-2)	1 ug/kg	47/134	60/140	30/110	40/110	1	25	N/A
Aroclor-1221 (11104-28-2)	1 ug/kg	75/125	60/140	30/110	40/110	1	25	N/A
Aroclor-1232 (11141-16-5)	1 ug/kg	75/125	60/140	30/110	40/110	1	25	N/A
Aroclor-1242 (53469-21-9)	1 ug/kg	75/125	60/140	30/110	40/110	1	25	N/A
Aroclor-1248 (12672-29-6)	1 ug/kg	75/125	60/140	30/110	40/110	1	25	N/A
Aroclor-1254 (11097-69-1)	1 ug/kg	67/135	60/140	30/110	40/110	1	25	N/A
Aroclor-1260 (11096-82-5)	1 ug/kg	53/130	60/140	30/110	40/110	1	25	N/A
DCBP (Surr)		N/A	N/A	N/A	N/A	N/A	N/A	80/120
TCMX (Surr)		N/A	N/A	N/A	N/A	N/A	N/A	80/120

GPC-A-012

DRAD — pCi — g — N/A — ARS-032

Analyte	RDL	LCS LL/UL	MS LL/UL	RadY LL/UL	GravY LL/UL	RER	RPD	Surr LL/UL
Sr-90	0.1 pCi/g	75/125	60/140	30/110	40/110	1	25	N/A

SUB-A-002

DINO — N/A — N/A

Analyte	RDL	LCS LL/UL	MS LL/UL	RadY LL/UL	GravY LL/UL	RER	RPD	Surr LL/UL

Legend: Blue - RDL source was client profile. Green - RDL source was analyte library.

Analysis Code	Fraction	Units	Aliquot	Conductivity	Analyte Count
GAM-A-020	001	pCi	g	N/A	10

Group	Analyte
Applied Sciences	Ac-228
Applied Sciences	Bi-212
Applied Sciences	Bi-214
Applied Sciences	Cs-137

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DQO Report for SDG
ARS1-17-00216

Method	Sample	Group	Units		Analyte	Count
GAM-A-020	001	Applied Sciences	pCi / g	N/A	K-40	10
		Applied Sciences			Pb-212	
		Applied Sciences			Pb-214	
		Applied Sciences			Th-234	
		Applied Sciences			Tl-208	
		Applied Sciences			Cs-134	
GAM-A-020	002	Applied Sciences	pCi / g	N/A	Ac-228	10
		Applied Sciences			Bi-212	
		Applied Sciences			Bi-214	
		Applied Sciences			Cs-137	
		Applied Sciences			K-40	
		Applied Sciences			Pb-212	
		Applied Sciences			Pb-214	
		Applied Sciences			Th-234	
		Applied Sciences			Tl-208	
		Applied Sciences			Cs-134	
GAM-A-020	004	Applied Sciences	pCi / g	N/A	Ac-228	10
		Applied Sciences			Bi-212	
		Applied Sciences			Bi-214	
		Applied Sciences			Cs-137	
		Applied Sciences			K-40	
		Applied Sciences			Pb-212	
		Applied Sciences			Pb-214	
		Applied Sciences			Th-234	
		Applied Sciences			Tl-208	
		Applied Sciences			Cs-134	
GCMS-8270D-SO	001	Semi Volatiles	ug / kg	N/A	Acenaphthene	18
		Semi Volatiles			Acenaphthylene	

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DQO Report for SDG
ARS1-17-00216

GCMS-8270D-SO	001		
		Anthracene	Semi Volatiles
		Benzo(a)anthracene	Semi Volatiles
		Benzo(a)pyrene	Semi Volatiles
		Benzo(b)fluoranthene	Semi Volatiles
		Benzo(g,h,i)perylene	Semi Volatiles
		Benzo(k)fluoranthene	Semi Volatiles
		Chrysene	Semi Volatiles
		Dibenz(a,h)anthracene	Semi Volatiles
		Fluoranthene	Semi Volatiles
		Fluorene	Semi Volatiles
		Indeno(1,2,3-cd)pyrene	Semi Volatiles
		1-Methylnaphthalene	Semi Volatiles
		2-Methylnaphthalene	Semi Volatiles
		Naphthalene	Semi Volatiles
		Phenanthrene	Semi Volatiles
		Pyrene	Semi Volatiles

Group	Analyte	N/A	18	kg	ug

GCMS-8270D-SO	002		
		Acenaphthene	Semi Volatiles
		Acenaphthylene	Semi Volatiles
		Anthracene	Semi Volatiles
		Benzo(a)anthracene	Semi Volatiles
		Benzo(a)pyrene	Semi Volatiles
		Benzo(b)fluoranthene	Semi Volatiles
		Benzo(g,h,i)perylene	Semi Volatiles
		Benzo(k)fluoranthene	Semi Volatiles
		Chrysene	Semi Volatiles
		Dibenz(a,h)anthracene	Semi Volatiles
		Fluoranthene	Semi Volatiles
		Fluorene	Semi Volatiles
		Indeno(1,2,3-cd)pyrene	Semi Volatiles
		1-Methylnaphthalene	Semi Volatiles
		2-Methylnaphthalene	Semi Volatiles
		Naphthalene	Semi Volatiles

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DQO Report for SDG
ARS1-17-00216

Method	ID	Group	ug/kg	Analyte	N/A	18
GCMS-8270D-SO	002	Semi Volatiles		Phenanthrene		
		Semi Volatiles		Pyrene		
GCMS-8270D-SO	003		ug/kg		N/A	18
		Semi Volatiles		Acenaphthene		
		Semi Volatiles		Acenaphthylene		
		Semi Volatiles		Anthracene		
		Semi Volatiles		Benzo(a)anthracene		
		Semi Volatiles		Benzo(a)pyrene		
		Semi Volatiles		Benzo(b)fluoranthene		
		Semi Volatiles		Benzo(g,h,i)perylene		
		Semi Volatiles		Benzo(k)fluoranthene		
		Semi Volatiles		Chrysene		
		Semi Volatiles		Dibenz(a,h)anthracene		
		Semi Volatiles		Fluoranthene		
		Semi Volatiles		Fluorene		
		Semi Volatiles		Indeno(1,2,3-cd)pyrene		
		Semi Volatiles		1-Methylnaphthalene		
		Semi Volatiles		2-Methylnaphthalene		
		Semi Volatiles		Naphthalene		
		Semi Volatiles		Phenanthrene		
		Semi Volatiles		Pyrene		
GCMS-8270D-SO	004		ug/kg		N/A	18
		Semi Volatiles		Acenaphthene		
		Semi Volatiles		Acenaphthylene		
		Semi Volatiles		Anthracene		
		Semi Volatiles		Benzo(a)anthracene		
		Semi Volatiles		Benzo(a)pyrene		
		Semi Volatiles		Benzo(b)fluoranthene		
		Semi Volatiles		Benzo(g,h,i)perylene		
		Semi Volatiles		Benzo(k)fluoranthene		
		Semi Volatiles		Chrysene		

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DQO Report for SDG

ARS1-17-00216

GCMS-8270D-SO — 004

Group	Analyte
Semi Volatiles	Dibenz(a,h)anthracene
Semi Volatiles	Fluoranthene
Semi Volatiles	Fluorene
Semi Volatiles	Indeno(1,2,3-cd)pyrene
Semi Volatiles	1-Methylnaphthalene
Semi Volatiles	2-Methylnaphthalene
Semi Volatiles	Naphthalene
Semi Volatiles	Phenanthrene
Semi Volatiles	Pyrene
ug	N/A
kg	18

GCMS-8270D-SO — 005

Group	Analyte
Semi Volatiles	Acenaphthene
Semi Volatiles	Acenaphthylene
Semi Volatiles	Anthracene
Semi Volatiles	Benzo(a)anthracene
Semi Volatiles	Benzo(a)pyrene
Semi Volatiles	Benzo(b)fluoranthene
Semi Volatiles	Benzo(g,h,i)perylene
Semi Volatiles	Benzo(k)fluoranthene
Semi Volatiles	Chrysene
Semi Volatiles	Dibenz(a,h)anthracene
Semi Volatiles	Fluoranthene
Semi Volatiles	Fluorene
Semi Volatiles	Indeno(1,2,3-cd)pyrene
Semi Volatiles	1-Methylnaphthalene
Semi Volatiles	2-Methylnaphthalene
Semi Volatiles	Naphthalene
Semi Volatiles	Phenanthrene
Semi Volatiles	Pyrene
ug	N/A
kg	18

GCMS-8270D-SO — 006

Group	Analyte
Semi Volatiles	Acenaphthene
Semi Volatiles	Acenaphthylene
Semi Volatiles	Anthracene

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DQO Report for SDG
ARS1-17-00216

GCMS-8270D-SO   006

Group		Analyte		
Semi Volatiles		Benzo(a)anthracene		
Semi Volatiles		Benzo(a)pyrene		
Semi Volatiles		Benzo(b)fluoranthene		
Semi Volatiles		Benzo(g,h,i)perylene		
Semi Volatiles		Benzo(k)fluoranthene		
Semi Volatiles		Chrysene		
Semi Volatiles		Dibenz(a,h)anthracene		
Semi Volatiles		Fluoranthene		
Semi Volatiles		Fluorene		
Semi Volatiles		Indeno(1,2,3-cd)pyrene		
Semi Volatiles		1-Methylnaphthalene		
Semi Volatiles		2-Methylnaphthalene		
Semi Volatiles		Naphthalene		
Semi Volatiles		Phenanthrene		
Semi Volatiles		Pyrene		
Group	ug	kg	**Analyte**	N/A	7

GCSV-8082A-SO   002

		Analyte	N/A	7
		Aroclor-1016		
		Aroclor-1221		
		Aroclor-1232		
		Aroclor-1242		
		Aroclor-1248		
		Aroclor-1254		
		Aroclor-1260		

GCSV-8082A-SO   003

Group	ug	kg	**Analyte**	N/A	7
			Aroclor-1016		
			Aroclor-1221		
			Aroclor-1232		
			Aroclor-1242		
			Aroclor-1248		
			Aroclor-1254		
			Aroclor-1260		

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DQO Report for SDG

ARS1-17-00216

Sample	No.		Unit	Group	Unit			Analyte	Count
GCSV-8082A-SO	004		ug	Group	kg	N/A	Analyte		7
								Aroclor-1016	
								Aroclor-1221	
								Aroclor-1232	
								Aroclor-1242	
								Aroclor-1248	
								Aroclor-1254	
								Aroclor-1260	
GCSV-8082A-SO	007		ug	Group	kg	N/A	Analyte		7
								Aroclor-1016	
								Aroclor-1221	
								Aroclor-1232	
								Aroclor-1242	
								Aroclor-1248	
								Aroclor-1254	
								Aroclor-1260	
GPC-A-012	001	STD	pCi	Group	g	N/A	Analyte		1
								Sr-90	
GPC-A-012	002	STD	pCi	Group	g	N/A	Analyte		1
								Sr-90	
GPC-A-012	004	STD	pCi	Group	g	N/A	Analyte		1
								Sr-90	
GPC-A-012	008	STD	pCi	Group	g	N/A	Analyte		1
								Sr-90	

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SDG Report – Samples and Containers

SDG Specific Data

Field	Value		Field	Value
SDG	ARS1-17-00216		Project Type	Environmental
Sample Count	8 — Rpt Level: 4		TAT Days	21
Client	Applied Sciences Company		Date Received	1/24/2017
			COC Number	
Client Code	971		Client Deadline	2/14/2017
			PO Number	
Profile Number	PN-00975		Internal Deadline	2/13/2017
			Job Number	
Temperature (C)			Lab Deadline	2/11/2017
			Job Location	
			Comments	

Samples and Containers Checked In Thus Far

FR	Name / IC_ID	Matrix / Cnt	Start Date / Wt (g)	End Date / Container Type	Disp / pH Orig	pH Orig / pH Final	pH Final	Hold	Arch / CPM	Storage / uR Hr	Stor	VOA	Head	AF Units	AF Rate	AF Mins	AF Vol	Conductivity	Comments
001	BB-16L	SO	1/18/2017 12:00 PM	1/18/2017 12:00 PM	H			30	5	D4									
	255884	1	211.00	4oz Glass Jar					90	15		N	N/A						
	255894	2	1195.00	Ziploc Bag					80	12		N	N/A						
002	BB-18	SO	1/17/2017 12:00 PM	1/17/2017 12:00 PM	H			30	5	D4									
	255883	1	218.00	4oz Glass Jar					80	15		N	N/A						
	255895	2	237.00	4oz Glass Jar					80	13		N	N/A						
	255896	3	234.00	4oz Glass Jar					80	15		N	N/A						
	255899	4	1366.00	Ziploc Bag					100	13		N	N/A						
003	OS-2	SO	1/17/2017 12:00 PM	1/17/2017 12:00 PM	H			30	5	D4									
	255885	1	226.00	4oz Glass Jar					90	14		N	N/A						
	255893	2	206.00	4oz Glass Jar					90	14		N	N/A						
004	BB-19M	SO	1/18/2017 12:00 PM	1/18/2017 12:00 PM	H			30	5	D4									
	255886	1	1266.00	Ziploc Bag					90	15		N	N/A						
	255892	2	238.00	4oz Glass Jar					90	13		N	N/A						
	255897	3	211.00	4oz Glass Jar					100	16		N	N/A						
	255898	4	216.00	4oz Glass Jar					70	15		N	N/A						
005	BB-16B	SO	1/17/2017 12:00 PM	1/17/2017 12:00 PM	H			30	5	D4									
	255887	1	214.00	4oz Glass Jar					90	14		N	N/A						
006	BB-16A	SO	1/17/2017 12:00 PM	1/17/2017 12:00 PM	H			30	5	D4									
	255888	1	228.00	4oz Glass Jar					80	15		N	N/A						
007	BB-17	SO	1/17/2017 12:00 PM	1/17/2017 12:00 PM	H			30	5	D4									
	255889	1	206.00	4oz Glass Jar					100	16		N	N/A						
	255891	2	215.00	4oz Glass Jar					90	15		N	N/A						

008	BB-17	SO	1/17/2017 12:00 PM	1/17/2017 12:00 PM	H	30	5	D4							
IC_ID		Cnt	Wt (g)	Container Type	pH Orig	pH Final	CPM	uR Hr	Stor	VOA	Head	AF Units	AF Rate	AF Mins	AF Vol
255890		1	352.00	HDP Bottle			80	16		N	N/A				

SDG Report - Analysis Assignments

SDG	ARS1-17-00216	Sample Count	8
Client	Applied Sciences Company	Analysis Count	5-20

Sample Count Totals Per Analysis

Analysis Code	Analysis Description	Samples Count
GAM-A-020	Gamma Spec (Short) in (Soil, Sludge, Waste, Sediment,Biota [SO, BI, VG])	3
GCMS-8270D-SO	SVOs base, neutral, & acid in SO	6
GCSV-8082A-SO	PCB's (Soil, Sludge by Sonicator)	4
GPC-A-012	Strontium-90 in (Soil, Sludge, Biota, Sediment [SO, BI, VG])	4
SUB-A-002	Subcontracted Soil Sample in (Soil, Solid)	3

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	GAM-A-020	X
001	GCMS-8270D-SO	X
001	GPC-A-012	X
002	GAM-A-020	X
002	GCMS-8270D-SO	X
002	GCSV-8082A-SO	X
002	GPC-A-012	X
002	SUB-A-002	X
003	GCMS-8270D-SO	X
003	GCSV-8082A-SO	X
004	GAM-A-020	X
004	GCMS-8270D-SO	X
004	GCSV-8082A-SO	X
004	GPC-A-012	X
004	SUB-A-002	X
005	GCMS-8270D-SO	X
006	GCMS-8270D-SO	X
007	GCSV-8082A-SO	X
007	SUB-A-002	X
008	GPC-A-012	X

Rodney Varnell

Susan; Do the best you can. I was limited on some liquid samples.

--- Joel

-----Original Message-----
From: Susan Leese <sleese@amrad.com>
To: Steve LaZar <slazar@amrad.com>; cehn <cehn@aol.com>
Cc: Rodney Varnell <rvarnell@amrad.com>
Sent: Tue, Jan 31, 2017 10:07 am
Subject: RE: Isotope list for Gamma analysis

Steve and Joel,
For these ultra-low detection limits, we just don't have enough sample to achieve some of them.
Especially for the liquids. But we will do our best and next time, we need to review required sample
volumes ahead of time.
Thanks,
Susan

From: Steve LaZar
Sent: Tuesday, January 24, 2017 5:03 PM
To: Susan Leese
Subject: RE: Isotope list for Gamma analysis

Susan,
Do we have all the information we need now?

Kind Regards,

Steve

Steve LaZar
Vice President of Sales
slazar@amrad.com

ARS International, LLC
2609 North River Road
Port Allen, LA 70767-3469

720.692.6188 Mobile

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From: Susan Leese
Sent: Tuesday, January 24, 2017 2:29 PM
To: Joel C.; Steve LaZar
Cc: Rodney Varnell
Subject: RE: Isotope list for Gamma analysis

Hi Joel,
It may involve 2-3 hour count times, but our chemists think that 0.05 pCi/g is achievable.

From: Joel C. [mailto:cehn@aol.com]
Sent: Tuesday, January 24, 2017 2:13 PM
To: Susan Leese; Steve LaZar
Cc: Rodney Varnell
Subject: Re: Isotope list for Gamma analysis

Susan; Can you get 0.05 pCi/L for Cs-137?

--- Joel

-----Original Message-----
From: Susan Leese <sleese@amrad.com>
To: Steve LaZar <slazar@amrad.com>
Cc: Rodney Varnell <rvarnell@amrad.com>; cehn <cehn@aol.com>
Sent: Tue, Jan 24, 2017 12:00 pm
Subject: FW: Isotope list for Gamma analysis

Steve,
We received a list of isotopes requested by Joel (below). On your original quote, you stated that the detection limit for gamma spec would be 0.01 pCi/g, but didn't list any specific isotopes. What analyte(s) does this CRDL refer to? It is incredibly low, even for ARS.
Susan

From: Joel C. [mailto:cehn@aol.com]
Sent: Monday, January 23, 2017 3:13 PM
To: Rodney Varnell
Cc: Project Managers
Subject: Re: Isotope list for Gamma analysis

Rodney;

I'm shipping the samples today; for delivery Tuesday. Copy of CofC attached.

2

Regarding Gamma Suite, here's the nuclide list:

Ac-228
Bi-212, -214
Cs-134, -137
Pb-212, -214
K-40
Th-234
Tl-208

--- Joel

P.S. Please don't use my pikainc.com address. Use this one.

-----Original Message-----
From: Rodney Varnell <rvarnell@amrad.com>
To: 'jcehn@pikainc.com' <jcehn@pikainc.com>; 'cehn@aol.com' <cehn@aol.com>
Cc: Project Managers <projectmanagers@amrad.com>
Sent: Thu, Jan 19, 2017 2:36 pm
Subject: Isotope list for Gamma analysis

Good afternoon,

I need to see if you can send me a list of the isotopes/analytes for the Gamma Suite (Method 901.1) on ARS Quote
: ARS_Applied Sciences 161115SL dated 11/15/16. I will be the project manager on the project and I am setting up the
information in our LIMS system.

There is no need to reply back today, Monday or Tuesday will be fine. My last question is: Do you have a
projection as to when we will receive the samples?

Thank you,

Rodney J. Varnell
Project Manager
rvarnell@amrad.com

INTERNATIONAL

ARS International, LLC
2609 North River Road
Port Allen, LA 70767-3469

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225.381.2996 FAX
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From:	Joel C. <cehn@aol.com>
Sent:	Monday, February 06, 2017 11:41 AM
To:	Rodney Varnell
Cc:	Project Managers
Subject:	Re: Sample update

A-OK.

--- Joel

-----Original Message-----
From: Rodney Varnell <rvarnell@amrad.com>
To: 'Joel C.' <cehn@aol.com>
Cc: Project Managers <projectmanagers@amrad.com>
Sent: Mon, Feb 6, 2017 8:16 am
Subject: Sample update

Joel,

I just want to send you a quick update on the samples, specifically the samples for the Dioxins analysis. The samples were shipped to Eurofins Lancaster Laboratories on 1/25/17 for overnight delivery by UPS. I received a call on 1/27/17 from Eurofins (Stacy Hess) saying that they had received the samples on 1/26/17 but that they were above the 6 degrees C maximum temperature and wanted to know if we were going to re-submit the samples. Taking the previous discussion with you about ARS receiving the samples above the 6 degrees C maximum temperature into consideration, I authorized her to proceed with the analysis. I thought I had sent you an update earlier but could not find it in my e-mails, I apologize for the oversight on my part.

Thank you,

Rodney J. Varnell
Project Manager
rvarnell@amrad.com

INTERNATIONAL

ARS International, LLC
2609 North River Road
Port Allen, LA 70767-3469

225.381.2991 Office
225.381.2996 FAX
www.amrad.com

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Rodney Varnell

From:	Joel C. <cehn@aol.com>
Sent:	Thursday, February 16, 2017 10:03 AM
To:	Rodney Varnell
Subject:	RE: E-mail address

Yes. Use the AOL address.

Joel

--- Joel

On Thursday, February 16, 2017 Rodney Varnell <rvarnell@amrad.com> wrote:

Good morning Joel,

I am starting to work up the report for the aqueous samples and notice that I had put in both the aol and pikainc addresses on the cover letter. Do you want me to remove the pikainc address?

Thank you,

Rodney J. Varnell

Project Manager

rvarnell@amrad.com

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225.381.2996 FAX

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From:	Joel C. <cehn@aol.com>
Sent:	Thursday, February 16, 2017 10:05 AM
To:	Rodney Varnell
Subject:	RE: PO#

Rodney

No need for a PO number on my end.

Joel

--- Joel

On Thursday, February 16, 2017 Rodney Varnell <rvarnell@amrad.com> wrote:

Joel,

I need to know if we need a PO# for billing/payment since our reports have a line in them for the PO#.

Thank you,

Rodney J. Varnell

Project Manager

rvarnell@amrad.com

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INTERNATIONAL

Analytical Results

Sample Data Summary

SDG# ARS1-17-00216
COC SOLID SAMPLES

ARS Sample Delivery Group: ARS1-17-00216

Client Sample ID: BB-16L

Sample Collection Date: 01/18/17

Sample Matrix: Soil/Solid/Sludge

Percent Solids: 80.6%

Request or PO Number: Quote# 161115 SL

ARS Sample ID: ARS1-17-00216-001

Date Received: 01/24/17

Report Date: 03/08/17

Radiochemistry

Analysis Description	Analysis Results	CSU +/- 2 s	MDC	DLC	CRDL	Qual	Analysis Units	Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Ac-228	2.270	0.212	0.179	0.090	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Bi-212	0.823	0.120	0.145	0.073	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Bi-214	0.895	0.080	0.047	0.024	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Cs-134	0.000	0.016	0.024	0.012	NP	U	pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Cs-137	0.078	0.023	0.022	0.011	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
K-40	22.158	1.533	0.307	0.154	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Pb-214	1.008	0.102	0.048	0.024	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Th-228	1.353	0.099	0.032	0.016	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Th-234	1.018	0.243	0.384	0.192	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Tl-208	0.373	0.044	0.027	0.013	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:40	BSCHREITER	N/A
Sr-90	0.043	0.060	0.099	0.047	0.1	U	pCi/g	ARS-032/Eichrom SRW-01	02/01/17 16:39	SC	98%

Sample Weight (g):

Injection Volume (uL):   1

Final Volume (mL):

GC Column: DB-5MS

Preparation Method: ARS-156/3550C

Analysis Method: ARS-160/EPA 8270D

Semi-Volatile Organics

CAS#	Analyte	Analysis Result	LOD	LOQ	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
90-12-0	1-Methylnaphthalene	<NA	NA	81.2	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
91-57-6	2-Methylnaphthalene	<NA	NA	79.3	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
83-32-9	Acenaphthene	<NA	NA	67.5	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
208-96-8	Acenaphthylene	<NA	NA	68.8	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
120-12-7	Anthracene	<NA	NA	105	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
56-55-3	Benzo(a)anthracene	<NA	NA	115	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
50-32-8	Benzo(a)pyrene	<NA	NA	183	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
205-99-2	Benzo(b)fluoranthene	<NA	NA	179	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
191-24-2	Benzo(g,h,i)perylene	<NA	NA	169	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
207-08-9	Benzo(k)fluoranthene	<NA	NA	182	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
218-01-9	Chrysene	<NA	NA	118	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
53-70-3	Dibenz(a,h)anthracene	<NA	NA	170	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
206-44-0	Fluoranthene	<NA	NA	111	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
86-73-7	Fluorene	<NA	NA	62.5	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
193-39-5	Indeno(1,2,3-cd)pyrene	<NA	NA	173	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
91-20-3	Naphthalene	<NA	NA	141	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
85-01-8	Phenanthrene	<NA	NA	92.7	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER
129-00-0	Pyrene	<NA	NA	114	3.00	1	U	ug/kg	02/08/17 18:51	CSTRINGER

CAS#	Surrogate	Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
118-79-6	2,4,6-Tribromophenol	1.65E+3	1.23E+3	ug/kg	74.4%	80/120
321-60-8	2-Fluorobiphenyl	1.65E+3	777	ug/kg	47.0%	80/120
367-12-4	2-Fluorophenol	1.65E+3	300	ug/kg	18.1%	80/120
4165-60-0	Nitrobenzene-d5	1.65E+3	404	ug/kg	24.4%	80/120
4165-62-2	Phenol-d5	1.65E+3	545	ug/kg	33.0%	80/120
1718-51-0	Terphenyl-d14	1.65E+3	1.24E+3	ug/kg	74.8%	80/120

_____

Project Manager Review

LELAP Certificate# 01949

ARS Sample Delivery Group:	ARS1-17-00216	Request or PO Number:	Quote# 161115 SL
Client Sample ID:	BB-18	ARS Sample ID:	ARS1-17-00216-002
Sample Collection Date:	01/17/17	Date Received:	01/24/17
Sample Matrix:	Soil/Solid/Sludge	Report Date:	03/08/17
Percent Solids:	86.4%		

Radiochemistry

Analysis Description	Analysis Results	CSU +/- 2 s	MDC	DLC	CRDL	Qual	Analysis Units	Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Ac-228	2.279	0.198	0.110	0.055	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Bi-212	0.756	0.123	0.126	0.063	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Bi-214	0.752	0.059	0.036	0.018	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Cs-134	3.880E-4	0.014	0.021	0.011	NP	U	pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Cs-137	0.078	0.014	0.016	0.008	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
K-40	23.017	1.568	0.195	0.098	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Pb-214	0.823	0.077	0.041	0.021	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Th-228	1.256	0.090	0.033	0.017	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Th-234	0.708	0.264	0.338	0.169	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Tl-208	0.412	0.033	0.017	0.009	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:41	BSCHREITER	N/A
Sr-90	0.038	0.053	0.088	0.042	0.1	U	pCi/g	ARS-032/Eichrom SRW-01	02/01/17 16:39	SC	99%

Sample Weight (g):		GC Column:	DB-5MS
Injection Volume (uL):	1	Preparation Method:	ARS-156/3550C
Final Volume (mL):		Analysis Method:	ARS-160/EPA 8270D

Semi-Volatile Organics

CAS#	Analyte	Analysis Result	LOD	LOQ	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
90-12-0	1-Methylnaphthalene	<NA	NA	81.2	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
91-57-6	2-Methylnaphthalene	<NA	NA	79.3	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
83-32-9	Acenaphthene	<NA	NA	67.5	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
208-96-8	Acenaphthylene	<NA	NA	68.8	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
120-12-7	Anthracene	<NA	NA	105	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
56-55-3	Benzo(a)anthracene	<NA	NA	115	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
50-32-8	Benzo(a)pyrene	<NA	NA	183	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
205-99-2	Benzo(b)fluoranthene	<NA	NA	179	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
191-24-2	Benzo(g,h,i)perylene	<NA	NA	169	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
207-08-9	Benzo(k)fluoranthene	<NA	NA	182	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
218-01-9	Chrysene	<NA	NA	118	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
53-70-3	Dibenz(a,h)anthracene	<NA	NA	170	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
206-44-0	Fluoranthene	<NA	NA	111	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
86-73-7	Fluorene	<NA	NA	62.5	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
193-39-5	Indeno(1,2,3-cd)pyrene	<NA	NA	173	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
91-20-3	Naphthalene	<NA	NA	141	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
85-01-8	Phenanthrene	<NA	NA	92.7	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER
129-00-0	Pyrene	<NA	NA	114	3.00	1	U	ug/kg	02/08/17 20:19	CSTRINGER

CAS#	Surrogate	Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
118-79-6	2,4,6-Tribromophenol	1.54E+3	1.31E+3	ug/kg	84.9%	80/120
321-60-8	2-Fluorobiphenyl	1.54E+3	1.16E+3	ug/kg	75.4%	80/120
367-12-4	2-Fluorophenol	1.54E+3	845	ug/kg	54.7%	80/120
4165-60-0	Nitrobenzene-d5	1.54E+3	1.16E+3	ug/kg	75.0%	80/120
4165-62-2	Phenol-d5	1.54E+3	971	ug/kg	62.9%	80/120
1718-51-0	Terphenyl-d14	1.54E+3	1.24E+3	ug/kg	80.3%	80/120

Sample Weight (g): 30

Extraction Type: Sonification

Conc Extract Volume (mL): 1

Cleanup Type: None

Cleanup Factor: N/A

pH: N/A

Date Extracted: 01/31/17

Injection Volume (uL): 1

Preparation Method: ARS-156/3550C

Analysis Method: ARS-157/SW846 8082A

PCBs

CAS#	Analyte	GC Column	Analysis Result	LOD	LOQ	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
12674-11-2	Aroclor-1016	ECD1 A	<NA	NA	3.33	1.00	1	U*	ug/kg	02/07/17 17:51	DCODY
11104-28-2	Aroclor-1221	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 17:51	DCODY
11141-16-5	Aroclor-1232	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 17:51	DCODY
53469-21-9	Aroclor-1242	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 17:51	DCODY
12672-29-6	Aroclor-1248	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 17:51	DCODY
11097-69-1	Aroclor-1254	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 17:51	DCODY
11096-82-5	Aroclor-1260	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 17:51	DCODY

CAS#	Surrogate	GC Column	Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
2051-24-3	DCBP	ECD1 A	0.772	0.717	ug/kg	92.9%	80/120
877-09-8	TCMX	ECD1 A	0.772	0.735	ug/kg	95.2%	80/120

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 01949

ARS Sample Delivery Group: ARS1-17-00216

Client Sample ID: OS-2

Sample Collection Date: 01/17/17

Sample Matrix: Soil/Solid/Sludge

Percent Solids: 77.7%

Request or PO Number: Quote# 161115 SL

ARS Sample ID: ARS1-17-00216-003

Date Received: 01/24/17

Report Date: 03/07/17

Sample Weight (g):

Injection Volume (uL): 1

Final Volume (mL):

GC Column: DB-5MS

Preparation Method: ARS-156/3550C

Analysis Method: ARS-160/EPA 8270D

Semi-Volatile Organics

CAS#	Analyte	Analysis Result	MDL	PQL	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
90-12-0	1-Methylnaphthalene	<25.5	25.5	81.2	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
91-57-6	2-Methylnaphthalene	<24.9	24.9	79.3	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
83-32-9	Acenaphthene	<21.2	21.2	67.5	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
208-96-8	Acenaphthylene	<21.6	21.6	68.8	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
120-12-7	Anthracene	<33.1	33.1	105	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
56-55-3	Benzo(a)anthracene	<36.2	36.2	115	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
50-32-8	Benzo(a)pyrene	<57.4	57.4	183	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
205-99-2	Benzo(b)fluoranthene	<56.4	56.4	179	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
191-24-2	Benzo(g,h,i)perylene	<53.0	53.0	169	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
207-08-9	Benzo(k)fluoranthene	<57.1	57.1	182	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
218-01-9	Chrysene	<37.0	37.0	118	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
53-70-3	Dibenz(a,h)anthracene	<53.5	53.5	170	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
206-44-0	Fluoranthene	<34.8	34.8	111	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
86-73-7	Fluorene	<19.6	19.6	62.5	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
193-39-5	Indeno(1,2,3-cd)pyrene	<54.4	54.4	173	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
91-20-3	Naphthalene	<44.3	44.3	141	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
85-01-8	Phenanthrene	<29.1	29.1	92.7	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER
129-00-0	Pyrene	<35.8	35.8	114	3.00	1	U	ug/kg	02/09/17 12:56	CSTRINGER

CAS#	Surrogate	Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
118-79-6	2,4,6-Tribromophenol	1.72E+3	1.35E+3	ug/kg	78.6%	80/120
321-60-8	2-Fluorobiphenyl	1.72E+3	798	ug/kg	46.5%	80/120
367-12-4	2-Fluorophenol	1.72E+3	870	ug/kg	50.7%	80/120
4165-60-0	Nitrobenzene-d5	1.72E+3	1.00E+3	ug/kg	58.4%	80/120
4165-62-2	Phenol-d5	1.72E+3	897	ug/kg	52.3%	80/120
1718-51-0	Terphenyl-d14	1.72E+3	1.06E+3	ug/kg	61.7%	80/120

Sample Weight (g): 30

Extraction Type: Sonification

Conc Extract Volume (mL): 1

Cleanup Type: None

Cleanup Factor: N/A

pH: N/A

Date Extracted: 01/31/17

Injection Volume (uL): 1

Preparation Method: ARS-156/3550C

Analysis Method: ARS-157/SW846 8082A

PCBs

CAS#	Analyte	GC Column	Analysis Result	MDL	PQL	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
12674-11-2	Aroclor-1016	ECD1 A	<3.33	3.33	3.33		1.00	1	U*	ug/kg	02/07/17 18:19	DCODY
11104-28-2	Aroclor-1221	ECD1 A	<3.33	3.33	3.33		1.00	1	U	ug/kg	02/07/17 18:19	DCODY
11141-16-5	Aroclor-1232	ECD1 A	<3.33	3.33	3.33		1.00	1	U	ug/kg	02/07/17 18:19	DCODY
53469-21-9	Aroclor-1242	ECD1 A	<3.33	3.33	3.33		1.00	1	U	ug/kg	02/07/17 18:19	DCODY
12672-29-6	Aroclor-1248	ECD1 A	<3.33	3.33	3.33		1.00	1	U	ug/kg	02/07/17 18:19	DCODY
11097-69-1	Aroclor-1254	ECD1 A	<3.33	3.33	3.33		1.00	1	U	ug/kg	02/07/17 18:19	DCODY
11096-82-5	Aroclor-1260	ECD1 A	<3.33	3.33	3.33		1.00	1	U	ug/kg	02/07/17 18:19	DCODY

CAS#	Surrogate	GC Column		Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
2051-24-3	DCBP	ECD1 A		0.858	0.731	ug/kg	85.2%	80/120
877-09-8	TCMX	ECD1 A		0.858	0.778	ug/kg	90.7%	80/120

Project Manager Review

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LELAP Certificate# 01949

ARS Sample Delivery Group: ARS1-17-00216	**Request or PO Number:** Quote# 161115 SL
Client Sample ID: BB-19M	**ARS Sample ID:** ARS1-17-00216-004
Sample Collection Date: 01/18/17	**Date Received:** 01/24/17
Sample Matrix: Soil/Solid/Sludge	**Report Date:** 03/08/17
Percent Solids: 59.5%	

Radiochemistry

Analysis Description	Analysis Results	CSU +/- 2 s	MDC	DLC	CRDL	Qual	Analysis Units	Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Ac-228	7.816	0.526	0.135	0.068	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Bi-212	1.819	0.238	0.198	0.099	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Bi-214	2.136	0.157	0.048	0.024	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Cs-134	0.001	0.024	0.027	0.014	NP	U	pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Cs-137	0.043	0.018	0.024	0.012	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
K-40	20.681	1.416	0.279	0.140	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Pb-214	2.440	0.216	0.049	0.025	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Th-228	2.492	0.182	0.049	0.025	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Th-234	0.851	0.297	0.433	0.217	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Tl-208	0.749	0.066	0.030	0.015	NP		pCi/g	ARS-007/EPA 901.1M	01/30/17 14:56	BSCHREITER	N/A
Sr-90	0.039	0.056	0.093	0.044	0.1	U	pCi/g	ARS-032/Eichrom SRW-01	02/01/17 16:39	SC	98%

Sample Weight (g):		**GC Column:** DB-5MS	
Injection Volume (uL):	1	**Preparation Method:** ARS-156/3550C	
Final Volume (mL):		**Analysis Method:** ARS-160/EPA 8270D	

Semi-Volatile Organics

CAS#	Analyte	Analysis Result	LOD	LOQ	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
90-12-0	1-Methylnaphthalene	<NA	NA	81.2	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
91-57-6	2-Methylnaphthalene	<NA	NA	79.3	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
83-32-9	Acenaphthene	<NA	NA	67.5	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
208-96-8	Acenaphthylene	<NA	NA	68.8	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
120-12-7	Anthracene	<NA	NA	105	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
56-55-3	Benzo(a)anthracene	<NA	NA	115	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
50-32-8	Benzo(a)pyrene	<NA	NA	183	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
205-99-2	Benzo(b)fluoranthene	<NA	NA	179	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
191-24-2	Benzo(g,h,i)perylene	<NA	NA	169	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
207-08-9	Benzo(k)fluoranthene	<NA	NA	182	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
218-01-9	Chrysene	<NA	NA	118	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
53-70-3	Dibenz(a,h)anthracene	<NA	NA	170	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
206-44-0	Fluoranthene	<NA	NA	111	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
86-73-7	Fluorene	<NA	NA	62.5	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
193-39-5	Indeno(1,2,3-cd)pyrene	<NA	NA	173	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
91-20-3	Naphthalene	<NA	NA	141	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
85-01-8	Phenanthrene	<NA	NA	92.7	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER
129-00-0	Pyrene	<NA	NA	114	3.00	1	U	ug/kg	02/08/17 21:18	CSTRINGER

CAS#	Surrogate	Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
118-79-6	2,4,6-Tribromophenol	2.24E+3	1.79E+3	ug/kg	80.0%	80/120
321-60-8	2-Fluorobiphenyl	2.24E+3	1.19E+3	ug/kg	53.2%	80/120
367-12-4	2-Fluorophenol	2.24E+3	1.29E+3	ug/kg	57.8%	80/120
4165-60-0	Nitrobenzene-d5	2.24E+3	1.23E+3	ug/kg	55.1%	80/120
4165-62-2	Phenol-d5	2.24E+3	1.42E+3	ug/kg	63.3%	80/120
1718-51-0	Terphenyl-d14	2.24E+3	1.34E+3	ug/kg	60.0%	80/120

Sample Weight (g): 30

Extraction Type: Sonification

Conc Extract Volume (mL): 1

Cleanup Type: None

Cleanup Factor: N/A

pH: N/A

Date Extracted: 01/31/17

Injection Volume (uL): 1

Preparation Method: ARS-156/3550C

Analysis Method: ARS-157/SW846 8082A

PCBs

CAS#	Analyte	GC Column	Analysis Result	LOD	LOQ	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
12674-11-2	Aroclor-1016	ECD1 A	<NA	NA	3.33	1.00	1	U*	ug/kg	02/07/17 18:48	DCODY
11104-28-2	Aroclor-1221	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 18:48	DCODY
11141-16-5	Aroclor-1232	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 18:48	DCODY
53469-21-9	Aroclor-1242	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 18:48	DCODY
12672-29-6	Aroclor-1248	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 18:48	DCODY
11097-69-1	Aroclor-1254	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 18:48	DCODY
11096-82-5	Aroclor-1260	ECD1 A	<NA	NA	3.33	1.00	1	U	ug/kg	02/07/17 18:48	DCODY

CAS#	Surrogate	GC Column	Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
2051-24-3	DCBP	ECD1 A	1.12	3.57	ug/kg	319%	80/120
877-09-8	TCMX	ECD1 A	1.12	9.30	ug/kg	830%	80/120

Project Manager Review

LELAP Certificate# 01949

ARS INTERNATIONAL

ARS Sample Delivery Group: ARS1-17-00216	**Request or PO Number:** Quote# 161115 SL
Client Sample ID: BB-16B	**ARS Sample ID:** ARS1-17-00216-005
Sample Collection Date: 01/17/17	**Date Received:** 01/24/17
Sample Matrix: Soil/Solid/Sludge	**Report Date:** 03/07/17
Percent Solids: 88.9%	

Sample Weight (g):		**GC Column:** DB-5MS
Injection Volume (uL):	1	**Preparation Method:** ARS-156/3550C
Final Volume (mL):		**Analysis Method:** ARS-160/EPA 8270D

Semi-Volatile Organics

CAS#	Analyte	Analysis Result	MDL	PQL	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
90-12-0	1-Methylnaphthalene	<25.5	25.5	81.2	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
91-57-6	2-Methylnaphthalene	<24.9	24.9	79.3	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
83-32-9	Acenaphthene	<21.2	21.2	67.5	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
208-96-8	Acenaphthylene	<21.6	21.6	68.8	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
120-12-7	Anthracene	<33.1	33.1	105	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
56-55-3	Benzo(a)anthracene	<36.2	36.2	115	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
50-32-8	Benzo(a)pyrene	<57.4	57.4	183	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
205-99-2	Benzo(b)fluoranthene	<56.4	56.4	179	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
191-24-2	Benzo(g,h,i)perylene	<53.0	53.0	169	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
207-08-9	Benzo(k)fluoranthene	<57.1	57.1	182	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
218-01-9	Chrysene	<37.0	37.0	118	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
53-70-3	Dibenz(a,h)anthracene	<53.5	53.5	170	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
206-44-0	Fluoranthene	<34.8	34.8	111	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
86-73-7	Fluorene	<19.6	19.6	62.5	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
193-39-5	Indeno(1,2,3-cd)pyrene	<54.4	54.4	173	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
91-20-3	Naphthalene	<44.3	44.3	141	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
85-01-8	Phenanthrene	<29.1	29.1	92.7	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER
129-00-0	Pyrene	<35.8	35.8	114	3.00	1	U	ug/kg	02/08/17 21:48	CSTRINGER

CAS#	Surrogate	Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
118-79-6	2,4,6-Tribromophenol	1.50E+3	1.21E+3	ug/kg	80.6%	80/120
321-60-8	2-Fluorobiphenyl	1.50E+3	1.08E+3	ug/kg	72.3%	80/120
367-12-4	2-Fluorophenol	1.50E+3	685	ug/kg	45.7%	80/120
4165-60-0	Nitrobenzene-d5	1.50E+3	863	ug/kg	57.5%	80/120
4165-62-2	Phenol-d5	1.50E+3	852	ug/kg	56.8%	80/120
1718-51-0	Terphenyl-d14	1.50E+3	1.31E+3	ug/kg	87.3%	80/120

Project Manager Review

LELAP Certificate# 01949

ARS Sample Delivery Group: ARS1-17-00216
Client Sample ID: BB-16A
Sample Collection Date: 01/17/17
Sample Matrix: Soil/Solid/Sludge
Percent Solids: 86.7%

Request or PO Number: Quote# 161115 SL
ARS Sample ID: ARS1-17-00216-006
Date Received: 01/24/17
Report Date: 03/07/17

Sample Weight (g):
Injection Volume (uL):   1
Final Volume (mL):

GC Column: DB-5MS
Preparation Method: ARS-156/3550C
Analysis Method: ARS-160/EPA 8270D

Semi-Volatile Organics

CAS#	Analyte	Analysis Result	MDL	PQL	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
90-12-0	1-Methylnaphthalene	<25.5	25.5	81.2	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
91-57-6	2-Methylnaphthalene	<24.9	24.9	79.3	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
83-32-9	Acenaphthene	<21.2	21.2	67.5	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
208-96-8	Acenaphthylene	<21.6	21.6	68.8	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
120-12-7	Anthracene	<33.1	33.1	105	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
56-55-3	Benzo(a)anthracene	<36.2	36.2	115	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
50-32-8	Benzo(a)pyrene	<57.4	57.4	183	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
205-99-2	Benzo(b)fluoranthene	<56.4	56.4	179	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
191-24-2	Benzo(g,h,i)perylene	<53.0	53.0	169	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
207-08-9	Benzo(k)fluoranthene	<57.1	57.1	182	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
218-01-9	Chrysene	<37.0	37.0	118	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
53-70-3	Dibenz(a,h)anthracene	<53.5	53.5	170	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
206-44-0	Fluoranthene	<34.8	34.8	111	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
86-73-7	Fluorene	<19.6	19.6	62.5	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
193-39-5	Indeno(1,2,3-cd)pyrene	<54.4	54.4	173	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
91-20-3	Naphthalene	<44.3	44.3	141	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
85-01-8	Phenanthrene	<29.1	29.1	92.7	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER
129-00-0	Pyrene	<35.8	35.8	114	3.00	1	U	ug/kg	02/08/17 22:17	CSTRINGER

CAS#	Surrogate		Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
118-79-6	2,4,6-Tribromophenol		1.54E+3	1.45E+3	ug/kg	94.4%	80/120
321-60-8	2-Fluorobiphenyl		1.54E+3	1.17E+3	ug/kg	75.9%	80/120
367-12-4	2-Fluorophenol		1.54E+3	1.25E+3	ug/kg	81.1%	80/120
4165-60-0	Nitrobenzene-d5		1.54E+3	1.25E+3	ug/kg	81.5%	80/120
4165-62-2	Phenol-d5		1.54E+3	1.26E+3	ug/kg	82.0%	80/120
1718-51-0	Terphenyl-d14		1.54E+3	1.27E+3	ug/kg	82.4%	80/120

Project Manager Review

LELAP Certificate# 01949

ARS Sample Delivery Group: ARS1-17-00216		**Request or PO Number:** Quote# 161115 SL	
Client Sample ID: BB-17		**ARS Sample ID:** ARS1-17-00216-007	
Sample Collection Date: 01/17/17		**Date Received:** 01/24/17	
Sample Matrix: Soil/Solid/Sludge		**Report Date:** 03/07/17	
Percent Solids: 82.5%			

Sample Weight (g): 30		**pH:** N/A	
Extraction Type: Sonification		**Date Extracted:** 01/31/17	
Conc Extract Volume (mL): 1		**Injection Volume (uL):** 1	
Cleanup Type: None		**Preparation Method:** ARS-156/3550C	
Cleanup Factor: N/A		**Analysis Method:** ARS-157/SW846 8082A	

PCBs

CAS#	Analyte	GC Column	Analysis Result	MDL	PQL	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
12674-11-2	Aroclor-1016	ECD1 A	<3.33	3.33	3.33	1.00	1	U*	ug/kg	02/07/17 19:16	DCODY
11104-28-2	Aroclor-1221	ECD1 A	<3.33	3.33	3.33	1.00	1	U	ug/kg	02/07/17 19:16	DCODY
11141-16-5	Aroclor-1232	ECD1 A	<3.33	3.33	3.33	1.00	1	U	ug/kg	02/07/17 19:16	DCODY
53469-21-9	Aroclor-1242	ECD1 A	<3.33	3.33	3.33	1.00	1	U	ug/kg	02/07/17 19:16	DCODY
12672-29-6	Aroclor-1248	ECD1 A	<3.33	3.33	3.33	1.00	1	U	ug/kg	02/07/17 19:16	DCODY
11097-69-1	Aroclor-1254	ECD1 A	<3.33	3.33	3.33	1.00	1	U	ug/kg	02/07/17 19:16	DCODY
11096-82-5	Aroclor-1260	ECD1 A	<3.33	3.33	3.33	1.00	1	U	ug/kg	02/07/17 19:16	DCODY

CAS#	Surrogate	GC Column		Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
2051-24-3	DCBP	ECD1 A		0.808	0.166	ug/kg	20.6%	80/120
877-09-8	TCMX	ECD1 A		0.808	0.322	ug/kg	39.9%	80/120

Project Manager Review

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ARS Sample Delivery Group: ARS1-17-00216

Client Sample ID: BB-17 Mud/Sludge

Sample Collection Date: 01/17/17

Sample Matrix: Soil/Solid/Sludge

Percent Solids: 20.6%

Request or PO Number: Quote# 161115 SL

ARS Sample ID: ARS1-17-00216-008

Date Received: 01/24/17

Report Date: 03/07/17

Radiochemistry

Analysis Description	Analysis Results	CSU +/- 2 s	MDC	DLC	CRDL	Qual	Analysis Units	Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Sr-90	-0.018	0.048	0.085	0.040	0.1	U	pCi/g	ARS-032/Eichrom SRW-01	02/01/17 16:39	SC	101%

Project Manager Review

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INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277   FAX (225) 381-2996

Radiological Analysis
Quality Control Results

SDG# ARS1-17-00216

COC SOLID SAMPLES

⚙ARS
INTERNATIONAL

QC Results per Analytical Batch

Analytical Batch	**ARS1-B17-00157**
SDG	ARS1-17-00216
Analysis	Strontium-90 (Soil, Sludge, Biota,
Analysis Test Method	ARS-032/Gas Proportional Counter
Analysis Code	GPC-A-012
Report Units	pCi/g

Acceptable QC Performance Ranges

QC Sample Type	Performance Items and Ranges		
Laboratory Control Sample	Recovery (%):	> 75	< 125
Matrix Spike	Recovery (%):	> 60	< 140
Duplicate	Replicate Error Ratio (RER):		< 1
	Duplicate Error Ratio (DER):		< 3
	Relative Percent Difference (RPD %):		≤ 25

Laboratory Control Sample

				Analysis Date	02/01/17 16:38	**Analysis Technician**	SC	

Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (2s)	Expected Value	LCS Rec (%)	MDC
ARS1-B17-00157-01	LCS	SR-90	19.527	2.961	19.319	101.1	0.266

Duplicate RER/DER/RPD

				Analysis Date	02/01/17 16:39	**Analysis Technician**	SC	

Analyte	Results LCS	CSU LCS (2s)	Results LCSD	CSU LCSD (2s)	RER	DER	RPD
SR-90	19.527	2.961	22.166	3.357	0.418	1.156	12.7

Method Blank

				Analysis Date	02/01/17 16:39	**Analysis Technician**	SC	

Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (2s)	MDC	Qual
ARS1-B17-00157-03	MBL	SR-90	0.051	0.140	0.237	U

Project Manager Review

LELAP Certificate# 01949

Analytical Batch	**ARS1-B17-00169**
SDG	ARS1-17-00216
Analysis	Gamma Spec (Solid)
Analysis Test Method	ARS-007/EPA 901.1M
Analysis Code	GAM-A-020
Report Units	pCi/g

Acceptable QC Performance Ranges

QC Sample Type	Performance Items and Ranges		
Laboratory Control Sample	Recovery (%):	> 75	< 125
Matrix Spike	Recovery (%):	> 60	< 140
Duplicate	Replicate Error Ratio (RER):		< 1
	Duplicate Error Ratio (DER):		< 3
	Relative Percent Difference (RPD %):		≤ 25

Laboratory Control Sample

		Analysis Date	01/30/17 09:19	**Analysis Technician**	WJS	
Analysis Batch Sample ID	**QC Type**	**Analyte**	**Results**	**CSU (2s)**	**Expected Value**	**LCS Rec (%)**	**MDC**
ARS1-B17-00169-01	LCS	AM-241	3.921E+4	2.872E+3	4.000E+4	98.0	714.700
ARS1-B17-00169-01	LCS	CO-60	6.525E+4	3.026E+3	6.719E+4	97.1	1.100E+3
ARS1-B17-00169-01	LCS	CS-137	5.605E+4	2.897E+3	5.727E+4	97.9	454.100

Duplicate RER/DER/RPD

		Analysis Date	01/30/17 09:30	**Analysis Technician**	WJS	
Analyte	**Results LCS**	**CSU LCS (2s)**	**Results LCSD**	**CSU LCSD (2s)**	**RER**	**DER**	**RPD**
AM-241	3.921E+4	2.872E+3	4.085E+4	3.148E+3	0.272	0.753	4.1
CO-60	6.525E+4	3.026E+3	6.806E+4	2.901E+3	0.474	1.315	4.2
CS-137	5.605E+4	2.897E+3	5.812E+4	2.777E+3	0.364	1.010	3.6

Method Blank

		Analysis Date	01/30/17 14:40	**Analysis Technician**	WJS	
Analysis Batch Sample ID	**QC Type**	**Analyte**	**Results**	**CSU (2s)**	**MDC**	**Qual**
ARS1-B17-00169-03	MBL	AM-241	-0.868	4.100	6.840	U
ARS1-B17-00169-03	MBL	CO-60	1.337	2.506	4.200	U
ARS1-B17-00169-03	MBL	CS-137	-0.905	88.167	4.700	U

(signature)

Project Manager Review

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LELAP Certificate# 01949

Stable Chemistry Analysis
Quality Control Results

SDG# ARS1-17-00216

COC SOLID SAMPLES

Analytical Batch	ARS1-B17-00170
SDG	ARS1-17-00216
Analysis	GCMS-8270D-SO
Method	ARS-156/160/EPA 8270D
Analysis Code	GCMS-8270D-SO
Report Units	ug/kg

INTERNATIONAL

QC Results per Analytical Batch

Laboratory Control Sample

Analysis Date	02/08/17 17:52	Analysis Technician	CSTRINGER

CAS #	Analyte	LCS Results	LCSD Results	Known Value	% Rec	Limits	RPD	Limits
90-12-0	1-Methylnaphthalene	559	465	667	83.8	40 - 119	18.4	25
91-57-6	2-Methylnaphthalene	564	457	667	84.6	38 - 122	20.8	25
83-32-9	Acenaphthene	597	507	667	89.6	40 - 123	16.3	25
208-96-8	Acenaphthylene	606	518	667	90.9	32 - 132	15.6	25
120-12-7	Anthracene	638	614	667	95.8	47 - 123	3.94	25
56-55-3	Benzo(a)anthracene	667	654	667	100	49 - 126	1.92	25
50-32-8	Benzo(a)pyrene	654	635	667	98.1	45 - 129	2.95	25
205-99-2	Benzo(b)fluoranthene	666	647	667	99.9	45 - 132	2.79	25
191-24-2	Benzo(g,h,i)perylene	650	649	667	97.5	43 - 134	0.154	25
207-08-9	Benzo(k)fluoranthene	665	659	667	99.7	47 - 132	0.856	25
218-01-9	Chrysene	665	656	667	99.7	50 - 124	1.31	25
53-70-3	Dibenz(a,h)anthracene	654	660	667	99.0	45 - 134	0.914	25
206-44-0	Fluoranthene	671	642	667	101	50 - 127	4.47	25
86-73-7	Fluorene	621	576	667	93.2	43 - 125	7.57	25
193-39-5	Indeno(1,2,3-cd)pyrene	658	656	667	98.8	45 - 133	0.406	25
91-20-3	Naphthalene	570	444	667	85.6	35 - 123	24.8	25
85-01-8	Phenanthrene	644	623	667	96.7	50 - 121	3.37	25
129-00-0	Pyrene	666	656	667	99.9	47 - 127	1.51	25

Method Blank

Analysis Date	02/08/17 17:22	Analysis Technician	CSTRINGER

CAS #	Analyte	Blank Results	Qualifier	MDL	PQL
90-12-0	1-Methylnaphthalene	<25.5	U	25.5	81.2
91-57-6	2-Methylnaphthalene	<24.9	U	24.9	79.3
83-32-9	Acenaphthene	<21.2	U	21.2	67.5
208-96-8	Acenaphthylene	<21.6	U	21.6	68.8
120-12-7	Anthracene	<33.1	U	33.1	105
56-55-3	Benzo(a)anthracene	<36.2	U	36.2	115
50-32-8	Benzo(a)pyrene	<57.4	U	57.4	183
205-99-2	Benzo(b)fluoranthene	<56.4	U	56.4	179
191-24-2	Benzo(g,h,i)perylene	<53.0	U	53.0	169
207-08-9	Benzo(k)fluoranthene	<57.1	U	57.1	182
218-01-9	Chrysene	<37.0	U	37.0	118
53-70-3	Dibenz(a,h)anthracene	<53.5	U	53.5	170
206-44-0	Fluoranthene	<34.8	U	34.8	111
86-73-7	Fluorene	<19.6	U	19.6	62.5
193-39-5	Indeno(1,2,3-cd)pyrene	<54.4	U	54.4	173
91-20-3	Naphthalene	<44.3	U	44.3	141
85-01-8	Phenanthrene	<29.1	U	29.1	92.7
129-00-0	Pyrene	<35.8	U	35.8	114

QC Results per Analytical Batch

Analytical Batch	ARS1-B17-00170
SDG	ARS1-17-00216
Analysis	GCMS-8270D-SO
Method	ARS-156/160/EPA 8270D
Analysis Code	GCMS-8270D-SO
Report Units	ug/kg

Matrix Spike

Analysis Date: 02/08/17 19:20 Analysis Technician: CSTRINGER

QC Type	Analyte	MS Results	MSO Sample	MSO Results	Expected Value	MS % Rec	Limits	RPD	Limits
MS	1-Methylnaphthalene	325	04	<25.5	827	39.3	40 - 119	N/A	25
MSD	1-Methylnaphthalene	284	04	<25.5	827	34.4	40 - 119	13.4	25
MS	2-Methylnaphthalene	268	04	<24.9	827	32.5	38 - 122	N/A	25
MSD	2-Methylnaphthalene	237	04	<24.9	827	28.6	38 - 122	12.6	25
MS	Acenaphthene	433	04	<21.2	827	52.4	40 - 123	N/A	25
MSD	Acenaphthene	384	04	<21.2	827	46.4	40 - 123	12.1	25
MS	Acenaphthylene	463	04	<21.6	827	56.0	32 - 132	N/A	25
MSD	Acenaphthylene	400	04	<21.6	827	48.3	32 - 132	14.8	25
MS	Anthracene	592	04	<33.1	827	71.6	47 - 123	N/A	25
MSD	Anthracene	503	04	<33.1	827	60.8	47 - 123	16.4	25
MS	Benzo(a)anthracene	625	04	<36.2	827	75.6	49 - 126	N/A	25
MSD	Benzo(a)anthracene	516	04	<36.2	827	62.4	49 - 126	19.1	25
MS	Benzo(a)pyrene	583	04	<57.4	827	70.5	45 - 129	N/A	25
MSD	Benzo(a)pyrene	469	04	<57.4	827	56.7	45 - 129	21.7	25
MS	Benzo(b)fluoranthene	577	04	<56.4	827	69.7	45 - 132	N/A	25
MSD	Benzo(b)fluoranthene	470	04	<56.4	827	56.8	45 - 132	20.4	25
MS	Benzo(g,h,i)perylene	560	04	<53.0	827	67.7	43 - 134	N/A	25
MSD	Benzo(g,h,i)perylene	461	04	<53.0	827	55.8	43 - 134	19.4	25
MS	Benzo(k)fluoranthene	580	04	<57.1	827	70.1	47 - 132	N/A	25
MSD	Benzo(k)fluoranthene	471	04	<57.1	827	57.0	47 - 132	20.7	25
MS	Chrysene	631	04	<37.0	827	76.3	50 - 124	N/A	25
MSD	Chrysene	515	04	<37.0	827	62.3	50 - 124	20.2	25
MS	Dibenz(a,h)anthracene	590	04	<53.5	827	71.3	45 - 134	N/A	25
MSD	Dibenz(a,h)anthracene	481	04	<53.5	827	58.2	45 - 134	20.3	25
MS	Fluoranthene	648	04	<34.8	827	78.3	50 - 127	N/A	25
MSD	Fluoranthene	535	04	<34.8	827	64.7	50 - 127	19.1	25
MS	Fluorene	502	04	<19.6	827	60.7	43 - 125	N/A	25
MSD	Fluorene	440	04	<19.6	827	53.2	43 - 125	13.1	25
MS	Indeno(1,2,3-cd)pyrene	579	04	<54.4	827	70.0	45 - 133	N/A	25
MSD	Indeno(1,2,3-cd)pyrene	472	04	<54.4	827	57.1	45 - 133	20.4	25
MS	Naphthalene	210	04	<44.3	827	25.4	35 - 123	N/A	25
MSD	Naphthalene	179	04	<44.3	827	21.6	35 - 123	16.0	25
MS	Phenanthrene	586	04	<29.1	827	70.8	50 - 121	N/A	25
MSD	Phenanthrene	514	04	<29.1	827	62.1	50 - 121	13.1	25
MS	Pyrene	651	04	<35.8	827	78.8	47 - 127	N/A	25
MSD	Pyrene	537	04	<35.8	827	64.9	47 - 127	19.3	25

QC Results per Analytical Batch

Analytical Batch	ARS1-B17-00170
SDG	ARS1-17-00216
Analysis	GCMS-8270D-SO
Method	ARS-156/160/EPA 8270D
Analysis Code	GCMS-8270D-SO
Report Units	ug/kg

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

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Analytical Batch	ARS1-B17-00184
SDG	ARS1-17-00216
Analysis	GCSV-8082A-SO
Method	ARS-156/157/SW846 8082A
Analysis Code	GCSV-8082A-SO
Report Units	ug/kg

QC Results per Analytical Batch

INTERNATIONAL

Laboratory Control Sample

		Analysis Date	02/13/17 16:31	Analysis Technician		DCODY	

CAS #	Analyte	LCS Results	LCSD Results	Known Value	% Rec	Limits	RPD	Limits
12674-11-2	Aroclor-1016	26.3	26.4	33.3	79.2	47 - 134	0.513	25
11096-82-5	Aroclor-1260	30.9	30.5	33.3	92.7	53 - 130	1.42	25

Method Blank

		Analysis Date	02/07/17 15:00	Analysis Technician	DCODY

CAS #	Analyte	Blank Results	Qualifier	MDL	PQL
12674-11-2	Aroclor-1016	<3.33	U	3.33	3.33
11104-28-2	Aroclor-1221	<3.33	U	3.33	3.33
11141-16-5	Aroclor-1232	<3.33	U	3.33	3.33
53469-21-9	Aroclor-1242	<3.33	U	3.33	3.33
12672-29-6	Aroclor-1248	<3.33	U	3.33	3.33
11097-69-1	Aroclor-1254	<3.33	U	3.33	3.33
11096-82-5	Aroclor-1260	<3.33	U	3.33	3.33

Matrix Spike

		Analysis Date	02/07/17 19:44	Analysis Technician		DCODY	

QC Type	Analyte	MS Results	MSO Sample	MSO Results	Expected Value	MS % Rec	Limits	RPD	Limits
MS	Aroclor-1016	60.6	04	<3.33	38.6	157	60 - 140	N/A	25
MSD	Aroclor-1016	127	04	<3.33	38.6	330	60 - 140	71.1	25
MS	Aroclor-1260	24.8	04	<3.33	38.6	64.4	60 - 140	N/A	25
MSD	Aroclor-1260	27.0	04	<3.33	38.6	70.0	60 - 140	8.40	25

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

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INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277   FAX (225) 381-2996

Radiological Analysis

EPA 901.1M

SDG# ARS1-17-00216
COC SOLID SAMPLES

Analytical Batch Report

Analysis Batch ID   **ARS1-B17-00169**

	Method	**ARS-007**	**Analysis**	**GAM-A-020**	**Matrix**	**SO**
	Description	Gamma Spec (Solid)				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Prep Code	Client ID	Group Name	Lab Deadline
ARS1-B17-00169-01	LCS	119600							119600 - GAMMA GEOMETRY: 250 mL Jar		
ARS1-B17-00169-02	LCSD	119600							119600 - GAMMA GEOMETRY: 250 mL Jar		
ARS1-B17-00169-03	MBL										
ARS1-B17-00169-04	TRG				ARS1-17-00216	001	1		BB-16L	Applied Sciences	02/11/17
ARS1-B17-00169-05	TRG				ARS1-17-00216	002	1		BB-18	Applied Sciences	02/11/17
ARS1-B17-00169-06	TRG				ARS1-17-00216	004	1		BB-19M	Applied Sciences	02/11/17

Ortec Gamma

INTERNATIONAL

Batch Sample ID	**ARS1-B17-00169-04**
Sample Setup Description	**ORTEC GAMMA**
InternalID	ARS1-17-00216-001
AnalysisBatch	ARS1-B17-00169
SDG	ARS1-17-00216
AnalysisCode	GAM-A-020
Library	**APPLIEDSCIENCES.Lib**

Geometry	250mL Jar 1748-94-41
Fraction	001
Run	1
Detector ID	1
Detector Name	GAMASPEC_ARS05

Isotope	ACT	Units	TPU	MDA	DL	Nuclide Energy (keV)	Peak Energy (keV)	FWHM
AC-228	2.2696E+00	pCi/g	2.1209E-01	1.7900E-01	8.9500E-02			
PB-214	1.0078E+00	pCi/g	1.0183E-01	4.8000E-02	2.4000E-02			
BI-214	8.9533E-01	pCi/g	8.0369E-02	4.7100E-02	2.3550E-02			
BI-212	8.2283E-01	pCi/g	1.2008E-01	1.4500E-01	7.2500E-02			
PB-212	1.3533E+00	pCi/g	9.9351E-02	3.1800E-02	1.5900E-02			
TL-208	3.7347E-01	pCi/g	4.4169E-02	2.6800E-02	1.3400E-02			
CS-134	~~5.5520E-02~~	pCi/g	1.6210E-02	2.4400E-02	1.2200E-02			
CS-137	7.8464E-02	pCi/g	2.2765E-02	2.2000E-02	1.1000E-02			
TH-234	1.0184E+00	pCi/g	2.4312E-01	3.8400E-01	1.9200E-01			
K-40	2.2158E+01	pCi/g	1.5333E+00	3.0700E-01	1.5350E-01			

(handwritten annotation near CS-134: 2.4410E-22; handwritten below table: 0.000E+00)

Sample description
        Batch ID: 17-00169-04
        SDG: ARS1-17-00216-001 Tech: WJS

Spectrum Filename: C:\User\ARS05182.An1

Acquisition information
        Start time: 1/30/2017 14:40:25
        Live time: 50400
        Real time: 50438
        Dead time: 0.08 %
        Detector ID: 2

Detector system
    GAMASPEC_ARS05 MCB 340

Calibration
        Filename: 250mL Jar 1748-94-41 calib.Clb
        250mL Jar 1748-94-41 WJS 2-25-16

        Energy Calibration
                Created: 2/25/2016 11:37:03
                Zero offset: 0.153 keV
                Gain: 0.250 keV/channel
                Quadratic: -1.095E-09 keV/channel^2

        Efficiency Calibration
                Created: 2/25/2016 11:38:38
                Knee Energy: 153.00 keV
                Above the Knee: Quadratic   Uncertainty =   1.46 %
                Log(Eff):   -1.100347E+00 + (-2.623973E-01*Log(E)) +
                                  (-3.626991E-02*Log(E)^2)
                Below the Knee: Quadratic   Uncertainty =   1.64 %
                Log(Eff):   -1.111043E+01 + (3.445208E+00*Log(E)) +
                                  (-3.774204E-01*Log(E)^2)

Library Files
        Main analysis library: APPLIEDSCIENCES.Lib
        Library Match Width: 0.500
        Peak stripping: Library based

Analysis parameters
        Analysis engine: Env32   G53W4.24
        Start channel: 0 (0.15keV)
        Stop channel: 8000 (1999.16keV)
        Peak rejection level: 40.000%
        Peak search sensitivity: 3
        Sample Size: 2.9275E+02
        Activity scaling factor: 1.0000E+06/(1.0000E+00* 2.9275E+02) =
                                 3.4159E+03
        Detection limit method: Reg. Guide 4.16 Method

Random error: 1.0000000E+00
Systematic error: 1.0000000E+00
Fraction Limit: 60.000%
Background width: best method (based on spectrum).
Half lives decay limit: 12.000
Activity range factor: 2.000
Min. step backg. energy   0.000
Multiplet shift channel   2.000

Corrections	Status	Comments
Decay correct to date:	NO	
Decay during acquisition:	YES	
Decay during collection:	NO	
True coincidence correction:	NO	
Peaked background correction:	YES	pbc APPLIEDSCIENCES.Pbc
		1/30/2017 09:08:58
Absorption (Internal):	NO	
Geometry correction:	NO	
Random summing:	NO	

total peaks alloc.   28   cutoff   20.00000   %
        Energy Calibration
                Normalized diff: 0.0845

***** S U M M A R Y   O F   P E A K S   I N   R A N G E *****

Peak Energy	Area	Uncert	FWHM	Corrctn Factor	Nuclide Energy	Brnch. Ratio	Act. pCi/g	Nuc
20.83	2681.	4.34	1.17	1.610E-02				
46.47	1156.	6.31	0.78	3.186E-02				
48.55	215.	29.33	0.78	3.261E-02				
53.29	164.	38.96	0.68	3.409E-02				
63.31	1169.	9.80	0.75	3.639E-02	63.29	3.900	1.068E+00	TH234
74.78	3811.	2.71	0.82	3.794E-02				
77.09	5984.	1.87	0.82	3.815E-02				
79.40	237.	28.67	0.82	3.832E-02				
81.21	192.	34.65	0.82	3.844E-02				
84.08	600.	12.86	0.83	3.859E-02				
87.15	1891.	4.49	0.83	3.871E-02				
89.85	1208.	6.37	0.84	3.878E-02				
92.87	1907.	4.57	0.84	3.883E-02	92.38	2.570	3.034E+00	TH234
					92.80	3.000	2.663E+00	TH234
99.26	297.	29.40	1.69	3.883E-02				
105.25	409.	19.56	1.04	3.872E-02				
112.79	196.	28.30	0.86	3.847E-02				
115.29	272.	22.15	0.87	3.836E-02				
129.06	576.	16.81	0.67	3.758E-02				
143.83	251.	27.87	0.74	3.652E-02				
153.85	245.	26.09	1.00	3.538E-02				
169.01	140.	38.58	0.49	3.334E-02				
185.97	1540.	7.18	1.10	3.137E-02				
209.24	797.	9.90	0.96	2.907E-02				
238.63	8696.	1.25	1.02	2.667E-02	238.63	43.100	1.350E+00	PB212
240.82	785.	12.49	1.02	2.651E-02				
242.07	1097.	6.53	1.02	2.642E-02	241.98	7.500	1.007E+00	PB214
270.14	719.	10.40	1.19	2.456E-02				
277.34	350.	19.52	0.90	2.413E-02	277.36	6.500	4.093E-01	TL208
295.13	2485.	3.82	1.04	2.315E-02	295.21	18.500	1.019E+00	PB214
299.90	592.	13.11	1.36	2.290E-02	300.09	3.270	1.394E+00	PB212
327.88	445.	18.15	1.11	2.155E-02				
338.24	1694.	4.30	1.22	2.110E-02	338.40	12.010	2.384E+00	Ac228
351.89	4188.	2.51	1.07	2.053E-02	351.92	35.800	9.955E-01	PB214
409.36	286.	18.87	1.27	1.849E-02				

462.73	468.	13.61	1.57	1.696E-02				
510.65	2381.	4.16	1.90	1.581E-02	510.72	22.500	5.123E-01	TL208
583.10	2682.	4.49	1.44	1.437E-02	583.14	86.000	3.708E-01	TL208
609.25	3276.	2.89	1.46	1.392E-02	609.31	44.791	9.039E-01	BI214
661.54	442.	9.08	1.53	1.311E-02	661.66	85.100	6.578E-02	CS137
727.10	673.	6.14	1.61	1.223E-02	727.17	11.800	8.223E-01	BI212
767.52	432.	15.82	1.25	1.175E-02				
768.18	251.	17.55	1.66	1.174E-02	768.36	4.799	8.152E-01	BI214
785.74	168.	24.01	0.72	1.155E-02	785.42	2.000	1.335E+00	BI212
795.00	296.	13.36	1.70	1.143E-02	795.86	85.460	5.552E-02	CS134
					795.86	85.460	5.552E-02	CS134
835.48	207.	19.58	0.69	1.103E-02				
860.19	380.	15.14	1.50	1.079E-02	860.47	12.000	5.126E-01	TL208
911.15	1888.	4.92	1.69	1.033E-02	911.07	29.000	2.210E+00	Ac228
964.70	348.	10.90	1.90	9.891E-03	964.60	5.452	2.357E+00	Ac228

```
      ORTEC g v - i (3263) Env32  G53W4.24  1/31/2017 04:41:04
American Radiation Services      Spectrum name: ARS05182.An1

 pk energy    area    uncert   fwhm     corr     nuclide  brnch.     act.    nuc
   968.37    1401.    6.50    1.72   9.862E-03    968.90   17.460   2.875E+00 Ac228
  1119.98     987.    9.35    1.76   8.821E-03   1120.29   14.797   1.325E+00 BI214
  1238.54     372.   15.20    1.28   8.159E-03   1238.11    5.859   1.371E+00 BI214
  1460.58    9522.    1.18    2.43   7.169E-03   1460.75   10.700   2.216E+01 K40
  1620.87     177.   18.12    0.43   6.600E-03   1620.56    2.750   1.790E+00 BI212
  1764.37     604.    5.75    2.49   6.165E-03   1764.49   15.357   1.168E+00 BI214
```

```
************ U N I D E N T I F I E D    P E A K   S U M M A R Y ************
  Peak Centroid  Background Net Area   Intensity   Uncert   FWHM   Suspected
Channel    Energy    Counts      Counts    Cts/Sec   2 Sigma %  keV    Nuclide
```

Channel	Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV	Suspected Nuclide	
82.74	20.83	3610.	2681.	0.053	8.67	1.173	RH-106	s
185.50	46.51	2367.	1057.	0.021	16.67	0.703	NP-237	
193.80	48.58	1496.	168.	0.003	69.37	0.488	EU-154	s
212.64	53.29	1687.	164.	0.003	77.93	0.682	RU-103	s
298.64	74.78	3683.	3491.	0.069	6.76	0.769	TH-234	
307.87	77.09	3152.	5896.	0.117	4.13	0.799	PB-212	
317.15	79.38	2196.	237.	0.005	57.34	0.822	BI-212	D
324.37	81.19	2111.	192.	0.004	69.31	0.825	AU-196	D
335.84	84.08	3089.	851.	0.017	24.82	1.236	HG-203	s
348.18	87.16	2953.	2049.	0.041	10.42	1.048	TH-234	s
358.98	89.86	2394.	1113.	0.022	15.97	0.861	AC-228	M
396.60	99.26	2314.	297.	0.006	58.80	1.688	PA-234M	s
420.58	105.25	1998.	409.	0.008	39.13	1.043	EU-155	s
450.41	112.70	1466.	164.	0.003	75.68	0.779	TH-234	
460.42	115.20	1731.	202.	0.004	70.63	0.683	PB-212	
515.86	129.06	2515.	576.	0.011	33.63	0.670	AC-228	
574.96	143.83	1643.	251.	0.005	55.73	0.744	U-235	
615.09	153.85	1440.	245.	0.005	52.17	1.001	XE-138	
675.72	169.01	1102.	140.	0.003	77.15	0.495	NP-237	s
743.60	185.97	2568.	1540.	0.031	14.37	1.098	RA-226	s
836.75	209.24	1626.	797.	0.016	19.80	0.962	AC-228	s
963.03	240.79	4477.	728.	0.014	27.02	1.020	RU-103	D
1080.44	270.14	1331.	719.	0.014	20.80	1.194	AC-228	s
1311.54	327.88	1351.	445.	0.009	36.30	1.107	AC-228	s
1637.62	409.36	748.	286.	0.006	37.74	1.274	AC-228	
1851.19	462.73	863.	468.	0.009	27.22	1.568	CS-138	s
3070.95	767.52	583.	432.	0.009	31.63	1.252	RB-89	l
3342.91	835.48	410.	207.	0.004	39.15	0.693	AC-228	s

```
  s - Peak fails shape tests.
  D - Peak area deconvoluted.
  L - Peak written from unknown list.
  C - Area < Critical level.
  M - Peak is close to a library peak.
```

This section based on library: APPLIEDSCIENCES.Lib

************** I D E N T I F I E D P E A K S U M M A R Y **************

Nuclide	Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV
TH-234	252.73	63.31	3935.	820.	0.016	19.60	0.752s
TH-234	369.08	92.38	4128.	550.	0.011	23.33	0.838D
TH-234	370.76	92.80	3719.	642.	0.013	23.76	0.839D
PB-212	954.35	238.63	1787.	8474.	0.168	2.50	1.018D
PB-214	967.76	241.98	1897.	1125.	0.022	12.38	1.022D
TL-208	1109.27	277.34	1238.	350.	0.007	39.04	0.902
PB-214	1180.48	295.13	1794.	2381.	0.047	7.65	1.042
PB-212	1199.55	299.90	1324.	569.	0.011	26.22	1.363s
Ac-228	1352.97	338.24	1284.	1654.	0.033	8.60	1.224
PB-214	1407.62	351.89	1660.	3995.	0.079	5.02	1.069
TL-208	2042.97	510.65	2621.	995.	0.020	8.31	1.904s
TL-208	2332.87	583.10	1462.	2502.	0.050	8.99	1.438
BI-214	2437.56	609.25	1144.	3077.	0.061	5.77	1.464
CS-137	2645.68	661.26	797.	478.	0.009	26.35	1.441s
BI-212	2909.45	727.17	573.	648.	0.013	12.48	1.614D
BI-214	3073.58	768.18	991.	251.	0.005	35.10	1.664s
BI-212	3143.85	785.74	419.	168.	0.003	48.02	0.719s
CS-134	3180.92	795.00	749.	296.	0.006	26.72	1.698s
TL-208	3441.58	860.14	654.	376.	0.007	27.51	1.518s
Ac-228	3645.73	911.15	954.	1814.	0.036	9.84	1.689
Ac-228	3859.64	964.60	557.	348.	0.007	21.81	1.903D
Ac-228	3876.85	968.90	510.	1066.	0.021	8.13	1.908D
BI-214	4481.46	1119.98	658.	944.	0.019	18.70	1.765s
BI-214	4955.93	1238.54	595.	358.	0.007	30.41	1.281s
K-40	5844.55	1460.58	730.	9278.	0.184	2.37	2.427
BI-212	6486.06	1620.87	103.	177.	0.004	36.25	0.427s
BI-214	7060.35	1764.37	193.	604.	0.012	11.50	2.493

s - Peak fails shape tests.
D - Peak area deconvoluted.
A   Derived peak area.

***** S U M M A R Y O F L I B R A R Y P E A K U S A G E *****

- Nuclide - Name · Code	Average Activity pCi/g	Energy keV	Peak Activity pCi/g	Code	MDA Value pCi/g	COMMENTS
Ac-228	2.2696E+00					
		911.07	2.210E+00	(P 1.788E-01	4.92E+00	G
		968.90	2.261E+00	(P 2.289E-01	4.06E+00	G
		338.40	2.384E+00	(P 2.445E-01	4.30E+00	G
		964.60	2.357E+00	(P 7.628E-01	1.09E+01	G

Nuclide	Ave activity	Energy	Activity	Code	Peak	MDA	Comments
PB-214	1.0078E+00						
		351.92	9.955E-01	(P	4.800E-02	2.51E+00	G
		295.21	1.019E+00	(P	8.562E-02	3.82E+00	G
		241.98	1.040E+00	(P	1.901E-01	6.19E+00	G
BI-214	8.9533E-01						
		609.31	9.039E-01	(P	4.709E-02	2.89E+00	G
		1764.49	1.168E+00	+ P	1.305E-01	5.75E+00	G
		1120.29	1.325E+00	+ P	1.716E-01	9.35E+00	G
		1238.11	1.371E+00	+ P	4.458E-01	1.52E+01	G
		768.36	8.152E-01	&(P	4.858E-01	1.75E+01	G
BI-212	8.2283E-01						
		727.17	8.228E-01	(P	1.450E-01	6.24E+00	G
		1620.56	1.790E+00	+	5.039E-01	1.81E+01	G
		785.42	1.335E+00	+	7.778E-01	2.40E+01	G
PB-212	1.3533E+00						
		238.63	1.350E+00	(P	3.182E-02	1.25E+00	G
		300.09	1.394E+00	(P	4.216E-01	1.31E+01	G
TL-208	3.7347E-01						
		583.14	3.708E-01	(P	2.681E-02	4.49E+00	G
		510.72	5.123E-01	+ P	1.242E-01	4.16E+00	G
		860.47	5.326E-01	+ P	1.725E-01	1.38E+01	G
		277.36	4.093E-01	(	1.946E-01	1.95E+01	G
		763.30	4.911E-01	%	1.060E+00	6.54E+01	G
CS-134	5.5520E-02						
		795.86	5.552E-02	&(P	2.441E-02	1.34E+01	K
		604.72	0.000E+00	%	5.831E-02	1.00E+03	K
		569.33	2.912E-02	% P	1.259E-01	5.12E+01	G
		563.26	7.639E-02	% P	2.275E-01	7.43E+01	G
CS-137	7.8464E-02						
		661.66	7.846E-02	@(P	2.205E-02	1.32E+01	G
TH-234	1.0184E+00						
		63.29	1.068E+00	(P	3.841E-01	9.80E+00	G
		92.80	1.018E+00	} P	4.549E-01	1.19E+01	G
		92.38	1.018E+00	} P	5.593E-01	1.17E+01	G
K-40	2.2158E+01						
		1460.75	2.216E+01	(P	3.071E-01	1.18E+00	G

(- This peak used in the nuclide activity average.

```
* - Peak is too wide, but only one peak in library.
! - Peak is part of a multiplet and this area went
    negative during deconvolution.
? - Peak is too narrow.
@ - Peak is too wide at FW25M, but ok at FWHM.
% - Peak fails sensitivity test.
$ - Peak identified, but first peak of this nuclide
    failed one or more qualification tests.
+ - Peak activity higher than counting uncertainty range.
- - Peak activity lower than counting uncertainty range.
= - Peak outside analysis energy range.
& - Calculated peak centroid is not close enough to the
    library energy centroid for positive identification.
P - Peakbackground subtraction
} - Peak is too close to another for the activity
    to be found directly.
```

```
Nuclide Codes:                    Peak Codes:
T - Thermal Neutron Activation    G - Gamma Ray
F - Fast Neutron Activation       X - X-Ray
I - Fission Product               P - Positron Decay
N - Naturally Occurring Isotope   S - Single-Escape
P - Photon Reaction               D - Double-Escape
C - Charged Particle Reaction     K - Key Line
M - No MDA Calculation            A - Not in Average
R - Coincidence Corrected         C - Coincidence Peak
H - Halflife limit exceeded
```

- -

```
*****   S U M M A R Y   O F   N U C L I D E S   I N   S A M P L E   *****
          Time of Count   Uncertainty 2 Sigma
Nuclide     Activity       Counting    Total      MDA
              pCi/g          pCi/g      pCi/g       pCi/g
```

Nuclide	Time of Count Activity pCi/g	Uncertainty Counting pCi/g	2 Sigma Total pCi/g	MDA pCi/g
Ac-228	2.2696E+00	1.5391E-01	2.1209E-01	0.179E+00
PB-214	1.0078E+00	5.2758E-02	1.0183E-01	0.480E-01
BI-214	8.9533E-01	5.5039E-02	8.0369E-02	0.471E-01
BI-212	8.2283E-01	1.0677E-01	1.2008E-01	0.145E+00
PB-212	1.3533E+00	3.4735E-02	9.9351E-02	0.318E-01
TL-208	3.7347E-01	3.5995E-02	4.4169E-02	0.268E-01
CS-134 #F	5.5520E-02	1.5793E-02	1.6210E-02	0.244E-01
CS-137 #	7.8464E-02	2.2459E-02	2.2765E-02	0.220E-01
TH-234	1.0184E+00	2.3272E-01	2.4312E-01	0.384E+00
K-40	2.2158E+01	5.3899E-01	1.5333E+00	0.307E+00

```
# - All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
```

ORTEC g v - i (3263) Env32 G53W4.24 1/31/2017 04:41:04
American Radiation Services   Spectrum name: ARS05182.An1

    < - MDA value printed.
    A - Activity printed, but activity < MDA.
    B - Activity < MDA and failed test.
    C - Area < Critical level.
    F - Failed fraction or key line test.
    H - Halflife limit exceeded
---------------------------- S U M M A R Y ----------------------------
Total Activity (1120.1 to 1999.2 keV)   2.998E+01 pCi/g

Ortec Gamma

INTERNATIONAL

Batch Sample ID	ARS1-B17-00169-05		
Sample Setup Description	ORTEC GAMMA		
InternalID	ARS1-17-00216-002		
AnalysisBatch	ARS1-B17-00169	Geometry	250mL Jar 1891-50-2
SDG	ARS1-17-00216	Fraction	002
AnalysisCode	GAM-A-020	Run	1
Library	APPLIEDSCIENCES.Lib	Detector ID	1
		Detector Name	(ARS03)

Isotope	ACT	Units	TPU	MDA	DL	Nuclide Energy (keV)	Peak Energy (keV)	FWHM
AC-228	2.2789E+00	pCi/g	1.9759E-01	1.1000E-01	5.5000E-02			
PB-214	8.2252E-01	pCi/g	7.7313E-02	4.1300E-02	2.0650E-02			
BI-214	7.5162E-01	pCi/g	5.9470E-02	3.5900E-02	1.7950E-02			
BI-212	7.5570E-01	pCi/g	1.2261E-01	1.2600E-01	6.3000E-02			
PB-212	1.2562E+00	pCi/g	9.0139E-02	3.3100E-02	1.6550E-02			
TL-208	4.1161E-01	pCi/g	3.3333E-02	1.7200E-02	8.6000E-03			
CS-134	5.8822E-02	pCi/g	1.4419E-02	2.1200E-02	1.0600E-02			
CS-137	7.8232E-02	pCi/g	1.4381E-02	1.6200E-02	8.1000E-03			
TH-234	7.0827E-01	pCi/g	2.6431E-01	3.3800E-01	1.6900E-01			
K-40	2.3017E+01	pCi/g	1.5683E+00	1.9500E-01	9.7500E-02			

(handwritten annotations near CS-134 row: "2.1208E-02", "TPU x 3 = 1.7", and "3.856E-04")

Sample description
      Batch ID: 17-00169-05
      SDG: ARS1-17-00216-002 Tech: WJS

Spectrum Filename: C:\User\ARS03720.An1

Acquisition information
            Start time: 30-Jan-2017 14:41:14
            Live time: 50400
            Real time: 50574
            Dead time: 0.34 %
            Detector ID: 1

Detector system
      (ARS03) MCB 129

Calibration
            Filename: 250mL Jar 1891-50-2 calib.Clb
      250mL Jar 1891-50-2 9-21-16 WJS

      Energy Calibration
            Created: 21-Sep-2016 10:50:41
            Zero offset: 0.212 keV
            Gain: 0.250 keV/channel
            Quadratic: -1.731E-08 keV/channel^2

      Efficiency Calibration
            Created: 21-Sep-2016 10:53:41
            Knee Energy: 140.00 keV
            Above the Knee: Quadratic   Uncertainty =   1.08 %
            Log(Eff):   -9.869273E-01 + (-3.409520E-01*Log(E)) +
                                  (-2.950298E-02*Log(E)^2)
            Below the Knee: Quadratic   Uncertainty =   0.54 %
            Log(Eff):   -1.054118E+01 + (3.189017E+00*Log(E)) +
                                  (-3.520465E-01*Log(E)^2)

Library Files
            Main analysis library: APPLIEDSCIENCES.Lib
            Library Match Width: 0.500
            Peak stripping: Library based

Analysis parameters
            Analysis engine: Env32   G53W4.22
            Start channel: 10 (2.71keV)
            Stop channel: 8000 (1999.79keV)
            Peak rejection level: 40.000%
            Peak search sensitivity: 3
            Sample Size: 3.8133E+02
            Activity scaling factor: 1.0000E+06/(1.0000E+00* 3.8133E+02) =
                                      2.6224E+03
            Detection limit method: Reg. Guide 4.16 Method

```
        Random error:              1.0000000E+00
        Systematic error:          1.0000000E+00
        Fraction Limit:            60.000%
        Background width:           best method (based on spectrum).
        Half lives decay limit:    12.000
        Activity range factor:     2.000
        Min. step backg. energy    0.000
        Multiplet shift channel    2.000
```

Corrections	Status	Comments
Decay correct to date:	NO	
Decay during acquisition:	YES	
Decay during collection:	NO	
True coincidence correction:	NO	
Peaked background correction:	YES	pbc APPLIEDSCIENCES.Pbc
		30-Jan-2017 09:11:58
Absorption (Internal):	NO	
Geometry correction:	NO	
Random summing:	NO	

```
total peaks alloc.    26  cutoff   20.00000      %
        Energy Calibration
            Normalized diff:        0.1037
```

***** S U M M A R Y   O F   P E A K S   I N   R A N G E *****

Peak Energy	Area	Uncert	FWHM	Corrctn Factor	Nuclide Energy	Brnch. Ratio	Act. pCi/g	Nuc
20.83	806.	6.49	0.90	1.669E-02				
23.62	374.	17.09	0.90	1.890E-02				
32.06	202.	34.11	0.82	2.433E-02				
46.68	1267.	6.72	0.86	3.066E-02				
53.32	282.	31.90	0.94	3.249E-02				
63.45	1122.	10.93	0.94	3.440E-02	63.29	3.900	7.083E-01	TH234
72.88	346.	28.41	0.95	3.545E-02				
74.93	4151.	2.74	0.95	3.561E-02				
77.17	6273.	1.94	0.95	3.575E-02				
81.21	196.	37.21	0.95	3.596E-02				
84.24	885.	9.70	0.95	3.606E-02				
87.21	2193.	4.19	0.96	3.613E-02				
89.94	1330.	6.43	0.96	3.617E-02				
92.97	2016.	4.60	0.96	3.618E-02	92.38	2.570	2.509E+00	TH234
					92.80	3.000	2.207E+00	TH234
99.24	392.	26.99	1.00	3.612E-02				
105.31	330.	29.40	0.91	3.597E-02				
129.00	655.	15.07	0.98	3.481E-02				
185.88	1630.	6.98	1.24	2.805E-02				
209.24	845.	10.56	1.16	2.596E-02				
223.26	181.	38.28	0.60	2.488E-02				
238.58	9571.	1.20	1.08	2.381E-02	238.63	43.100	1.274E+00	PB212
241.52	1507.	4.99	1.08	2.361E-02	241.98	7.500	1.162E+00	PB214
270.06	651.	13.52	1.00	2.192E-02				
277.35	433.	17.27	1.19	2.153E-02	277.36	6.500	3.968E-01	TL208
295.15	2396.	3.64	1.11	2.064E-02	295.21	18.500	8.488E-01	PB214
299.95	646.	12.34	1.41	2.042E-02	300.09	3.270	1.361E+00	PB212
327.98	532.	15.28	1.12	1.921E-02				
338.22	1986.	3.18	1.16	1.881E-02	338.40	12.010	2.398E+00	Ac228
351.85	3937.	2.50	1.16	1.831E-02	351.92	35.800	8.090E-01	PB214
409.40	385.	20.37	0.66	1.649E-02				
462.96	703.	11.16	1.13	1.513E-02				
510.82	2479.	4.01	1.60	1.412E-02	510.72	22.500	7.072E-01	TL208
583.34	3378.	2.43	1.30	1.284E-02	583.14	86.000	4.127E-01	TL208
609.39	3141.	2.45	1.33	1.245E-02	609.31	44.791	7.516E-01	BI214
661.69	572.	8.70	1.21	1.173E-02	661.66	85.100	7.823E-02	CS137

727.40	712.	7.30	1.34	1.095E-02	727.17	11.800	7.557E-01	BI212
768.10	363.	13.94	1.39	1.052E-02	768.36	4.799	1.012E+00	BI214
786.00	96.	34.30	1.51	1.035E-02	785.42	2.000	PBC<MDA	BI212
794.90	378.	16.00	1.51	1.026E-02				
794.90	378.	16.00	1.51	1.026E-02	795.86	85.460	5.815E-02	CS134
860.65	490.	9.80	1.60	9.674E-03	860.47	12.000	5.466E-01	TL208
911.34	2262.	2.97	1.66	9.273E-03	911.07	29.000	2.309E+00	Ac228
933.20	179.	17.71	1.63	9.111E-03				
939.12	63.	37.78	0.36	9.068E-03				
964.51	403.	8.96	1.65	8.890E-03	964.60	5.452	2.322E+00	Ac228
969.11	1321.	3.60	1.65	8.858E-03	968.90	17.460	2.327E+00	Ac228

pk energy	area	uncert	fwhm	corr	nuclide	brnch.	act.	nuc
1120.37	748.	6.82	1.66	7.944E-03	1120.29	14.797	8.517E-01	BI214
1238.50	325.	20.01	1.40	7.362E-03	1238.11	5.859	1.018E+00	BI214
1377.73	328.	13.71	1.54	6.786E-03				
1460.94	11532.	1.01	1.83	6.487E-03	1460.75	10.700	2.302E+01	K40
1620.79	70.	29.19	2.12	5.987E-03	1620.56	2.750	5.990E-01	BI212
1701.76	41.	37.76	0.30	5.763E-03				
1764.68	657.	4.93	2.23	5.602E-03	1764.49	15.357	9.823E-01	BI214

************ U N I D E N T I F I E D   P E A K   S U M M A R Y ************

Peak Centroid Channel	Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV	Suspected Nuclide	
83.31	21.05	1166.	779.	0.015	17.16	1.770	RH-106	s
94.46	23.83	2020.	210.	0.004	73.48	0.381	RH-106	s
127.37	32.06	1705.	202.	0.004	68.23	0.822	XE-138	
185.79	46.68	2108.	1267.	0.025	13.44	0.857	PB-210	
212.37	53.32	2604.	282.	0.006	63.81	0.944	RU-103	
290.57	72.85	4648.	346.	0.007	56.79	0.945	TL-208	D
298.77	74.90	4371.	4154.	0.082	5.47	0.947	TH-234	D
307.73	77.14	4300.	6279.	0.125	3.89	0.949	PB-212	D
323.88	81.21	2553.	196.	0.004	74.41	0.952	AU-196	1D
336.02	84.24	3942.	982.	0.019	24.77	1.176	HG-203	s
347.86	87.21	3224.	2100.	0.042	10.33	0.937	PB-212	
358.78	89.94	3148.	1170.	0.023	17.61	0.904	AC-228	M
395.98	99.24	3078.	392.	0.008	53.97	0.995	PA-234M	s
420.27	105.31	2718.	330.	0.007	58.79	0.909	AC-228	
515.00	129.00	2728.	655.	0.013	30.13	0.979	AC-228	s
742.47	185.88	2832.	1630.	0.032	13.97	1.238	U-235	s
835.89	209.24	2035.	845.	0.017	21.13	1.164	AC-228	s
891.96	223.26	1540.	181.	0.004	76.56	0.598	BA-133	s
1079.12	270.06	1773.	651.	0.013	27.03	1.005	AC-228	
1310.75	327.98	1460.	532.	0.011	30.57	1.122	AC-228	
1636.37	409.40	1192.	385.	0.008	40.75	0.658	AC-228	s
1850.61	462.96	1023.	703.	0.014	22.31	1.125	AC-228	s
3731.63	933.20	423.	304.	0.006	39.38	0.427	-	s
3755.34	939.12	184.	63.	0.001	75.55	0.360	-	s
5510.30	1377.73	208.	328.	0.007	27.43	1.538	BI-214	s
6807.07	1701.76	47.	41.	0.001	75.51	0.301	-	s

s - Peak fails shape tests.
D - Peak area deconvoluted.
L - Peak written from unknown list.
C - Area < Critical level.
M - Peak is close to a library peak.

This section based on library: APPLIEDSCIENCES.Lib

```
************** I D E N T I F I E D   P E A K   S U M M A R Y **************
Nuclide   Peak      Centroid  Background  Net Area  Intensity   Uncert   FWHM
          Channel   Energy    Counts      Counts    Cts/Sec   2 Sigma %  keV
```

Nuclide	Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV
TH-234	252.85	63.45	4631.	670.	0.013	21.87	0.944
TH-234	368.55	92.38	4941.	464.	0.009	41.92	0.962D
TH-234	370.23	92.80	4261.	542.	0.011	28.91	0.962D
PB-212	953.22	238.58	2633.	9106.	0.181	2.92	1.063
PB-214	964.98	241.52	1738.	1875.	0.037	10.39	1.831s
TL-208	1108.24	277.35	1443.	395.	0.008	34.55	1.192
PB-214	1179.44	295.15	1639.	2305.	0.046	7.29	1.105
PB-212	1198.65	299.95	1428.	646.	0.013	24.69	1.411s
Ac-228	1352.42	338.40	1078.	1930.	0.038	6.39	1.163D
PB-214	1406.19	351.85	1659.	3771.	0.075	5.01	1.158
TL-208	2042.02	510.82	2117.	1597.	0.032	8.02	1.601s
TL-208	2332.07	583.34	810.	3242.	0.064	4.86	1.298
BI-214	2436.30	609.39	899.	2980.	0.059	4.90	1.333
CS-137	2645.48	661.69	582.	555.	0.011	17.41	1.208
BI-212	2908.35	727.40	586.	694.	0.014	14.60	1.338
BI-214	3071.14	768.10	586.	363.	0.007	27.87	1.390
CS-134	3178.83	795.02	768.	366.	0.007	22.74	1.522
TL-208	3441.40	860.65	441.	451.	0.009	19.60	1.596
Ac-228	3644.18	911.34	487.	2212.	0.044	5.95	1.655
Ac-228	3856.41	964.38	526.	390.	0.008	32.51	1.291
Ac-228	3874.83	968.99	672.	1187.	0.024	12.45	1.441
BI-214	4480.49	1120.37	551.	712.	0.014	13.63	1.658
BI-214	4953.15	1238.50	795.	312.	0.006	40.03	1.397s
K-40	5843.29	1460.94	403.	11362.	0.225	2.02	1.831
BI-212	6483.03	1620.79	179.	70.	0.001	58.38	2.119s
BI-214	7058.93	1764.68	121.	601.	0.012	9.85	2.235

```
     s - Peak fails shape tests.
     D - Peak area deconvoluted.
     A   Derived peak area.
```

```
*****   S U M M A R Y   O F   L I B R A R Y   P E A K   U S A G E   *****
- Nuclide -   Average      ------------- Peak ---------------
Name   Code   Activity     Energy   Activity Code MDA Value
              pCi/g        keV      pCi/g         pCi/g          COMMENTS
```

Name	Code	Average Activity pCi/g	Energy keV	Activity pCi/g	Code	MDA Value pCi/g	COMMENTS
Ac-228		2.2789E+00					
			911.07	2.309E+00	(P	1.101E-01 2.97E+00	G
			968.90	2.154E+00	(P	2.242E-01 6.22E+00	G
			338.40	2.398E+00	(P	1.935E-01 3.20E+00	G
			964.60	2.259E+00	(P	6.349E-01 1.63E+01	G

```
Nuclide   Ave activity    Energy     Activity   Code Peak MDA   Comments

PB-214       8.2252E-01
                         351.92 8.090E-01  (P 4.131E-02 2.50E+00 G
                         295.21 8.488E-01  (P 7.049E-02 3.64E+00 G
                         241.98 1.491E+00 + P 1.566E-01 5.20E+00 G

BI-214       7.5162E-01
                         609.31 7.516E-01  (P 3.594E-02 2.45E+00 G
                        1764.49 9.823E-01 + P 8.821E-02 4.93E+00 G
                        1120.29 8.517E-01 + P 1.341E-01 6.82E+00 G
                        1238.11 1.018E+00 + P 4.370E-01 2.00E+01 G
                         768.36 1.012E+00 +   3.218E-01 1.39E+01 G

BI-212       7.5570E-01
                         727.17 7.557E-01  (P 1.257E-01 7.30E+00 G
                        1620.56 5.990E-01 - P 5.553E-01 2.92E+01 G
                         785.42 6.515E-01 % P 9.148E-01 3.43E+01 G

PB-212       1.2562E+00
                         238.63 1.248E+00  (P 3.315E-02 1.46E+00 G
                         300.09 1.361E+00  (  3.767E-01 1.23E+01 G

TL-208       4.1161E-01
                         583.14 4.127E-01  (P 1.723E-02 2.43E+00 G
                         510.72 7.072E-01 + P 9.611E-02 4.01E+00 G
                         860.47 5.466E-01 + P 1.218E-01 9.80E+00 G
                         277.36 3.968E-01  (P 1.806E-01 1.73E+01 G
                         763.30 4.337E-01 %   1.090E+00 7.60E+01 G

CS-134       5.8822E-02
                         795.86 5.882E-02 &(P 2.117E-02 1.14E+01    K
                         604.72 3.886E-04 %   1.879E-02 1.44E+03    K
                         569.33-1.972E-02 % P 1.117E-01 7.08E+02 G
                         563.26 5.455E-02 & P 1.948E-01 6.00E+01 G

CS-137       7.8232E-02
                         661.66 7.823E-02  (P 1.622E-02 8.70E+00 G

TH-234       7.0827E-01
                          63.29 7.083E-01  (P 3.384E-01 1.09E+01 G
                          92.80 7.083E-01  } P 4.010E-01 1.45E+01 G
                          92.38 7.083E-01  } P 5.037E-01 2.10E+01 G

K-40         2.3017E+01
                        1460.75 2.302E+01  (P 1.950E-01 1.01E+00 G
```
  (- This peak used in the nuclide activity average.

* - Peak is too wide, but only one peak in library.
! - Peak is part of a multiplet and this area went
    negative during deconvolution.
? - Peak is too narrow.
@ - Peak is too wide at FW25M, but ok at FWHM.
% - Peak fails sensitivity test.
$ - Peak identified, but first peak of this nuclide
    failed one or more qualification tests.
+ - Peak activity higher than counting uncertainty range.
- - Peak activity lower than counting uncertainty range.
= - Peak outside analysis energy range.
& - Calculated peak centroid is not close enough to the
    library energy centroid for positive identification.
P - Peakbackground subtraction
} - Peak is too close to another for the activity
    to be found directly.

Nuclide Codes: Peak Codes:
T - Thermal Neutron Activation   G - Gamma Ray
F - Fast Neutron Activation   X - X-Ray
I - Fission Product   P - Positron Decay
N - Naturally Occurring Isotope   S - Single-Escape
P - Photon Reaction   D - Double-Escape
C - Charged Particle Reaction   K - Key Line
M - No MDA Calculation   A - Not in Average
R - Coincidence Corrected   C - Coincidence Peak
H - Halflife limit exceeded

- -

***** S U M M A R Y   O F   N U C L I D E S   I N   S A M P L E *****
           Time of Count   Uncertainty 2 Sigma
   Nuclide   Activity   Counting   Total   MDA
              pCi/g   pCi/g   pCi/g   pCi/g

Nuclide	Time of Count Activity pCi/g	Uncertainty Counting pCi/g	2 Sigma Total pCi/g	MDA pCi/g
Ac-228	2.2789E+00	1.3855E-01	1.9759E-01	0.110E+00
PB-214	8.2252E-01	3.7862E-02	7.7313E-02	0.413E-01
BI-214	7.5162E-01	3.8784E-02	5.9470E-02	0.359E-01
BI-212	7.5570E-01	1.1311E-01	1.2261E-01	0.126E+00
PB-212	1.2562E+00	3.7826E-02	9.0139E-02	0.331E-01
TL-208	4.1161E-01	2.0861E-02	3.3333E-02	0.172E-01
CS-134 #F	5.8822E-02	1.3946E-02	1.4419E-02	0.212E-01
CS-137	7.8232E-02	1.4030E-02	1.4381E-02	0.162E-01
TH-234	7.0827E-01	2.5958E-01	2.6431E-01	0.338E+00
K-40	2.3017E+01	4.7090E-01	1.5683E+00	0.195E+00

  # - All peaks for activity calculation had bad shape.
  * - Activity omitted from total
  & - Activity omitted from total and all peaks had bad shape.

    < - MDA value printed.
    A - Activity printed, but activity < MDA.
    B - Activity < MDA and failed test.
    C - Area < Critical level.
    F - Failed fraction or key line test.
    H - Halflife limit exceeded
---------------------------- S U M M A R Y -----------------------------
Total Activity (351.8 to 1999.8 keV)   3.008E+01 pCi/g

Ortec Gamma
INTERNATIONAL

Batch Sample ID	**ARS1-B17-00169-06**	
Sample Setup Description	**ORTEC GAMMA**	
InternalID	ARS1-17-00216-004	
AnalysisBatch	ARS1-B17-00169	**Geometry** 250mL Jar Solid 1595
SDG	ARS1-17-00216	**Fraction** 004
AnalysisCode	GAM-A-020	**Run** 1
Library	**APPLIEDSCIENCES.Lib**	**Detector ID** 1
		Detector Name (ARS06)

Isotope	ACT	Units	TPU	MDA	DL	Nuclide Energy (keV)	Peak Energy (keV)	FWHM
AC-228	7.8164E+00	pCi/g	5.2619E-01	1.3500E-01	6.7500E-02			
PB-214	2.4404E+00	pCi/g	2.1583E-01	4.9200E-02	2.4600E-02			
BI-214	2.1363E+00	pCi/g	1.5697E-01	4.7500E-02	2.3750E-02			
BI-212	1.8187E+00	pCi/g	2.3757E-01	1.9800E-01	9.9000E-02			
PB-212	2.4924E+00	pCi/g	1.8227E-01	4.9400E-02	2.4700E-02			
TL-208	7.4910E-01	pCi/g	6.6493E-02	3.0400E-02	1.5200E-02			
CS-134	~~1.9758E-01~~ *1.2822E-03*	pCi/g	2.3701E-02	2.7400E-02	1.3700E-02			
CS-137	4.3263E-02	pCi/g	1.8463E-02	2.3900E-02	1.1950E-02			
TH-234	8.5053E-01	pCi/g	2.9732E-01	4.3300E-01	2.1650E-01			
K-40	2.0681E+01	pCi/g	1.4161E+00	2.7900E-01	1.3950E-01			

Sample description
     Batch ID: 17-00169-06
     SDG: ARS1-17-00216-004   Tech: WJS

Spectrum Filename: C:\User\ARS06033.An1

Acquisition information
         Start time: 30-Jan-2017 14:55:40
         Live time: 50400
         Real time: 50655
         Dead time: 0.50 %
         Detector ID: 1

Detector system
     (ARS06) MCB 130

Calibration
         Filename: 250mL jar 1595-98-2 calib.Clb
     250mL Jar Solid 1595-98-2 1.5g/cc BZF 11-6-13

         Energy Calibration
             Created: 05-Nov-2013 09:40:26
             Zero offset: 0.173 keV
             Gain: 0.250 keV/channel
             Quadratic: -2.851E-08 keV/channel^2

         Efficiency Calibration
             Created: 06-Nov-2013 13:34:19
             Knee Energy: 123.00 keV
             Above the Knee: Quadratic   Uncertainty =   1.13 %
             Log(Eff):   -1.388598E+00 + (-1.695552E-01*Log(E)) +
                                  (-4.134891E-02*Log(E)^2)
             Below the Knee: Quadratic   Uncertainty =   1.87 %
             Log(Eff):   -9.416087E+00 + (2.716832E+00*Log(E)) +
                                  (-2.945780E-01*Log(E)^2)

Library Files
         Main analysis library: APPLIEDSCIENCES.Lib
         Library Match Width: 0.500
         Peak stripping: Library based

Analysis parameters
         Analysis engine: Env32   G53W4.22
         Start channel: 10 (2.67keV)
         Stop channel: 8000 (1998.61keV)
         Peak rejection level: 40.000%
         Peak search sensitivity: 3
         Sample Size: 2.8453E+02
         Activity scaling factor: 1.0000E+06/(1.0000E+00* 2.8453E+02) =
                                  3.5146E+03
         Detection limit method: Reg. Guide 4.16 Method

Random error: 1.0000000E+00
Systematic error: 1.0000000E+00
Fraction Limit: 60.000%
Background width: best method (based on spectrum).
Half lives decay limit: 12.000
Activity range factor: 2.000
Min. step backg. energy   0.000
Multiplet shift channel   2.000

Corrections   Status   Comments
     Decay correct to date: NO
     Decay during acquisition: YES
     Decay during collection: NO
     True coincidence correction: NO
     Peaked background correction: YES   pbc APPLIEDSCIENCES.Pbc
                                                      30-Jan-2017 09:10:45
     Absorption (Internal):   NO
     Geometry correction: NO
     Random summing: NO

total peaks alloc.   28 cutoff   20.00000   %
          Energy Calibration
               Normalized diff: 0.1199

***** S U M M A R Y   O F   P E A K S   I N   R A N G E *****

Peak Energy	Area	Uncert	FWHM	Corrctn Factor	Nuclide Energy	Brnch. Ratio	Act. pCi/g	Nuc
13.41	9632.	1.46	0.90	1.293E-02				
16.32	2431.	4.94	0.90	1.614E-02				
40.07	538.	21.13	1.08	3.332E-02				
46.75	1453.	10.08	1.03	3.597E-02				
53.34	711.	18.07	1.41	3.798E-02				
57.99	276.	33.08	0.94	3.911E-02				
59.75	493.	20.34	0.94	3.948E-02				
63.48	1092.	12.10	0.92	4.018E-02	63.29	3.900	9.381E-01	TH234
74.94	8030.	1.86	0.96	4.169E-02				
77.27	12788.	1.32	0.96	4.190E-02				
79.51	397.	29.36	0.96	4.208E-02				
81.21	303.	30.47	0.96	4.220E-02				
84.23	988.	11.09	0.97	4.237E-02				
87.33	4100.	3.01	0.97	4.252E-02				
90.10	3387.	3.44	0.97	4.262E-02				
92.43	491.	24.17	0.97	4.268E-02	92.38	2.570	8.505E-01	TH234
					92.80	3.000	7.285E-01	TH234
93.30	3936.	3.01	0.97	4.270E-02	92.80	3.000	5.412E+00	TH234
99.83	932.	14.89	1.04	4.277E-02				
105.54	1447.	9.31	1.47	4.274E-02				
115.44	398.	29.12	0.72	4.253E-02				
129.18	1803.	8.10	1.08	4.117E-02				
154.11	622.	18.95	1.14	3.718E-02				
186.06	3742.	3.86	1.20	3.324E-02				
209.27	2636.	4.69	1.12	3.095E-02				
238.56	16601.	0.92	1.11	2.855E-02	238.63	43.100	2.506E+00	PB212
241.62	3370.	2.92	1.11	2.832E-02	241.98	7.500	2.992E+00	PB214
270.08	2033.	5.18	1.31	2.641E-02				
277.40	722.	14.17	1.42	2.597E-02	277.36	6.500	7.924E-01	TL208
295.05	6011.	1.99	1.24	2.497E-02	295.21	18.500	2.414E+00	PB214
299.94	1044.	9.23	1.44	2.470E-02	300.09	3.270	2.390E+00	PB212
314.12	134.	37.12	0.71	2.398E-02				
321.47	220.	37.31	0.53	2.363E-02				
327.89	1461.	6.75	1.24	2.332E-02				
338.10	5832.	2.07	1.27	2.286E-02	338.40	12.010	7.934E+00	Ac228
351.73	10520.	1.29	1.28	2.228E-02	351.92	35.800	2.454E+00	PB214

409.22	998.	8.23	1.42	2.016E-02				
462.88	1766.	5.34	1.29	1.856E-02				
510.65	3495.	3.03	2.02	1.736E-02	510.72	22.500	1.239E+00	TL208
562.52	273.	20.57	1.41	1.622E-02	563.26	8.380	3.780E-01	CS134
583.18	5475.	2.93	1.53	1.584E-02	583.14	86.000	7.458E-01	TL208
609.31	7987.	1.88	1.51	1.536E-02	609.31	44.791	2.142E+00	BI214
661.61	305.	19.69	1.31	1.450E-02	661.66	85.100	4.326E-02	CS137
727.39	1541.	5.69	1.65	1.355E-02	727.17	11.800	1.816E+00	BI212
768.41	684.	7.17	1.60	1.303E-02	768.36	4.799	2.060E+00	BI214
772.29	373.	11.91	1.60	1.298E-02				
781.86	162.	25.11	1.61	1.287E-02				
785.73	340.	11.64	1.61	1.282E-02	785.42	2.000	2.502E+00	BI212
794.85	1328.	6.15	1.67	1.271E-02				
794.85	1328.	6.15	1.67	1.271E-02	795.86	85.460	2.305E-01	CS134
835.47	414.	14.03	1.57	1.226E-02				
860.49	816.	11.10	1.78	1.200E-02	860.47	12.000	1.068E+00	TL208
911.10	6960.	1.44	1.76	1.151E-02	911.07	29.000	7.802E+00	Ac228
934.20	506.	10.36	1.45	1.130E-02				

pk energy	area	uncert	fwhm	corr	nuclide	brnch.	act.	nuc
964.62	1232.	4.13	1.79	1.104E-02	964.60	5.452	7.668E+00	Ac228
968.90	4005.	1.79	1.79	1.100E-02	968.90	17.460	7.808E+00	Ac228
1000.62	173.	26.22	0.74	1.074E-02				
1120.17	1892.	4.87	1.75	9.878E-03	1120.29	14.797	2.418E+00	BI214
1154.78	303.	16.19	0.69	9.654E-03				
1237.93	1022.	9.79	2.31	9.160E-03	1238.11	5.859	3.591E+00	BI214
1377.32	602.	8.84	1.50	8.444E-03				
1407.70	345.	13.07	0.94	8.304E-03				
1460.54	9757.	1.15	2.22	8.071E-03	1460.75	10.700	2.068E+01	K40
1588.38	768.	9.68	2.04	7.563E-03				
1619.99	199.	17.24	1.14	7.445E-03	1620.56	2.750	1.830E+00	BI212
1729.25	435.	10.49	1.44	7.076E-03				
1764.11	1401.	3.34	2.58	6.966E-03	1764.49	15.357	2.411E+00	BI214

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************ U N I D E N T I F I E D    P E A K    S U M M A R Y ************
```

Peak Centroid Channel	Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV	Suspected Nuclide	
52.94	13.41	6291.	11598.	0.230	3.21	1.177	SE-75	s
64.60	16.32	5997.	2431.	0.048	9.88	0.904	KR-85	1D
159.58	40.07	3722.	538.	0.011	42.27	1.082	EU-152	s
186.30	46.75	5216.	1453.	0.029	20.16	1.032	PB-210	s
212.64	53.34	4739.	711.	0.014	36.14	1.410	CE-144	s
231.24	57.99	4029.	276.	0.005	66.16	0.942	TA-182	D
238.30	59.75	4771.	493.	0.010	40.68	0.943	W-187	D
299.05	74.95	6916.	8228.	0.163	3.61	0.957	TH-234	D
308.35	77.27	7448.	13203.	0.262	2.54	0.959	PB-212	D
317.33	79.51	6610.	397.	0.008	58.72	0.961	BA-133	D
324.13	81.22	4119.	303.	0.006	60.94	0.962	AU-196	D
336.22	84.24	5645.	1448.	0.029	20.11	1.332	HG-203	s
348.62	87.34	5532.	4130.	0.082	7.13	1.186	PB-212	s
359.90	90.10	4968.	3056.	0.061	7.46	0.971	AC-228	D
372.68	93.30	5373.	3620.	0.072	6.62	0.973	AC-228	D
398.58	99.83	4780.	932.	0.018	29.77	1.043	PA-234M	s
421.43	105.54	4352.	1447.	0.029	18.61	1.475	EU-155	s
461.05	115.44	3725.	398.	0.008	58.25	0.723	PU-239	s
515.98	129.18	4884.	1803.	0.036	16.20	1.076	AC-228	
615.70	154.11	3788.	622.	0.012	37.91	1.139	ND-147	s
743.51	186.06	4714.	3742.	0.074	7.72	1.202	RA-226	s
836.34	209.27	3741.	2636.	0.052	9.37	1.116	AC-228	
1079.61	270.08	2265.	2033.	0.040	10.36	1.315	AC-228	s
1255.81	314.12	936.	134.	0.003	74.24	0.709	PB-214	s
1285.19	321.47	1706.	220.	0.004	74.62	0.526	LU-177	s
1310.90	327.89	2282.	1461.	0.029	13.51	1.241	AC-228	
1636.28	409.22	1379.	998.	0.020	16.47	1.416	AC-228	s
1850.96	462.88	1476.	1766.	0.035	10.68	1.287	CS-138	
3089.22	772.26	792.	380.	0.008	23.36	1.602	AC-228	D
3126.24	781.56	781.	170.	0.003	64.53	0.505	-	1
3127.46	781.56	749.	162.	0.003	50.22	1.611	-.	D
3179.42	794.85	2028.	190.	0.004	68.72	1.667	AC-228	s
3342.00	835.47	658.	414.	0.008	28.07	1.571	AC-228	
3737.22	934.20	464.	506.	0.010	20.71	1.449	BI-214	
4003.09	1000.62	437.	173.	0.003	52.44	0.739	PA-234M	s

Channel	Energy	Background	Net area	Cnts/sec	Uncert	FWHM	Suspected	
4620.23	1154.78	582.	303.	0.006	32.37	0.689	BI-214	s
5511.33	1377.32	326.	602.	0.012	17.68	1.496	BI-214	s
5632.97	1407.70	274.	345.	0.007	26.13	0.939	BI-214	s
6356.60	1588.38	468.	768.	0.015	19.36	2.044	AC-228	
6920.86	1729.25	168.	435.	0.009	20.99	1.444	BI-214	s

    s - Peak fails shape tests.
    D - Peak area deconvoluted.
    L - Peak written from unknown list.
    C - Area < Critical level.

This section based on library: APPLIEDSCIENCES.Lib

************** I D E N T I F I E D   P E A K   S U M M A R Y **************

Nuclide	Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV
TH-234	253.21	63.48	5771.	773.	0.015	24.19	0.916
TH-234	368.79	92.38	7775.	491.	0.010	48.34	0.973D
TH-234	370.47	92.80	6985.	573.	0.011	34.57	0.973D
PB-212	953.46	238.54	4711.	16320.	0.324	2.55	1.213
PB-214	965.69	241.60	3732.	3422.	0.068	9.21	1.652s
TL-208	1108.90	277.40	2448.	710.	0.014	28.34	1.420s
PB-214	1179.52	295.05	2690.	5913.	0.117	3.98	1.240
PB-212	1199.07	299.94	2296.	1024.	0.020	18.46	1.442s
Ac-228	1351.73	338.10	2144.	5782.	0.115	4.14	1.274
PB-214	1406.25	351.73	1943.	10384.	0.206	2.58	1.284
TL-208	2042.12	510.65	2856.	2568.	0.051	6.06	2.024s
CS-134	2249.66	562.52	1598.	273.	0.005	41.14	1.405
TL-208	2332.32	583.18	2162.	5390.	0.107	5.86	1.533
BI-214	2436.90	609.31	1340.	7820.	0.155	3.77	1.507
CS-137	2646.19	661.61	1089.	283.	0.006	39.39	1.313
BI-212	2909.44	727.39	1261.	1541.	0.031	11.38	1.653
BI-214	3073.40	768.36	801.	690.	0.014	13.88	1.598D
BI-212	3141.70	785.42	699.	340.	0.007	23.27	1.615D
CS-134	3179.68	794.91	1112.	1138.	0.023	10.19	1.624s
TL-208	3442.15	860.49	1007.	816.	0.016	22.20	1.778
Ac-228	3644.75	911.10	634.	6918.	0.137	2.88	1.757
Ac-228	3858.90	964.60	688.	1224.	0.024	8.27	1.786D
Ac-228	3876.11	968.90	591.	3983.	0.079	3.58	1.790D
BI-214	4481.67	1120.17	857.	1875.	0.037	9.73	1.750s
BI-214	4953.16	1237.93	800.	1022.	0.020	19.58	2.310s
K-40	5844.58	1460.54	720.	9476.	0.188	2.30	2.216
BI-212	6483.21	1619.99	195.	199.	0.004	34.47	1.139s
BI-214	7060.49	1764.11	154.	1368.	0.027	6.68	2.583

    s - Peak fails shape tests.
    D - Peak area deconvoluted.
    A   Derived peak area.

```
*****   S U M M A R Y   O F   L I B R A R Y   P E A K   U S A G E   *****
- Nuclide -  Average    -------------- Peak ---------------
Name   Code  Activity    Energy   Activity Code MDA Value
             pCi/g        keV      pCi/g         pCi/g         COMMENTS
_____


Ac-228       7.8164E+00
                         911.07  7.802E+00  (P 1.354E-01 1.44E+00  G
                         968.90  7.808E+00  (P 2.273E-01 1.79E+00  G
                         338.40  7.934E+00  (P 2.998E-01 2.07E+00  G
                         964.60  7.661E+00  (P 7.815E-01 4.14E+00  G

PB-214       2.4404E+00
                         351.92  2.454E+00  (P 4.919E-02 1.29E+00  G
                         295.21  2.414E+00  (P 9.977E-02 1.99E+00  G
                         241.98  3.039E+00  + P 2.552E-01 4.61E+00  G

BI-214       2.1363E+00
                         609.31  2.142E+00  (P 4.747E-02 1.88E+00  G
                        1764.49  2.411E+00  + P 1.067E-01 3.34E+00  G
                        1120.29  2.418E+00  + P 1.795E-01 4.87E+00  G
                        1238.11  3.591E+00  +   4.723E-01 9.79E+00  G
                         768.36  2.080E+00  (   4.057E-01 6.94E+00  G

BI-212       1.8187E+00
                         727.17  1.816E+00  (P 1.982E-01 5.69E+00  G
                        1620.56  1.830E+00  (P 6.242E-01 1.72E+01  G
                         785.42  2.502E+00  + P 9.249E-01 1.16E+01  G

PB-212       2.4924E+00
                         238.63  2.500E+00  (P 4.942E-02 1.27E+00  G
                         300.09  2.390E+00  (P 5.274E-01 9.23E+00  G

TL-208       7.4910E-01
                         583.14  7.458E-01  (P 3.036E-02 2.93E+00  G
                         510.72  1.239E+00  + P 1.215E-01 3.03E+00  G
                         860.47  1.068E+00  +   1.970E-01 1.11E+01  G
                         277.36  7.924E-01  (P 2.605E-01 1.42E+01  G
                         763.30 -2.311E-02  % P 1.360E+00 1.96E+02  G

CS-134       1.9758E-01
                         795.86  1.976E-01  ?(P 2.745E-02 5.09E+00     K
                         604.72  1.282E-03  %   7.983E-02 1.88E+03     K
                         569.33 -2.887E-02  % P 1.431E-01 2.21E+03  G
                         563.26  3.780E-01  + P 2.620E-01 2.06E+01  G
```

Nuclide Ave activity Energy   Activity Code Peak MDA Comments

CS-137   4.3263E-02
                        661.66 4.326E-02 (P 2.391E-02 1.97E+01 G

TH-234   8.5053E-01
                        63.29 9.381E-01 (P 4.330E-01 1.21E+01 G
                        92.80 8.505E-01 } P 5.820E-01 1.73E+01 G
                        92.38 8.505E-01 } P 7.167E-01 2.42E+01 G

K-40   2.0681E+01
                       1460.75 2.068E+01 (P 2.789E-01 1.15E+00 G
    (- This peak used in the nuclide activity average.

    * - Peak is too wide, but only one peak in library.
    ! - Peak is part of a multiplet and this area went
        negative during deconvolution.
    ? - Peak is too narrow.
    @ - Peak is too wide at FW25M, but ok at FWHM.
    % - Peak fails sensitivity test.
    $ - Peak identified, but first peak of this nuclide
        failed one or more qualification tests.
    + - Peak activity higher than counting uncertainty range.
    - - Peak activity lower than counting uncertainty range.
    = - Peak outside analysis energy range.
    & - Calculated peak centroid is not close enough to the
        library energy centroid for positive identification.
    P - Peakbackground subtraction
    } - Peak is too close to another for the activity
        to be found directly.

Nuclide Codes: Peak Codes:
T - Thermal Neutron Activation   G - Gamma Ray
F - Fast Neutron Activation   X - X-Ray
I - Fission Product   P - Positron Decay
N - Naturally Occurring Isotope   S - Single-Escape
P - Photon Reaction   D - Double-Escape
C - Charged Particle Reaction   K - Key Line
M - No MDA Calculation   A - Not in Average
R - Coincidence Corrected   C - Coincidence Peak
H - Halflife limit exceeded

- -

```
*****     S U M M A R Y   O F   N U C L I D E S   I N   S A M P L E   *****
          Time of Count   Uncertainty  2 Sigma
Nuclide     Activity       Counting     Total        MDA
             pCi/g           pCi/g       pCi/g        pCi/g
```

Nuclide	Time of Count Activity pCi/g	Uncertainty Counting pCi/g	2 Sigma Total pCi/g	MDA pCi/g
Ac-228	7.8164E+00	2.0301E-01	5.2619E-01	0.135E+00
PB-214	2.4404E+00	5.8739E-02	2.1583E-01	0.492E-01
BI-214	2.1363E+00	8.2224E-02	1.5697E-01	0.475E-01
BI-212	1.8187E+00	2.0694E-01	2.3757E-01	0.198E+00
PB-212	2.4924E+00	6.4417E-02	1.8227E-01	0.494E-01
TL-208	7.4910E-01	4.4581E-02	6.6493E-02	0.304E-01
CS-134 #F	1.9758E-01	2.0130E-02	2.3701E-02	0.274E-01
CS-137	4.3263E-02	1.8367E-02	1.8463E-02	0.239E-01
TH-234	8.5053E-01	2.9075E-01	2.9732E-01	0.433E+00
K-40	2.0681E+01	4.8908E-01	1.4161E+00	0.279E+00

```
 # - All peaks for activity calculation had bad shape.
 * - Activity omitted from total
 & - Activity omitted from total and all peaks had bad shape.
 < - MDA value printed.
 A - Activity printed, but activity < MDA.
 B - Activity < MDA and failed test.
 C - Area < Critical level.
 F - Failed fraction or key line test.
 H - Halflife limit exceeded
-------------------------- S U M M A R Y  ---------------------------
Total Activity ( 1000.6 to  1998.6 keV)     3.903E+01  pCi/g
```

SDG **ARS1-17-00216**

Fraction	Container	Client ID	Aliquot	Units	Geometry	Prep Type	Origin	Origin2	ICOC ID
001	1	BB-16L	211.0000	g		ORIG	SCI		255884
001	2	BB-16L	1195.0000	g		ORIG	SCI		255894
001	2	BB-16L	549.6800	g		DRYF	PRP		256078
001	2	BB-16L	292.7500	g	250 mL Jar	DGAM	PRP		256081
001	2	BB-16L	37.2600	g		DRAD	ALI	Manual	256085
002	1	BB-18	218.0000	g		ORIG	SCI		255883
002	2	BB-18	237.0000	g		ORIG	SCI		255895
002	3	BB-18	234.0000	g		ORIG	SCI		255896
002	4	BB-18	1366.0000	g		ORIG	SCI		255899
002	4	BB-18	683.3300	g		DRYF	PRP		256079
002	4	BB-18	381.3300	g	250 mL Jar	DGAM	PRP		256082
002	4	BB-18	52.0400	g		DRAD	ALI	Manual	256086
003	1	OS-2	226.0000	g		ORIG	SCI		255885
003	2	OS-2	206.0000	g		ORIG	SCI		255893
004	1	BB-19M	1266.0000	g		ORIG	SCI		255886
004	2	BB-19M	238.0000	g		ORIG	SCI		255892
004	3	BB-19M	211.0000	g		ORIG	SCI		255897
004	4	BB-19M	216.0000	g		ORIG	SCI		255898
004	4	BB-19M	742.2500	g		DRYF	PRP		256080
004	4	BB-19M	284.5300	g	250 mL Jar	DGAM	PRP		256083
004	4	BB-19M	34.3700	g		DRAD	ALI	Manual	256087
005	1	BB-16B	214.0000	g		ORIG	SCI		255887
006	1	BB-16A	228.0000	g		ORIG	SCI		255888
007	1	BB-17	206.0000	g		ORIG	SCI		255889
007	2	BB-17	215.0000	g		ORIG	SCI		255891
008	1	BB-17 Mud/Sludge	352.0000	g		ORIG	SCI		255890
008	1	BB-17 Mud/Sludge	22.0400	g		DRAD	ALI	Manual	256084

Prep Batch Report

Prep Batch ID	**ARS1-P17-00121**	
Matrix	**SO**	
Prep Group	**SOLID**	

PBatch Sample ID	Gamma	Wet	Rad	Basis	SDG	FR	Storage		Client ID	Lab Deadline
ARS1-P17-00121-01	X	X	X	DGAM, DINO, DPCB, DRAD, DSVO	ARS1-17-00216	001	D4	BB-16L		02/11/17
ARS1-P17-00121-02	X	X	X	DGAM, DINO, DPCB, DRAD, DSVO	ARS1-17-00216	002	D4	BB-18		02/11/17
ARS1-P17-00121-03	X	X	X	DGAM, DINO, DPCB, DRAD, DSVO	ARS1-17-00216	004	D4	BB-19M		02/11/17

ARS International
Baton Rouge Laboratory

Prep Batch Report - Gamma Spec Aliquot

Prep Batch ID	SDG	FR	ICOC ID	Parent ID	Type	Geometry	Tare g	Cont+Sample g	Net Sample g
ARS1-P17-00121-01	ARS1-17-00216	001	256081	255894	DGAM, DINO, DPCB, DRAD, DSVO	250 mL Jar	43.43	336.18	292.75
ARS1-P17-00121-02	ARS1-17-00216	002	256082	255899	DGAM, DINO, DPCB, DRAD, DSVO	250 mL Jar	43.77	425.10	381.33
ARS1-P17-00121-03	ARS1-17-00216	004	256083	255898	DGAM, DINO, DPCB, DRAD, DSVO	250 mL Jar	43.20	327.73	284.53

Prep Batch Report - Percent Moisture

Prep Batch ID	SDG	FR	ICOC ID	Parent ID	Tare g	Cont+Sample g	Net Sample g	Oven ID	Oven Temp C	Start Time	Stop Time	Cont+Sample g	Net Sample g	% Solid	% Moisure
ARS1-P17-00121-01	ARS1-17-00216	001	256078	255894	6.61	556.29	549.68	3	120	1/27/2017 5:08 PM	1/28/2017 9:31 AM	449.57	442.96	80.59%	19.41%
ARS1-P17-00121-02	ARS1-17-00216	002	256079	255899	6.59	689.92	683.33	3	120	1/27/2017 5:08 PM	1/28/2017 9:31 AM	596.82	590.23	86.38%	13.62%
ARS1-P17-00121-03	ARS1-17-00216	004	256080	255898	6.60	748.85	742.25	3	120	1/27/2017 5:08 PM	1/28/2017 9:31 AM	448.42	441.82	59.52%	40.48%

ARS
INTERNATIONAL

Preanalytical
Sample Preparation Review Checklist

Prep Batch/SDG:	ARS1-17-00216	Sample Matrix:	SO

☐ Check if sample(s) are re-prepped

SAMPLE PREPARATION

(All "No" Responses Require a Comment)	Prep. Tech. Review			
1) Sample IDs Correspond to LIMS SDG Information?	Yes	No	N/A	
2) Drying Oven Temperature Check is within Tolerance?	Yes	No	N/A	
3) Balance checks are current and balance is in tolerance?	Yes	No	N/A	
4) Cleanliness of preparation equipment has been verified? (Including grinders, mortar & pestle, spatulas, etc...)	Yes	No	N/A	
5) Samples Dried?	Yes	No	N/A	
6) 100% of Manual Transcriptions/Calculations Verified?	Yes	No	N/A	
7) Samples ground/pulverized? (if YES, a PrepBlank is required)	Yes	No	N/A	
a) If PrepBlank Required, Enter the PrepBlank SDG Here →	ARS1-			
8) Samples ground with Mortar & Pestle? (PrepBlank is not required)	Yes	No	N/A	
9) Samples crushed with hammer? (PrepBlank is not required)	Yes	No	N/A	
10) Visual Inspection Verifies Homogenization Method(s) Effective?	Yes	No	N/A	
11) Preparation area is clean and decontaminated?	Yes	No	N/A	

12) Sample Prep Anomaly?   ☐ No   ☒ Yes (See Tech Notes)   NCR # (If initiated): _____

_____ 1-28-17   1100

Preanalytical Prep Technician Signature   Date/Time   Lot# of sand blank (if PrepBlank required)

BATCH QC VALIDATION (Section below must be completed ONLY if a PrepBlank is required)

(All "No" Responses Require a Comment)	Proj. Mgr. Review			QA Review		
1) Preparation Blank criteria met.	Yes	No	N/A	Yes	No	N/A

2) Prep Batch Blank Anomaly?   ☐ No   ☐ Yes (See Tech Notes)   NCR # (If initiated): _____

_____   _____
Project Manager Signature   Date   QA Signature   Date

COMMENTS

ARS1-17-00216-001-004 are bias low

_____

_____

ARS-059-001 r3   Page 1 of 1

Calibration Verification

STD# 1891-50-3 Ver. Date 9/29/2016 Insturment ID ARS03

Nuclide	uCi	pCi	Meas Act.	Criteria	Dif	%dif	Pass/Fail
Pb210	0.2119	211900	216230	10.00%	4330	2.04%	PASS
Am241	0.02087	20870	21138	5.00%	268	1.28%	PASS
Cd109	0.2192	219200	215220	10.00%	3980	1.82%	PASS
Co57	0.007577	7577	7598.4	10.00%	21.4	0.28%	PASS
Te123m	0.01084	10840	10817	10.00%	23	0.21%	PASS
Cr51	0.2502	250200	255100	10.00%	4900	1.96%	PASS
Sn113	0.04008	40080	41479	10.00%	1399	3.49%	PASS
Sr85	0.04834	48340	47774	10.00%	566	1.17%	PASS
Cs137	0.03344	33440	34523	5.00%	1083	3.24%	PASS
Y88	0.04132	41320	39929	10.00%	1391	3.37%	PASS
Co60	0.07737	77370	80332	5.00%	2962	3.83%	PASS

Independent Standard

STD# 1595-98-4

Nuclide	uCi	pCi	Meas Act.	Criteria	Dif	%dif	Pass/Fail
Pb210	0.232	232000	0.22887	10.00%	231999.77111	100.00%	#DIV/0!
Am241	0.02273	22730	21640	5.00%	1090	4.80%	PASS
Cd109	0.2223	222300		10.00%	222300	100.00%	NOT MEASURED
Co57	0.008038	8038	8038	10.00%	8038	100.00%	NOT MEASURED
Te123m	0.01098	10980	10980	10.00%	10980	100.00%	NOT MEASURED
Cr51	0.2766	276600		10.00%	276600	100.00%	NOT MEASURED
Sn113	0.04358	43580	43580	10.00%	43580	100.00%	NOT MEASURED
Sr85	0.05122	51220		10.00%	51220	100.00%	NOT MEASURED
Cs137	0.03546	35460	36485	5.00%	1025	2.89%	PASS
Y88	0.04279	42790	40717	10.00%	2073	4.84%	PASS
Co60	0.07866	78660	78660	5.00%	78660	100.00%	NOT MEASURED

```
Calibration Data from file:    250mL Tuna Can 1891-50-3 polynomial calib.Clb
       Energy Calibration Date: 09/29/2016  Time: 07:56:50
     Efficiency Calibration Date: 09/29/2016  Time: 08:00:17

Calibration Description:
  250mL Tuna Can 1891-50-3 polynomial 9-29-16 WJS


Energy Calibration Fit
     Energy =   0.1960 +0.250053*Channel -1.75909e-008*Channel**2
  FWHM (ch) =   3.5348 +0.000891*Channel -1.83848e-008*Channel**2

Energy/FWHM Table
  Channel Energy(keV) Fit(keV)  Delta FWHM(keV) Fit(keV)    Delta
------------------------------------------------------------------------
   185.47      46.52     46.57 -0.11%     0.91     0.93   -1.52%
   237.49      59.54     59.58 -0.07%     0.95     0.94    1.36%
   351.36      88.03     88.05 -0.02%     0.94     0.96   -1.90%
   487.31     122.07    122.05  0.02%     0.99     0.99   -0.20%
   635.23     159.00    159.03 -0.02%     1.03     1.02    0.49%
  1278.92     320.07    319.97  0.03%     1.19     1.16    2.46%
  1565.47     391.69    391.60  0.02%     1.21     1.22   -1.11%
  2054.99     514.00    513.98  0.00%     1.32     1.32   -0.28%
  2645.91     661.66    661.69 -0.00%     1.45     1.44    0.89%
  3591.65     898.07    898.07 -0.00%     1.64     1.62    0.79%
  4692.91    1173.24   1173.28 -0.00%     1.80     1.83   -1.31%
  5330.27    1332.50   1332.55 -0.00%     1.93     1.94   -0.40%
  7345.60    1836.08   1836.04  0.00%     2.28     2.27    0.39%


Efficiency Calibration Fit
Polynomial           Uncertainty = 1.2946 %
  Coefficients:
    -0.388262 -4.463417 0.420417 -0.041583 0.001635 -0.000025

Efficiency Table
   Energy    Efficiency         Fit     Delta
-------------------------------------------------
    46.52  2.5818E-002  2.5782E-002     0.14%
    59.54  3.4548E-002  3.4665E-002    -0.34%
    88.03  4.5342E-002  4.5059E-002     0.62%
   122.07  4.7017E-002  4.6464E-002     1.18%
   159.00  4.1438E-002  4.2531E-002    -2.64%
   320.07  2.6489E-002  2.6448E-002     0.15%
   391.69  2.2950E-002  2.2663E-002     1.25%
   514.00  1.8273E-002  1.8486E-002    -1.16%
   661.66  1.5997E-002  1.5385E-002     3.83%
  1173.24  9.9036E-003  1.0155E-002    -2.54%
  1332.50  8.9039E-003  9.2051E-003    -3.38%
  1836.08  7.2014E-003  7.0172E-003     2.56%

Calibration Certificate Table
Isotope   Energy   Pct  Halflife  Activity      GPS  Error         Date & Time
------------------------------------------------------------------------------------
Pb-210    46.52   4.00 7.45E+003     0.21   313.61  4.00% 08/01/2016 14:00:00
Am-241    59.54  36.30 1.58E+005     0.02   280.30  3.00% 08/01/2016 14:00:00
Cd-109    88.03   3.61 4.36E+002     0.22   292.79  3.20% 08/01/2016 14:00:00
Co-57    122.07  85.60 2.72E+002     0.01   239.98  3.10% 08/01/2016 14:00:00
Te-123M  159.00  83.50 1.20E+002     0.01   334.90  3.10% 08/01/2016 14:00:00
Cr-51    320.07   9.83 2.77E+001     0.25   910.00  3.00% 08/01/2016 14:00:00
Sn-113   391.69  64.16 1.15E+002     0.04   951.47  3.00% 08/01/2016 14:00:00
Sr-85    513.99  99.28 6.47E+001     0.05  1775.70  3.00% 08/01/2016 14:00:00
Cs-137   661.66  85.21 1.10E+004     0.03  1054.29  3.10% 08/01/2016 14:00:00
Y-88     898.02  95.00 1.07E+002     0.08  2719.56  3.00% 08/01/2016 14:00:00
Co-60   1173.24  99.90 1.93E+003     0.04  1527.31  3.10% 08/01/2016 14:00:00
Co-60   1332.50  99.98 1.93E+003     0.04  1528.56  3.10% 08/01/2016 14:00:00
Y-88    1836.01  99.35 1.07E+002     0.08  2844.08  3.00% 08/01/2016 14:00:00
```

ARS03 CALVER - 250 mL Tuna Can Polynomial

STD#	1891-50-3			Cal Date	9/29/2016		
Nuclide	uCi	pCi	Meas	Criteria	Dif	%dif	
Pb210	0.2119	211900	216230	10.00%	4330	2.04%	PASS
Am241	0.02087	20870	21138	5.00%	268	1.28%	PASS
Cd109	0.2192	219200	215220	10.00%	3980	1.82%	PASS
Co57	0.007577	7577	7598.4	10.00%	21.4	0.28%	PASS
Te123m	0.01084	10840	10817	10.00%	23	0.21%	PASS
Cr51	0.2502	250200	255100	10.00%	4900	1.96%	PASS
Sn113	0.04008	40080	41479	10.00%	1399	3.49%	PASS
Sr85	0.04834	48340	47774	10.00%	566	1.17%	PASS
Cs137	0.03344	33440	34523	5.00%	1083	3.24%	PASS
Co60	0.04132	41320	39929	5.00%	1391	3.37%	PASS
Y88	0.07737	77370	80332	10.00%	2962	3.83%	PASS

_MS 9-29-16_

Sample description
        Batch ID: CALVER
        SDG: 250mL Tuna Can 1891-50-3 polynomial Tech: WJS

Spectrum Filename: C:\User\ARS03099.An1

Acquisition information
        Start time: 29-Sep-2016 08:01:36
        Live time: 600
        Real time: 618
        Dead time: 2.86 %
        Detector ID: 1

Detector system
      (ARS03) MCB 129

Calibration
        Filename: 250mL Tuna Can 1891-50-3 polynomial cali
                                 b.Clb
      250mL Tuna Can 1891-50-3 polynomial 9-29-16 WJS

        Energy Calibration
              Created: 29-Sep-2016 07:56:50
              Zero offset: 0.196 keV
              Gain: 0.250 keV/channel
              Quadratic: -1.759E-08 keV/channel^2

        Efficiency Calibration
              Created: 29-Sep-2016 08:00:17
              Type: Polynomial
              Uncertainty: 1.295 %
              Coefficients: -0.388262   -4.463417   0.420417
                                 -0.041583   0.001635   -0.000025

Library Files
        Main analysis library: northamericancal.Lib
        Library Match Width: 0.500
        Peak stripping: Library based

Analysis parameters
        Analysis engine: Env32   G53W4.22
        Start channel: 115 (28.95keV)
        Stop channel: 8000 (1999.49keV)
        Peak rejection level: 40.000%
        Peak search sensitivity: 3
        Sample Size: 1.0000E+00
        Activity scaling factor: 1.0000E+06/(1.0000E+00* 1.0000E+00) =
                                 1.0000E+06
        Detection limit method: Reg. Guide 4.16 Method
        Random error: 1.0000000E+00
        Systematic error: 1.0000000E+00
        Fraction Limit: 60.000%
        Background width: best method (based on spectrum).
        Half lives decay limit: 12.000

Activity range factor: 2.000
Min. step backg. energy   0.000
Multiplet shift channel   2.000

Corrections   Status   Comments
    Decay correct to date: YES   01-Aug-2016 14:00:00
    Decay during acquisition: NO
    Decay during collection: NO
    True coincidence correction: NO
    Peaked background correction: YES   pbc DOE.Pbc
                                                  13-Sep-2016 08:40:53
    Absorption (Internal):   NO
    Geometry correction: NO
    Random summing: NO

total peaks alloc.   13 cutoff   20.00000   %
        Energy Calibration
                Normalized diff: 0.0369

***** S U M M A R Y   O F   P E A K S   I N   R A N G E *****

Peak Energy	Area	Uncert	FWHM	Corrctn Factor	Nuclide Energy	Brnch. Ratio	Act. pCi/g	Nuc
32.09	416.	19.90	1.10	1.614E-02				
46.58	4994.	3.03	0.90	2.584E-02	46.52	4.050	2.162E+05	PB210
59.60	5806.	2.27	0.91	3.470E-02	59.54	35.700	2.114E+04	AM241
88.05	7117.	2.36	0.93	4.506E-02	88.03	3.610	2.152E+05	CD109
122.05	5769.	2.19	0.97	4.647E-02	122.07	85.500	7.598E+03	CO57
136.45	694.	14.28	0.96	4.523E-02				
159.01	6105.	2.18	1.01	4.253E-02	159.00	84.000	1.082E+04	TE123M
254.97	421.	16.59	1.18	3.142E-02				
319.96	3386.	3.09	1.18	2.646E-02	320.07	9.830	2.551E+05	CR51
391.63	9376.	1.38	1.21	2.267E-02	391.69	64.000	4.148E+04	SN113
514.00	10386.	1.31	1.31	1.849E-02	514.00	99.270	4.777E+04	SR85
567.16	75.	36.22	0.75	1.720E-02				
661.71	10010.	1.37	1.46	1.538E-02	661.66	85.210	3.452E+04	CS137
898.09	12936.	1.06	1.54	1.236E-02	898.07	92.700	7.452E+04	Y88
1173.32	8779.	1.43	1.87	1.015E-02	1173.24	99.900	3.981E+04	CO60
1332.60	8010.	1.35	1.85	9.204E-03	1332.50	99.982	4.004E+04	CO60
1418.44	54.	35.14	0.67	8.757E-03				
1836.06	8486.	1.12	2.29	7.017E-03	1836.08	99.350	8.033E+04	Y88

************ U N I D E N T I F I E D   P E A K   S U M M A R Y ************

Peak Centroid Channel	Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 1 Sigma %	FWHM keV	Suspected Nuclide	
127.55	32.09	1840.	416.	0.693	19.90	1.102	XE-138	s
544.92	136.45	2491.	694.	1.157	14.28	0.964	CO-57	
1018.96	254.97	1406.	421.	0.701	16.59	1.177	SN-113	
2267.74	567.16	311.	75.	0.125	36.22	0.752	-	s
5674.04	1418.44	95.	54.	0.089	35.14	0.674	-	s

s - Peak fails shape tests.
D - Peak area deconvoluted.
L - Peak written from unknown list.
C - Area < Critical level.

This section based on library: northamericancal.Lib

************** I D E N T I F I E D   P E A K   S U M M A R Y **************

Nuclide	Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 1 Sigma %	FWHM keV
PB-210	185.51	46.58	4137.	4987.	8.312	3.03	0.903
AM-241	237.55	59.60	3852.	5806.	9.677	2.27	0.909
CD-109	351.37	88.05	4543.	7117.	11.862	2.36	0.930
CO-57	487.34	122.05	3127.	5769.	9.615	2.19	0.973
TE-123M	635.15	159.01	3512.	6105.	10.175	2.18	1.010
CR-51	1278.90	319.96	2015.	3386.	5.643	3.09	1.183
SN-113	1565.57	391.63	1483.	9376.	15.626	1.38	1.209
SR-85	2055.07	514.00	1734.	10386.	17.310	1.31	1.311
CS-137	2645.99	661.71	1426.	10010.	16.683	1.37	1.465
Y-88	3591.71	898.09	1161.	12936.	21.561	1.06	1.541
CO-60	4693.05	1173.32	602.	8779.	14.632	1.43	1.872
CO-60	5330.50	1332.60	335.	8010.	13.350	1.35	1.854
Y-88	7345.69	1836.06	82.	8486.	14.143	1.12	2.291

s - Peak fails shape tests.
D - Peak area deconvoluted.
A   Derived peak area.

***** S U M M A R Y   O F   L I B R A R Y   P E A K   U S A G E *****

- Nuclide - Name	Code	Average Activity pCi/g	Energy keV	Peak Activity pCi/g	Code	MDA Value pCi/g	COMMENTS
PB-210		2.1623E+05					
			46.52	2.162E+05	(P	1.311E+04	3.03E+00 G
AM-241		2.1138E+04					
			59.54	2.114E+04	(	1.063E+03	2.27E+00 G
CD-109		2.1522E+05					
			88.03	2.152E+05	(	9.580E+03	2.36E+00 G
CO-57		7.5984E+03					
			122.07	7.598E+03	(	3.468E+02	2.19E+00 G

Nuclide Ave activity   Energy   Activity Code Peak MDA Comments

TE-123M   1.0817E+04
                        159.00 1.082E+04 (4.941E+02 2.18E+00 G

CR-51   2.5510E+05
                        320.07 2.551E+05 (P 1.597E+04 3.09E+00 G

SN-113   4.1479E+04
                        391.69 4.148E+04 (P 8.060E+02 1.38E+00 G

SR-85   4.7774E+04
                        514.00 4.777E+04 (9.051E+02 1.31E+00 G

CS-137   3.4523E+04
                        661.66 3.452E+04 (P 6.163E+02 1.37E+00 G

CO-60   3.9929E+04
                       1173.24 3.981E+04 (5.308E+02 1.43E+00 G
                       1332.50 4.004E+04 (P 4.398E+02 1.35E+00 G K

Y-88   8.0332E+04
                       1836.08 8.033E+04 (P 4.262E+02 1.12E+00 G
                        898.07 7.452E+04 - P 9.301E+02 1.06E+00 G
     (- This peak used in the nuclide activity average.

     * - Peak is too wide, but only one peak in library.
     ! - Peak is part of a multiplet and this area went
         negative during deconvolution.
     ? - Peak is too narrow.
     @ - Peak is too wide at FW25M, but ok at FWHM.
     % - Peak fails sensitivity test.
     $ - Peak identified, but first peak of this nuclide
         failed one or more qualification tests.
     + - Peak activity higher than counting uncertainty range.
     - - Peak activity lower than counting uncertainty range.
     = - Peak outside analysis energy range.
     & - Calculated peak centroid is not close enough to the
         library energy centroid for positive identification.
     P - Peakbackground subtraction
     } - Peak is too close to another for the activity
         to be found directly.

     Nuclide Codes: Peak Codes:
     T - Thermal Neutron Activation G - Gamma Ray
     F - Fast Neutron Activation   X - X-Ray
     I - Fission Product   P - Positron Decay
     N - Naturally Occurring Isotope S - Single-Escape
     P - Photon Reaction   D - Double-Escape

```
C - Charged Particle Reaction     K - Key Line
M - No MDA Calculation            A - Not in Average
R - Coincidence Corrected         C - Coincidence Peak
H - Halflife limit exceeded
```

- -

```
*****   S U M M A R Y   O F   N U C L I D E S   I N   S A M P L E   *****
          Time of Count  Time Corrected  Uncertainty  1 Sigma
Nuclide     Activity        Activity       Counting     Total        MDA
             pCi/g           pCi/g          pCi/g       pCi/g        pCi/g
```

Nuclide	Time of Count Activity pCi/g	Time Corrected Activity pCi/g	Uncertainty Counting pCi/g	1 Sigma Total pCi/g	MDA pCi/g
PB-210	2.1515E+05	2.1623E+05	6.5595E+03	1.2374E+04	1.311E+04
AM-241	2.1133E+04	2.1138E+04	4.7973E+02	9.7911E+02	1.063E+03
CD-109	1.9708E+05	2.1522E+05	5.0888E+03	9.8644E+03	9.580E+03
CO-57	6.5410E+03	7.5984E+03	1.6625E+02	3.0654E+02	3.468E+02
TE-123M	7.6974E+03	1.0817E+04	2.3569E+02	4.4155E+02	4.941E+02
CR-51	5.8658E+04	2.5510E+05	7.8821E+03	1.1482E+04	1.597E+04
SN-113	2.9118E+04	4.1479E+04	5.7329E+02	1.6004E+03	8.060E+03
SR-85	2.5494E+04	4.7774E+04	6.2408E+02	1.6310E+03	9.051E+02
CS-137	3.4395E+04	3.4523E+04	4.7294E+02	8.8900E+02	6.163E+02
CO-60	3.9093E+04	3.9929E+04	3.9289E+02	8.8939E+02	5.308E+02
Y-88	5.4827E+04	8.0332E+04	9.0256E+02	2.5088E+03	4.262E+02

```
  < - MDA value printed.
  A - Activity printed, but activity < MDA.
  B - Activity < MDA and failed test.
  C - Area < Critical level.
  F - Failed fraction or key line test.
  H - Halflife limit exceeded
--------------------------- S U M M A R Y  ---------------------------
Total Activity (   29.0 to  1999.5 keV)     6.892E+05  pCi/g
Total Decayed Activity (   29.0 to  1999.5 keV) 9.7014381E+05  pCi/g
```

ARS03 Calibration Verification - 250mL Tuna Can Polynomial

STD# 1595-98-4
Cal Date 9/29/2016

Nuclide	uCi	pCi	Meas	Criteria	Dif	%dif	
Pb210	0.232	232000	228870	10.00%	3130	1.35%	PASS
Am241	0.02273	22730	21640	5.00%	1090	4.80%	PASS
Cd109	0.2223	222300		10.00%	222300	100.00%	NOT MEASURED
Co57	0.008038	8038		10.00%	8038	100.00%	NOT MEASURED
Te123m	0.01098	10980		10.00%	10980	100.00%	NOT MEASURED
Cr51	0.2766	276600		10.00%	276600	100.00%	NOT MEASURED
Sn113	0.04358	43580		10.00%	43580	100.00%	NOT MEASURED
Sr85	0.05122	51220		5.00%	51220	100.00%	NOT MEASURED
Cs137	0.03546	35460	36485	10.00%	1025	2.89%	PASS
Co60	0.04279	42790	40717	5.00%	2073	4.84%	PASS
Y88	0.07866	78660		10.00%	78660	100.00%	NOT MEASURED

WJS 9-29-16

Sample description
     Batch ID: Calibration Verification
     SDG: 250mL Tuna Can 1595-98-4 polynomial Tech: WJS

Spectrum Filename: C:\User\ARS03100.An1

Acquisition information
     Start time: 29-Sep-2016 08:33:47
     Live time: 600
     Real time: 607
     Dead time: 1.14 %
     Detector ID: 1

Detector system
     (ARS03) MCB 129

Calibration
     Filename: 250mL Tuna Can 1891-50-3 polynomial cali
                                  b.Clb
     250mL Tuna Can 1891-50-3 polynomial 9-29-16 WJS

     Energy Calibration
          Created: 29-Sep-2016 07:56:50
          Zero offset: 0.196 keV
          Gain: 0.250 keV/channel
          Quadratic: -1.759E-08 keV/channel^2

     Efficiency Calibration
          Created: 29-Sep-2016 08:00:17
          Type: Polynomial
          Uncertainty: 1.295 %
          Coefficients: -0.388262   -4.463417   0.420417
                                  -0.041583   0.001635   -0.000025

Library Files
     Main analysis library: northamericancal.Lib
     Library Match Width: 0.500
     Peak stripping: Library based

Analysis parameters
     Analysis engine: Env32   G53W4.22
     Start channel: 115 (28.95keV)
     Stop channel: 8000 (1999.49keV)
     Peak rejection level: 40.000%
     Peak search sensitivity: 3
     Sample Size: 1.0000E+00
     Activity scaling factor: 1.0000E+06/(1.0000E+00* 1.0000E+00) =
                                1.0000E+06
     Detection limit method: Reg. Guide 4.16 Method
     Random error: 1.0000000E+00
     Systematic error: 1.0000000E+00
     Fraction Limit: 60.000%
     Background width: best method (based on spectrum).
     Half lives decay limit: 12.000

Activity range factor: 2.000
Min. step backg. energy   0.000
Multiplet shift channel   2.000

Corrections	Status	Comments
Decay correct to date:	YES	01-Jul-2012 14:00:00
Decay during acquisition:	NO	
Decay during collection:	NO	
True coincidence correction:	NO	
Peaked background correction:	YES	pbc DOE.Pbc
		13-Sep-2016 08:40:53
Absorption (Internal):	NO	
Geometry correction:	NO	
Random summing:	NO	

total peaks alloc.   7 cutoff   20.00000   %
        Energy Calibration
                Normalized diff: 0.0368

***** S U M M A R Y O F P E A K S I N R A N G E *****

Peak Energy	Area	Uncert	FWHM	Corrctn Factor	Nuclide Energy	Brnch. Ratio	Act. pCi/g	Nuc
32.00	288.	17.82	0.85	1.608E-02				
36.68	214.	22.83	1.05	1.922E-02				
46.59	4656.	2.08	0.89	2.585E-02	46.52	4.050	2.289E+05	PB210
59.59	5905.	2.05	0.95	3.469E-02	59.54	35.700	2.164E+04	AM241
88.01	763.	7.95	0.96	4.505E-02	88.03	3.610	2.157E+05	CD109
122.01	236.	21.32	0.91	4.647E-02	122.07	85.500	1.399E+04	CO57
475.53	89.	39.35	0.71	1.958E-02				
661.69	9626.	1.14	1.36	1.538E-02	661.66	85.210	3.648E+04	CS137
837.90	63.	39.75	0.37	1.299E-02				
1168.34	63.	25.74	1.82	1.019E-02				
1173.30	5384.	1.37	1.83	1.015E-02	1173.24	99.900	4.179E+04	CO60
1332.56	4689.	1.49	1.82	9.205E-03	1332.50	99.982	4.011E+04	CO60

************ U N I D E N T I F I E D P E A K S U M M A R Y ************

Peak Centroid Channel	Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 1 Sigma %	FWHM keV	Suspected Nuclide	
127.17	32.00	640.	288.	0.480	17.82	0.851	XE-138	s
145.92	36.68	682.	214.	0.356	22.83	1.050	XE-138	s
1901.19	475.53	325.	89.	0.148	39.35	0.706	CS-134	s
3350.91	837.90	141.	63.	0.105	39.75	0.371	-	s
4672.98	1168.30	54.	56.	0.094	29.82	0.293	CS-134	sM

s - Peak fails shape tests.
D - Peak area deconvoluted.
L - Peak written from unknown list.
C - Area < Critical level.
M - Peak is close to a library peak.

This section based on library: northamericancal.Lib

************** I D E N T I F I E D   P E A K   S U M M A R Y **************

Nuclide	Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 1 Sigma %	FWHM keV
PB-210	185.54	46.59	1512.	4650.	7.749	2.08	0.892
AM-241	237.52	59.59	1581.	5905.	9.842	2.05	0.953
CD-109	351.19	88.01	804.	763.	1.271	7.95	0.961
CO-57	487.17	122.01	601.	236.	0.394	21.32	0.911s
CS-137	2645.91	661.69	295.	9626.	16.043	1.14	1.364
CO-60	4692.82	1173.26	105.	5325.	8.875	1.46	1.714
CO-60	5330.33	1332.56	23.	4689.	7.814	1.49	1.820

    s - Peak fails shape tests.
    D - Peak area deconvoluted.
    A   Derived peak area.

***** S U M M A R Y   O F   L I B R A R Y   P E A K   U S A G E *****

- Nuclide - Name	Code	Average Activity pCi/g	Energy keV	Activity pCi/g	Code	MDA Value pCi/g	COMMENTS
PB-210		2.2887E+05					
			46.52	2.289E+05	(P	9.054E+03 2.08E+00	G
AM-241		2.1640E+04					
			59.54	2.164E+04	(	6.890E+02 2.05E+00	G
CD-109		2.1573E+05					
			88.03	2.157E+05	(	3.815E+04 7.95E+00	G
CO-57		1.3990E+04					
			122.07	1.399E+04	@(	6.921E+03 2.13E+01	G
TE-123M		0.0000E+00					
			159.00	0.000E+00	%(	0.000E+00 7.58E+02	G
CR-51		0.0000E+00					
			320.07	0.000E+00	%(P	0.000E+00 1.39E+02	G
SN-113		0.0000E+00					
			391.69	0.000E+00	%(P	0.000E+00 8.17E+02	G
SR-85		0.0000E+00					
			514.00	0.000E+00	%(	0.000E+00 3.69E+02	G
CS-137		3.6485E+04					
			661.66	3.648E+04	(P	3.137E+02 1.14E+00	G

Nuclide Ave activity   Energy   Activity Code Peak MDA Comments

CO-60   4.0717E+04
                          1173.24 4.133E+04 (3.913E+02 1.46E+00 G
                          1332.50 4.011E+04 (P 2.158E+02 1.49E+00 G K

Y-88   0.0000E+00
                          1836.08 0.000E+00 %(P 0.000E+00 3.18E+03 G
                           898.07 0.000E+00 & P 0.000E+00 9.78E+01 G
    (- This peak used in the nuclide activity average.

    * - Peak is too wide, but only one peak in library.
    ! - Peak is part of a multiplet and this area went
        negative during deconvolution.
    ? - Peak is too narrow.
    @ - Peak is too wide at FW25M, but ok at FWHM.
    % - Peak fails sensitivity test.
    $ - Peak identified, but first peak of this nuclide
        failed one or more qualification tests.
    + - Peak activity higher than counting uncertainty range.
    - - Peak activity lower than counting uncertainty range.
    = - Peak outside analysis energy range.
    & - Calculated peak centroid is not close enough to the
        library energy centroid for positive identification.
    P - Peakbackground subtraction
    } - Peak is too close to another for the activity
        to be found directly.

Nuclide Codes: Peak Codes:
T - Thermal Neutron Activation   G - Gamma Ray
F - Fast Neutron Activation   X - X-Ray
I - Fission Product   P - Positron Decay
N - Naturally Occurring Isotope   S - Single-Escape
P - Photon Reaction   D - Double-Escape
C - Charged Particle Reaction   K - Key Line
M - No MDA Calculation   A - Not in Average
R - Coincidence Corrected   C - Coincidence Peak
H - Halflife limit exceeded

- -

***** S U M M A R Y   O F   N U C L I D E S   I N   S A M P L E *****
               Time of Count Time Corrected Uncertainty 1 Sigma
    Nuclide   Activity   Activity   Counting   Total   MDA
                   pCi/g   pCi/g   pCi/g   pCi/g   pCi/g

PB-210   2.0058E+05   2.2887E+05   4.7788E+03   1.2091E+04   9.054E+03
AM-241   2.1493E+04   2.1640E+04   4.4282E+02   9.7958E+02   6.890E+02
CD-109   2.1121E+04   2.1573E+05   1.7154E+04   1.9132E+04   3.815E+04
CO-57   #   2.6797E+02   1.3990E+04   2.9828E+03   3.0202E+03   6.921E+03
TE-123M#A   6.3171E+00 >12 Halflives   4.7874E+01   4.7875E+01   1.609E+02
CR-51   #A   -4.4327E+02 >12 Halflives   6.1912E+02   6.1929E+02   2.037E+03

```
SN-113 #A     1.2114E+01 >12 Halflives   1.0119E+02    1.0120E+02  3.413E+02
SR-85  #A     2.0260E+01 >12 Halflives   7.4748E+01    7.4751E+01  2.519E+02
CS-137        3.3076E+04    3.6485E+04   4.1622E+02    8.9785E+02  3.137E+02
CO-60         2.3297E+04    4.0717E+04   4.2451E+02    9.1774E+02  3.913E+02
Y-88   #A    -1.9474E+00 >12 Halflives   8.5830E+01    8.5830E+01  1.434E+02
```

    # - All peaks for activity calculation had bad shape.
    * - Activity omitted from total
    & - Activity omitted from total and all peaks had bad shape.
    < - MDA value printed.
    A - Activity printed, but activity < MDA.
    B - Activity < MDA and failed test.
    C - Area < Critical level.
    F - Failed fraction or key line test.
    H - Halflife limit exceeded
---------------------------- S U M M A R Y ----------------------------
Total Activity (29.0 to 1999.5 keV)   2.998E+05 pCi/g
Total Decayed Activity (29.0 to 1999.5 keV) 5.5743175E+05 pCi/g

ARS05 Polynomial ✓

STD# 1748-90-1   **Cal Date** 11/25/2014

Nuclide	uCi	pCi	Meas	Criteria	Dif	%dif	
Pb210	0.2133	213300	222590	11.49%	9290	4.36%	PASS
Am241	0.02113	21130	21512	5.49%	382	1.81%	PASS
Cd109	0.2039	203900	206210	10.00%	2310	1.13%	PASS
Co57	0.007394	7394	7441.8	10.00%	47.8	0.65%	PASS
Te123m	0.01066	10660	9919.7	10.00%	740.3	6.94%	PASS
Cr51	0.2517	251700	243540	10.00%	8160	3.24%	PASS
Sn113	0.03574	35740	36409	10.00%	669	1.87%	PASS
Sr85	0.04568	45680	46133	5.49%	453	0.99%	PASS
Cs137	0.03171	31710	33908	10.00%	2198	6.93%	PASS
Co60	0.03965	39650	39140	5.49%	510	1.29%	PASS
Y88	0.07337	73370	74234	5.49%	864	1.18%	PASS

WJS 6-10-15
250 mL Tube Cub

[signature] 6-10-15

```
Calibration Data from file:    250mL Tuna Can ITSI.Clb
        Energy Calibration Date: 11/25/2014   Time: 08:56:23
      Efficiency Calibration Date: 11/25/2014   Time: 10:50:52

Calibration Description:
  250mL Tuna Can 1.5g/cc  1748-90-1 BZF 11-25-14


Energy Calibration Fit
    Energy =   0.2556 +0.249791*Channel -1.33478e-009*Channel**2
  FWHM (ch) =   2.9125 +0.001134*Channel -3.2178e-008*Channel**2

Energy/FWHM Table
  Channel Energy(keV)  Fit(keV)  Delta  FWHM(keV) Fit(keV)   Delta
----------------------------------------------------------------------
   185.16     46.52     46.51   0.03%    0.78    0.78    -0.31%
   237.33     59.54     59.54   0.00%    0.79    0.79    -1.02%
   351.46     88.03     88.05  -0.01%    0.83    0.83     0.85%
   487.76    122.07    122.09  -0.02%    0.85    0.86    -1.73%
   635.50    159.00    159.00   0.00%    0.93    0.90     2.41%
  1280.35    320.07    320.07  -0.00%    1.11    1.08     2.57%
  1567.04    391.69    391.68   0.00%    1.14    1.15    -1.22%
  2056.57    513.99    513.96   0.01%    1.26    1.28    -0.96%
  2647.79    661.66    661.64   0.00%    1.41    1.42    -0.77%
  3594.27    898.02    898.05  -0.00%    1.62    1.64    -1.41%
  4696.02   1173.24   1173.25  -0.00%    1.89    1.88     0.48%
  5333.58   1332.50   1332.50   0.00%    2.04    2.01     1.46%
  7349.45   1836.01   1836.01   0.00%    2.36    2.38    -0.50%


Efficiency Calibration Fit
Polynomial          Uncertainty = 1.5201 %
  Coefficients:
    -0.306766 -4.512900 0.474502 -0.050620 0.002132 -0.000033

Efficiency Table
    Energy   Efficiency          Fit     Delta
------------------------------------------------------
    46.52  2.7277E-002  2.7230E-002   0.17%
    59.54  3.4153E-002  3.4317E-002  -0.48%
    88.03  4.5357E-002  4.4717E-002   1.41%
   122.07  4.7290E-002  4.7970E-002  -1.44%
   320.07  2.8227E-002  2.8415E-002  -0.66%
   391.69  2.4573E-002  2.4295E-002   1.13%
   513.99  1.9414E-002  1.9766E-002  -1.81%
   661.66  1.7460E-002  1.6454E-002   5.76%
   898.02  1.2982E-002  1.3302E-002  -2.46%
  1173.24  1.0871E-002  1.1066E-002  -1.80%
  1332.50  9.9745E-003  1.0121E-002  -1.46%
  1836.01  8.1120E-003  7.9677E-003   1.78%

Calibration Certificate Table
Isotope   Energy    Pct  Halflife  Activity      GPS  Error          Date & Time
----------------------------------------------------------------------------------------
Pb-210     46.52   4.00 7.45E+003     0.21    315.68  4.10% 10/1/2014 14:00:00
Am-241     59.54  36.30 1.58E+005     0.02    283.80  3.10% 10/1/2014 14:00:00
Cd-109     88.03   3.61 4.36E+002     0.20    272.35  3.10% 10/1/2014 14:00:00
Co-57     122.07  85.60 2.72E+002     0.01    234.18  3.10% 10/1/2014 14:00:00
Te-123M   159.00  83.50 1.20E+002     0.01    329.34  3.10% 10/1/2014 14:00:00
Cr-51     320.07   9.83 2.77E+001     0.25    915.46  3.00% 10/1/2014 14:00:00
Sn-113    391.69  64.16 1.15E+002     0.04    848.44  3.00% 10/1/2014 14:00:00
Sr-85     513.99  99.28 6.47E+001     0.05   1677.99  3.00% 10/1/2014 14:00:00
Cs-137    661.66  85.21 1.10E+004     0.03    999.74  3.10% 10/1/2014 14:00:00
Y-88      898.02  95.00 1.07E+002     0.07   2578.96  3.00% 10/1/2014 14:00:00
Co-60    1173.24  99.90 1.93E+003     0.04   1465.58  3.00% 10/1/2014 14:00:00
Co-60    1332.50  99.98 1.93E+003     0.04   1466.79  3.00% 10/1/2014 14:00:00
Y-88     1836.01  99.35 1.07E+002     0.07   2697.04  3.00% 10/1/2014 14:00:00
```

American Radiation Services   Spectrum name: ARS05302.An1

Sample description
    250mL Tuna Can 1748-90-1

Spectrum Filename: C:\User\ARCHIVES\4-21-14 TO 1-2-15\ARS05302.An1

Acquisition information
        Start time: 11/25/2014 12:06:19
        Live time: 600
        Real time: 618
        Dead time: 2.84 %
        Detector ID: 37

Detector system
    (ARS05) MCB 338

Calibration
        Filename: 250mL Tuna Can ITSI.Clb
    250mL Tuna Can 1.5g/cc 1748-90-1 BZF 11-25-14

        Energy Calibration
            Created: 11/25/2014 08:56:23
            Zero offset: 0.256 keV
            Gain: 0.250 keV/channel
            Quadratic: -1.335E-09 keV/channel^2

        Efficiency Calibration
            Created: 11/25/2014 10:50:52
            Type: Polynomial
            Uncertainty: 1.520 %
            Coefficients: -0.306766 -4.512900   0.474502
                              -0.050620   0.002132 -0.000033

Library Files
        Main analysis library: northamericancal.Lib
        Library Match Width: 0.500
    '   Peak stripping: Library based

Analysis parameters
        Analysis engine: Env32   G53W4.24
        Start channel: 0 (0.26keV)
        Stop channel: 8000 (1998.49keV)
        Peak rejection level: 40.000%
        Peak search sensitivity: 3
        Sample Size: 1.0000E+00
        Activity scaling factor: 1.0000E+06/(1.0000E+00* 1.0000E+00) =
                                  1.0000E+06
        Detection limit method: Reg. Guide 4.16 Method
        Random error: 1.0000000E+00
        Systematic error: 1.0000000E+00
        Fraction Limit: 60.000%
        Background width: best method (based on spectrum).
        Half lives decay limit: 12.000

Activity range factor:	2.000		
Min. step backg. energy	0.000		
Multiplet shift channel	2.000		

Corrections	Status	Comments
Decay correct to date:	YES	10/1/2014 14:00:00
Decay during acquisition:	NO	
Decay during collection:	NO	
True coincidence correction:	NO	
Peaked background correction:	YES	pbc northamericancal.Pbc
		11/25/2014 07:43:45
Absorption (Internal):	NO	
Geometry correction:	NO	
Random summing:	NO	

total peaks alloc.   13 cutoff   20.00000   %
          Energy Calibration
                Normalized diff: 0.0192

***** S U M M A R Y   O F   P E A K S   I N   R A N G E *****

Peak Energy	Area	Uncert	FWHM	Corrctn Factor	Nuclide Energy	Brnch. Ratio	Act. pCi/g	Nuc
20.57	400.	7.97	0.75	1.354E-02				
22.16	1224.	4.32	0.75	1.438E-02				
24.89	936.	6.28	0.76	1.583E-02				
27.55	401.	12.74	0.76	1.723E-02				
31.82	248.	27.73	0.63	1.951E-02				
46.49	5368.	2.29	0.76	2.726E-02	46.52	4.000	2.226E+05	PB210
59.52	5948.	2.21	0.75	3.431E-02	59.54	36.300	2.151E+04	AM241
88.04	6773.	1.96	0.81	4.472E-02	88.03	3.610	2.062E+05	CD109
122.10	5899.	2.41	0.86	4.797E-02	122.07	85.600	7.442E+03	CO57
136.51	741.	11.36	0.97	4.725E-02				
158.99	6021.	2.14	0.92	4.500E-02	159.00	83.500	9.920E+03	TE123M
184.88	179.	39.49	0.52	4.180E-02				
255.21	486.	15.75	1.24	3.375E-02				
320.10	3810.	3.03	1.10	2.841E-02	320.07	9.830	2.429E+05	CR51
391.70	9051.	1.31	1.12	2.429E-02	391.69	64.160	3.641E+04	SN113
513.98	11162.	1.22	1.23	1.977E-02	513.99	99.280	4.613E+04	SR85
519.30	152.	25.40	0.38	1.962E-02				
661.67	10518.	1.16	1.39	1.645E-02	661.66	85.210	3.391E+04	CS137
898.09	14005.	0.96	1.63	1.330E-02	898.02	95.000	7.133E+04	Y88
1173.26	9482.	1.16	1.92	1.107E-02	1173.24	99.900	3.941E+04	CO60
1332.54	8562.	1.29	2.01	1.012E-02	1332.50	99.982	3.887E+04	CO60
1836.03	9130.	1.07	2.56	7.968E-03	1836.01	99.350	7.423E+04	Y88

************ U N I D E N T I F I E D   P E A K   S U M M A R Y ************

Peak Centroid Channel	Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV	Suspected Nuclide	
81.26	20.52	406.	304.	0.507	21.94	0.750	MO-99	D
87.61	22.10	1061.	950.	1.584	11.66	0.752	RH-106	D
98.41	24.84	1743.	945.	1.575	17.39	1.344	AG-110M	s
109.05	27.50	1160.	350.	0.583	33.53	0.655	SB-124	
126.36	31.82	1494.	248.	0.413	55.46	0.628	XE-138	s
545.46	136.51	2004.	741.	1.235	22.73	0.970	CO-57	
739.12	184.88	1606.	179.	0.298	78.98	0.521	TH-234	s

Channel	Energy	Background	Net area	Cnts/sec	Uncert	FWHM	Suspected	
1020.68	255.21	1532.	486.	0.809	31.51	1.243	SN-113	s
2077.94	519.30	424.	152.	0.254	50.80	0.383	-	s

```
s - Peak fails shape tests.
D - Peak area deconvoluted.
L - Peak written from unknown list.
C - Area < Critical level.
```

This section based on library: northamericancal.Lib

************** I D E N T I F I E D   P E A K   S U M M A R Y **************

Nuclide	Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV
PB-210	185.10	46.49	2778.	5355.	8.925	4.57	0.760s
AM-241	237.24	59.52	2972.	5948.	9.913	4.43	0.748
CD-109	351.44	88.04	2937.	6772.	11.287	3.91	0.811
CO-57	487.80	122.10	3320.	5899.	9.832	4.83	0.862
TE-123M	635.47	158.99	2640.	6021.	10.035	4.28	0.916
CR-51	1280.47	320.10	2132.	3821.	6.368	6.22	1.102
SN-113	1567.12	391.70	1287.	9051.	15.085	2.62	1.121
SR-85	2056.63	513.98	1588.	11162.	18.603	2.44	1.229
CS-137	2647.90	661.67	1061.	10518.	17.530	2.32	1.393
Y-88	3594.41	898.09	819.	14004.	23.341	1.92	1.631
CO-60	4696.06	1173.26	533.	9482.	15.803	2.33	1.918
CO-60	5333.77	1332.54	425.	8562.	14.269	2.57	2.011
Y-88	7349.55	1836.03	51.	9130.	15.216	2.14	2.560

```
s - Peak fails shape tests.
D - Peak area deconvoluted.
A   Derived peak area.
```

***** S U M M A R Y   O F   L I B R A R Y   P E A K   U S A G E *****

- Nuclide - Name Code	Average Activity pCi/g	------------- Peak -------------- Energy keV	Activity pCi/g	Code	MDA Value pCi/g	COMMENTS
PB-210	2.2259E+05					
		46.52 2.226E+05 @(P 1.032E+04 2.29E+00 G				
AM-241	2.1512E+04					
		59.54 2.151E+04 (P 9.287E+02 2.21E+00 G				
CD-109	2.0621E+05					
		88.03 2.062E+05 (P 7.772E+03 1.96E+00 G				

```
        ORTEC g v - i (3263) Env32  G53W4.24  6/9/2015 11:19:37
     American Radiation Services      Spectrum name: ARS05302.An1

     Nuclide  Ave activity   Energy    Activity  Code Peak MDA  Comments

     CO-57        7.4418E+03
                              122.07 7.442E+03  (P 3.421E+02 2.41E+00 G

     TE-123M      9.9197E+03
                              159.00 9.920E+03  (P 3.990E+02 2.14E+00 G

     CR-51        2.4354E+05
                              320.07 2.435E+05  (P 1.389E+04 3.11E+00 G

     SN-113       3.6409E+04
                              391.69 3.641E+04  (  6.835E+02 1.31E+00 G

     SR-85        4.6133E+04
                              513.99 4.613E+04  (  7.788E+02 1.22E+00 G

     CS-137       3.3908E+04
                              661.66 3.391E+04  (P 4.981E+02 1.16E+00 G

     CO-60        3.9140E+04
                             1173.24 3.941E+04  (P 4.585E+02 1.16E+00 G
                             1332.50 3.887E+04  (  4.487E+02 1.29E+00 G

     Y-88         7.4234E+04
                             1836.01 7.423E+04  (P 2.937E+02 1.07E+00 G
                              898.02 7.133E+04  - P 6.930E+02 9.58E-01 G
        ( - This peak used in the nuclide activity average.

        * - Peak is too wide, but only one peak in library.
        ! - Peak is part of a multiplet and this area went
            negative during deconvolution.
        ? - Peak is too narrow.
        @ - Peak is too wide at FW25M, but ok at FWHM.
        % - Peak fails sensitivity test.
        $ - Peak identified, but first peak of this nuclide
            failed one or more qualification tests.
        + - Peak activity higher than counting uncertainty range.
        - - Peak activity lower than counting uncertainty range.
        = - Peak outside analysis energy range.
        & - Calculated peak centroid is not close enough to the
            library energy centroid for positive identification.
        P - Peakbackground subtraction
        } - Peak is too close to another for the activity
            to be found directly.

     Nuclide Codes:                Peak Codes:
     T - Thermal Neutron Activation   G - Gamma Ray
     F - Fast Neutron Activation      X - X-Ray
```

I - Fission Product   P - Positron Decay
N - Naturally Occurring Isotope S - Single-Escape
P - Photon Reaction   D - Double-Escape
C - Charged Particle Reaction   K - Key Line
M - No MDA Calculation   A - Not in Average
R - Coincidence Corrected   C - Coincidence Peak
H - Halflife limit exceeded

- -

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

Nuclide	Time of Count Activity pCi/g	Time Corrected Activity pCi/g	Uncertainty Counting pCi/g	2 Sigma Total pCi/g	MDA pCi/g
PB-210 #	2.2145E+05	2.2259E+05	1.0197E+04	2.4221E+04	1.032E+04
AM-241	2.1506E+04	2.1512E+04	9.5257E+02	2.0080E+03	9.287E+02
CD-109	1.8897E+05	2.0621E+05	8.0651E+03	1.7904E+04	7.772E+03
CO-57	6.4712E+03	7.4418E+03	3.5935E+02	6.4654E+02	3.421E+02
TE-123M	7.2174E+03	9.9197E+03	4.2431E+02	8.7406E+02	3.990E+02
CR-51	6.1619E+04	2.4354E+05	1.5151E+04	2.2584E+04	1.389E+04
SN-113	2.6155E+04	3.6409E+04	9.5328E+02	2.8215E+03	6.835E+02
SR-85	2.5621E+04	4.6133E+04	1.1245E+03	3.0677E+03	7.788E+02
CS-137	3.3791E+04	3.3908E+04	7.8689E+02	1.5809E+03	4.981E+02
CO-60	3.8373E+04	3.9140E+04	6.7889E+02	1.6118E+03	4.585E+02
Y-88	5.1951E+04	7.4234E+04	1.5898E+03	4.6469E+03	2.937E+02

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Halflife limit exceeded
-------------------------- S U M M A R Y ----------------------------
Total Activity (24.7 to 1998.5 keV)   6.831E+05 pCi/g
Total Decayed Activity (24.7 to 1998.5 keV) 9.4103131E+05 pCi/g

ARS06 Polynomial

STD# 1748-90-1 Cal Date 6/10/2015

Nuclide	uCi	pCi	Meas	Criteria	Dif	%dif	
Pb210	0.2133	213300	211350	11.49%	1950	0.91%	PASS
Am241	0.02113	21130	20195	5.49%	935	4.42%	PASS
Cd109	0.2039	203900	196910	10.00%	6990	3.43%	PASS
Co57	0.007394	7394	7116	10.00%	278	3.76%	PASS
Te123m	0.01066	10660	10475	10.00%	185	1.74%	PASS
Cr51	0.2517	251700		10.00%	251700	100.00%	NOT MEASURED
Sn113	0.03574	35740	34470	10.00%	1270	3.55%	PASS
Sr85	0.04568	45680		5.49%	45680	100.00%	NOT MEASURED
Cs137	0.03171	31710	32434	10.00%	724	2.28%	PASS
Co60	0.03965	39650	38408	5.49%	1242	3.13%	PASS
Y88	0.07337	73370	75865	5.49%	2495	3.40%	PASS

250 mL Tuna Can

WTS 6-10-15

6-10-15

```
Calibration Data from file:    250mL Tuna Can 1748-90-1 calib poly.Clb
       Energy Calibration Date: 06/10/15  Time: 12:26:28
     Efficiency Calibration Date: 06/10/15  Time: 12:34:11

Calibration Description:
   250mL Tuna Can 1748-90-1 Polynomial WJS 6-10-15


Energy Calibration Fit
     Energy =   0.1924 +0.249984*Channel -2.86432e-008*Channel**2
  FWHM (ch) =   3.5645 +0.000971*Channel -1.57333e-008*Channel**2

Energy/FWHM Table
  Channel Energy(keV)  Fit(keV)  Delta FWHM(keV)  Fit(keV)    Delta
-----------------------------------------------------------------------
   185.55      46.52     46.58 -0.12%      0.92     0.94    -2.16%
   237.55      59.54     59.57 -0.06%      0.95     0.95    -0.06%
   351.53      88.03     88.07 -0.04%      1.00     0.98     1.96%
   487.63     122.07    122.08 -0.01%      1.00     1.01    -0.72%
   635.30     159.00    159.00  0.00%      1.07     1.04     2.11%
  1565.65     391.69    391.51  0.05%      1.27     1.26     0.91%
  2055.47     513.99    513.91  0.02%      1.33     1.37    -2.94%
  2646.92     661.66    661.68 -0.00%      1.50     1.51    -0.63%
  3593.17     898.02    898.06 -0.00%      1.73     1.71     1.24%
  4695.26    1173.24   1173.30 -0.01%      1.94     1.94     0.11%
  5333.13    1332.50   1332.57 -0.01%      2.07     2.07     0.13%
  7349.69    1836.01   1835.95  0.00%      2.45     2.46    -0.16%


Efficiency Calibration Fit
Polynomial           Uncertainty = 1.5812 %
  Coefficients:
    -0.368747 -4.257329 0.454276 -0.047622 0.001987 -0.000031


Efficiency Table
   Energy   Efficiency        Fit     Delta
----------------------------------------------------
    46.52  3.2817E-002  3.2771E-002     0.14%
    59.54  4.2932E-002  4.3099E-002    -0.39%
    88.03  5.6756E-002  5.6130E-002     1.10%
   122.07  5.8706E-002  5.9331E-002    -1.06%
   391.69  2.9253E-002  2.9580E-002    -1.12%
   513.99  2.4000E-002  2.4014E-002    -0.06%
   661.66  2.0913E-002  1.9904E-002     4.82%
  1173.24  1.2688E-002  1.3087E-002    -3.14%
  1332.50  1.1566E-002  1.1870E-002    -2.63%
  1836.01  9.3161E-003  9.0886E-003     2.44%

Calibration Certificate Table
Isotope   Energy   Pct  Halflife  Activity    GPS  Error         Date & Time
-----------------------------------------------------------------------------
Pb-210     46.52   4.00 7.45E+003    0.21   315.68  4.10% 10/01/14 14:00:00
Am-241     59.54  36.30 1.58E+005    0.02   283.80  3.10% 10/01/14 14:00:00
Cd-109     88.03   3.61 4.36E+002    0.20   272.35  3.10% 10/01/14 14:00:00
Co-57     122.07  85.60 2.72E+002    0.01   234.18  3.10% 10/01/14 14:00:00
Te-123M   159.00  83.50 1.20E+002    0.01   329.34  3.10% 10/01/14 14:00:00
Cr-51     320.07   9.83 2.77E+001    0.25   915.46  3.00% 10/01/14 14:00:00
Sn-113    391.69  64.16 1.15E+002    0.04   848.44  3.00% 10/01/14 14:00:00
Sr-85     513.99  99.28 6.47E+001    0.05  1677.99  3.00% 10/01/14 14:00:00
Cs-137    661.66  85.21 1.10E+004    0.03   999.74  3.10% 10/01/14 14:00:00
Y-88      898.02  95.00 1.07E+002    0.07  2578.96  3.00% 10/01/14 14:00:00
Co-60    1173.24  99.90 1.93E+003    0.04  1465.58  3.00% 10/01/14 14:00:00
Co-60    1332.50  99.98 1.93E+003    0.04  1466.79  3.00% 10/01/14 14:00:00
Y-88     1836.01  99.35 1.07E+002    0.07  2697.04  3.00% 10/01/14 14:00:00
```

Sample description
      Batch ID: 250 mL Tuna Can Polynomial CalVer
      SDG: 1748-90-1 Tech: WJS

Spectrum Filename: C:\User\ARS06665.An1

Acquisition information
            Start time: 10-Jun-2015 12:36:35
            Live time: 600
            Real time: 618
            Dead time: 2.94 %
            Detector ID: 1

Detector system
      (ARS06) MCB 130

Calibration
            Filename: 250mL Tuna Can 1748-90-1 calib poly.Clb
      250mL Tuna Can 1748-90-1 Polynomial WJS 6-10-15

      Energy Calibration
            Created: 10-Jun-2015 12:26:28
            Zero offset: 0.192 keV
            Gain: 0.250 keV/channel
            Quadratic: -2.864E-08 keV/channel^2

      Efficiency Calibration
            Created: 10-Jun-2015 12:34:11
            Type: Polynomial
            Uncertainty: 1.581 %
            Coefficients: -0.368747 -4.257329   0.454276
                                     -0.047622   0.001987 -0.000031

Library Files
            Main analysis library: northamericancal.Lib
            Library Match Width: 0.500
            Peak stripping: Library based

Analysis parameters
            Analysis engine: Env32   G53W4.22
            Start channel: 10 (2.69keV)
            Stop channel: 8000 (1998.23keV)
            Peak rejection level: 40.000%
            Peak search sensitivity: 3
            Sample Size: 1.0000E+00
            Activity scaling factor: 1.0000E+06/(1.0000E+00* 1.0000E+00) =
                                      1.0000E+06
            Detection limit method: Reg. Guide 4.16 Method
            Random error: 1.0000000E+00
            Systematic error: 1.0000000E+00
            Fraction Limit: 60.000%
            Background width: best method (based on spectrum).
            Half lives decay limit: 12.000

Activity range factor: 2.000
Min. step backg. energy   0.000
Multiplet shift channel   2.000

Corrections	Status	Comments
Decay correct to date:	YES	01-Oct-2014 14:00:00
Decay during acquisition:	NO	
Decay during collection:	NO	
True coincidence correction:	NO	
Peaked background correction:	YES	pbc DOE.Pbc
		11-Aug-2014 08:00:33
Absorption (Internal):	NO	
Geometry correction:	NO	
Random summing:	NO	

total peaks alloc.   12   cutoff   20.00000   %
            Energy Calibration
                Normalized diff: 0.0427

***** S U M M A R Y   O F   P E A K S   I N   R A N G E *****

Peak Energy	Area	Uncert	FWHM	Corrctn Factor	Nuclide Energy	Brnch. Ratio	Act. pCi/g	Nuc
13.32	219.	15.97	0.96	7.026E-03				
22.23	665.	7.23	0.91	1.392E-02				
25.03	666.	7.60	0.92	1.610E-02				
32.12	427.	15.77	1.22	2.163E-02				
36.53	268.	25.92	1.17	2.505E-02				
46.58	6015.	2.03	0.92	3.284E-02	46.52	4.000	2.113E+05	PB210
59.59	7010.	2.16	0.95	4.313E-02	59.54	36.300	2.020E+04	AM241
88.05	5934.	2.14	0.98	5.613E-02	88.03	3.610	1.969E+05	CD109
122.05	4226.	2.44	1.04	5.933E-02	122.07	85.600	7.116E+03	CO57
136.55	610.	11.08	1.08	5.819E-02				
159.00	2491.	3.57	1.01	5.519E-02	159.00	83.500	1.048E+04	TE123M
254.62	184.	31.51	0.81	4.123E-02				
391.43	3185.	3.11	1.34	2.960E-02	391.69	64.160	3.447E+04	SN113
514.01	1478.	5.26	1.46	2.401E-02	513.99	99.280	4.146E+04	SR85
527.26	133.	30.35	0.75	2.356E-02				
583.20	66.	35.65	1.07	2.185E-02				
622.46	111.	37.66	0.53	2.082E-02				
661.68	12020.	1.14	1.50	1.990E-02	661.66	85.210	3.243E+04	CS137
898.08	4708.	2.28	1.69	1.594E-02	898.02	95.000	7.200E+04	Y88
1173.26	10239.	1.14	1.94	1.309E-02	1173.24	99.900	3.863E+04	CO60
1332.59	9189.	1.13	2.03	1.187E-02	1332.50	99.982	3.819E+04	CO60
1835.93	2927.	2.00	2.53	9.089E-03	1836.01	99.350	7.507E+04	Y88

************ U N I D E N T I F I E D   P E A K   S U M M A R Y ************

Peak Centroid Channel	Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV	Suspected Nuclide	
52.52	13.32	356.	219.	0.366	31.94	0.957	SE-75	
88.01	22.19	842.	641.	1.068	17.56	0.888	RH-106	
99.24	25.00	947.	752.	1.254	16.28	1.048	RH-106	s
127.71	32.12	1120.	427.	0.712	31.54	1.220	J-131	s
145.36	36.53	1308.	268.	0.447	51.85	1.165	XE-138	s
545.50	136.55	1132.	610.	1.018	22.16	1.083	CO-57	
1017.90	254.62	902.	184.	0.306	63.01	0.814	TH-227	s
2108.93	527.26	315.	133.	0.222	60.70	0.748	-	s
2332.79	583.20	195.	66.	0.110	71.29	1.070	TL-208	s

Channel	Energy Background	Net area	Cnts/sec	Uncert	FWHM Suspected
2489.95	622.46 325.	111.	0.184	75.33	0.528 RH-106 s

s - Peak fails shape tests.
D - Peak area deconvoluted.
L - Peak written from unknown list.
C - Area < Critical level.

This section based on library: northamericancal.Lib

************** I D E N T I F I E D   P E A K   S U M M A R Y **************

Nuclide	Peak Channel	Centroid Energy	Background Counts	Net Area Counts	Intensity Cts/Sec	Uncert 2 Sigma %	FWHM keV
PB-210	185.57	46.58	2857.	6008.	10.013	4.06	0.925
AM-241	237.61	59.59	2784.	7006.	11.677	4.33	0.946
CD-109	351.47	88.05	2438.	ª 5934.	9.891	4.28	0.979
CO-57	487.47	122.05	1661.	4226.	7.043	4.87	1.040
TE-123M	635.31	159.00	1300.	2491.	4.152	7.14	1.007
SN-113	1565.34	391.43	1240.	3185.	5.308	6.22	1.339
SR-85	2055.87	514.01	912.	1478.	2.463	10.51	1.463
CS-137	2646.93	661.68	1027.	12020.	20.034	2.29	1.498
Y-88	3593.24	898.08	887.	4708.	7.846	4.56	1.692
CO-60	4695.10	1173.26	392.	10239.	17.065	2.29	1.939
CO-60	5333.18	1332.59	205.	9189.	15.315	2.26	2.034
Y-88	7349.53	1835.91	54.	2958.	4.930	4.00	2.537

s - Peak fails shape tests.
D - Peak area deconvoluted.
A - Derived peak area.

***** S U M M A R Y   O F   L I B R A R Y   P E A K   U S A G E *****

- Nuclide - Name Code	Average Activity pCi/g	Energy keV	Peak Activity pCi/g	Code	MDA Value pCi/g	COMMENTS
PB-210	2.1135E+05					
		46.52	2.113E+05	(P	8.858E+03	2.03E+00 G
AM-241	2.0195E+04					
		59.54	2.020E+04	(P	7.165E+02	2.16E+00 G
CD-109	1.9691E+05					
		88.03	1.969E+05	(	7.724E+03	2.14E+00 G
CO-57	7.1160E+03					
		122.07	7.116E+03	(P	3.244E+02	2.44E+00 G

Nuclide Ave activity Energy   Activity Code Peak MDA Comments

TE-123M   1.0475E+04
                          159.00 1.048E+04 (7.177E+02 3.57E+00 G

CR-51   1.6155E+05
                          320.07 1.615E+05 %(P 1.234E+06 2.28E+02 G

SN-113   3.4470E+04
                          391.69 3.447E+04 (1.806E+03 3.11E+00 G

SR-85   4.1463E+04
                          513.99 4.146E+04 (4.024E+03 5.26E+00 G

CS-137   3.2434E+04
                          661.66 3.243E+04 (4.102E+02 1.14E+00 G

CO-60   3.8408E+04
                         1173.24 3.863E+04 (P 3.583E+02 1.14E+00 G
                         1332.50 3.819E+04 (P 2.886E+02 1.13E+00 G

Y-88   7.5865E+04
                         1836.01 7.586E+04 (P 9.480E+02 2.00E+00 G
                          898.02 7.200E+04 - P 2.164E+03 2.28E+00 G
     (- This peak used in the nuclide activity average.

     * - Peak is too wide, but only one peak in library.
     ! - Peak is part of a multiplet and this area went
         negative during deconvolution.
     ? - Peak is too narrow.
     @ - Peak is too wide at FW25M, but ok at FWHM.
     % - Peak fails sensitivity test.
     $ - Peak identified, but first peak of this nuclide
         failed one or more qualification tests.
     + - Peak activity higher than counting uncertainty range.
     - - Peak activity lower than counting uncertainty range.
     = - Peak outside analysis energy range.
     & - Calculated peak centroid is not close enough to the
         library energy centroid for positive identification.
     P - Peakbackground subtraction
     } - Peak is too close to another for the activity
         to be found directly.

Nuclide Codes: Peak Codes:
T - Thermal Neutron Activation G - Gamma Ray
F - Fast Neutron Activation   X - X-Ray
I - Fission Product   P - Positron Decay
N - Naturally Occurring Isotope S - Single-Escape
P - Photon Reaction   D - Double-Escape

```
C - Charged Particle Reaction      K - Key Line
M - No MDA Calculation             A - Not in Average
R - Coincidence Corrected          C - Coincidence Peak
H - Halflife limit exceeded
```

- -

```
***** S U M M A R Y   O F   N U C L I D E S   I N   S A M P L E  *****
          Time of Count  Time Corrected  Uncertainty  2 Sigma
Nuclide      Activity       Activity       Counting     Total        MDA
              pCi/g          pCi/g          pCi/g        pCi/g        pCi/g
```

Nuclide	Time of Count Activity pCi/g	Time Corrected Activity pCi/g	Uncertainty Counting pCi/g	2 Sigma Total pCi/g	MDA pCi/g
PB-210	2.0645E+05	2.1135E+05	8.5945E+03	2.2564E+04	8.858E+03
AM-241	2.0173E+04	2.0195E+04	8.7421E+02	1.8778E+03	7.165E+02
CD-109	1.3192E+05	1.9691E+05	8.4182E+03	1.7703E+04	7.724E+03
CO-57	3.7481E+03	7.1160E+03	3.4662E+02	6.3628E+02	3.244E+02
TE-123M	2.4353E+03	1.0475E+04	7.4772E+02	1.1946E+03	7.177E+02
CR-51 #A	2.9533E+02	1.6155E+05	7.4048E+05	7.4059E+05	1.234E+06
SN-113	7.5589E+03	3.4470E+04	2.1428E+03	3.4517E+03	1.806E+03
SR-85	2.7925E+03	4.1463E+04	4.3598E+03	5.1155E+03	4.024E+03
CS-137	3.1925E+04	3.2434E+04	7.4124E+02	1.6159E+03	4.102E+02
CO-60	3.5078E+04	3.8408E+04	6.1754E+02	1.7161E+03	3.583E+02
Y-88	1.4756E+04	7.5865E+04	3.0338E+03	5.4257E+03	9.480E+02

```
# - All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Halflife limit exceeded
--------------------------- S U M M A R Y  ---------------------------
Total Activity (    2.7 to  1998.2 keV)     4.568E+05  pCi/g
Total Decayed Activity (    2.7 to  1998.2 keV) 6.6868012E+05  pCi/g
```

Gamma Spectroscopy Log Book
Detector Serial Number 38TN31063A

Date	Time	ARS Batch ID	ARS Batch Fraction	Weight (g) or Volume (L)	Spectrum File Number	Geometry	Tech. Initials
1-14-17	1430	17-00131	03	NM	03617	1L of	5
1-17-17	0715	CL	M	114892	03697	RW DS	5
J	0942	17-00046	03	NM	03699	2mg	5
J	1446	17-00182	03	NM	03700	1L U	5
1-16-17	0691	CL	M	114892	03701	RW of J	5
J	1014	17-00183	01	1	03702	2mg	5
J	1131	J	04	414.41	03703	J	5
J	1143	J	01	316.61	03704	J	5
1-17-17	0733	CL	04	114892	03705	RW of J	5
J	1114	17-00181	01	372.38	03706	2mg	5
J	1326	17-00164	04	318.02	03707	J	5
J	1353	J	04	410.23	03708	J	5
J	1424	J	15	444.21	03709	J	5
J	1451	Lug Blg	04	1302	03710 5mm	Empty	5
1-30-17	0621	CL	5	114892	03711	RW of J	5
J	0933	17-00116	01	1	03712	2mg	5
J	1157	17-00164	23	441.95	03713	J	5
J	1721	17-00162	04	307.62	03714	J	5
J	0901	17-00116	1L	345.67	03715	J	5
J	1943	17-00169	04	38233	0711	J	5
J	1107	17-00171	01	1	03717	J	5
J	1113	J	04	144.13	03718	J	5
J	1352	17-00013	01	330.43	03719	J	5
J	1446	17-00019	04	381.33	03720	J	5
1-31-17	0703	CL	M	114892	03721	RW DS	5

03

Reviewed By: _____ Date: 2-24-17
Initials

118 of 1081

Gamma Spectroscopy Log Book
Detector Serial Number 50-TN22856A

Date	Time	ARS Batch ID	ARS Batch Fraction	Weight (g) or Volume (L)	Spectrum File Number	Geometry	Tech. Initials
1-30-17	1418	17-00119	18	271.89	05175	2MA	4
1	0851	5	20	389.83	05778	5	4
1	0928	17-00116	05	432.87	05777	5	2
1	0913	17 +12012	09	152.13	05778	5	2
1	0918	17-00169	09	1	05779	5	4
1	1942	1	09	218.71	05780	5	5
1	1356	17-00133	14	216.17	05781	5	2
1	1439	17-00169	14	272.71	05782	5	2
1-31-17	1510	16	19	1218.12	05783	1217	4
1	1118	17-00181	12	1	05784	2MA	2
1	1142	17-00182	09	1	05785	12	4
1	1216	5	14	346.7	05786	5	2
1	1147	5	09	312.1	05787	5	2
1	1523	5	14	149.1	05788	5	2
1	1517	5	19	418.3	05786	5	2
2-1-17	0516	16	19	1218.12	05789	1217	4
1	0529	17-00186	03	NON	05797	2MA	4
1	1118	17-00187	09	1	05792	12	4
1	0613	5	14	348.84	05793	7	4
1	0206	5	19	342.31	05794	5	4
1	0940	5	13	344.12	05795	5	4
1	0898	17-00183	09	344.5	05796	5	2
1	0923	5	12	473.6	05797	5	4
1	1151	17-00186	09	78.01	05798	2MA	2
1	1438	17-00182	11	6.07	05799	1217	2

QS

Reviewed By: _____ Date: 2-24-17
Initials

Gamma Spectroscopy Log Book
Detector Serial Number 35TN30943A

Date	Time	ARS Batch ID	ARS Batch Fraction	Weight (g) or Volume (L)	Spectrum File Number	Geometry	Tech. Initials
1-15-17	1051	17-0147	C9	34.63	06011	9v~P	y
(	1357	17-0150	C1	1	02011	124	y
(	1441	)	C4	1.0L	6012	)	y
1-16-17	0832	4L	/A	69117	68013	2n5	2
(	1142	17-0153	11	18.74	0604	9L~P	y
1-17-17	0707	4L	1A	69157	0015	2n5	y
)	1112	17-0158	05	1132	06011	)	y
)	1146	17-0159	02	1	06017	)	y
)	1321	)	05	31255	0603	)	7
(	1313	)	64	41297	614	)	7
)	1424	)	14	395.31	06022	)	1
)	1456	Long B4	6A	NM	02021	B4	y
1-31-17	0663	4L	)	69117	06022	2n5	y
(	1611	17-0014	03	NM	06023	)	y
(	0613	17-0169	22	416.34	06024	(	2
)	0727	17-0166	17	412.25	0625	(	2
)	0800	17-0172	11	65.44	06026	9v~P	y
)	0929	17-0164	02	1	08027	2n5	y
)	1447	)	02	11903	06021	)	7
)	1112	17-0171	02	1	06029	)	y
)	1129	)	07	141.71	06030	)	1
)	1325	17-0173	03	NM	06031	)	y
)	1421	17-0166	13	3024	06032	)	7
(	1455	17-0164	11	1893	06033	)	y
1-31-17	0709	4L	1A	69117	06034	)	y

Reviewed By: _____ Date: 2-24-17
Initials

INTERNATIONAL

Radiological Analysis

EPA 905.0/SRW-01

SDG# ARS1-17-00216
COC SOLID SAMPLES

Analytical Batch Report

	Analysis Batch ID	**ARS1-B17-00157**			
	Method	ARS-032	Analysis	GPC-A-012	Matrix SO
	Description	Strontium-90 (Soil, Sludge, Biota, Sediment)			

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Prep Code	Client ID	Group Name	Lab Deadline
ARS1-B17-00157-01	LCS	B-23127									
ARS1-B17-00157-02	LCSD	B-23128									
ARS1-B17-00157-03	MBL										
ARS1-B17-00157-04	TRG				ARS1-17-00216	001	1		BB-16L	STD	02/11/17
ARS1-B17-00157-05	TRG				ARS1-17-00216	002	1		BB-18	STD	02/11/17
ARS1-B17-00157-06	TRG				ARS1-17-00216	004	1		BB-19M	STD	02/11/17
ARS1-B17-00157-07	TRG				ARS1-17-00216	008	1		BB-17 Mud/Sludge	STD	02/11/17

Total Strontium (Sr-90) EPA 905.0

Procedures ARS-060 ARS-032

ARS File ID Number ARS1-17-00216

ARS Batch Number ARS1-B17-00157

Carrier ID	R16-00592
Carrier Concentration (mg Sr/mL)	5
Carrier volume (mL)	1
Carrier added (mg)	5
grav. Factor (mg Sr / mg Sr(NO3)2	0.4141
Carrier expected mass (mg)	12.07

systematic error 7.43%
CF 2

Instrument Used: C

ID	Aliquot	Aliquot Units	Desired reporting units	Start of Y-90 ingrowth	Planchet tare (g)	Planchet + ppt (g)	net mass of Sr(NO3)2 (mg)	chemical yield	Chemical Yield for calculations	Beta Gross (counts)	Count duration (min)	Beta Bkg counts	Beta bkg count duration (min)	Count Finish Date and Time	Det. ID	Total Sr (Sr/Y-90) Beta Efficiency	Activity	Counting Uncert. (2s)	CSU (2s)	MDA	Lc	Units
B17-00157-01	1	g	pCi	1/31/2017 12:06	7.5235	7.5366	13.1	108%	100%	5050	240	1060	900	2/1/2017 16:38	C1	0.3666	19.527	0.586	2.961	0.266	0.127	pCi/g
B17-00157-02	1	g	pCi	1/31/2017 12:06	7.5143	7.5261	11.8	98%	98%	5103	240	749	900	2/1/2017 16:39	C2	0.3399	22.166	0.649	3.357	0.249	0.118	pCi/g
B17-00157-03	1	g	pCi	1/31/2017 12:09	7.5542	7.5654	11.2	93%	93%	199	240	703	900	2/1/2017 16:39	C3	0.3653	0.051	0.140	0.140	0.237	0.112	pCi/g
B17-00157-04	2.5078	g	pCi	1/31/2017 12:12	7.6138	7.6256	11.8	98%	98%	230	240	771	900	2/1/2017 16:39	C4	0.3446	0.043	0.060	0.060	0.099	0.047	pCi/g
B17-00157-05	2.5164	g	pCi	1/31/2017 12:00	7.4947	7.5067	12.0	99%	99%	214	240	714	900	2/1/2017 16:39	D1	0.3682	0.038	0.053	0.053	0.088	0.042	pCi/g
B17-00157-06	2.5041	g	pCi	1/31/2017 12:32	7.5677	7.5795	11.8	98%	98%	203	240	678	900	2/1/2017 16:39	D2	0.3474	0.039	0.056	0.056	0.093	0.044	pCi/g
B17-00157-07	2.5081	g	pCi	1/31/2017 11:58	7.5629	7.5751	12.2	101%	100%	168	240	672	900	2/1/2017 16:39	D3	0.3699	-0.018	0.048	0.048	0.085	0.040	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM			#N/A	#N/A	#N/A	#N/A	#N/A	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/g
B15-#####-##	#	g	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/g

Handwritten: Calculations SOR 2-2-17 / Data Entry SOR 2-2-17

ARS-032

Procedure Data

ABatch Sample ID	Client ID	Parent	ICOC ID	Aliquot Vol/Wt	Aliquot Units	Strontium Carrier (5mg/ml)	Y Ingrowth Date 1	Disk Wt (g)	Disk Wt 2 (g)	Y Ingrowth Date 2	User ID
ARS1-B17-00157-01				1.0000	g	R16-00592	1/31/2017 12:06:00 PM	7.5235	7.5366		SCAUSEY
ARS1-B17-00157-02				1.0000	g	R16-00592	1/31/2017 12:06:00 PM	7.5143	7.5261		SCAUSEY
ARS1-B17-00157-03				1.0000	g	R16-00592	1/31/2017 12:09:00 PM	7.5542	7.5654		SCAUSEY
ARS1-B17-00157-04	BB-16L		256122	2.5078	g	R16-00592	1/31/2017 12:12:00 PM	7.6138	7.6256		SCAUSEY
ARS1-B17-00157-05	BB-18		256123	2.5164	g	R16-00592	1/31/2017 12:00:00 PM	7.4947	7.5067		SCAUSEY
ARS1-B17-00157-06	BB-19M		256245	2.5041	g	R16-00592	1/31/2017 12:32:00 PM	7.5677	7.5795		SCAUSEY
ARS1-B17-00157-07	BB-17 Mud/Sludge		256124	2.5081	g	R16-00592	1/31/2017 11:58:00 AM	7.5629	7.5751		SCAUSEY

Sr Yield Calculation Sheet B17-00157

SJC

	Empty	Filled	Yield(mg)	% Recovery
1	7.5235	7.5366	13.1000	109
2	7.5143	7.5261	11.8000	98
3	7.5542	7.5654	11.2000	93
4	7.6138	7.6256	11.8000	98
5	7.4947	7.5067	12.0000	99
6	7.5677	7.5795	11.8000	98
7	7.5629	7.5751	12.2000	101
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

Carrier Pipette Verification

Chemist: SJC

Date/Time: 1/30/2017

Batch: B17-00157

Balance ID	Balance Calibration Date	Pipette ID	Nominal Weight (gms)	Measurement 1 (gms)	Measurement 2 (gms)	Measurement 3 (gms)	MEAN	Acceptance Limits ±2% Mean	STDEV	RSD%	Acceptance Limits <1% RSD
12332539	1/8/17	HH93596	1.00	0.997	1.002	0.999	1.00	Pass	0.002	0.225	Pass

American Radiation Services
Baton Rouge Laboratory

LB4100-C

ARS International

Batch Sample ID: ARS1-B17-00157

\\Ars-f52mv91\LB4100\LB4100\GRAYDATA\GENER704.XLD

										Samples Transferred 7		Samples Eligible To Save 7
LIMS Batch Sample ID	Detector ID	LB4110 Sample ID	Alpha Counts	Beta Counts	Count Mins	LB4110 Voltage	LB4110 Count Date	Analysis Batch	LIMS SDG	LIMS Run	LIMS Fraction	LIMS Analysis
ARS1-B17-00157-01	C1	17-00157-01	15.00	5050.00	240.00	1410.00	02/01/17 16:38	ARS1-B17-00157				
ARS1-B17-00157-02	C2	17-00157-02	21.00	5103.00	240.00	1410.00	02/01/17 16:39	ARS1-B17-00157				
ARS1-B17-00157-03	C3	17-00157-03	17.00	199.00	240.00	1410.00	02/01/17 16:39	ARS1-B17-00157				
ARS1-B17-00157-04	C4	17-00157-04	15.00	230.00	240.00	1410.00	02/01/17 16:39	ARS1-B17-00157	ARS1-17-00216	1	001	GPC-A-012
ARS1-B17-00157-05	D1	17-00157-05	6.00	214.00	240.00	1410.00	02/01/17 16:39	ARS1-B17-00157	ARS1-17-00216	1	002	GPC-A-012
ARS1-B17-00157-06	D2	17-00157-06	12.00	203.00	240.00	1410.00	02/01/17 16:39	ARS1-B17-00157	ARS1-17-00216	1	004	GPC-A-012
ARS1-B17-00157-07	D3	17-00157-07	6.00	168.00	240.00	1410.00	02/01/17 16:39	ARS1-B17-00157	ARS1-17-00216	1	008	GPC-A-012

ARS International
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B17-00157

Blind ID	ABatch Sample ID	Blind Group	Std ID	Isotope	Exp Addition (g)	Expected Value (pCi/g)	Empty Wt (g)	Gross Wt (g)	Net Wt (g)	Expected Value CT (pCi/g)	Mid Point Count Date	Known Value (pCi)	User ID	Mod Date
B-23127	ARS1-B17-00157-01	B-Sr90	S-0313	Sr-90	1	19.41333	17.2565	18.2525	0.9960	19.39654	02/01/2017	19.31895	JBYRD	01/19/2017
B-23128	ARS1-B17-00157-02	B-Sr90	S-0313	Sr-90	1	19.41333	17.167	18.1623	0.9953	19.39654	02/01/2017	19.30537	JBYRD	01/19/2017

GEN 704
C 11160
Sr
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	17-00157-01	15	5050	240	1410	2/1/17 16:38
C2	17-00157-02	21	5103	240	1410	2/1/17 16:39
C3	17-00157-03	17	199	240	1410	2/1/17 16:39
C4	17-00157-04	15	230	240	1410	2/1/17 16:39
D1	17-00157-05	6	214	240	1410	2/1/17 16:39
D2	17-00157-06	12	203	240	1410	2/1/17 16:39
D3	17-00157-07	6	168	240	1410	2/1/17 16:39

Page 1

GEN 693
C 11160
LONG BKG
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	A1-01	58	774	900	1410	1/28/17 5:12
A2	A2-01	48	877	900	1410	1/28/17 5:12
A3	A3-01	50	784	900	1410	1/28/17 5:12
A4	A4-01	37	751	900	1410	1/28/17 5:12
C1	C1-01	56	1060	900	1410	1/28/17 5:12
C2	C2-01	39	749	900	1410	1/28/17 5:12
C3	C3-01	42	703	900	1410	1/28/17 5:12
C4	C4-01	47	771	900	1410	1/28/17 5:12
D1	D1-01	25	714	900	1410	1/28/17 5:12
D2	D2-01	26	678	900	1410	1/28/17 5:12
D3	D3-01	16	672	900	1410	1/28/17 5:12
D4	D4-01	20	707	900	1410	1/28/17 5:12
B1	B1-01	29	620	900	1410	1/28/17 5:13
B2	B2-01	28	644	900	1410	1/28/17 5:13
B3	B3-01	21	3756	900	1410	1/28/17 5:13
B4	B4-01	25	847	900	1410	1/28/17 5:13

Page 1

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/01/17
Average	0.2848	CPM/DPM	0.2828
Standard Deviation	0.0019		
+ 3-sigma value	0.2905	Date	
- 3-sigma value	0.2791	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR C1
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.28	1
0.28	1
0.28	5
0.28	6
0.29	12
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/01/17
Average	0.2875	CPM/DPM	0.2884
Standard Deviation	0.0019		
+ 3-sigma value	0.2933	Date	
- 3-sigma value	0.2816	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR C2
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.28	1
0.28	2
0.29	3
0.29	12
0.29	6
More	6

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**	
Average	0.2707	
Standard Deviation	0.0024	
+ 3-sigma value	0.2777	
- 3-sigma value	0.2636	

	Date	02/01/17
	CPM/DPM	0.2714
	Date	
	CPM	
	Count Mins	

Trending Analysis

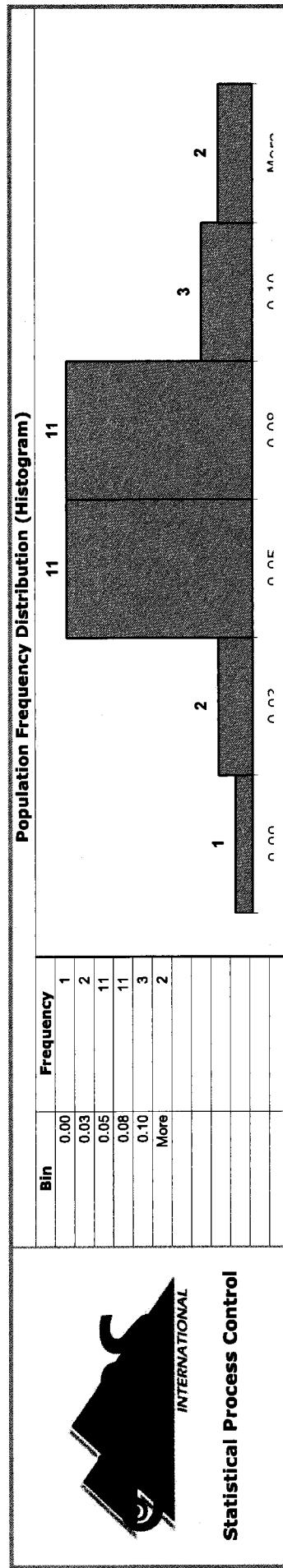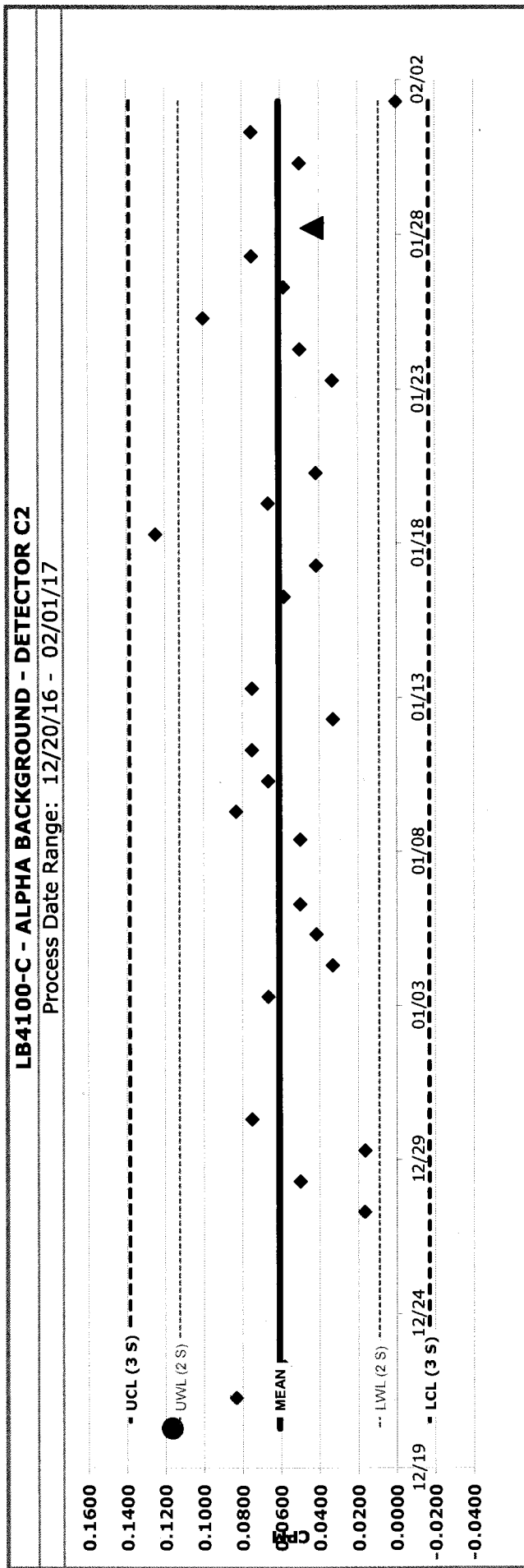|	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR C3
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.27	1
0.27	3
0.27	8
0.27	10
0.27	6
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**
Average	0.2822
Standard Deviation	0.0023
+ 3-sigma value	0.2891
- 3-sigma value	0.2753

	Date	02/01/17
	CPM/DPM	0.2849
	Date	
	CPM	
	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

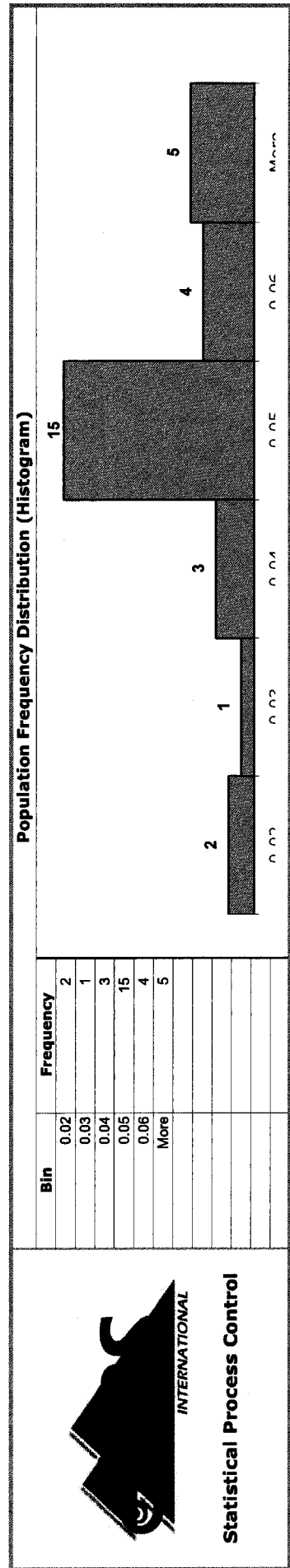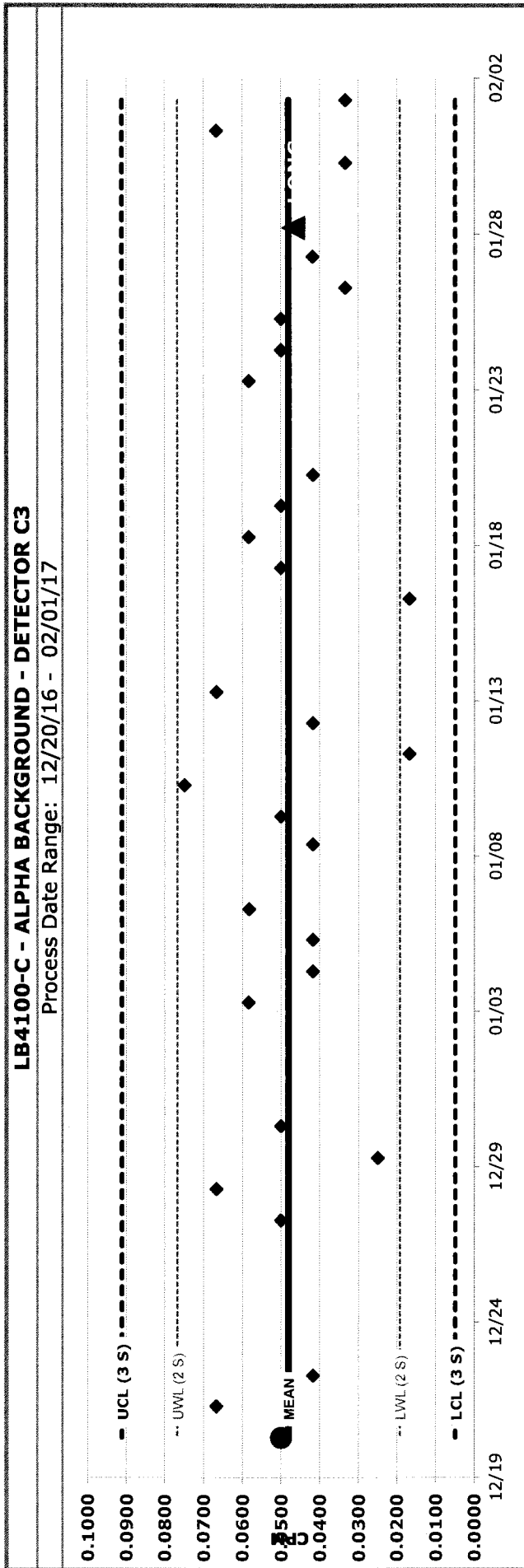## LB4100-C - ALPHA EFFICIENCY - DETECTOR C4

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.28	1
0.28	1
0.28	4
0.28	11
0.28	6
More	7

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**
Average	0.3209
Standard Deviation	0.0028
+ 3-sigma value	0.3294
- 3-sigma value	0.3124

	Date	02/01/17
	CPM/DPM	0.3243
	Date	
	CPM	
	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR D1
Process Date Range: 12/19/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.32	1
0.32	3
0.32	14
0.32	3
0.32	4
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**	
		Date	02/01/17
Average	0.3228	CPM/DPM	0.3269
Standard Deviation	0.0023		
+ 3-sigma value	0.3299	Date	
- 3-sigma value	0.3158	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR D2
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.32	1
0.32	0
0.32	7
0.32	8
0.32	10
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**	
Average	0.3240	Date	02/01/17
Standard Deviation	0.0021	CPM/DPM	0.3258
+ 3-sigma value	0.3304	Date	
- 3-sigma value	0.3176	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR D3
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.32	1
0.32	3
0.32	7
0.32	5
0.33	11
More	3

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Statistics	
Population Size	30
Average	0.0553
Standard Deviation	0.0258
+ 3-sigma value	0.1328
- 3-sigma value	-0.0223

DER Analysis

DER Analysis		
DER	1.5510	OK
Long B Date	01/28/17	
Long B CPM	0.0622	
Count Mins	900.00	
Date	02/01/17	
CPM	0.0333	
Count Mins	120.00	

Trending Analysis

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR C1
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.03	3
0.05	10
0.07	7
0.09	7
0.11	1
More	2

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**29**
Average	0.0609
Standard Deviation	0.0259
+ 3-sigma value	0.1386
- 3-sigma value	-0.0167

DER Analysis — INVESTIGATE

DER	6.2450
Long B Date	01/28/17
Long B CPM	0.0433
Count Mins	900.00
Date	02/01/17
CPM	0.0000
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

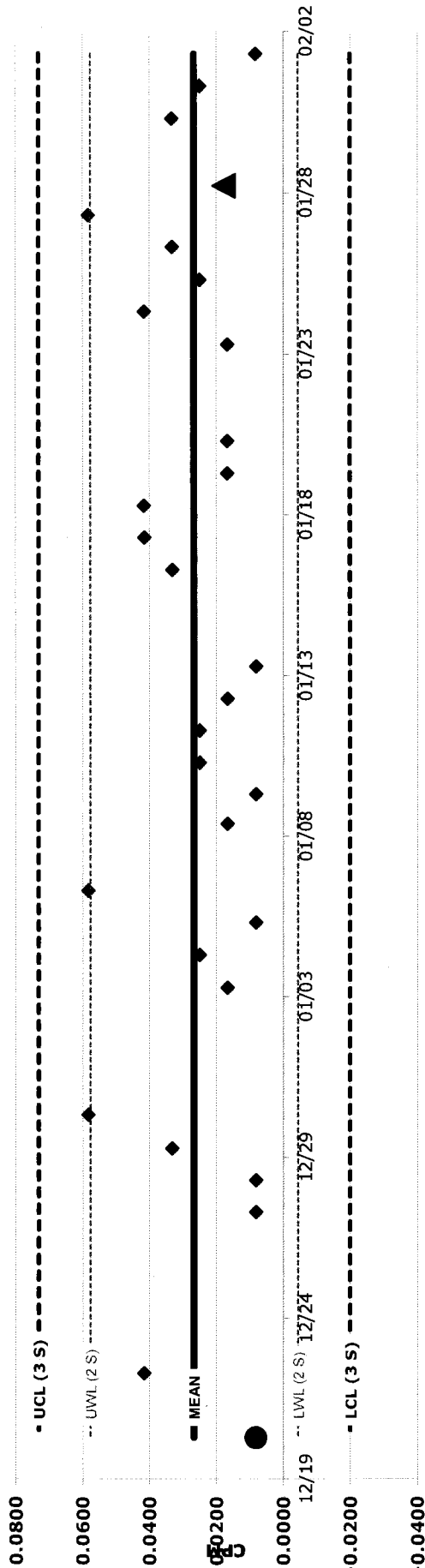## LB4100-C - ALPHA BACKGROUND - DETECTOR C2
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.00	1
0.03	2
0.05	11
0.08	11
0.10	3
More	2

INTERNATIONAL

Statistical Process Control

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LB4100-C - Alpha Daily BKG Check

Population Statistics	
Population Size	**29**
Average	0.0480
Standard Deviation	0.0144
+ 3-sigma value	0.0911
- 3-sigma value	0.0049

DER Analysis	OK
DER	0.7344
Long B Date	01/28/17
Long B CPM	0.0467
Count Mins	900.00
Date	02/01/17
CPM	0.0333
Count Mins	120.00

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR C3
Process Date Range: 12/20/16 - 02/01/17
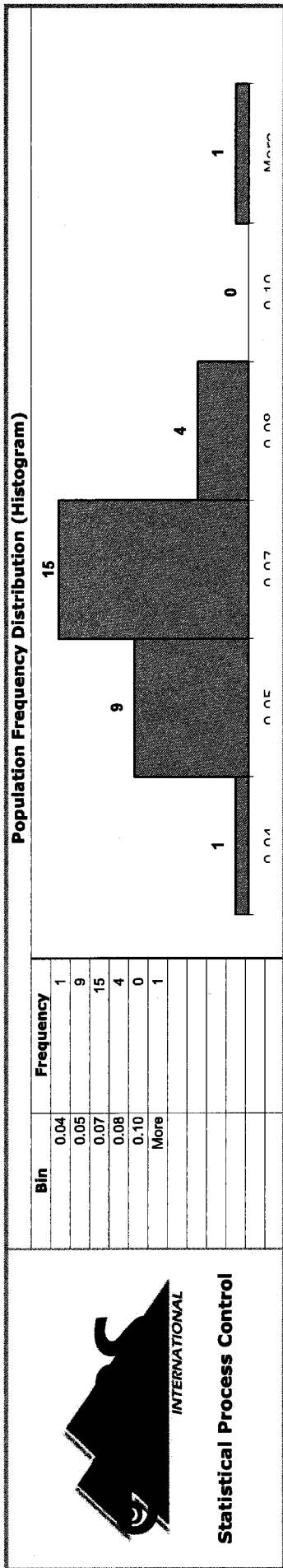

Population Frequency Distribution (Histogram)

Bin	Frequency
0.02	2
0.03	1
0.04	3
0.05	15
0.06	4
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.0457
Standard Deviation	0.0210
+ 3-sigma value	0.1086
- 3-sigma value	-0.0172

DER Analysis

DER	0.5243
Long B Date	01/28/17
Long B CPM	0.0522
Count Mins	900.00
Date	02/01/17
CPM	0.0417
Count Mins	120.00

OK

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR C4
Process Date Range: 12/20/16 - 02/01/17
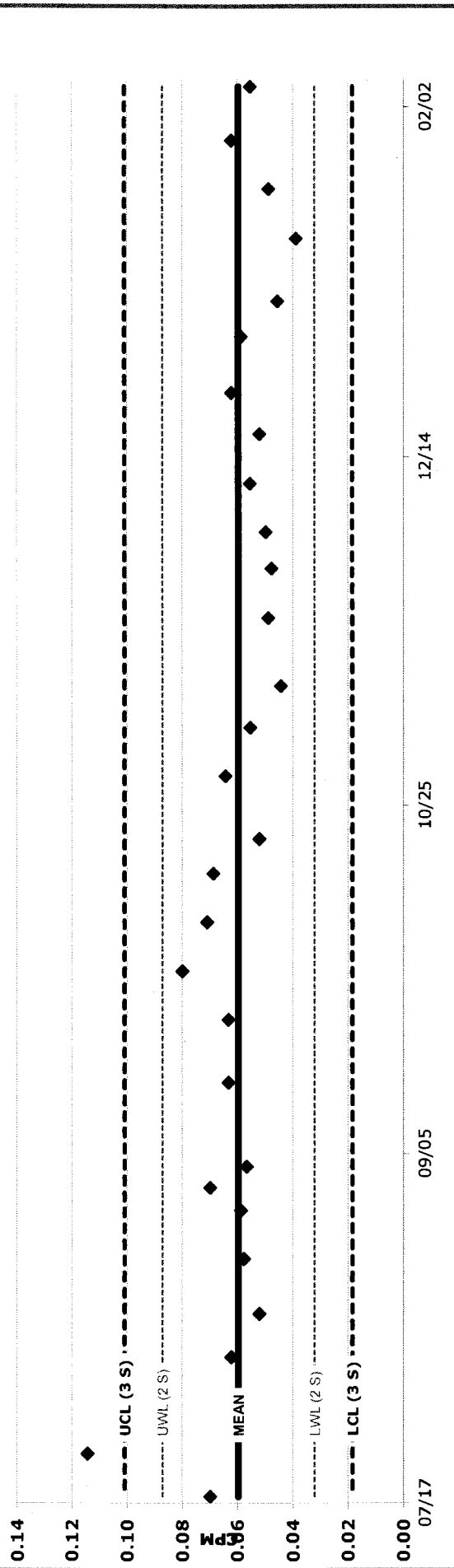

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.03	5
0.05	10
0.06	10
0.08	1
More	3

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics	
Population Size	29
Average	0.0391
Standard Deviation	0.0173
+ 3-sigma value	0.0909
- 3-sigma value	-0.0127

DER Analysis	OK
DER	0.1796
Long B Date	01/28/17
Long B CPM	0.0278
Count Mins	900.00
Date	02/01/17
CPM	0.0250
Count Mins	120.00

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR D1
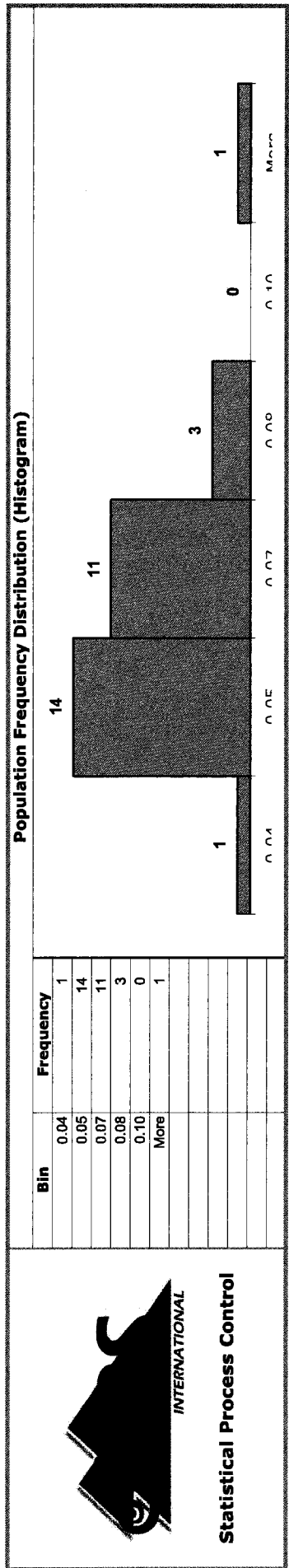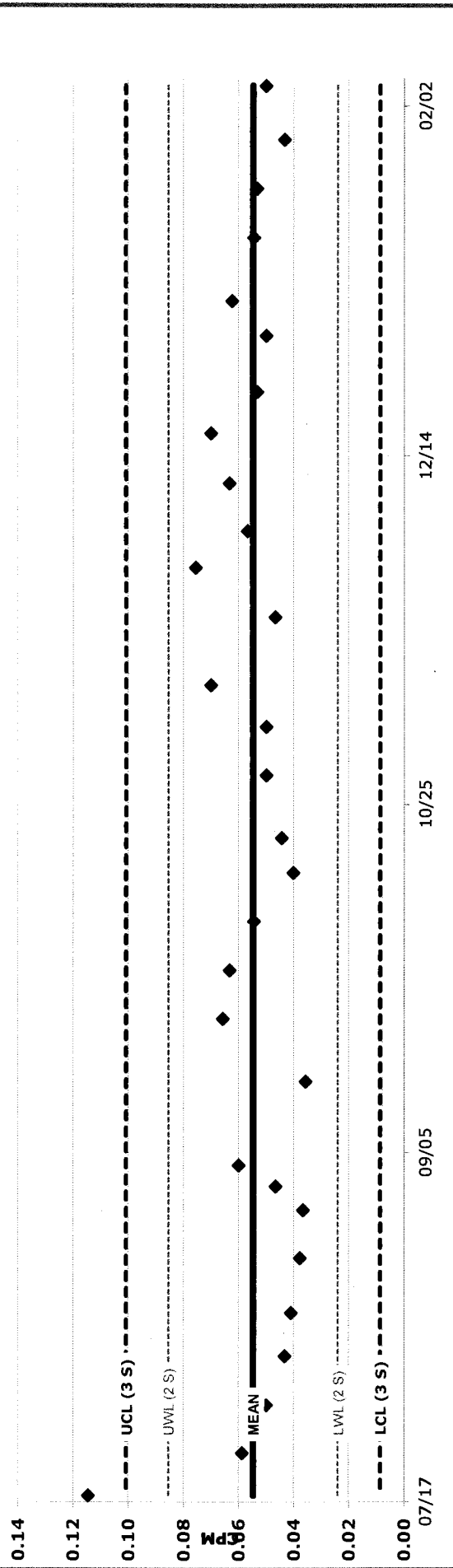### Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.02	4
0.04	10
0.05	9
0.07	5
More	1

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**29**
Average	0.0284
Standard Deviation	0.0170
+ 3-sigma value	0.0796
- 3-sigma value	-0.0227

DER Analysis

	INVESTIGATE
DER	5.0990
Long B Date	01/28/17
Long B CPM	0.0289
Count Mins	900.00
Date	02/01/17
CPM	0.0000
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

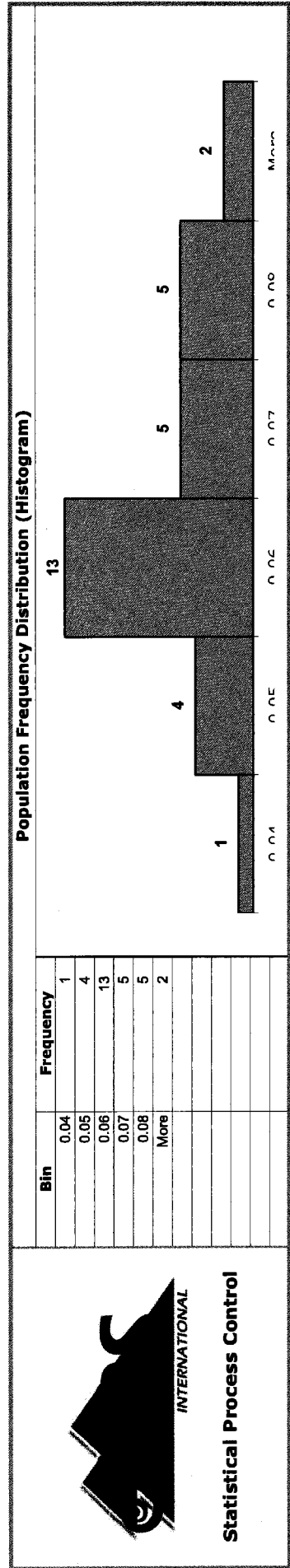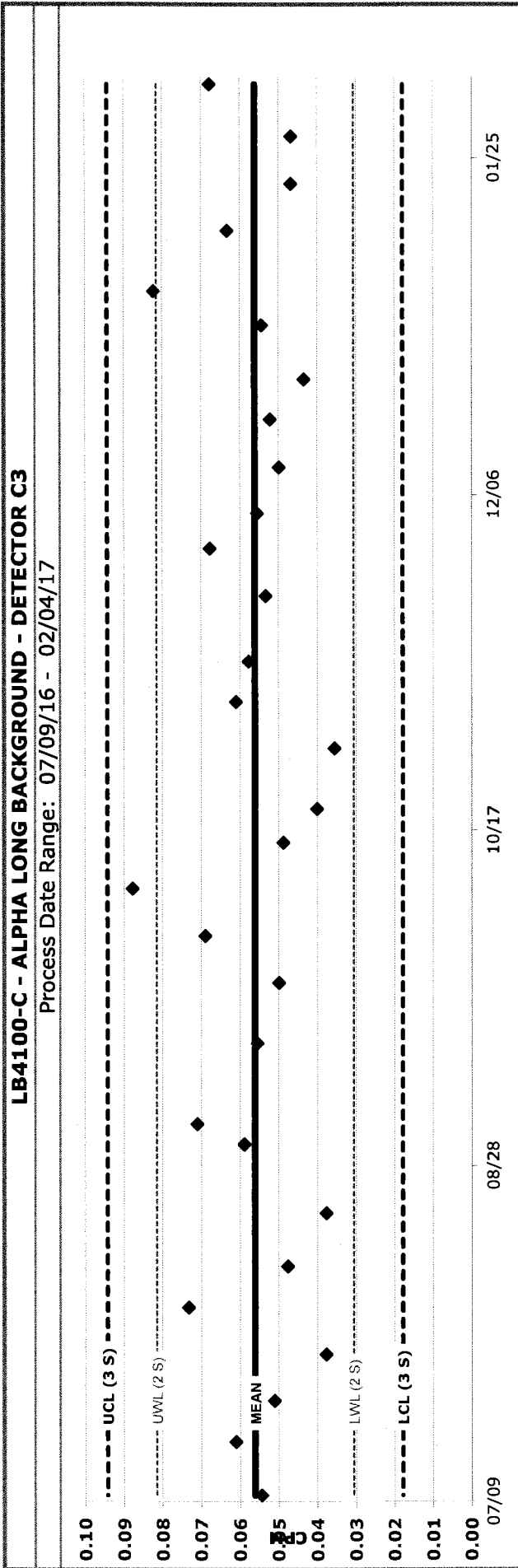**LB4100-C - ALPHA BACKGROUND - DETECTOR D2**

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.00	2
0.02	9
0.03	13
0.05	3
0.07	2
More	1

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.0267
Standard Deviation	0.0155
+ 3-sigma value	0.0732
− 3-sigma value	−0.0197

DER Analysis

DER	1.0000	OK
Long B Date	01/28/17	
Long B CPM	0.0178	
Count Mins	900.00	
Date	02/01/17	
CPM	0.0083	
Count Mins	120.00	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR D3
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	7
0.02	6
0.03	6
0.04	4
0.05	4
More	3

Statistical Process Control

INTERNATIONAL

Population Statistics

Population Size	**30**
Average	0.0597
Standard Deviation	0.0137
+ 3-sigma value	0.1010
- 3-sigma value	0.0185
	30.0000

Trending Analysis

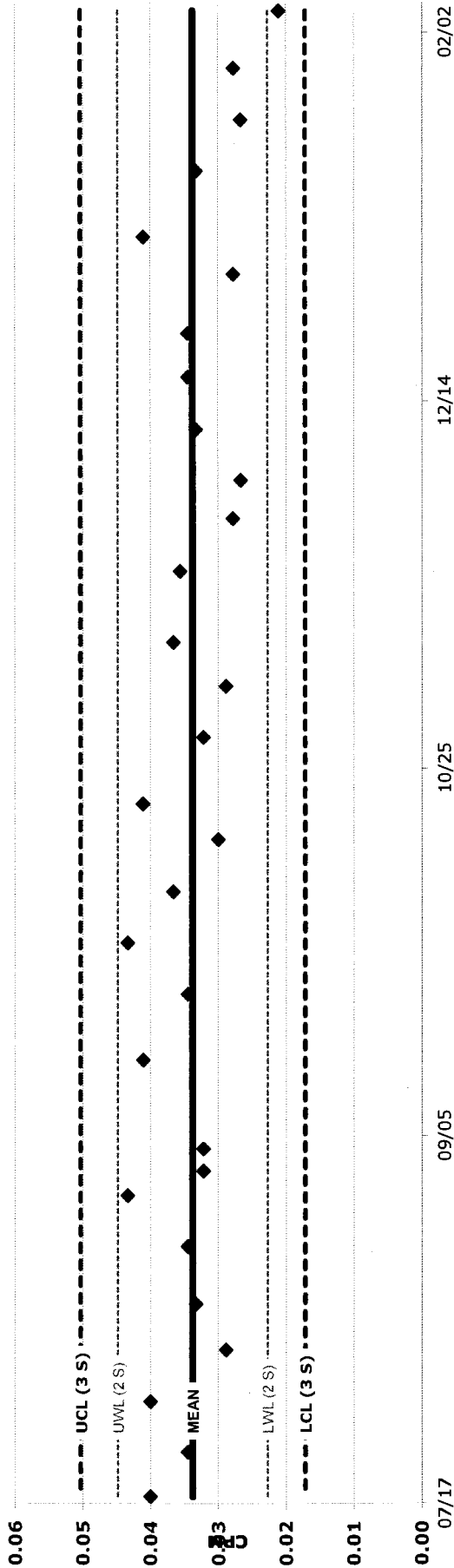|	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR C1
Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.04	1
0.05	9
0.07	15
0.08	4
0.10	0
More	1

INTERNATIONAL

Statistical Process Control

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Population Statistics

Population Size	**30**
Average	0.0547
Standard Deviation	0.0153
+ 3-sigma value	0.1007
- 3-sigma value	0.0087
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR C2
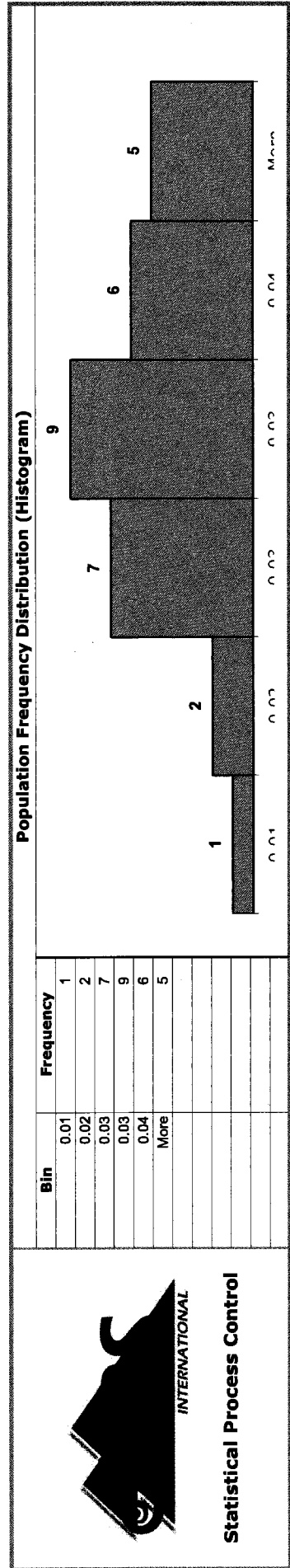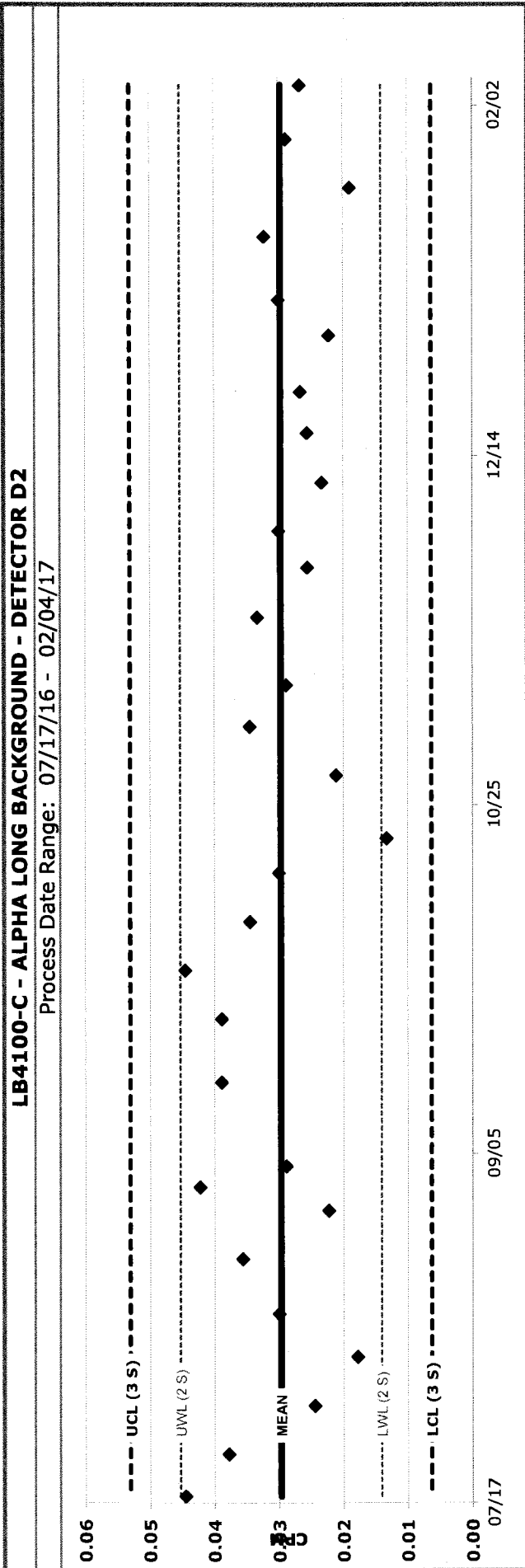
Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.04	1
0.05	14
0.07	11
0.08	3
0.10	0
More	1

Statistical Process Control

INTERNATIONAL

Population Statistics

Population Size	**30**
Average	0.0561
Standard Deviation	0.0127
+ 3-sigma value	0.0943
- 3-sigma value	0.0179
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR C3

Process Date Range: 07/09/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.04	1
0.05	4
0.06	13
0.07	5
0.08	5
More	2

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.0521
Standard Deviation	0.0108
+ 3-sigma value	0.0844
- 3-sigma value	0.0197
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – ALPHA LONG BACKGROUND – DETECTOR C4

Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.03	1
0.04	3
0.05	9
0.06	9
0.07	3
More	5

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.0338
Standard Deviation	0.0055
+ 3-sigma value	0.0503
- 3-sigma value	0.0172
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR D1
Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.02	1
0.03	0
0.03	8
0.03	11
0.04	3
More	7

INTERNATIONAL

Statistical Process Control

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Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.0297
Standard Deviation	0.0078
+ 3-sigma value	0.0531
- 3-sigma value	0.0063
	30.0000

Trending Analysis

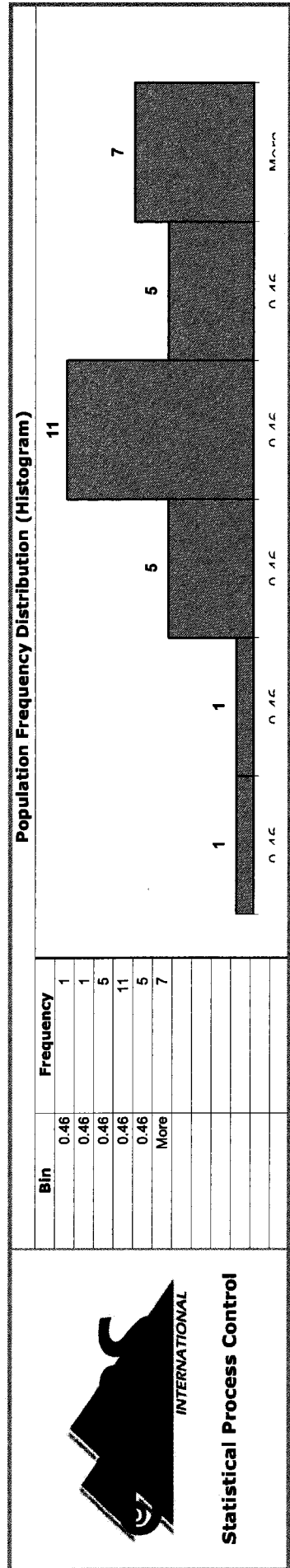|	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR D2
Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.02	2
0.03	7
0.03	9
0.04	6
More	5

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0225
Standard Deviation	0.0063
+ 3-sigma value	0.0414
- 3-sigma value	0.0036
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

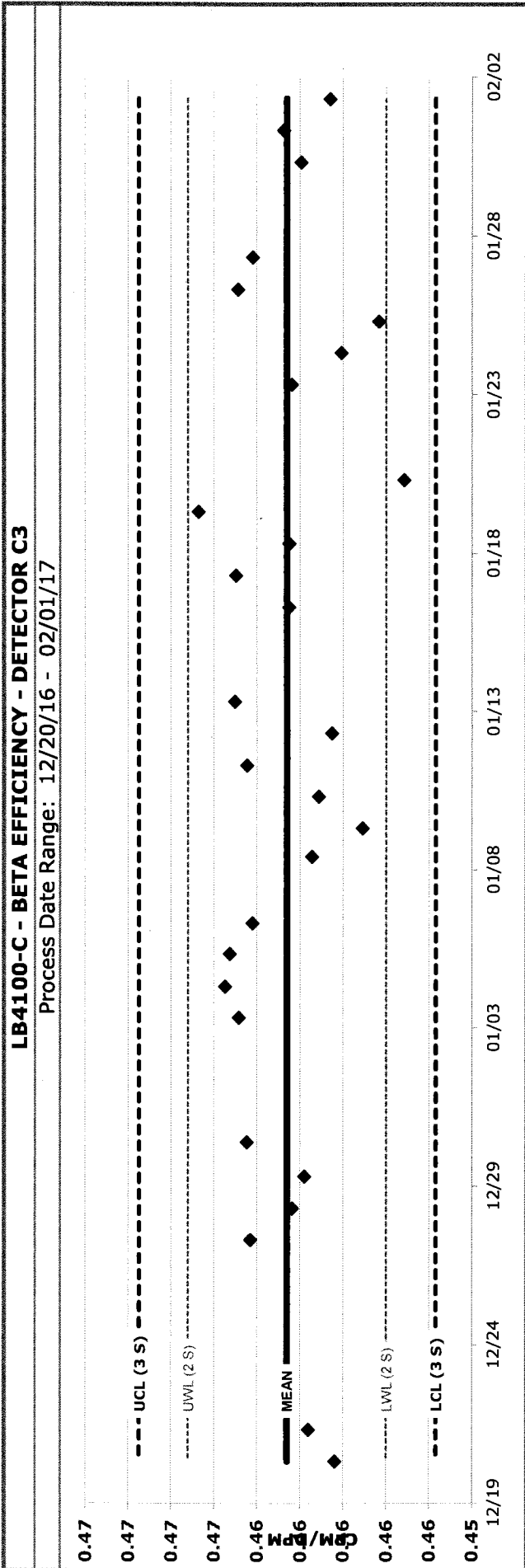## LB4100-C - ALPHA LONG BACKGROUND - DETECTOR D3

Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.02	3
0.02	8
0.03	8
0.03	5
More	5

INTERNATIONAL

Statistical Process Control

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LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/01/17
Average	0.4628	CPM/DPM	0.4623
Standard Deviation	0.0016		
+ 3-sigma value	0.4675	Date	
- 3-sigma value	0.4581	CPM	
		Count Mins	

Trending Analysis

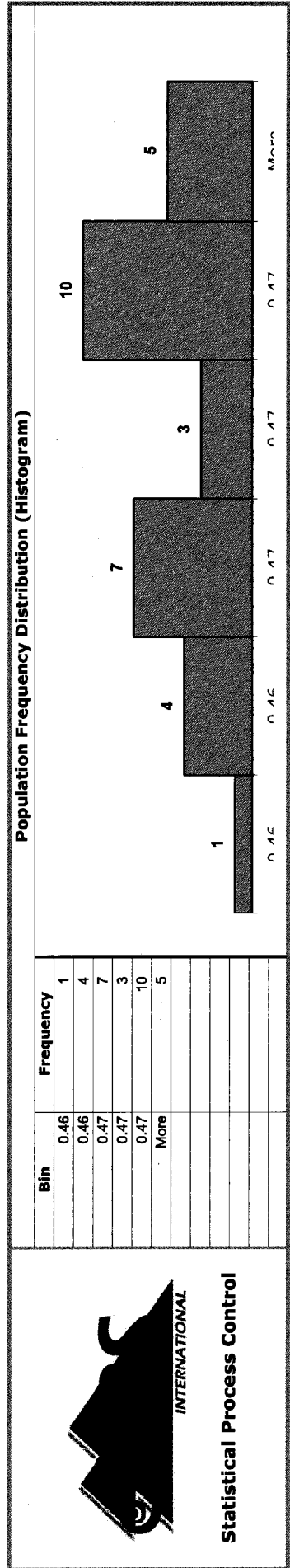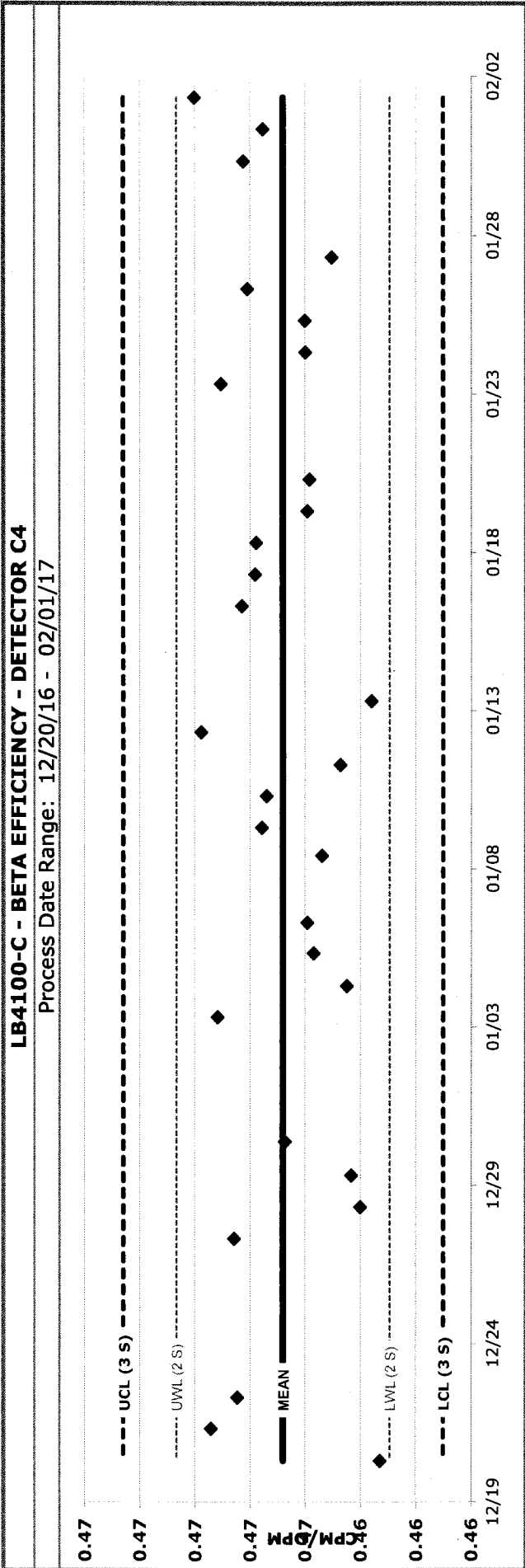|	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR C1

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	0
0.46	7
0.46	13
0.47	5
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/01/17
Average	0.4560	CPM/DPM	0.4545
Standard Deviation	0.0025		
+ 3-sigma value	0.4636	Date	
- 3-sigma value	0.4484	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR C2

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.45	1
0.45	2
0.45	9
0.46	7
0.46	6
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/01/17
Average	0.4626	CPM/DPM	0.4606
Standard Deviation	0.0023		
+ 3-sigma value	0.4695	Date	
- 3-sigma value	0.4557	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR C3
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	1
0.46	5
0.46	11
0.46	5
More	7

Statistical Process Control

INTERNATIONAL

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/01/17
Average	0.4668	CPM/DPM	0.4700
Standard Deviation	0.0019		
+ 3-sigma value	0.4726	Date	
- 3-sigma value	0.4610	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR C4

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	4
0.47	7
0.47	3
0.47	10
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/01/17
Average	0.4633	CPM/DPM	0.4684
Standard Deviation	0.0032		
+ 3-sigma value	0.4728	Date	
- 3-sigma value	0.4539	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR D1

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	3
0.46	3
0.46	10
0.47	7
More	6

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**

	Date	02/01/17
Average	CPM/DPM	0.4549
	0.4556	
Standard Deviation	0.0025	
+ 3-sigma value	0.4632	Date
- 3-sigma value	0.4480	CPM
		Count Mins

Trending Analysis

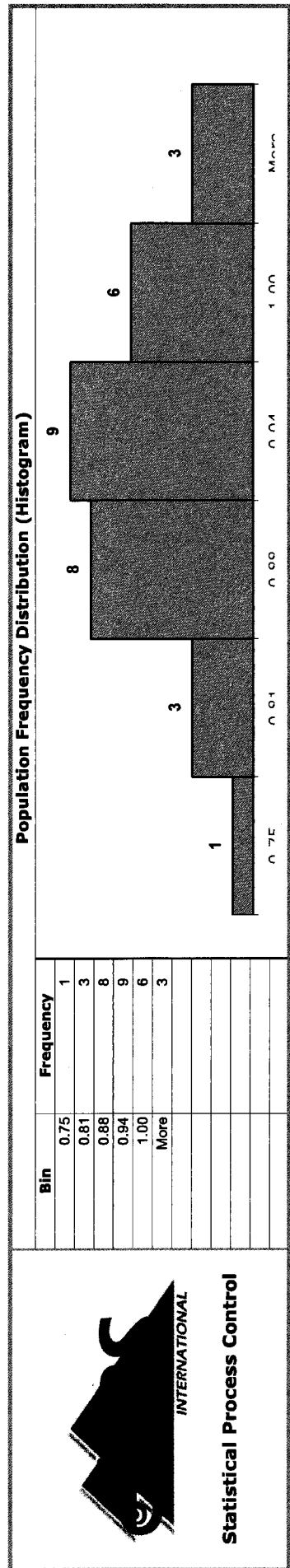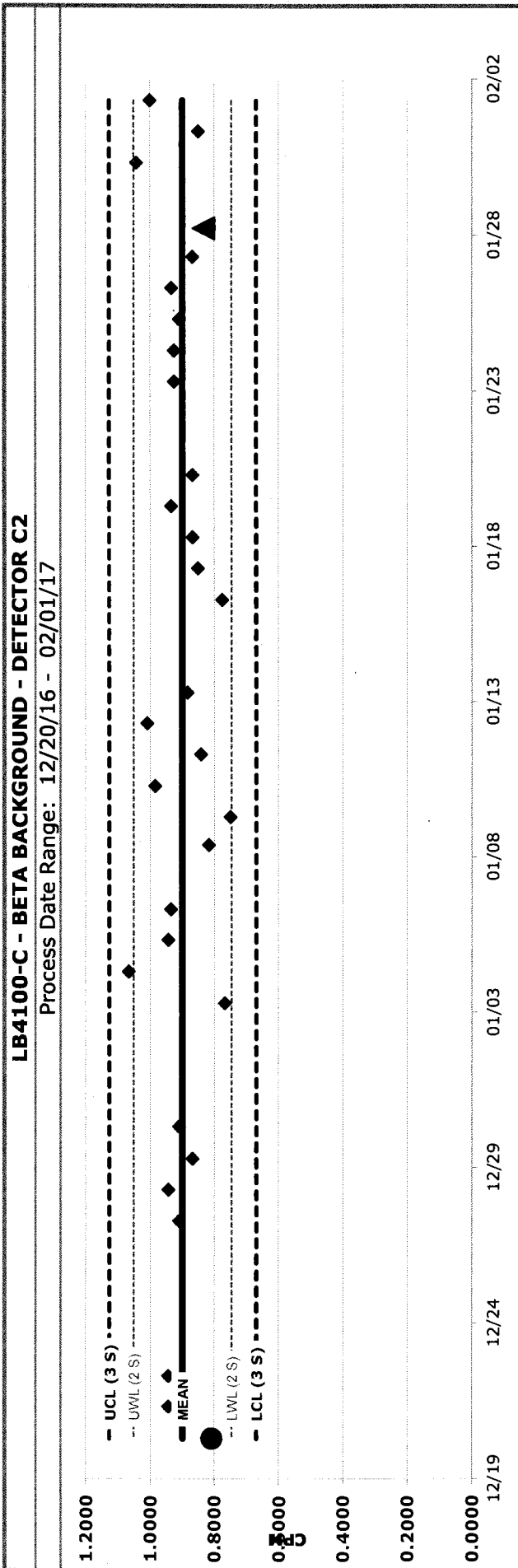|	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR D2
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.45	1
0.45	0
0.46	16
0.46	6
0.46	6
More	1

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/01/17
Average	0.4597	CPM/DPM	0.4548
Standard Deviation	0.0032		
+ 3-sigma value	0.4695	Date	
- 3-sigma value	0.4500	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR D3

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.45	1
0.45	2
0.46	2
0.46	15
0.46	6
More	4

Statistical Process Control

INTERNATIONAL

Population Statistics	
Population Size	**29**
Average	1.1957
Standard Deviation	0.1086
+ 3-sigma value	1.5213
- 3-sigma value	0.8700

DER Analysis	OK
DER	1.1814
Long B Date	01/28/17
Long B CPM	1.1778
Count Mins	900.00
Date	02/01/17
CPM	1.3083
Count Mins	120.00

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – BETA BACKGROUND - DETECTOR C1
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.94	1
1.04	2
1.14	5
1.24	11
1.34	9
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics	
Population Size	**29**
Average	0.8983
Standard Deviation	0.0762
+ 3-sigma value	1.1269
- 3-sigma value	0.6697

DER Analysis	OK
DER	1.7437
Long B Date	01/28/17
Long B CPM	0.8322
Count Mins	900.00
Date	02/01/17
CPM	1.0000
Count Mins	120.00

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR C2

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.75	1
0.81	3
0.88	8
0.94	9
1.00	6
More	3

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.8428
Standard Deviation	0.0747
+ 3-sigma value	1.0669
− 3-sigma value	0.6187

DER Analysis		OK
	DER	0.6750
Long B Date		01/28/17
Long B CPM		0.7811
Count Mins		900.00
	Date	02/01/17
	CPM	0.7250
Count Mins		120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR C3
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.73	3
0.78	5
0.83	5
0.88	9
0.93	4
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.8767
Standard Deviation	0.0737
+ 3-sigma value	1.0979
- 3-sigma value	0.6556

DER Analysis

DER Analysis	OK
DER	0.2019
Long B Date	01/28/17
Long B CPM	0.8567
Count Mins	900.00
Date	02/01/17
CPM	0.8750
Count Mins	120.00

Trending Analysis

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR C4
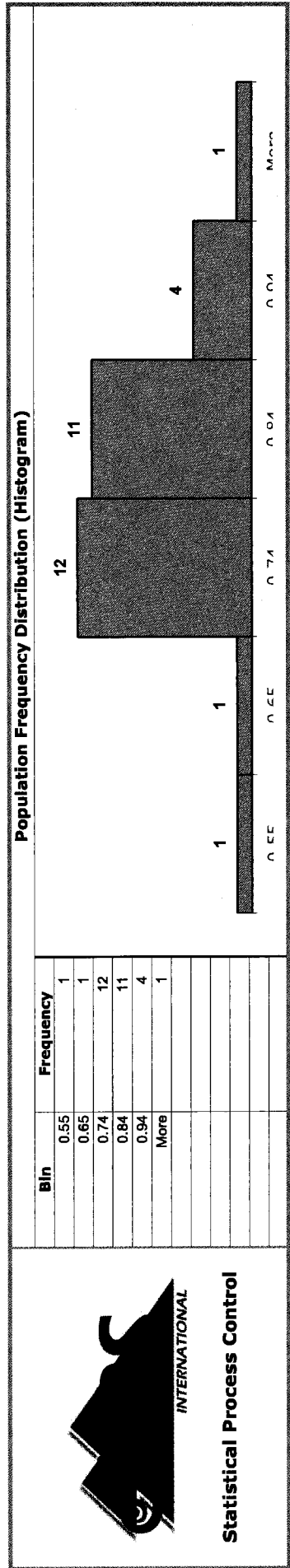
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.75	1
0.81	6
0.87	11
0.93	4
0.99	6
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics	
Population Size	**29**
Average	0.7761
Standard Deviation	0.0662
+ 3-sigma value	0.9748
- 3-sigma value	0.5775

DER Analysis	OK
DER	0.1719
Long B Date	01/28/17
Long B CPM	0.7933
Count Mins	900.00
Date	02/01/17
CPM	0.8083
Count Mins	120.00

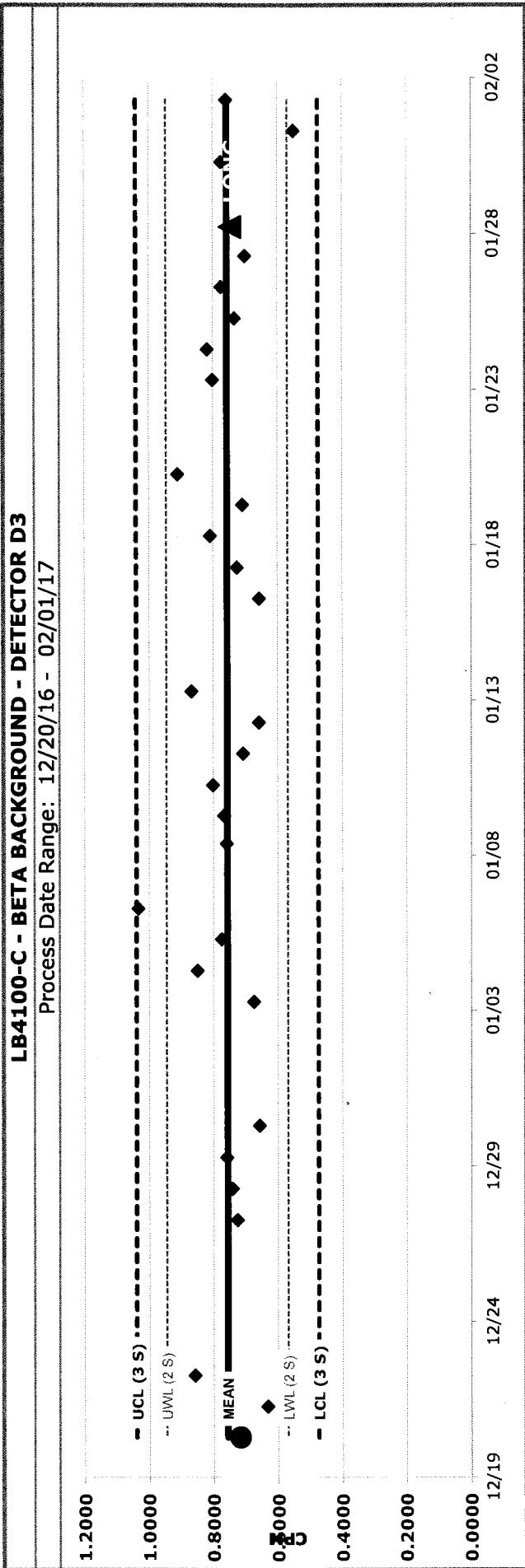| Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR D1
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.66	1
0.71	4
0.77	7
0.82	12
0.88	4
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.7543
Standard Deviation	0.0616
+ 3-sigma value	0.9391
- 3-sigma value	0.5696

DER Analysis

DER Analysis	OK
DER	0.9069
Long B Date	01/28/17
Long B CPM	0.7533
Count Mins	900.00
Date	02/01/17
CPM	0.8333
Count Mins	120.00

Trending Analysis

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR D2
Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.66	1
0.71	7
0.77	11
0.82	6
0.87	4
More	1

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.7566
Standard Deviation	0.0941
+ 3-sigma value	1.0388
- 3-sigma value	0.4744

DER Analysis	OK
DER	0.1380
Long B Date	01/28/17
Long B CPM	0.7467
Count Mins	900.00
Date	02/01/17
CPM	0.7583
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR D3

Process Date Range: 12/20/16 - 02/01/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.55	1
0.65	1
0.74	12
0.84	11
0.94	4
More	1

Statistical Process Control

INTERNATIONAL

Population Statistics

Population Size	**30**
Average	1.1667
Standard Deviation	0.0774
+ 3-sigma value	1.3988
- 3-sigma value	0.9346
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR C1
Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.79	1
0.89	0
0.98	0
1.07	0
1.17	8
More	21

INTERNATIONAL

Statistical Process Control

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Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.9035
Standard Deviation	0.0906
+ 3-sigma value	1.1753
- 3-sigma value	0.6317
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

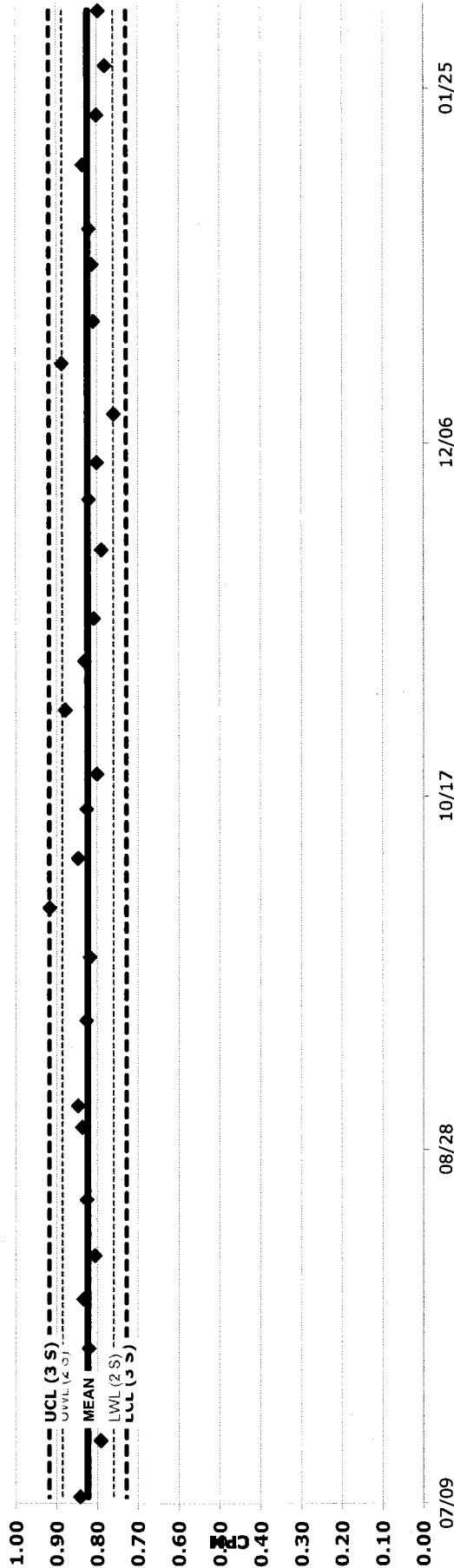## LB4100-C - BETA LONG BACKGROUND - DETECTOR C2
Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.82	1
0.93	23
1.03	5
1.14	0
1.24	0
More	1

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.8233
Standard Deviation	0.0316
+ 3-sigma value	0.9180
- 3-sigma value	0.7286
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR C3
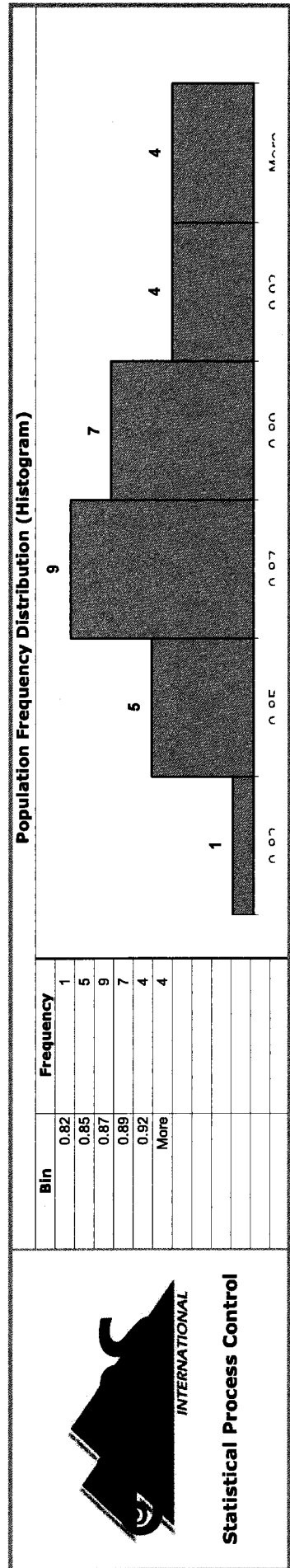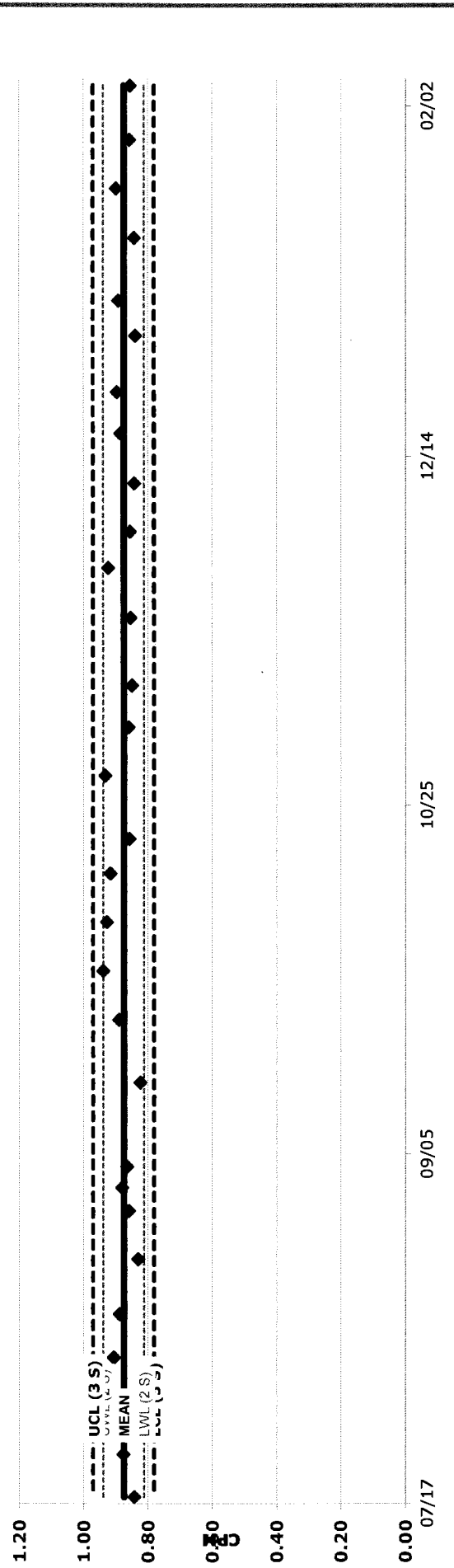### Process Date Range: 07/09/16 - 02/04/17

CPM

UCL (3 S)
UWL (2 S)
MEAN
LWL (2 S)
LCL (3 S)

Y-axis: 1.00, 0.90, 0.80, 0.70, 0.60, 0.50, 0.40, 0.30, 0.20, 0.10, 0.00

X-axis: 07/09, 08/28, 10/17, 12/06, 01/25

Population Frequency Distribution (Histogram)

Bin	Frequency
0.76	1
0.79	3
0.82	12
0.85	11
0.89	1
More	2

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.8749
Standard Deviation	0.0316
+ 3-sigma value	0.9697
- 3-sigma value	0.7800
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR C4
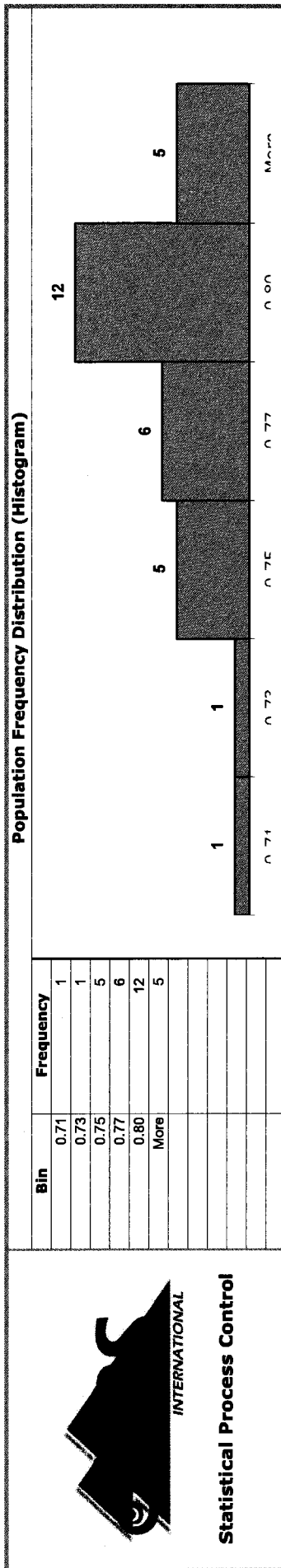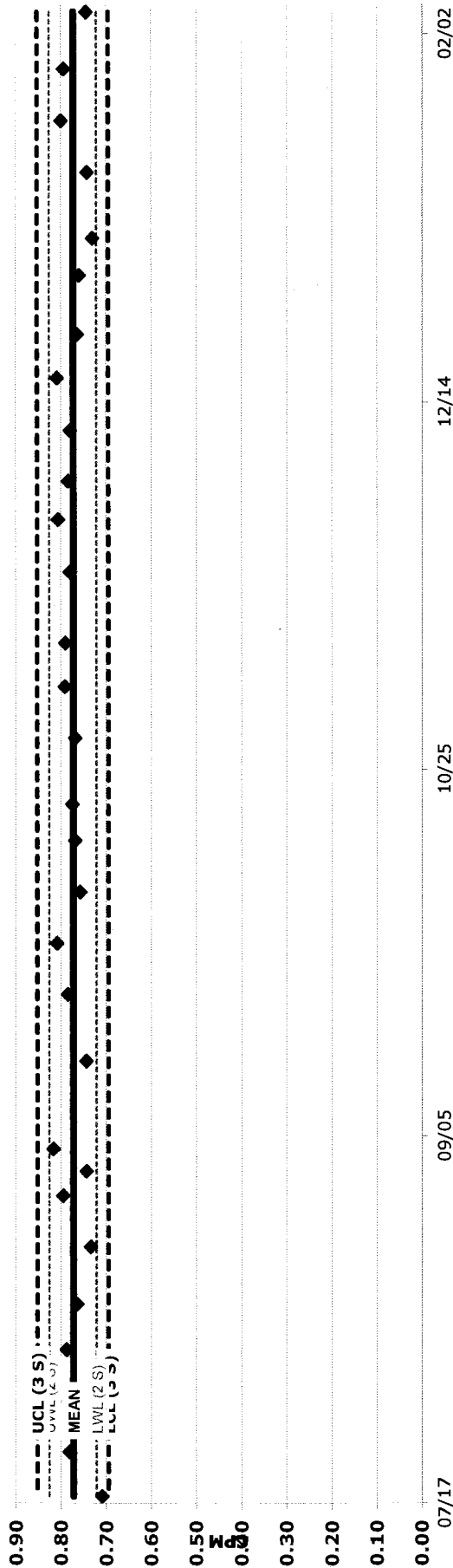
Process Date Range: 07/17/16 - 02/04/17

Legend: UCL (3 S), MEAN, LWL (2 S)

X-axis: 07/17, 09/05, 10/25, 12/14, 02/02
Y-axis: 0.00, 0.20, 0.40, 0.60, 0.80, 1.00, 1.20

Population Frequency Distribution (Histogram)

Bin	Frequency
0.82	1
0.85	5
0.87	9
0.89	7
0.92	4
More	4

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.7727
Standard Deviation	0.0264
+ 3-sigma value	0.8518
- 3-sigma value	0.6937
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

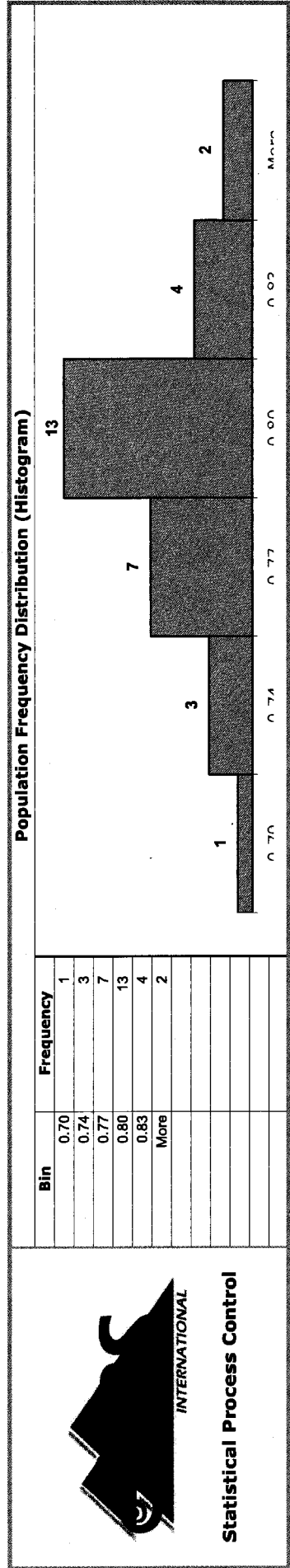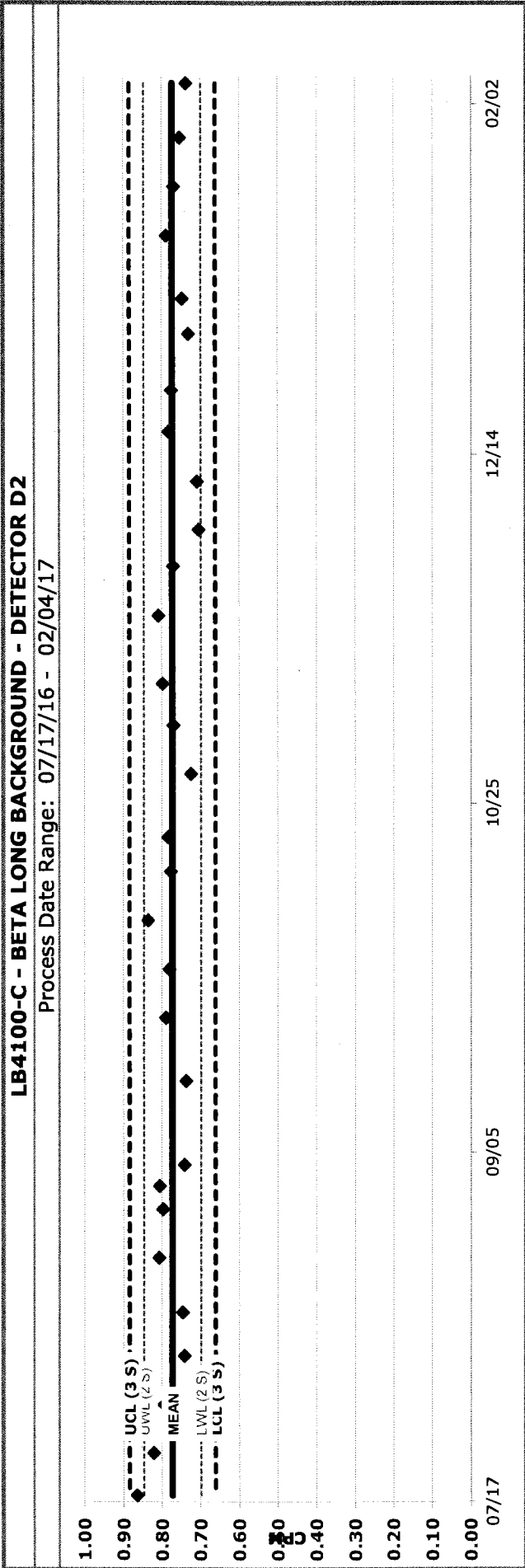## LB4100-C - BETA LONG BACKGROUND - DETECTOR D1
Process Date Range: 07/17/16 - 02/04/17

Legend: UCL (3 S), UWL (2 S), MEAN, LWL (2 S), LCL (3 S)

X-axis: 07/17, 09/05, 10/25, 12/14, 02/02
Y-axis: 0.00, 0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90

Population Frequency Distribution (Histogram)

Bin	Frequency
0.71	1
0.73	1
0.75	5
0.77	6
0.80	12
More	5

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.7729
Standard Deviation	0.0370
+ 3-sigma value	0.8840
- 3-sigma value	0.6618
	30.0000

Trending Analysis

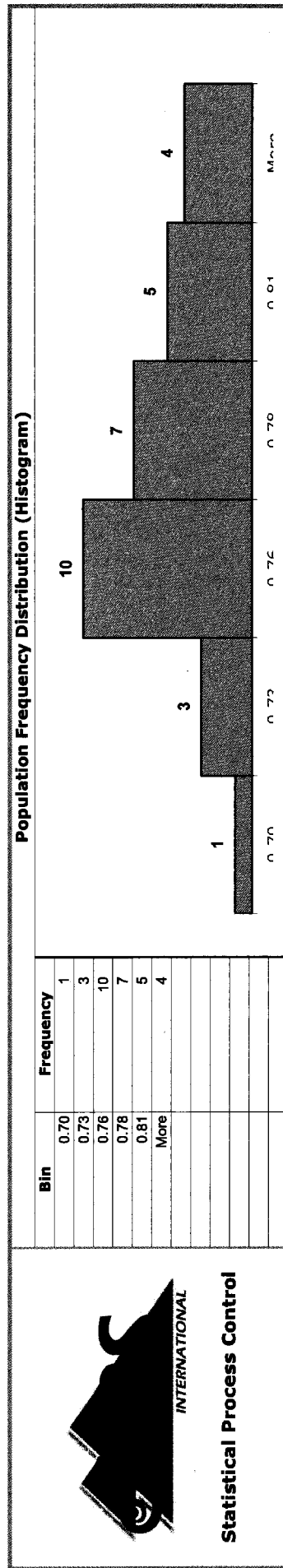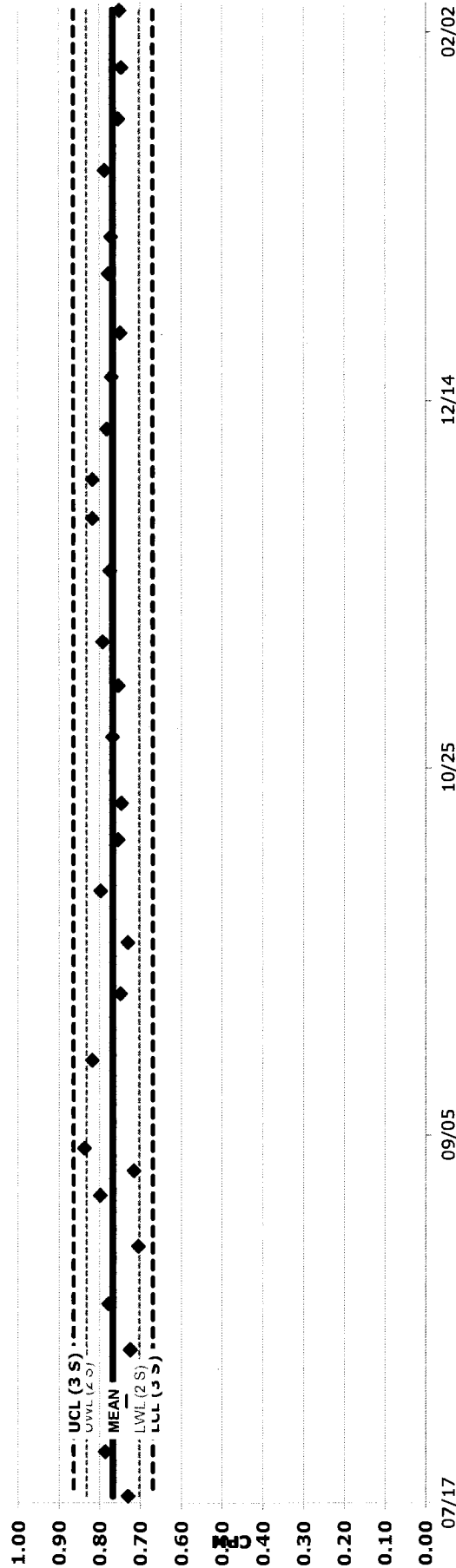|	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR D2

Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.70	1
0.74	3
0.77	7
0.80	13
0.83	4
More	2

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.7674
Standard Deviation	0.0324
+ 3-sigma value	0.8647
− 3-sigma value	0.6701
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR D3
Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.70	1
0.73	3
0.76	10
0.78	7
0.81	5
More	4

INTERNATIONAL

Statistical Process Control

Sr-90/Y90 Efficiency Calibrations 12/8/14

Tech: B Steffens
Pipet #   FJ40469
Scale ID   H113112173560P
Standard #   S-0121

Sample ID	Std weight g.	Sep. Date: 12/8/14
Sr_Y_Cal_1B	1.0114	12:12
Sr_Y_Cal_2B	1.0121	12:19
Sr_Y_Cal_3B	1.0063	12:17
Sr_Y_Cal_4B	1.0122	12:12
Sr_Y_Cal_5B	1.0127	12:16

Performed By: B Steffens

Sr. Planchett Weigts

	Empty	Full
Sr_Cal_1B	7.591	7.603
Sr_Cal_2B	7.592	7.604
Sr_Cal_3B	7.594	7.606
Sr_Cal_4B	7.603	7.615
Sr_Cal_5B	7.599	7.611

Approved
JDT 12-10-14

Calibration

Updated: 12/10/2014

pCi	2.22
dpm	1
Bq	60

Detector	Sr-90 Eff	Y-90 Eff
A1	0.36363	0.40049
A2	0.34188	0.36412
A3	0.36654	0.3896
A4	0.3397	0.37163
B1	0.36065	0.40727
B2	0.33271	0.36326
B3	0.36741	0.38768
B4	0.33335	0.36834
C1	0.35984	0.39388
C2	0.33342	0.36578
C3	0.36303	0.3746
C4	0.3386	0.36872
D1	0.36109	0.39648
D2	0.34154	0.37102
D3	0.3671	0.381
D4	0.33457	0.37063

CW 60 Calibrations

Sr-90

ID	Standard ID	Standard Specific Activity (dpm/g)	reference date	Mass added (g)	Total Activity Added (Sr-90 in DPM) on reference date	carrier added (mg as Sr)	g SrNO3/ g Sr	carrier expected (mg SrNO3)	planchet gross (g)	planchet tare (g)	planchet net (mg)	Chemical Yield	separation date/time	count date/time	count midpoint	Sr-90 half life days
Sr Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 14:02	12/8/14 2:04 PM	10515.51
Sr Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.4153	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 14:02	12/8/14 2:04 PM	10515.51
Sr Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.4153	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 14:02	12/8/14 2:04 PM	10515.51
Sr Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.4153	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 14:02	12/8/14 2:04 PM	10515.51
Sr Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 14:09	12/8/14 2:11 PM	10515.51
Sr Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.4153	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 14:09	12/8/14 2:11 PM	10515.51
Sr Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.4153	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 14:09	12/8/14 2:11 PM	10515.51
Sr Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.4153	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 14:09	12/8/14 2:11 PM	10515.51
Sr Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 14:18	12/8/14 2:20 PM	10515.51
Sr Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.4153	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 14:18	12/8/14 2:20 PM	10515.51
Sr Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.4153	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 14:18	12/8/14 2:20 PM	10515.51
Sr Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.4153	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 14:18	12/8/14 2:20 PM	10515.51
Sr Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 14:25	12/8/14 2:27 PM	10515.51
Sr Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.4153	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 14:25	12/8/14 2:27 PM	10515.51
Sr Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.4153	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 14:25	12/8/14 2:27 PM	10515.51
Sr Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.4153	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 14:25	12/8/14 2:27 PM	10515.51
					11425.18	5.0000	2.4153	0.000			0.0	#DIV/0!			1/0/00 12:00 AM	10515.51
					11425.18	5.0000	2.4153	0.000			0.0	#DIV/0!			1/0/00 12:00 AM	10515.51

ID	Sr-90 decay days to count midpoint	Sr decay correction to count midpoint	Sr-90 activity at count midpoint (DPM)	Y-90 half-life days	Y-90 ingrowth days to count midpoint	Y-90 ingrowth	Y-90 Eff (from below)	sample counts	sample time	bkg counts	bkg time min	net CPM	Detector	Sr-90 Eff
Sr Cal 1B	3174.59	0.81119	9197.4	2.667	0.0781	0.02010	0.40049	17097	5.0	836	900.0	3418.4822	A1	0.36363
Sr Cal 2B	3174.59	0.81119	9203.7	2.667	0.0733	0.01886	0.36412	16054	5.0	889	900.0	3209.8122	A2	0.34188
Sr Cal 4B	3174.59	0.81119	9204.6	2.667	0.0781	0.02010	0.38960	17234	5.0	748	900.0	3445.9689	A3	0.36654
Sr Cal 5B	3174.59	0.81119	9209.2	2.667	0.0753	0.01939	0.37163	15979	5.0	952	900.0	3194.7422	A4	0.33970
Sr Cal 1B	3174.59	0.81119	9197.4	2.667	0.0830	0.02134	0.40727	16989	5.0	664	900.0	3397.0622	B1	0.36065
Sr Cal 2B	3174.59	0.81119	9203.7	2.667	0.0781	0.02010	0.36326	15651	5.0	755	900.0	3129.3611	B2	0.33271
Sr Cal 4B	3174.59	0.81119	9204.6	2.667	0.0830	0.02134	0.38768	17309	5.0	3442	900.0	3457.9756	B3	0.36741
Sr Cal 5B	3174.59	0.81119	9209.2	2.667	0.0802	0.02063	0.36834	15703	5.0	713	900.0	3139.8078	B4	0.33335
Sr Cal 1B	3174.60	0.81119	9197.4	2.667	0.0892	0.02293	0.39388	16968	5.0	833	900.0	3392.6744	C1	0.35984
Sr Cal 2B	3174.60	0.81119	9203.7	2.667	0.0844	0.02169	0.36578	15714	5.0	922	900.0	3141.7756	C2	0.33342
Sr Cal 4B	3174.60	0.81119	9204.6	2.667	0.0892	0.02293	0.37460	17107	5.0	793	900.0	3420.5189	C3	0.36303
Sr Cal 5B	3174.60	0.81119	9209.2	2.667	0.0865	0.02222	0.36872	15973	5.0	852	900.0	3193.6533	C4	0.33860
Sr Cal 1B	3174.60	0.81118	9197.3	2.667	0.0941	0.02416	0.39648	17050	5.0	703	900.0	3409.2189	D1	0.36109
Sr Cal 2B	3174.60	0.81118	9203.7	2.667	0.0892	0.02293	0.37102	16113	5.0	715	900.0	3221.8056	D2	0.34154
Sr Cal 4B	3174.60	0.81118	9204.6	2.667	0.0941	0.02416	0.38100	17322	5.0	647	900.0	3463.6811	D3	0.36710
Sr Cal 5B	3174.60	0.81118	9209.2	2.667	0.0913	0.02346	0.37063	15810	5.0	780	900.0	3161.1333	D4	0.33457
	0.00	1.00000	#DIV/0!	2.667	0.0000	0.00000	0.38100					#DIV/0!		#DIV/0!
	0.00	1.00000	#DIV/0!	2.667	0.0000	0.00000	0.37063					#DIV/0!		#DIV/0!

Sr-90

ID	Standard ID	Standard Specific Activity (dpm/g)	reference date	Mass added (g)	Total Activity Added (Sr-90 in DPM) on reference date	carrier added (mg as Sr)	g SrNO3/ g Sr	carrier expected (mg SrNO3)	planchet gross (g)	planchet tare (g)	planchet net (mg)	Chemical Yield	separation date/time	count date/time	count midpoint	Sr-90 half-life days

Y-90

ID	Standard ID	Standard Specific Activity (dpm/g)	collection date	Mass added (g)	Total Activity Added (Sr-90 in DPM)	carrier added (mg)	g SrNO3/ g Sr	carrier expected (mg)	planchet gross (g)	planchet tare (g)	planchet net (mg)	Yield	separation date	count date	Sr-90 half-life days	Sr-90 decay days
Y Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 15:13	10515.51	3174.51
Y Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.415	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 15:13	10515.51	3174.51
Y Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.415	12.077	7.6050	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 15:13	10515.51	3174.51
Y Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.415	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 15:13	10515.51	3174.51
Y Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.415	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 15:19	10515.51	3174.51
Y Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.415	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 15:19	10515.51	3174.51
Y Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.415	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 15:19	10515.51	3174.51
Y Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.415	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 15:19	10515.51	3174.51
Y Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.415	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 15:29	10515.51	3174.51
Y Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.415	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 15:29	10515.51	3174.51
Y Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.415	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 15:29	10515.51	3174.51
Y Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.415	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 15:29	10515.51	3174.51
Y Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.415	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 15:35	10515.51	3174.51
Y Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.415	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 15:35	10515.51	3174.51
Y Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.415	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 15:35	10515.51	3174.51
Y Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.415	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 15:35	10515.51	3174.51

Sr-90

ID	Sr-90 decay days to count midpoint	Sr decay correction to count midpoint	Sr-90 activity at count midpoint (DPM)	Y-90 half-life days	Y-90 ingrowth days to count midpoint	Y-90 ingrowth	Y-90 Eff (from below)	sample counts	sample time	bkg counts	bkg time min	net CPM	Detector	Sr-90 Eff

Y-90

ID	Sr decay correction to separation	count midpoint	Sr-90 activity at count separation (DPM)	Y-90 decay days	Y-90 half-life days	Y-90 Decay	Y-90 Activity	sample counts	sample time	bkg counts	bkg time min	net CPM	Detector	Y-90 Eff
Y Cal 1B	0.81119	12/8/14 3:15 PM	9197.4	0.1274	2.667	0.967420	10968.760	21969	5.0	826	900.0	4392.8822	A1	0.40049
Y Cal 2B	0.81119	12/8/14 3:15 PM	9203.8	0.1226	2.667	0.968643	10990.230	20014	5.0	889	900.0	4001.8122	A2	0.36412
Y Cal 4B	0.81119	12/8/14 3:15 PM	9204.7	0.1274	2.667	0.967420	10977.437	21388	5.0	748	900.0	4276.7689	A3	0.38960
Y Cal 5B	0.81119	12/8/14 3:15 PM	9209.2	0.1247	2.667	0.968118	10990.792	20428	5.0	952	900.0	4084.5422	A4	0.37163
Y Cal 1B	0.81119	12/8/14 3:21 PM	9197.4	0.1316	2.667	0.966372	10956.887	22316	5.0	664	900.0	4462.4622	B1	0.40727
Y Cal 2B	0.81119	12/8/14 3:21 PM	9203.8	0.1267	2.667	0.967594	10978.333	19944	5.0	755	900.0	3987.9611	B2	0.36326
Y Cal 4B	0.81119	12/8/14 3:21 PM	9204.7	0.1316	2.667	0.966372	10965.554	21275	5.0	3442	900.0	4251.1756	B3	0.38768
Y Cal 5B	0.81119	12/8/14 3:21 PM	9197.4	0.1316	2.667	0.967070	10978.895	20224	5.0	713	900.0	4044.0078	B4	0.36834
Y Cal 1B	0.81119	12/8/14 3:31 PM	9203.8	0.1385	2.667	0.964630	10937.127	21544	5.0	833	900.0	4307.8744	C1	0.39388
Y Cal 2B	0.81119	12/8/14 3:31 PM	9204.7	0.1337	2.667	0.965849	10958.535	20047	5.0	922	900.0	4008.3756	C2	0.36578
Y Cal 4B	0.81119	12/8/14 3:31 PM	9209.2	0.1385	2.667	0.964630	10945.778	20506	5.0	793	900.0	4100.3189	C3	0.37460
Y Cal 5B	0.81119	12/8/14 3:31 PM	9197.4	0.1358	2.667	0.965326	10959.095	20209	5.0	852	900.0	4040.8533	C4	0.36872
Y Cal 1B	0.81119	12/8/14 3:37 PM	9203.8	0.1427	2.667	0.963585	10925.288	21662	5.0	703	900.0	4331.6189	D1	0.39648
Y Cal 2B	0.81119	12/8/14 3:37 PM	9204.7	0.1378	2.667	0.964804	10946.673	20311	5.0	715	900.0	4061.4056	D2	0.37102
Y Cal 4B	0.81119	12/8/14 3:37 PM	9209.2	0.1427	2.667	0.963585	10933.930	20833	5.0	647	900.0	4165.8811	D3	0.38100
Y Cal 5B	0.81119	12/8/14 3:37 PM	9209.2	0.1399	2.667	0.964281	10947.232	20291	5.0	780	900.0	4057.3333	D4	0.37063

GEN 686
C 11160

Sr

BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	SR_CAL_1B	2	17097	5	1410	12/8/14 14:02
A2	SR_CAL_2B	3	16054	5	1410	12/8/14 14:02
A3	SR_CAL_4B	4	17234	5	1410	12/8/14 14:02
A4	SR_CAL_5B	6	15979	5	1410	12/8/14 14:02

Page 1

GEN 687
C 11160
Sr
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
B1	SR_CAL_1B	18	16989	5	1410	12/8/14 14:09
B2	SR_CAL_2B	13	15651	5	1410	12/8/14 14:09
B3	SR_CAL_4B	9	17309	5	1410	12/8/14 14:09
B4	SR_CAL_5B	10	15703	5	1410	12/8/14 14:09

Page 1

GEN 688
C 11160
Sr
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	SR_CAL_1B	4	16968	5	1410	12/8/14 14:18
C2	SR_CAL_2B	8	15714	5	1410	12/8/14 14:18
C3	SR_CAL_4B	5	17107	5	1410	12/8/14 14:18
C4	SR_CAL_5B	3	15973	5	1410	12/8/14 14:18

Page 1

GEN 689
C 11160
Sr
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
D1	SR_CAL_1B	4	17050	5	1410	12/8/14 14:25
D2	SR_CAL_2B	8	16113	5	1410	12/8/14 14:25
D3	SR_CAL_4B	5	17322	5	1410	12/8/14 14:25
D4	SR_CAL_5B	8	15810	5	1410	12/8/14 14:25

Page 1

GEN 690
C 11160
Y
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	Y_CAL_1B	2	21969	5	1410	12/8/14 15:13
A2	Y_CAL_2B	3	20014	5	1410	12/8/14 15:13
A3	Y_CAL_4B	4	21388	5	1410	12/8/14 15:13
A4	Y_CAL_5B	5	20428	5	1410	12/8/14 15:13

GEN 691
C 11160
Y
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
B1	Y_CAL_1B	9	22316	5	1410	12/8/14 15:19
B2	Y_CAL_2B	5	19944	5	1410	12/8/14 15:19
B3	Y_CAL_4B	3	21275	5	1410	12/8/14 15:19
B4	Y_CAL_5B	6	20224	5	1410	12/8/14 15:19

Page 1

GEN 692
C 11160
Y
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	Y_CAL_1B	4	21544	5	1410	12/8/14 15:29
C2	Y_CAL_2B	1	20047	5	1410	12/8/14 15:29
C3	Y_CAL_4B	2	20506	5	1410	12/8/14 15:29
C4	Y_CAL_5B	4	20209	5	1410	12/8/14 15:29

Page 1

GEN 693
C 11160
Y
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
D1	Y_CAL_1B	3	21662	5	1410	12/8/14 15:35
D2	Y_CAL_2B	4	20311	5	1410	12/8/14 15:35
D3	Y_CAL_4B	2	20833	5	1410	12/8/14 15:35
D4	Y_CAL_5B	5	20291	5	1410	12/8/14 15:35

GEN 683
C 11160
LONG BKG
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	A1-01	135	826	900	1410	12/6/14 7:15
A2	A2-01	116	889	900	1410	12/6/14 7:15
A3	A3-01	60	748	900	1410	12/6/14 7:15
A4	A4-01	126	952	900	1410	12/6/14 7:15
C1	C1-01	93	833	900	1410	12/6/14 7:15
C2	C2-01	123	922	900	1410	12/6/14 7:15
C3	C3-01	126	793	900	1410	12/6/14 7:15
C4	C4-01	182	852	900	1410	12/6/14 7:15
D1	D1-01	55	703	900	1410	12/6/14 7:15
D2	D2-01	59	715	900	1410	12/6/14 7:15
D3	D3-01	53	647	900	1410	12/6/14 7:15
D4	D4-01	63	780	900	1410	12/6/14 7:15
B1	B1-01	55	664	900	1410	12/6/14 7:16
B2	B2-01	63	755	900	1410	12/6/14 7:16
B3	B3-01	82	3442	900	1410	12/6/14 7:16
B4	B4-01	61	713	900	1410	12/6/14 7:16

Page 1

Sr-90/Y90 Efficiency Calibrations

Tech: B Steffens
Pipet #   FJ40469
Scale ID   H113112173560P
Standard #   S-0121

Sample ID   Std weight g. Sep. Date: 12-8-14

Sample ID	Std weight g.	
Sr_Y_Cal_1B	1.0114	12:12
Sr_Y_Cal_2B	1.0121	12:19
Sr_Y_Cal_3B	1.0063	12:17
Sr_Y_Cal_4B	1.0122	12:12
Sr_Y_Cal_5B	1.0127	12:16

Performed By: B Steffens

Sr Planchett Weigts

	Empty	Full
Sr_Cal_1B	7.591g	7.603
Sr_Cal_2B	7.592g	7.604
Sr_Cal_3B	7.594g	7.606
Sr_Cal_4B	7.603g	7.615
Sr_Cal_5B	7.599g	7.611

Sr-90 Verification   1/5/2016

Tech: J P B   𝒥ℬ
           ~~B Steffens~~ 1-5-16
Pipet #   MU02055
Scale ID   12332539
Standard #   S-0300

Sample ID   Std weight g.
S-0300-V1A   1.0234g
S-0300-V2A   0.9938g
S-0300-V3A   1.0008g
S-0300-V4A   1.0046g
S-0300-V5A   1.0117g

Performed By: ~~B Steffens~~

            J, Byrd
                  𝒥ℬ
                  1-5-16

ARS
INTERNATIONAL

Carrier Pipette Calibration Sheet

Chemist: _Vau Vu_

Date/Time: _12-8-14   9:00_

Balance ID	Balance Calibration Date	Pipette ID	Nominal Weight	Weight #1	Weight#2	Weight#3	MEAN	Acceptance Limits ±2% Mean	STDEV	RSD%	Acceptance Limits <1% RSD
12332539	6/2/14	FI40469	1.00	1.000	1.004	1.007	1.00	Pass	0.004	0.350	Pass

Page 1 of 1

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS
ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE	1/5/2016 16:31	date counted
STANDARD REFERENCE #	S-0300	

Principal Radionuclide		Half Life, Years		Half Life, Days
Sr-90	ENTER -->	2.880E+01	OR -->	1.0520E+04
		2.880E+01		1.0520E+04

Radionuclide	Sr-90		Dilution Reference Date	12/11/2014 12:05

Dilution Activity	21.73	pCi per gram ===> dpm/g	48.23
Verif. Date Decay Corrected	21.18	pCi per gram ===> dpm/g	47.01

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0300-V1A	2534.50	120	B1	0.4103	0.68	1.023	48.68	21.93
S-0300-V2A	2411.50	120	B2	0.4015	0.78	0.994	48.41	21.81
S-0300-V3A	2451.00	120	B4	0.4004	0.79	1.001	49.00	22.07
S-0300-V4A	2469.50	120	C1	0.4068	0.87	1.005	48.23	21.72
S-0300-V5A	2442.00	120	C2	0.4025	1.32	1.012	46.73	21.05

			Average	48.21	21.72
			Two Sigma Uncertainty	1.72	0.77
10% Max	PASS	Standard Deviation percent of known concentration	1.86%	1.86%
			Target Activity	47.01	21.18
	5% Max	PASS	% Diff	2.55%	2.55%

Verification Expiration Date: **January 4, 2017**

Prepared & Counted By	_(signature)_	Date:	1/5/2016 16:31
Verified & Approved By	_(signature)_	Date:	1-6-16
QC Approval	_(signature)_	Date:	1-6-16

S-0300		
Sr-90	Verified	1/5/16
SL	**Expires**	**1/5/17**
Manufactuer	Analytics	
Sol Matrix	.1M HCL with 30 ug/g	
Ref No	75186-526	
Tech	BSteffens	
Parent ID	S-0160	

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

ARS INTERNATIONAL

Sr-90 Verification   1/5/2016

Tech: J Byrd
Pipet #   MU02055
Scale ID   12332539
Standard # S-0300

Sample ID	Std weight g.
S-0300-V1A	1.0234
S-0300-V2A	0.9938
S-0300-V3A	1.0008
S-0300-V4A	1.0046
S-0300-V5A	1.0117

Performed By: J Byrd

Tech: J P B   JB
               B Steffens   1-5-16
Pipet #   MU02055
Scale ID   12332539
Standard #   S-0300

Sample ID	Std weight g.
S-0300-V1A	1.0234g
S-0300-V2A	0.9938g
S-0300-V3A	1.0008g
S-0300-V4A	1.0046g
S-0300-V5A	1.0117g

Performed By: B Steffens

J. Byrd
JB
1-5-16

GEN 710
C 11160
Sr
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	S-0300-V4A	9	4939	120	1410	1/5/16 16:31
C2	S-0300-V5A	13	4884	120	1410	1/5/16 16:31
B1	S-0300-V1A	8	5069	120	1410	1/5/16 16:34
B2	S-0300-V2A	12	4823	120	1410	1/5/16 16:34
B4	S-0300-V3A	9	4902	120	1410	1/5/16 16:34

2 4929, 5
2442
2534 5
2411.5
2 45 1

GEN 704
C 11160
LONG BKG
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	C1-01	68	784.87	900	1410	1/1/16 4:03
C2	C2-01	85	1191.32	900	1410	1/1/16 4:03
C3	C3-01	78	788	900	1410	1/1/16 4:03
C4	C4-01	99	902	900	1410	1/1/16 4:03
D1	D1-01	47	690	900	1410	1/1/16 4:03
D2	D2-01	43	747	900	1410	1/1/16 4:03
D3	D3-01	7	689	900	1410	1/1/16 4:03
D4	D4-01	29	725	900	1410	1/1/16 4:03
A1	A1-01	75	773	900	1410	1/1/16 4:06
A2	A2-01	45	804	900	1410	1/1/16 4:06
A3	A3-01	38	707	900	1410	1/1/16 4:06
A4	A4-01	56	743	900	1410	1/1/16 4:06
B1	B1-01	38	610.68	900	1410	1/1/16 4:06
B2	B2-01	30	705.78	900	1410	1/1/16 4:06
B3	B3-01	49	3102	900	1410	1/1/16 4:06
B4	B4-01	29	713.79	900	1410	1/1/16 4:06

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

A1

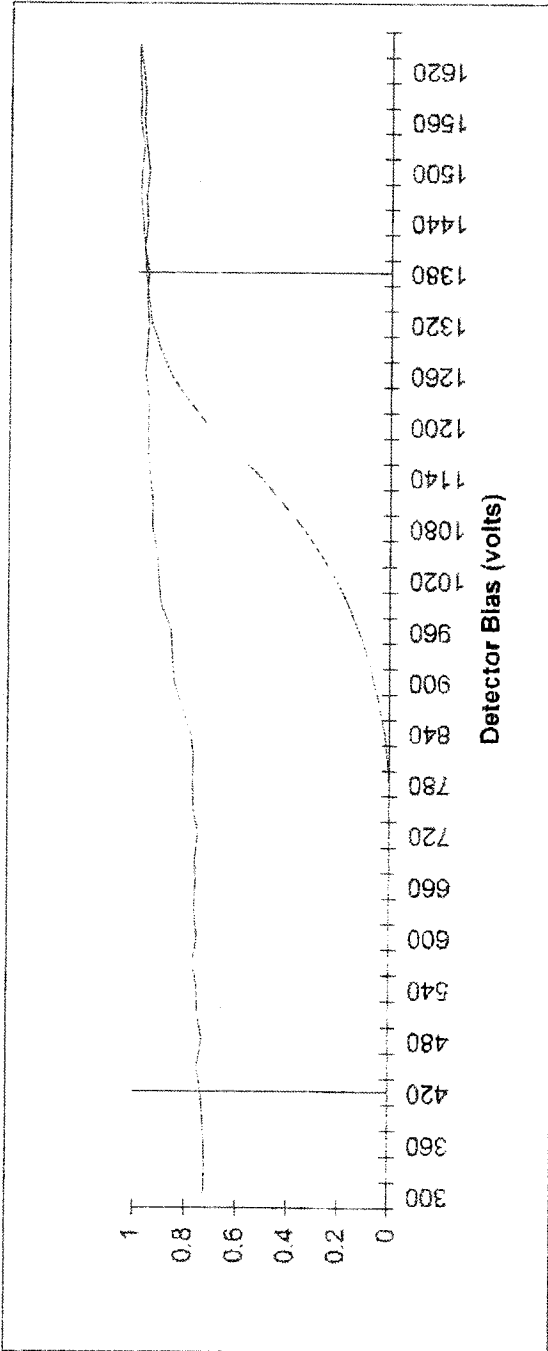|	
Beta slope at beta voltage	1.59%
Alpha slope at beta voltage	0.37%
Alpha slope at alpha voltage	1.35%

Printed 12/30/2011 09:35

196 of 1081

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard
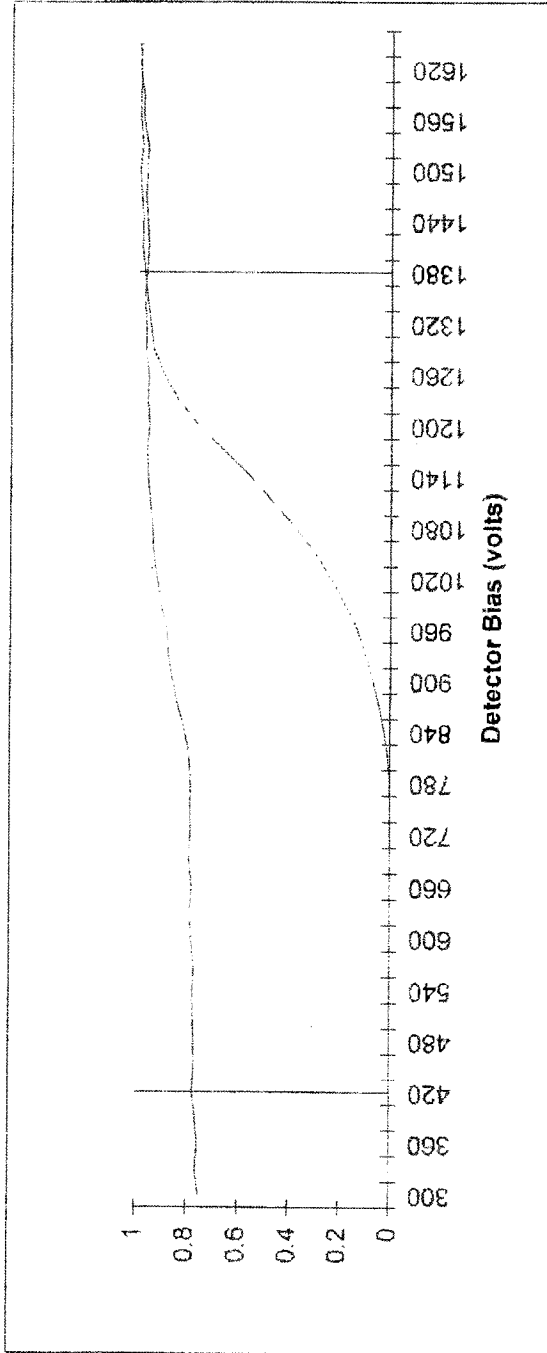
Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

	A2
Beta slope at beta voltage	2.37%
Alpha slope at beta voltage	-0.90%
Alpha slope at alpha voltage	1.90%

Printed 12/30/2011 09:35

Unit Id: **Gray**
Application Revision: **2**
Application Version: **Standard**

Unit Type: **LB4100/W**
Date Performed: **12/28/11 16:59**
FileName: **PLAT008**
Batch ID:

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: | 1380 |

Optimum alpha only operating voltage: | 420 |

A3

Beta slope at beta voltage   2.85%
Alpha slope at beta voltage   1.23%
Alpha slope at alpha voltage   0.98%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard
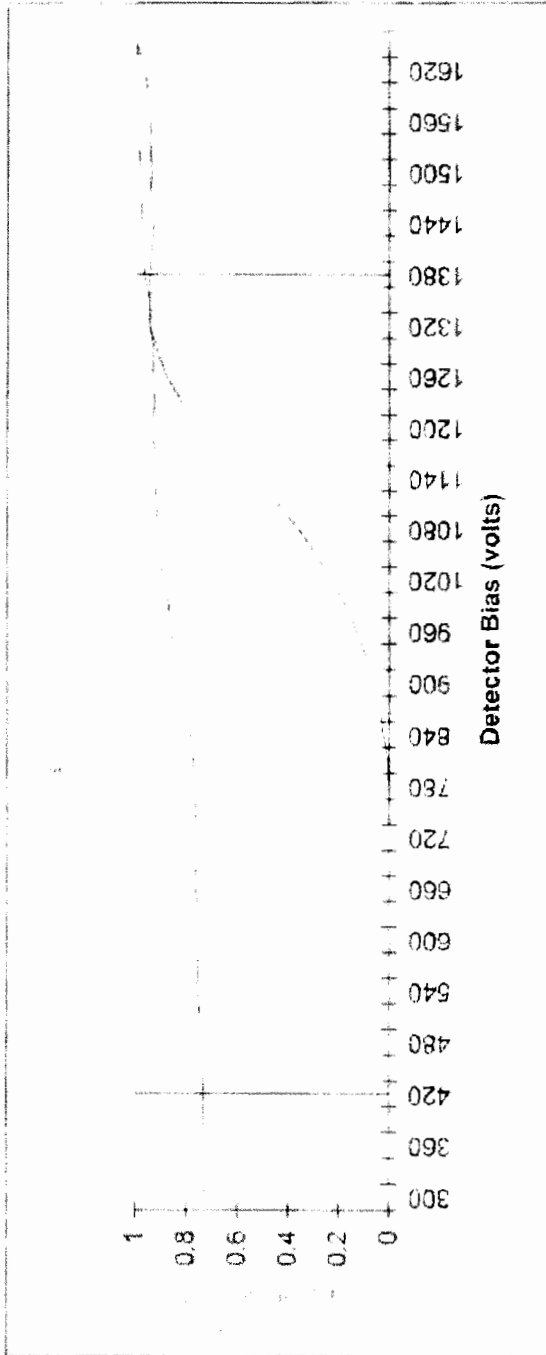
Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

A4
3.25%
1.19%
0.55%

Beta slope at beta voltage
Alpha slope at beta voltage
Alpha slope at alpha voltage

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

300 360 420 480 540 600 660 720 780 840 900 960 1020 1080 1140 1200 1260 1320 1380 1440 1500 1560 1620

0 0.2 0.4 0.6 0.8 1

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

B1
Beta slope at beta voltage 1.59%
Alpha slope at beta voltage 0.37%
Alpha slope at alpha voltage 1.35%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
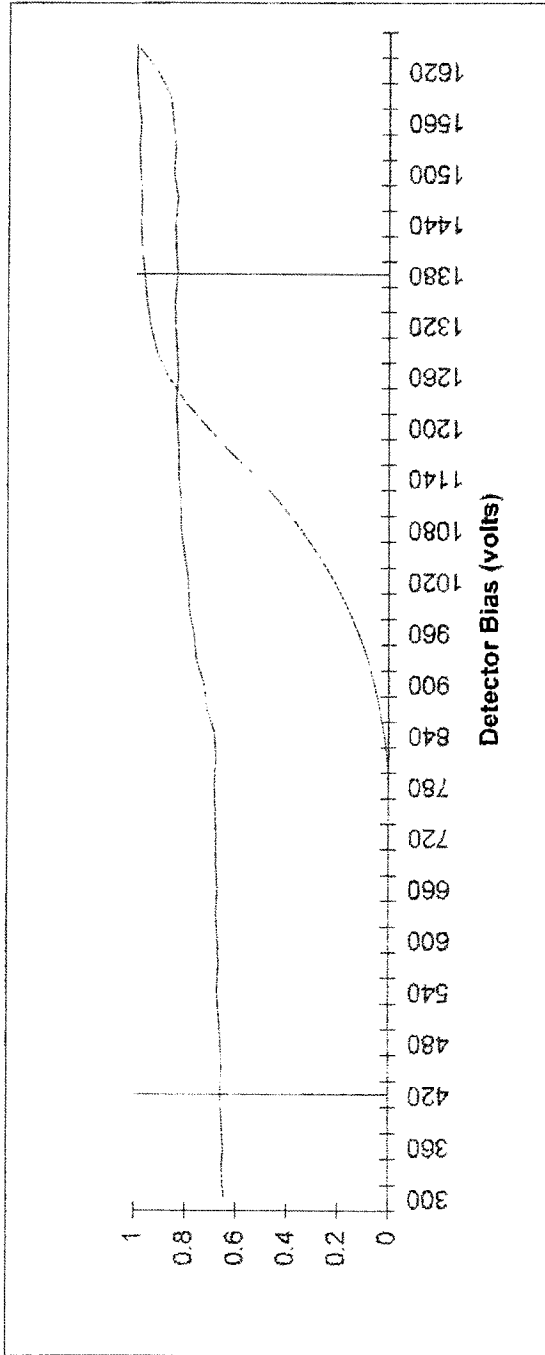Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

B2

Beta slope at beta voltage	2.37%
Alpha slope at beta voltage	-0.90%
Alpha slope at alpha voltage	1.90%

Printed 12/30/2011 09:35

201 of 1081

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
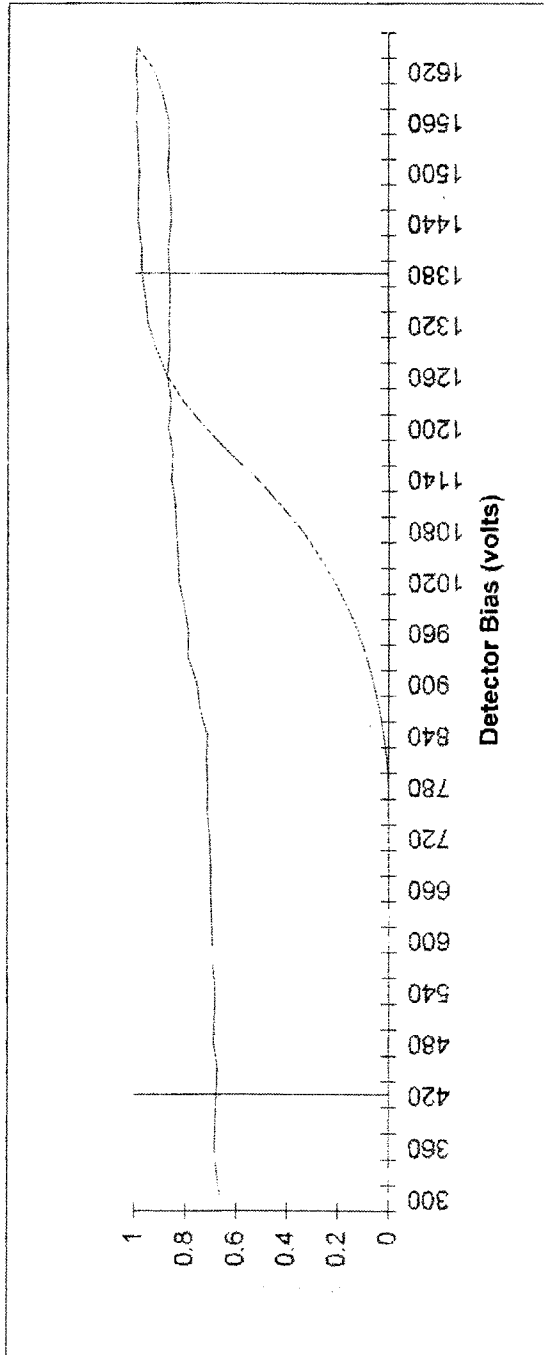Application Revision: 2
Application Version: Standard

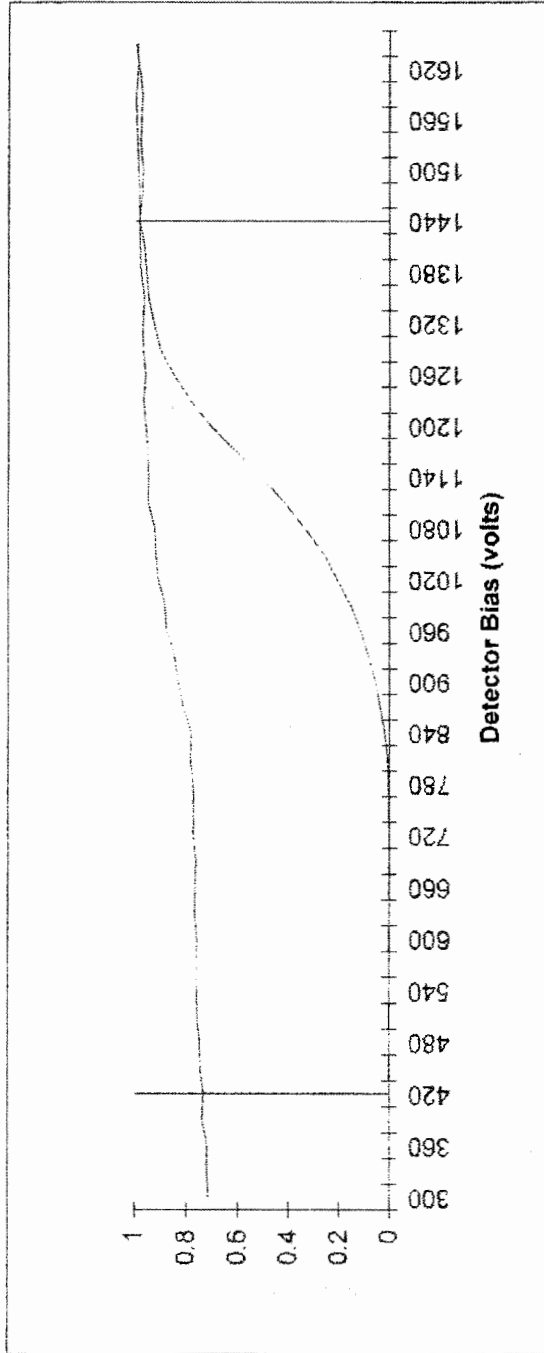Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

B3

Beta slope at beta voltage   2.85%
Alpha slope at beta voltage   1.23%
Alpha slope at alpha voltage   0.98%

Printed 12/30/2011 09:35

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Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

B4

Beta slope at beta voltage   3.25%
Alpha slope at beta voltage   1.19%
Alpha slope at alpha voltage   0.55%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: **1440**

Optimum alpha only operating voltage: **420**

C1

Beta slope at beta voltage	1.59%
Alpha slope at beta voltage	0.37%
Alpha slope at alpha voltage	1.35%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

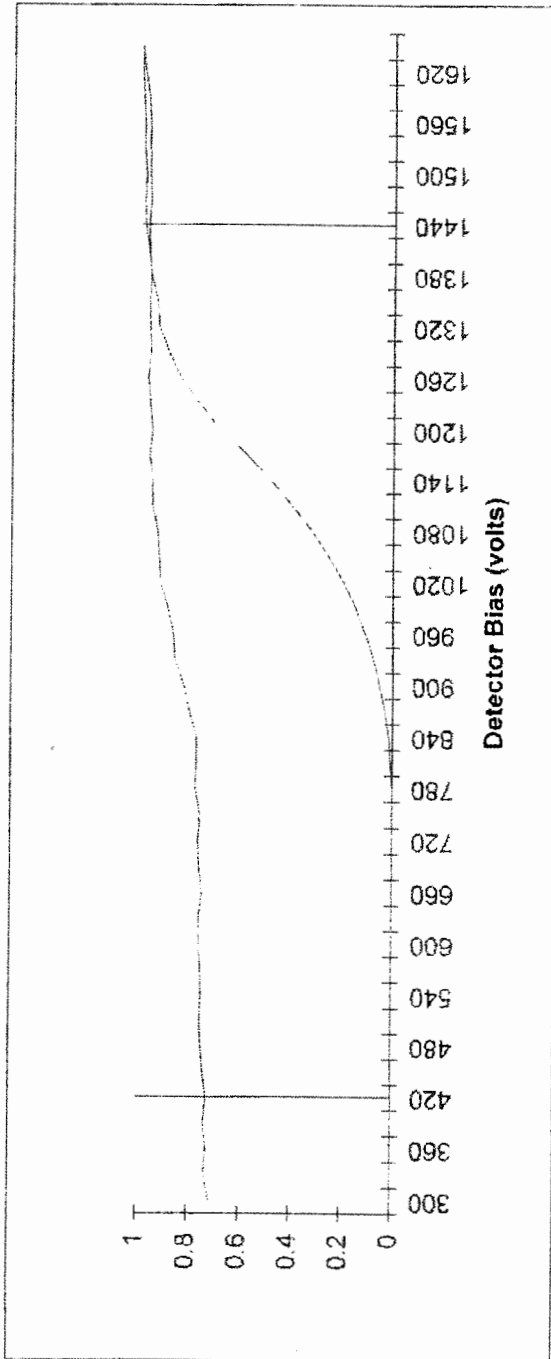Optimum alpha beta simultaneous operating voltage: 1440

Optimum alpha only operating voltage: 420

	C2
Beta slope at beta voltage	2.37%
Alpha slope at beta voltage	-0.90%
Alpha slope at alpha voltage	1.90%

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1440

Optimum alpha only operating voltage: 420

C3

Beta slope at beta voltage   2.85%
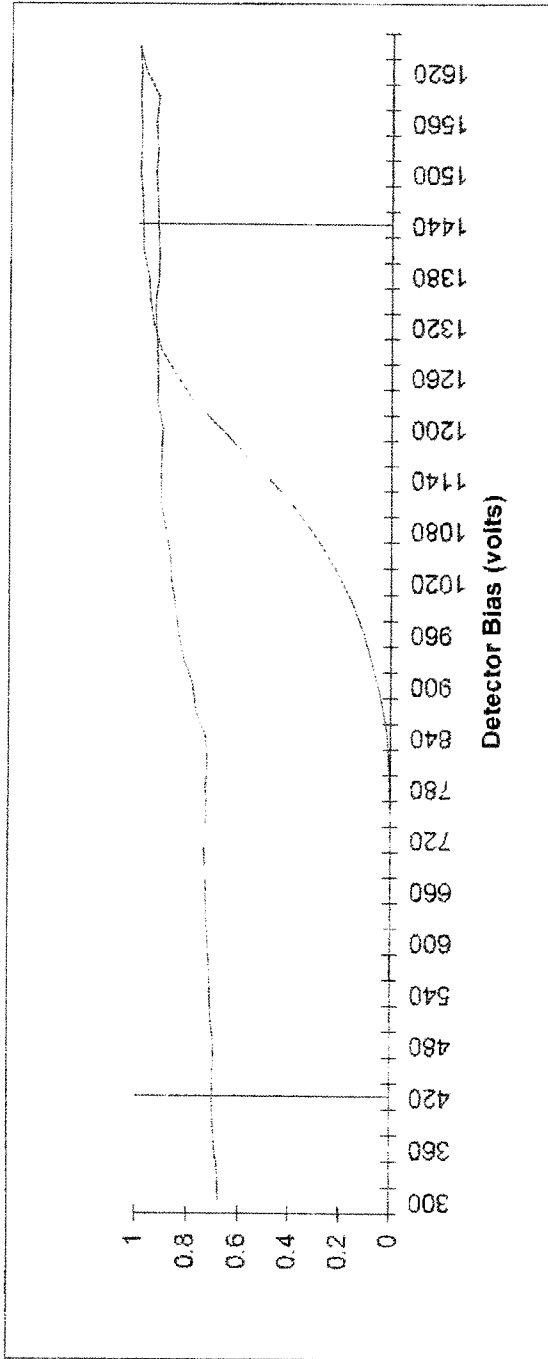Alpha slope at beta voltage   1.23%
Alpha slope at alpha voltage   0.98%

Printed 12/30/2011 09:35

206 of 1081

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
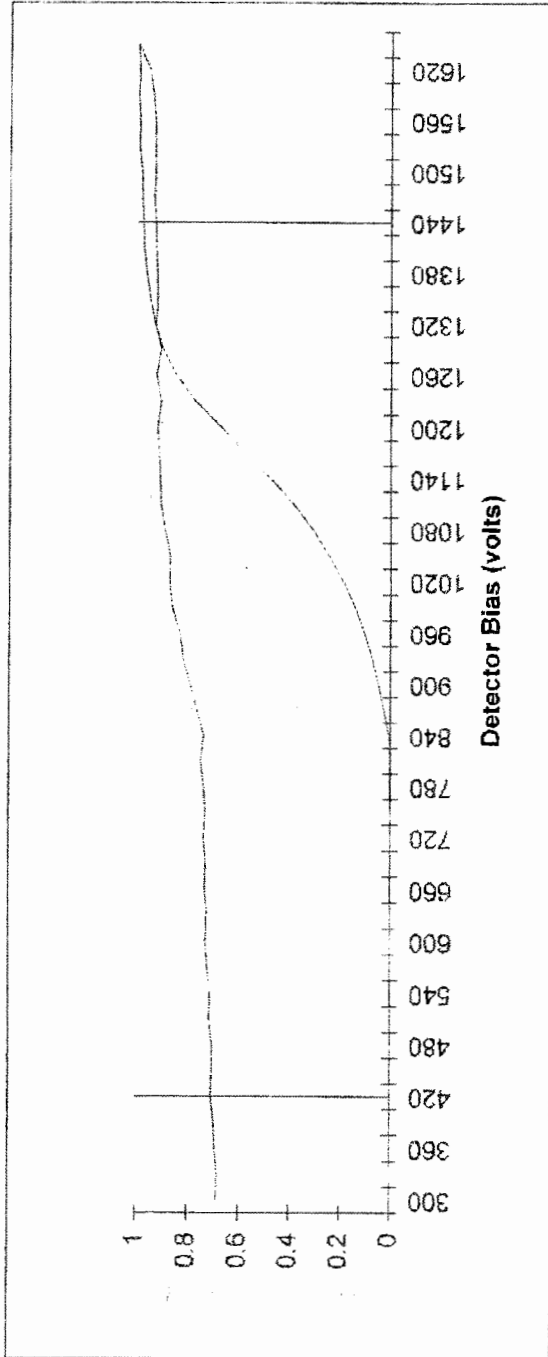Application Revision: 2
Application Version: Standard

Optimum alpha beta simultaneous operating voltage: 1440

Optimum alpha only operating voltage: 420

C4

Beta slope at beta voltage   3.25%
Alpha slope at beta voltage   1.19%
Alpha slope at alpha voltage   0.55%

Unit Type: **LB4100/W**
Date Performed: **12/28/11 16:59**
FileName: **PLAT008**
Batch ID:

Unit Id: **Gray**
Application Revision: **2**
Application Version: **Standard**

Optimum alpha beta simultaneous operating voltage: 1410

Optimum alpha only operating voltage: 420

	D1
Beta slope at beta voltage	1.59%
Alpha slope at beta voltage	0.37%
Alpha slope at alpha voltage	1.35%

Detector Bias (volts)

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1410

Optimum alpha only operating voltage: 420

	D2
Beta slope at beta voltage	2.37%
Alpha slope at beta voltage	-0.90%
Alpha slope at alpha voltage	1.90%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Optimum alpha beta simultaneous operating voltage: 1410

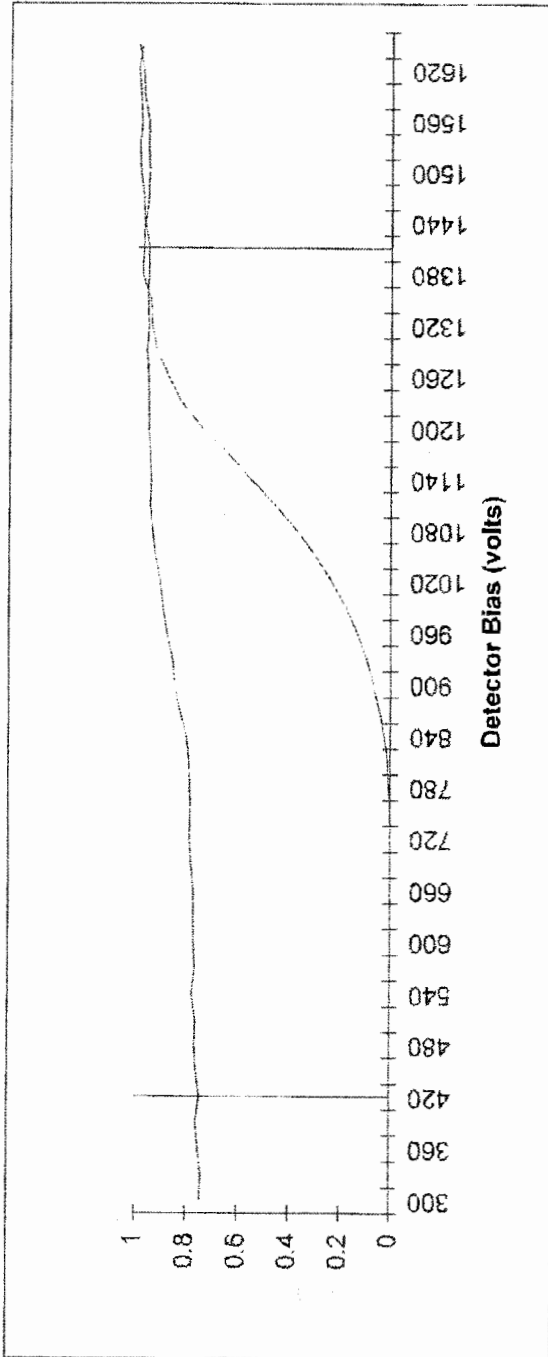Optimum alpha only operating voltage: 420

D3

Beta slope at beta voltage   2.85%
Alpha slope at beta voltage   1.23%
Alpha slope at alpha voltage   0.98%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
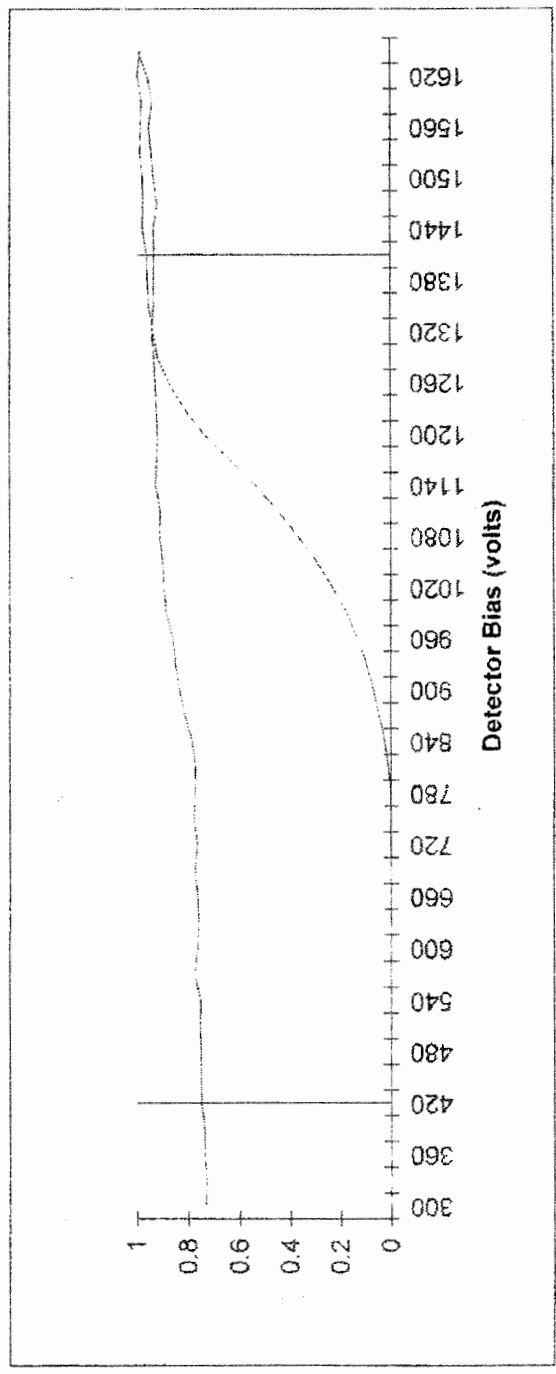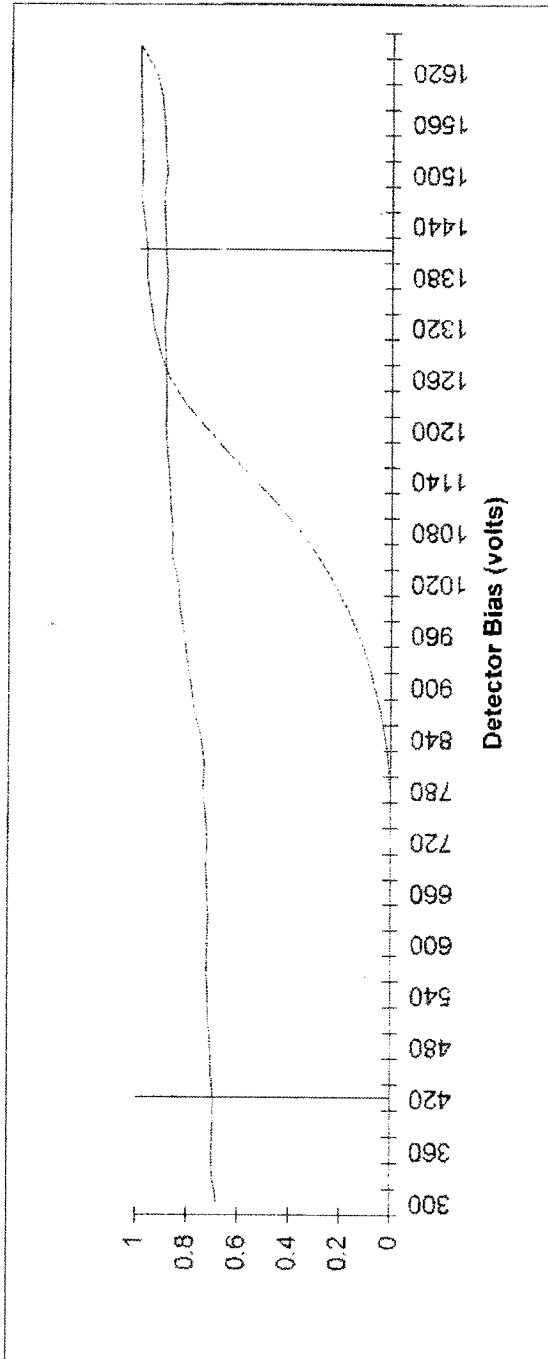Application Revision: 2
Application Version: Standard

Optimum alpha beta simultaneous operating voltage: 1410
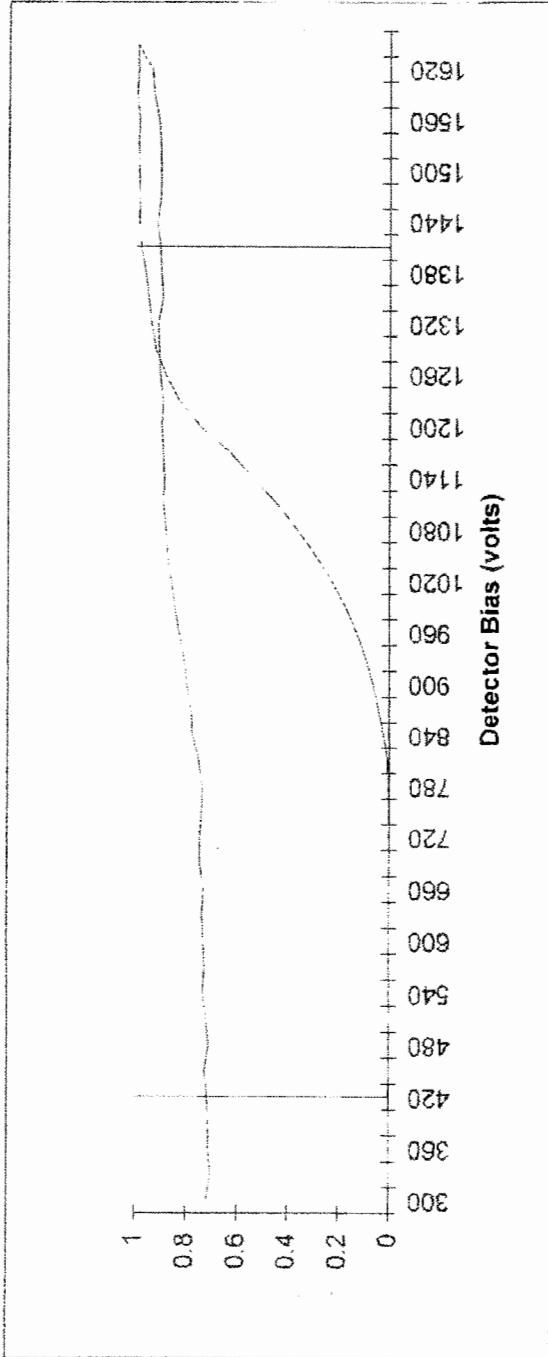
Optimum alpha only operating voltage: 420

D4

Beta slope at beta voltage   3.25%
Alpha slope at beta voltage   1.19%
Alpha slope at alpha voltage   0.55%

Printed 12/30/2011 09:35

211 of 1081

Instrument A Calibration

Updated: 8/20/2013

	pCi	2.22
	dpm	1
	Bq	60

Detector	Sr-90 Eff	Y-90 Eff
A1	0.34747	0.44088
A2	0.34268	0.46189
A3	0.33064	0.37872
A4	0.34017	0.39108
B1	0.33657	0.40068
B2	0.34381	0.47164
B3	0.325	0.37161
B4	0.3364	0.40727
C1	0.34147	0.44304
C2	0.33671	0.46077
C3	0.31544	0.38068
C4	0.33585	0.42745
D1	0.30659	0.43397
D2	0.34063	0.4311
D3	0.33766	0.39466
D4	0.33677	0.41747

Instrument B Calibration

Updated: 8/20/2013

	pCi	2.22
	dpm	1
	Bq	60

Detector	Sr-90 Eff	Y-90 Eff
A1	0.32591	0.42792
A2	0.32756	0.44781
A3	0.31932	0.36974
A4	0.31867	0.40999
B1	0.33829	0.44404
B2	0.3468	0.46664
B3	0.33955	0.38256
B4	0.3387	0.41028
C1	0.32367	0.42418
C2	0.32359	0.4301
C3	0.32773	0.37433
C4	0.32479	0.41571
D1	0.31614	0.42698
D2	0.33614	0.45936
D3	0.32357	0.37431
D4	0.31993	0.41729

Instrument C Calibration

Updated: 12/10/2014

	pCi	2.22
	dpm	1
	Bq	60

Detector	Sr-90 Eff	Y-90 Eff
A1	0.36363	0.40049
A2	0.34188	0.36412
A3	0.36654	0.3896
A4	0.3397	0.37163
B1	0.36065	0.40727
B2	0.33271	0.36326
B3	0.36741	0.38768
B4	0.33335	0.36834
C1	0.35984	0.39388
C2	0.33342	0.36578
C3	0.36303	0.3746
C4	0.3386	0.36872
D1	0.36109	0.39648
D2	0.34154	0.37102
D3	0.3671	0.381
D4	0.33457	0.37063

Tennelec LB41-PF4 Low Background α/β Counter (Instrument C)

Date	Time	ARS Batch Number	Batch Fraction	Type of Analysis	GEN Number	Detector	Analyst Initials
1-31-17	1402	17-00128	14	CαCβ	7W	C2	S
2-1-17	0511	Daily	0A	Bkg	721	AM	S
2-1-17	0533	Daily	0B	B12	722	AM	S
2-1-17	11:12	17-00151	C1	Gr	723	C1	S
			C2			C2	S
			C3			C3	S
			C4			C4	S
			C5			D1	S
			C6			D2	S
W 2-1-17			C7			D3	S
2-1-17	1238	17-00187	C1	Gr	724	C1	S
			C2			C2	S
			C3			C3	S
			C4			C4	S
			C5			D1	S
			C6			D2	S
			C7			D3	S
2-2-17	0512	Daily	0A	Bkg	725	AM	S
2-2-17	0724	Daily	0B	B12	726	AM	
2-3-17	0511	Daily	0A	Bkg	727	AM	S
2-3-17	0731	Daily	0B	B12	728	AM	S
2-3-17	0931	17-00188	C1	Gr	729	A1	S
			C2			A2	S
			C3			A3	S
			C4			A1	S
			C5			A2	S
2-4-17	0632	Long Bkg	C6	Bkg	710	AM	S

CE-17
Revision: 1
Revision Date: 031115

Reviewed _____ Initials   Date 2-24-17

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277   FAX (225) 381-2996

INTERNATIONAL

Semivolatile Organics Analysis
SW 846 8270D PAH's

SDG# ARS1-17-00216
COC SOLID Samples

Calculation Report

Analytical Batch ID	ARS1-B17-00170	
Analysis Code	GCMS-8270D-SO	
Procedure No	ARS-160	
Matrix	SO	

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (mg/L)	DF	Final Volume (L)	Initial Weight (kg)	Sample Result (mg/kg)	% Solids	Dry Wt Corrected (mg/kg)	Q	MDL (mg/kg)	PQL (mg/kg)	Spiked Amount (mg/L)	Expected Result (mg/kg)	% Rec	RPD
01 - LCS	1-Methylnaphthalene		02/08/17 17:52	16.760	1.0	0.001	0.030	0.559	100%	0.559		0.026	0.081	20.000	0.667	83.8%	
	2-Methylnaphthalene		02/08/17 17:52	16.910	1.0	0.001	0.030	0.564	100%	0.564		0.025	0.079	20.000	0.667	84.6%	
	Acenaphthene		02/08/17 17:52	17.920	1.0	0.001	0.030	0.597	100%	0.597		0.021	0.067	20.000	0.667	89.6%	
	Acenaphthylene		02/08/17 17:52	18.170	1.0	0.001	0.030	0.606	100%	0.606		0.022	0.069	20.000	0.667	90.9%	
	Anthracene		02/08/17 17:52	19.150	1.0	0.001	0.030	0.638	100%	0.638		0.033	0.105	20.000	0.667	95.8%	
	Benzo(a)anthracene		02/08/17 17:52	20.010	1.0	0.001	0.030	0.667	100%	0.667		0.036	0.115	20.000	0.667	100.1%	
	Benzo(a)pyrene		02/08/17 17:52	19.610	1.0	0.001	0.030	0.654	100%	0.654		0.057	0.183	20.000	0.667	98.1%	
	Benzo(b)fluoranthene		02/08/17 17:52	19.970	1.0	0.001	0.030	0.666	100%	0.666		0.056	0.179	20.000	0.667	99.9%	
	Benzo(g,h,i)perylene		02/08/17 17:52	19.500	1.0	0.001	0.030	0.650	100%	0.650		0.053	0.169	20.000	0.667	97.5%	
	Benzo(k)fluoranthene		02/08/17 17:52	19.950	1.0	0.001	0.030	0.665	100%	0.665		0.057	0.182	20.000	0.667	99.8%	
	Chrysene		02/08/17 17:52	19.950	1.0	0.001	0.030	0.665	100%	0.665		0.037	0.118	20.000	0.667	99.8%	
	Dibenz(a,h)anthracene		02/08/17 17:52	19.610	1.0	0.001	0.030	0.654	100%	0.654		0.053	0.170	20.000	0.667	98.1%	
	Fluoranthene		02/08/17 17:52	20.140	1.0	0.001	0.030	0.671	100%	0.671		0.035	0.111	20.000	0.667	100.7%	
	Fluorene		02/08/17 17:52	18.640	1.0	0.001	0.030	0.621	100%	0.621		0.020	0.062	20.000	0.667	93.2%	
	Indeno(1,2,3-cd)pyrene		02/08/17 17:52	19.750	1.0	0.001	0.030	0.658	100%	0.658		0.054	0.173	20.000	0.667	98.8%	
	Naphthalene		02/08/17 17:52	17.110	1.0	0.001	0.030	0.570	100%	0.570		0.044	0.141	20.000	0.667	85.6%	
	Phenanthrene		02/08/17 17:52	19.330	1.0	0.001	0.030	0.644	100%	0.644		0.029	0.093	20.000	0.667	96.7%	
	Pyrene		02/08/17 17:52	19.980	1.0	0.001	0.030	0.666	100%	0.666		0.036	0.114	20.000	0.667	99.9%	
02 - LCSD	1-Methylnaphthalene		02/08/17 18:21	13.940	1.0	0.001	0.030	0.465	100%	0.465		0.026	0.081	20.000	0.667	69.7%	18.4%
	2-Methylnaphthalene		02/08/17 18:21	13.720	1.0	0.001	0.030	0.457	100%	0.457		0.025	0.079	20.000	0.667	68.6%	20.8%
	Acenaphthene		02/08/17 18:21	15.220	1.0	0.001	0.030	0.507	100%	0.507		0.021	0.067	20.000	0.667	76.1%	16.3%
	Acenaphthylene		02/08/17 18:21	15.540	1.0	0.001	0.030	0.518	100%	0.518		0.022	0.069	20.000	0.667	77.7%	15.6%
	Anthracene		02/08/17 18:21	18.410	1.0	0.001	0.030	0.614	100%	0.614		0.033	0.105	20.000	0.667	92.1%	3.9%
	Benzo(a)anthracene		02/08/17 18:21	19.630	1.0	0.001	0.030	0.654	100%	0.654		0.036	0.115	20.000	0.667	98.2%	1.9%
	Benzo(a)pyrene		02/08/17 18:21	19.040	1.0	0.001	0.030	0.635	100%	0.635		0.057	0.183	20.000	0.667	95.2%	2.9%
	Benzo(b)fluoranthene		02/08/17 18:21	19.420	1.0	0.001	0.030	0.647	100%	0.647		0.056	0.179	20.000	0.667	97.1%	2.8%
	Benzo(g,h,i)perylene		02/08/17 18:21	19.470	1.0	0.001	0.030	0.649	100%	0.649		0.053	0.169	20.000	0.667	97.4%	0.2%
	Benzo(k)fluoranthene		02/08/17 18:21	19.780	1.0	0.001	0.030	0.659	100%	0.659		0.057	0.182	20.000	0.667	98.9%	0.9%
	Chrysene		02/08/17 18:21	19.690	1.0	0.001	0.030	0.656	100%	0.656		0.037	0.118	20.000	0.667	98.5%	1.3%
	Dibenz(a,h)anthracene		02/08/17 18:21	19.790	1.0	0.001	0.030	0.660	100%	0.660		0.053	0.170	20.000	0.667	99.0%	0.9%
	Fluoranthene		02/08/17 18:21	19.260	1.0	0.001	0.030	0.642	100%	0.642		0.035	0.111	20.000	0.667	96.3%	4.5%
	Fluorene		02/08/17 18:21	17.280	1.0	0.001	0.030	0.576	100%	0.576		0.020	0.062	20.000	0.667	86.4%	7.6%
	Indeno(1,2,3-cd)pyrene		02/08/17 18:21	19.670	1.0	0.001	0.030	0.656	100%	0.656		0.054	0.173	20.000	0.667	98.4%	0.4%
	Naphthalene		02/08/17 18:21	13.330	1.0	0.001	0.030	0.444	100%	0.444		0.044	0.141	20.000	0.667	66.7%	24.8%
	Phenanthrene		02/08/17 18:21	18.690	1.0	0.001	0.030	0.623	100%	0.623		0.029	0.093	20.000	0.667	93.5%	3.4%

Calculation Report

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (mg/L)	DF	Final Volume (L)	Initial Weight (kg)	Sample Result (mg/kg)	% Solids	Dry Wt Corrected (mg/kg)	Q	MDL (mg/kg)	PQL (mg/kg)	Spiked Amount (mg/L)	Expected Result (mg/kg)	% Rec	RPD
02 - LCSD	Pyrene		02/08/17 18:21	19.680	1.0	0.001	0.030	0.656	100%	0.656		0.036	0.114	20.000	0.667	98.4%	1.5%
03 - MBL	1-Methylnaphthalene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.026	0.081				
	2-Methylnaphthalene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.025	0.079				
	Acenaphthene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.021	0.067				
	Acenaphthylene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.022	0.069				
	Anthracene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.033	0.105				
	Benzo(a)anthracene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.036	0.115				
	Benzo(a)pyrene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.057	0.183				
	Benzo(b)fluoranthene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.056	0.179				
	Benzo(g,h,i)perylene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.053	0.169				
	Benzo(k)fluoranthene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.057	0.182				
	Chrysene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.037	0.118				
	Dibenz(a,h)anthracene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.053	0.170				
	Fluoranthene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.035	0.111				
	Fluorene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.020	0.062				
	Indeno(1,2,3-cd)pyrene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.054	0.173				
	Naphthalene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.044	0.141				
	Phenanthrene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.029	0.093				
	Pyrene		02/08/17 17:22	0.000	1.0	0.001	0.030	0.000	100%	0.000	U	0.036	0.114				
04 - TRG	1-Methylnaphthalene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.026	0.081				
	2-Methylnaphthalene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.025	0.079				
	Acenaphthene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.021	0.067				
	Acenaphthylene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.022	0.069				
	Anthracene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.033	0.105				
	Benzo(a)anthracene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.036	0.115				
	Benzo(a)pyrene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.057	0.183				
	Benzo(b)fluoranthene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.056	0.179				
	Benzo(g,h,i)perylene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.053	0.169				
	Benzo(k)fluoranthene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.057	0.182				
	Chrysene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.037	0.118				
	Dibenz(a,h)anthracene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.053	0.170				
	Fluoranthene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.035	0.111				
	Fluorene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.020	0.062				
	Indeno(1,2,3-cd)pyrene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.054	0.173				
	Naphthalene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.044	0.141				
	Phenanthrene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.029	0.093				
	Pyrene	ARS1-17-00216-001	02/08/17 18:51	0.000	1.0	0.001	0.030	0.000	80.6%	0.000	U	0.036	0.114				
	2,4,6-Tribromophenol (Surr)	ARS1-17-00216-001	02/08/17 18:51	29.740	1.0	0.001	0.030	0.991	80.6%	1.230		N/A	N/A	40.000	1.655	74.4%	
	2-Fluorobiphenyl (Surr)	ARS1-17-00216-001	02/08/17 18:51	18.790	1.0	0.001	0.030	0.626	80.6%	0.777		N/A	N/A	40.000	1.655	47.0%	
	2-Fluorophenol (Surr)	ARS1-17-00216-001	02/08/17 18:51	7.250	1.0	0.001	0.030	0.242	80.6%	0.300		N/A	N/A	40.000	1.655	18.1%	

Calculation Report

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (mg/L)	DF	Final Volume (L)	Initial Weight (kg)	Sample Result (mg/kg)	% Solids	Dry Wt Corrected (mg/kg)	Q	MDL (mg/kg)	PQL (mg/kg)	Spiked Amount (mg/L)	Expected Result (mg/kg)	% Rec	RPD
04 - TRG	Nitrobenzene-d5 (Surr)	ARS1-17-00216-001	02/08/17 18:51	9.770	1.0	0.001	0.030	0.326	80.6%	0.404		N/A	N/A	40.000	1.655	24.4%	
	Phenol-d5 (Surr)	ARS1-17-00216-001	02/08/17 18:51	13.180	1.0	0.001	0.030	0.439	80.6%	0.545		N/A	N/A	40.000	1.655	33.0%	
	Terphenyl-d14 (Surr)	ARS1-17-00216-001	02/08/17 18:51	29.920	1.0	0.001	0.030	0.997	80.6%	1.238		N/A	N/A	40.000	1.655	74.8%	
05 - TRG	1-Methylnaphthalene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.026	0.081				
	2-Methylnaphthalene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.025	0.079				
	Acenaphthene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.021	0.067				
	Acenaphthylene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.022	0.069				
	Anthracene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.033	0.105				
	Benzo(a)anthracene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.036	0.115				
	Benzo(a)pyrene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.057	0.183				
	Benzo(b)fluoranthene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.056	0.179				
	Benzo(g,h,i)perylene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.053	0.169				
	Benzo(k)fluoranthene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.057	0.182				
	Chrysene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.037	0.118				
	Dibenz(a,h)anthracene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.053	0.170				
	Fluoranthene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.035	0.111				
	Fluorene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.020	0.062				
	Indeno(1,2,3-cd)pyrene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.054	0.173				
	Naphthalene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.044	0.141				
	Phenanthrene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.029	0.093				
	Pyrene	ARS1-17-00216-002	02/08/17 20:19	0.000	1.0	0.001	0.030	0.000	86.4%	0.000	U	0.036	0.114				
	2,4,6-Tribromophenol (Surr)	ARS1-17-00216-002	02/08/17 20:19	33.970	1.0	0.001	0.030	1.132	86.4%	1.311		N/A	N/A	40.000	1.544	84.9%	
	2-Fluorobiphenyl (Surr)	ARS1-17-00216-002	02/08/17 20:19	30.140	1.0	0.001	0.030	1.005	86.4%	1.163		N/A	N/A	40.000	1.544	75.4%	
	2-Fluorophenol (Surr)	ARS1-17-00216-002	02/08/17 20:19	21.900	1.0	0.001	0.030	0.730	86.4%	0.845		N/A	N/A	40.000	1.544	54.8%	
	Nitrobenzene-d5 (Surr)	ARS1-17-00216-002	02/08/17 20:19	30.010	1.0	0.001	0.030	1.000	86.4%	1.158		N/A	N/A	40.000	1.544	75.0%	
	Phenol-d5 (Surr)	ARS1-17-00216-002	02/08/17 20:19	25.170	1.0	0.001	0.030	0.839	86.4%	0.971		N/A	N/A	40.000	1.544	62.9%	
	Terphenyl-d14 (Surr)	ARS1-17-00216-002	02/08/17 20:19	32.110	1.0	0.001	0.030	1.070	86.4%	1.239		N/A	N/A	40.000	1.544	80.3%	
06 - TRG	1-Methylnaphthalene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.026	0.081				
	2-Methylnaphthalene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.025	0.079				
	Acenaphthene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.021	0.067				
	Acenaphthylene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.022	0.069				
	Anthracene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.033	0.105				
	Benzo(a)anthracene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.036	0.115				
	Benzo(a)pyrene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.057	0.183				
	Benzo(b)fluoranthene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.056	0.179				
	Benzo(g,h,i)perylene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.053	0.169				
	Benzo(k)fluoranthene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.057	0.182				
	Chrysene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.037	0.118				
	Dibenz(a,h)anthracene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.053	0.170				
	Fluoranthene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.035	0.111				

Calculation Report

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (mg/L)	DF	Final Volume (L)	Initial Weight (kg)	Sample Result (mg/kg)	% Solids	Dry Wt Corrected (mg/kg)	Q	MDL (mg/kg)	PQL (mg/kg)	Spiked Amount (mg/L)	Expected Result (mg/kg)	% Rec	RPD
06 - TRG	Fluorene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.020	0.062				
	Indeno(1,2,3-cd)pyrene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.054	0.173				
	Naphthalene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.044	0.141				
	Phenanthrene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.029	0.093				
	Pyrene	ARS1-17-00216-003	02/09/17 12:56	0.000	1.0	0.001	0.030	0.000	77.7%	0.000	U	0.036	0.114				
	2,4,6-Tribromophenol (Surr)	ARS1-17-00216-003	02/09/17 12:56	31.420	1.0	0.001	0.030	1.047	77.7%	1.348		N/A	N/A	40.000	1.716	78.6%	
	2-Fluorobiphenyl (Surr)	ARS1-17-00216-003	02/09/17 12:56	18.600	1.0	0.001	0.030	0.620	77.7%	0.798		N/A	N/A	40.000	1.716	46.5%	
	2-Fluorophenol (Surr)	ARS1-17-00216-003	02/09/17 12:56	20.290	1.0	0.001	0.030	0.676	77.7%	0.870		N/A	N/A	40.000	1.716	50.7%	
	Nitrobenzene-d5 (Surr)	ARS1-17-00216-003	02/09/17 12:56	23.370	1.0	0.001	0.030	0.779	77.7%	1.003		N/A	N/A	40.000	1.716	58.4%	
	Phenol-d5 (Surr)	ARS1-17-00216-003	02/09/17 12:56	20.900	1.0	0.001	0.030	0.697	77.7%	0.897		N/A	N/A	40.000	1.716	52.3%	
	Terphenyl-d14 (Surr)	ARS1-17-00216-003	02/09/17 12:56	24.680	1.0	0.001	0.030	0.823	77.7%	1.059		N/A	N/A	40.000	1.716	61.7%	
07 - TRG	1-Methylnaphthalene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.026	0.081				
	2-Methylnaphthalene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.025	0.079				
	Acenaphthene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.021	0.067				
	Acenaphthylene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.022	0.069				
	Anthracene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.033	0.105				
	Benzo(a)anthracene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.036	0.115				
	Benzo(a)pyrene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.057	0.183				
	Benzo(b)fluoranthene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.056	0.179				
	Benzo(g,h,i)perylene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.053	0.169				
	Benzo(k)fluoranthene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.057	0.182				
	Chrysene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.037	0.118				
	Dibenz(a,h)anthracene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.053	0.170				
	Fluoranthene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.035	0.111				
	Fluorene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.020	0.062				
	Indeno(1,2,3-cd)pyrene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.054	0.173				
	Naphthalene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.044	0.141				
	Phenanthrene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.029	0.093				
	Pyrene	ARS1-17-00216-004	02/08/17 21:18	0.000	1.0	0.001	0.030	0.000	59.5%	0.000	U	0.036	0.114				
	2,4,6-Tribromophenol (Surr)	ARS1-17-00216-004	02/08/17 21:18	31.990	1.0	0.001	0.030	1.066	59.5%	1.791		N/A	N/A	40.000	2.240	80.0%	
	2-Fluorobiphenyl (Surr)	ARS1-17-00216-004	02/08/17 21:18	21.270	1.0	0.001	0.030	0.709	59.5%	1.191		N/A	N/A	40.000	2.240	53.2%	
	2-Fluorophenol (Surr)	ARS1-17-00216-004	02/08/17 21:18	23.100	1.0	0.001	0.030	0.770	59.5%	1.294		N/A	N/A	40.000	2.240	57.8%	
	Nitrobenzene-d5 (Surr)	ARS1-17-00216-004	02/08/17 21:18	22.050	1.0	0.001	0.030	0.735	59.5%	1.235		N/A	N/A	40.000	2.240	55.1%	
	Phenol-d5 (Surr)	ARS1-17-00216-004	02/08/17 21:18	25.320	1.0	0.001	0.030	0.844	59.5%	1.418		N/A	N/A	40.000	2.240	63.3%	
	Terphenyl-d14 (Surr)	ARS1-17-00216-004	02/08/17 21:18	23.980	1.0	0.001	0.030	0.799	59.5%	1.343		N/A	N/A	40.000	2.240	60.0%	
08 - TRG	1-Methylnaphthalene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.026	0.081				
	2-Methylnaphthalene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.025	0.079				
	Acenaphthene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.021	0.067				
	Acenaphthylene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.022	0.069				
	Anthracene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.033	0.105				

Calculation Report

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (mg/L)	DF	Final Volume (L)	Initial Weight (kg)	Sample Result (mg/kg)	% Solids	Dry Wt Corrected (mg/kg)	Q	MDL (mg/kg)	PQL (mg/kg)	Spiked Amount (mg/L)	Expected Result (mg/kg)	% Rec	RPD
08 - TRG	Benzo(a)anthracene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.036	0.115				
	Benzo(a)pyrene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.057	0.183				
	Benzo(b)fluoranthene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.056	0.179				
	Benzo(g,h,i)perylene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.053	0.169				
	Benzo(k)fluoranthene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.057	0.182				
	Chrysene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.037	0.118				
	Dibenz(a,h)anthracene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.053	0.170				
	Fluoranthene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.035	0.111				
	Fluorene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.020	0.062				
	Indeno(1,2,3-cd)pyrene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.054	0.173				
	Naphthalene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.044	0.141				
	Phenanthrene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.029	0.093				
	Pyrene	ARS1-17-00216-005	02/08/17 21:48	0.000	1.0	0.001	0.030	0.000	88.9%	0.000	U	0.036	0.114				
	2,4,6-Tribromophenol (Surr)	ARS1-17-00216-005	02/08/17 21:48	32.240	1.0	0.001	0.030	1.075	88.9%	1.209		N/A	N/A	40.000	1.500	80.6%	
	2-Fluorobiphenyl (Surr)	ARS1-17-00216-005	02/08/17 21:48	28.910	1.0	0.001	0.030	0.964	88.9%	1.084		N/A	N/A	40.000	1.500	72.3%	
	2-Fluorophenol (Surr)	ARS1-17-00216-005	02/08/17 21:48	18.260	1.0	0.001	0.030	0.609	88.9%	0.685		N/A	N/A	40.000	1.500	45.7%	
	Nitrobenzene-d5 (Surr)	ARS1-17-00216-005	02/08/17 21:48	23.010	1.0	0.001	0.030	0.767	88.9%	0.863		N/A	N/A	40.000	1.500	57.5%	
	Phenol-d5 (Surr)	ARS1-17-00216-005	02/08/17 21:48	22.710	1.0	0.001	0.030	0.757	88.9%	0.852		N/A	N/A	40.000	1.500	56.8%	
	Terphenyl-d14 (Surr)	ARS1-17-00216-005	02/08/17 21:48	34.910	1.0	0.001	0.030	1.164	88.9%	1.309		N/A	N/A	40.000	1.500	87.3%	
09 - TRG	1-Methylnaphthalene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.026	0.081				
	2-Methylnaphthalene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.025	0.079				
	Acenaphthene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.021	0.067				
	Acenaphthylene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.022	0.069				
	Anthracene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.033	0.105				
	Benzo(a)anthracene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.036	0.115				
	Benzo(a)pyrene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.057	0.183				
	Benzo(b)fluoranthene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.056	0.179				
	Benzo(g,h,i)perylene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.053	0.169				
	Benzo(k)fluoranthene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.057	0.182				
	Chrysene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.037	0.118				
	Dibenz(a,h)anthracene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.053	0.170				
	Fluoranthene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.035	0.111				
	Fluorene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.020	0.062				
	Indeno(1,2,3-cd)pyrene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.054	0.173				
	Naphthalene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.044	0.141				
	Phenanthrene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.029	0.093				
	Pyrene	ARS1-17-00216-006	02/08/17 22:17	0.000	1.0	0.001	0.030	0.000	86.7%	0.000	U	0.036	0.114				
	2,4,6-Tribromophenol (Surr)	ARS1-17-00216-006	02/08/17 22:17	37.750	1.0	0.001	0.030	1.258	86.7%	1.452		N/A	N/A	40.000	1.538	94.4%	
	2-Fluorobiphenyl (Surr)	ARS1-17-00216-006	02/08/17 22:17	30.350	1.0	0.001	0.030	1.012	86.7%	1.167		N/A	N/A	40.000	1.538	75.9%	
	2-Fluorophenol (Surr)	ARS1-17-00216-006	02/08/17 22:17	32.440	1.0	0.001	0.030	1.081	86.7%	1.248		N/A	N/A	40.000	1.538	81.1%	

Calculation Report

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (mg/L)	DF	Final Volume (L)	Initial Weight (kg)	Sample Result (mg/kg)	% Solids	Dry Wt Corrected (mg/kg)	Q	MDL (mg/kg)	PQL (mg/kg)	Spiked Amount (mg/L)	Expected Result (mg/kg)	% Rec	RPD
09 - TRG	Nitrobenzene-d5 (Surr)	ARS1-17-00216-006	02/08/17 22:17	32.580	1.0	0.001	0.030	1.086	86.7%	1.253		N/A	N/A	40.000	1.538	81.5%	
	Phenol-d5 (Surr)	ARS1-17-00216-006	02/08/17 22:17	32.800	1.0	0.001	0.030	1.093	86.7%	1.261		N/A	N/A	40.000	1.538	82.0%	
	Terphenyl-d14 (Surr)	ARS1-17-00216-006	02/08/17 22:17	32.950	1.0	0.001	0.030	1.098	86.7%	1.267		N/A	N/A	40.000	1.538	82.4%	
10 - MS	1-Methylnaphthalene	ARS1-17-00216-001	02/08/17 19:20	7.860	1.0	0.001	0.030	0.262	80.6%	0.325		0.026	0.081	20.000	0.827	39.3%	
	2-Methylnaphthalene	ARS1-17-00216-001	02/08/17 19:20	6.490	1.0	0.001	0.030	0.216	80.6%	0.268		0.025	0.079	20.000	0.827	32.5%	
	Acenaphthene	ARS1-17-00216-001	02/08/17 19:20	10.470	1.0	0.001	0.030	0.349	80.6%	0.433		0.021	0.067	20.000	0.827	52.4%	
	Acenaphthylene	ARS1-17-00216-001	02/08/17 19:20	11.200	1.0	0.001	0.030	0.373	80.6%	0.463		0.022	0.069	20.000	0.827	56.0%	
	Anthracene	ARS1-17-00216-001	02/08/17 19:20	14.320	1.0	0.001	0.030	0.477	80.6%	0.592		0.033	0.105	20.000	0.827	71.6%	
	Benzo(a)anthracene	ARS1-17-00216-001	02/08/17 19:20	15.110	1.0	0.001	0.030	0.504	80.6%	0.625		0.036	0.115	20.000	0.827	75.6%	
	Benzo(a)pyrene	ARS1-17-00216-001	02/08/17 19:20	14.090	1.0	0.001	0.030	0.470	80.6%	0.583		0.057	0.183	20.000	0.827	70.5%	
	Benzo(b)fluoranthene	ARS1-17-00216-001	02/08/17 19:20	13.940	1.0	0.001	0.030	0.465	80.6%	0.577		0.056	0.179	20.000	0.827	69.7%	
	Benzo(g,h,i)perylene	ARS1-17-00216-001	02/08/17 19:20	13.540	1.0	0.001	0.030	0.451	80.6%	0.560		0.053	0.169	20.000	0.827	67.7%	
	Benzo(k)fluoranthene	ARS1-17-00216-001	02/08/17 19:20	14.020	1.0	0.001	0.030	0.467	80.6%	0.580		0.057	0.182	20.000	0.827	70.1%	
	Chrysene	ARS1-17-00216-001	02/08/17 19:20	15.250	1.0	0.001	0.030	0.508	80.6%	0.631		0.037	0.118	20.000	0.827	76.3%	
	Dibenz(a,h)anthracene	ARS1-17-00216-001	02/08/17 19:20	14.260	1.0	0.001	0.030	0.475	80.6%	0.590		0.053	0.170	20.000	0.827	71.3%	
	Fluoranthene	ARS1-17-00216-001	02/08/17 19:20	15.660	1.0	0.001	0.030	0.522	80.6%	0.648		0.035	0.111	20.000	0.827	78.3%	
	Fluorene	ARS1-17-00216-001	02/08/17 19:20	12.130	1.0	0.001	0.030	0.404	80.6%	0.502		0.020	0.062	20.000	0.827	60.7%	
	Indeno(1,2,3-cd)pyrene	ARS1-17-00216-001	02/08/17 19:20	14.000	1.0	0.001	0.030	0.467	80.6%	0.579		0.054	0.173	20.000	0.827	70.0%	
	Naphthalene	ARS1-17-00216-001	02/08/17 19:20	5.070	1.0	0.001	0.030	0.169	80.6%	0.210		0.044	0.141	20.000	0.827	25.4%	
	Phenanthrene	ARS1-17-00216-001	02/08/17 19:20	14.160	1.0	0.001	0.030	0.472	80.6%	0.586		0.029	0.093	20.000	0.827	70.8%	
	Pyrene	ARS1-17-00216-001	02/08/17 19:20	15.750	1.0	0.001	0.030	0.525	80.6%	0.651		0.036	0.114	20.000	0.827	78.8%	
11 - MSD	1-Methylnaphthalene	ARS1-17-00216-001	02/08/17 19:50	6.870	1.0	0.001	0.030	0.229	80.6%	0.284		0.026	0.081	20.000	0.827	34.4%	13.4%
	2-Methylnaphthalene	ARS1-17-00216-001	02/08/17 19:50	5.720	1.0	0.001	0.030	0.191	80.6%	0.237		0.025	0.079	20.000	0.827	28.6%	12.6%
	Acenaphthene	ARS1-17-00216-001	02/08/17 19:50	9.280	1.0	0.001	0.030	0.309	80.6%	0.384		0.021	0.067	20.000	0.827	46.4%	12.1%
	Acenaphthylene	ARS1-17-00216-001	02/08/17 19:50	9.660	1.0	0.001	0.030	0.322	80.6%	0.400		0.022	0.069	20.000	0.827	48.3%	14.8%
	Anthracene	ARS1-17-00216-001	02/08/17 19:50	12.150	1.0	0.001	0.030	0.405	80.6%	0.503		0.033	0.105	20.000	0.827	60.8%	16.4%
	Benzo(a)anthracene	ARS1-17-00216-001	02/08/17 19:50	12.470	1.0	0.001	0.030	0.416	80.6%	0.516		0.036	0.115	20.000	0.827	62.4%	19.1%
	Benzo(a)pyrene	ARS1-17-00216-001	02/08/17 19:50	11.330	1.0	0.001	0.030	0.378	80.6%	0.469		0.057	0.183	20.000	0.827	56.7%	21.7%
	Benzo(b)fluoranthene	ARS1-17-00216-001	02/08/17 19:50	11.360	1.0	0.001	0.030	0.379	80.6%	0.470		0.056	0.179	20.000	0.827	56.8%	20.4%
	Benzo(g,h,i)perylene	ARS1-17-00216-001	02/08/17 19:50	11.150	1.0	0.001	0.030	0.372	80.6%	0.461		0.053	0.169	20.000	0.827	55.8%	19.4%
	Benzo(k)fluoranthene	ARS1-17-00216-001	02/08/17 19:50	11.390	1.0	0.001	0.030	0.380	80.6%	0.471		0.057	0.182	20.000	0.827	57.0%	20.7%
	Chrysene	ARS1-17-00216-001	02/08/17 19:50	12.450	1.0	0.001	0.030	0.415	80.6%	0.515		0.037	0.118	20.000	0.827	62.3%	20.2%
	Dibenz(a,h)anthracene	ARS1-17-00216-001	02/08/17 19:50	11.630	1.0	0.001	0.030	0.388	80.6%	0.481		0.053	0.170	20.000	0.827	58.2%	20.3%
	Fluoranthene	ARS1-17-00216-001	02/08/17 19:50	12.930	1.0	0.001	0.030	0.431	80.6%	0.535		0.035	0.111	20.000	0.827	64.7%	19.1%
	Fluorene	ARS1-17-00216-001	02/08/17 19:50	10.640	1.0	0.001	0.030	0.355	80.6%	0.440		0.020	0.062	20.000	0.827	53.2%	13.1%
	Indeno(1,2,3-cd)pyrene	ARS1-17-00216-001	02/08/17 19:50	11.410	1.0	0.001	0.030	0.380	80.6%	0.472		0.054	0.173	20.000	0.827	57.1%	20.4%
	Naphthalene	ARS1-17-00216-001	02/08/17 19:50	4.320	1.0	0.001	0.030	0.144	80.6%	0.179		0.044	0.141	20.000	0.827	21.6%	16.0%
	Phenanthrene	ARS1-17-00216-001	02/08/17 19:50	12.420	1.0	0.001	0.030	0.414	80.6%	0.514		0.029	0.093	20.000	0.827	62.1%	13.1%
	Pyrene	ARS1-17-00216-001	02/08/17 19:50	12.980	1.0	0.001	0.030	0.433	80.6%	0.537		0.036	0.114	20.000	0.827	64.9%	19.3%

Analytical Batch Report

Analysis Batch ID	ARS1-B17-00170			
	Method	Analysis	Matrix	
	ARS-160	GCMS-8270D-SO	SO	
Description	SVOs base, neutral, & acid in SO			

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Prep Code	Client ID	Group Name	Lab Deadline
ARS1-B17-00170-01	LCS	m29h-01182017-1	m29h-01252017-1	m29h-01252017-2							
ARS1-B17-00170-02	LCSD	m29h-01182017-1	m29h-01252017-1	m29h-01252017-2							
ARS1-B17-00170-03	MBL		m29h-01252017-1	m29h-01252017-2							
ARS1-B17-00170-04	TRG				ARS1-17-00216	001	1	3550C	BB-16L	Semi Volatiles	02/11/17
ARS1-B17-00170-10	MS	m29h-01182017-1			Parent: ARS1-17-00216-001						
ARS1-B17-00170-11	MSD	m29h-01182017-1			Parent: ARS1-17-00216-001						
ARS1-B17-00170-05	TRG				ARS1-17-00216	002	1	3550C	BB-18	Semi Volatiles	02/11/17
ARS1-B17-00170-06	TRG				ARS1-17-00216	003	1	3550C	OS-2	Semi Volatiles	02/11/17
ARS1-B17-00170-07	TRG				ARS1-17-00216	004	1	3550C	BB-19M	Semi Volatiles	02/11/17
ARS1-B17-00170-08	TRG				ARS1-17-00216	005	1	3550C	BB-16B	Semi Volatiles	02/11/17
ARS1-B17-00170-09	TRG				ARS1-17-00216	006	1	3550C	BB-16A	Semi Volatiles	02/11/17

Semi-Volatiles/PCB Sample Preparation Worksheet

Sample or QC ID	Sample Type (W, S, O)	Sample amount (g, mL)	Water Sample pH	pH Adjusted to:	Surrogate Amount / Conc	Spike Amount / Conc	Final Volume, mL	Notes
B17-00170-01	S	30 g	/	—	1mL	1mL	1mL	LCS
B17-00170-02	S	30 g	/	/	1mL	1mL	1mL	LCSD
B17-00170-03	S	30 g	/	/	1mL		1mL	MBL
B17-00170-04	S	30 g	/	/	1mL		1mL	
B17-00170-01	S	30 g	/	/	1mL	1mL	1mL	MS
B17-00170-11	S	30 g	/	/	1mL	1mL	1mL	MSD
B17-00170-05	S	30 g	/	/	1mL		1mL	
B17-00170-06	S	30 g	/	/	1mL		1mL	
B17-00170-07	S	30 g	/	/	1mL		1mL	
B17-00170-08	S	30 g	/	/	1mL		1mL	
B17-00170-01	S	30 g	/	/	1mL		1mL	

Note only what is used:
DCM Lot# L4-0050
Hexane Lot# _____
1:1 H2SO4 Lot# _____

Na2SO4 Lot# WH222
10 N NaOH Lot# _____
Surrogate Lot# m19h, 1-15-2019 - 1, 2
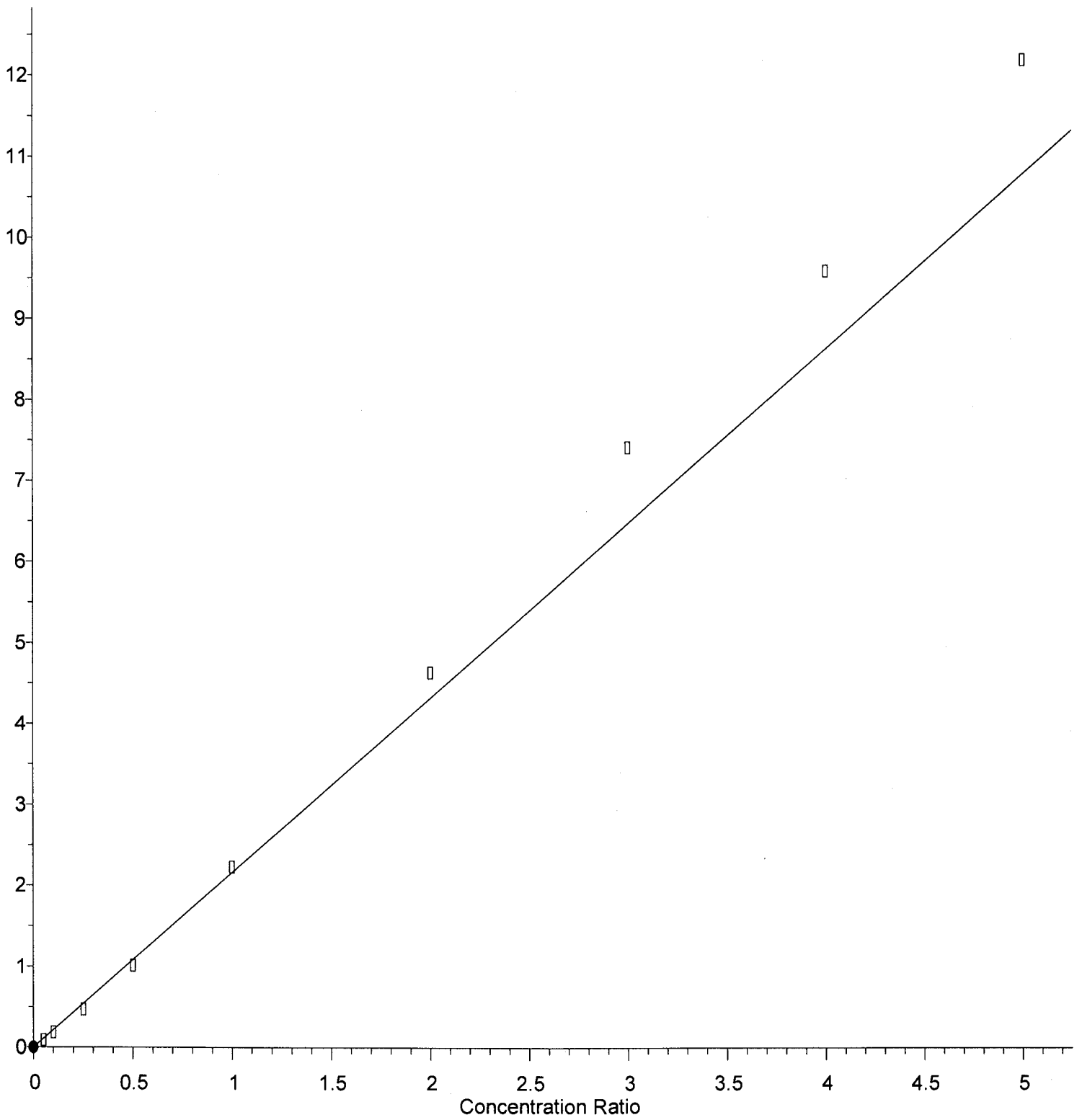Spike Lot# m19n 11920191

Analyst Initials KC

ARS-160

Procedure Data

ABatch Sample ID	Client ID	Parent	Wi/Vi (g/ml)	Extraction Type	Extraction Date/Time	Conc. Extract Vol (ml)	Cleanup Type	Cleanup Factor	User ID
ARS1-B17-00170-01			30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-02			30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-03			30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-04	BB-16L		30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-05	BB-18		30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-06	OS-2		30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-07	BB-19M		30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-08	BB-16B		30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-09	BB-16A		30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-10		ARS1-17-00216-001	30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA
ARS1-B17-00170-11		ARS1-17-00216-001	30.0000	Sonification	1/30/2017 11:30:00 AM	1.0000			RCHANIYAVA

No reagents were used for this procedure.

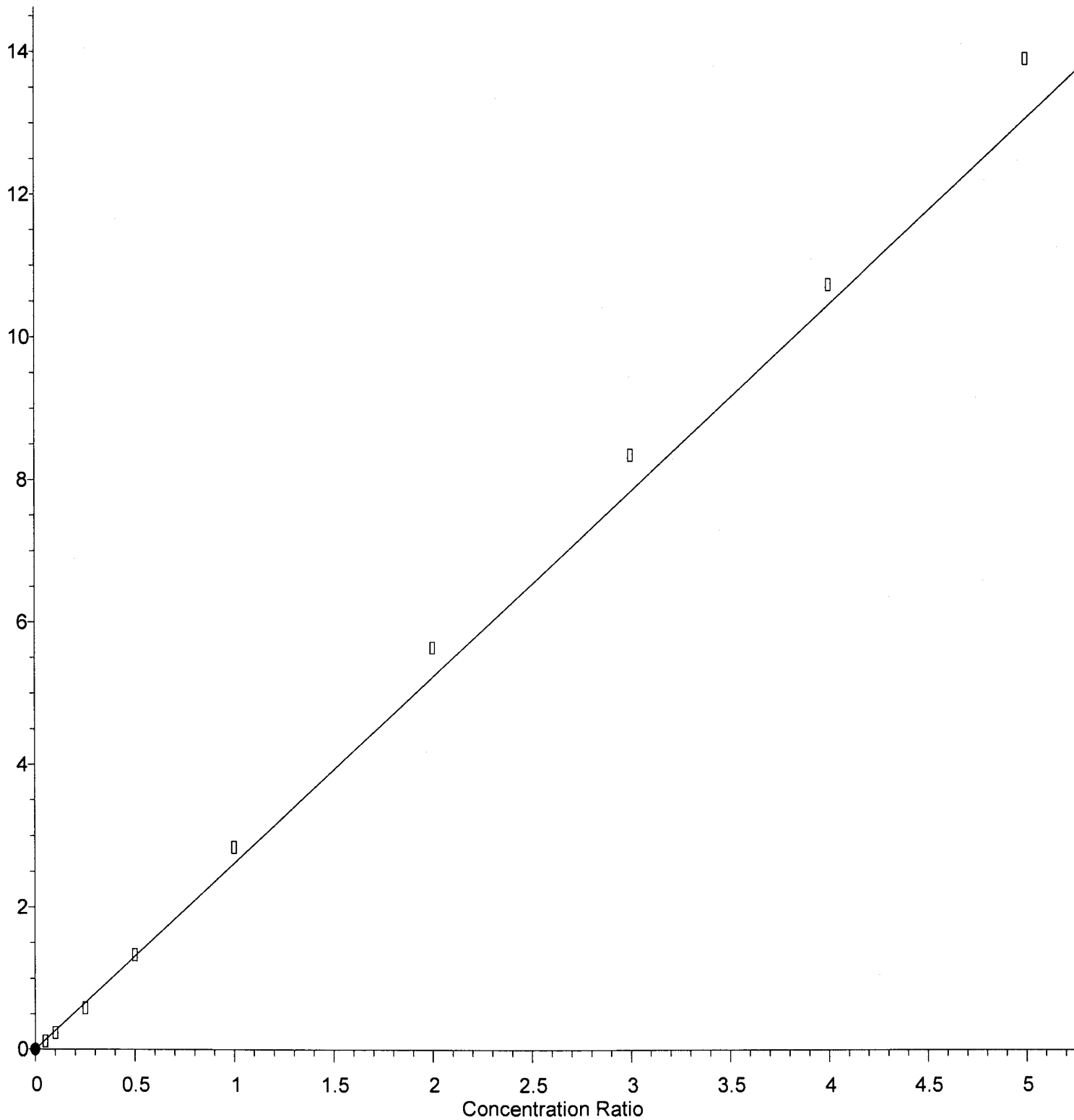No reagents were scanned.

2-Fluorophenol

Response Ratio

Response = 2.162e+000 * Amt
RF Rel Std Dev = 12.393%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Response Ratio

Response = 2.617e+000 * Amt
RF Rel Std Dev = 8.844%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Nitrobenzene-d5

Response Ratio

Concentration Ratio

Response = 5.200e-001 * Amt
RF Rel Std Dev = 2.836%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Naphthalene

Response Ratio

Concentration Ratio

Response = 1.954e+000 * Amt
RF Rel Std Dev = 8.477%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

2-Methylnaphthalene

Response Ratio

Concentration Ratio
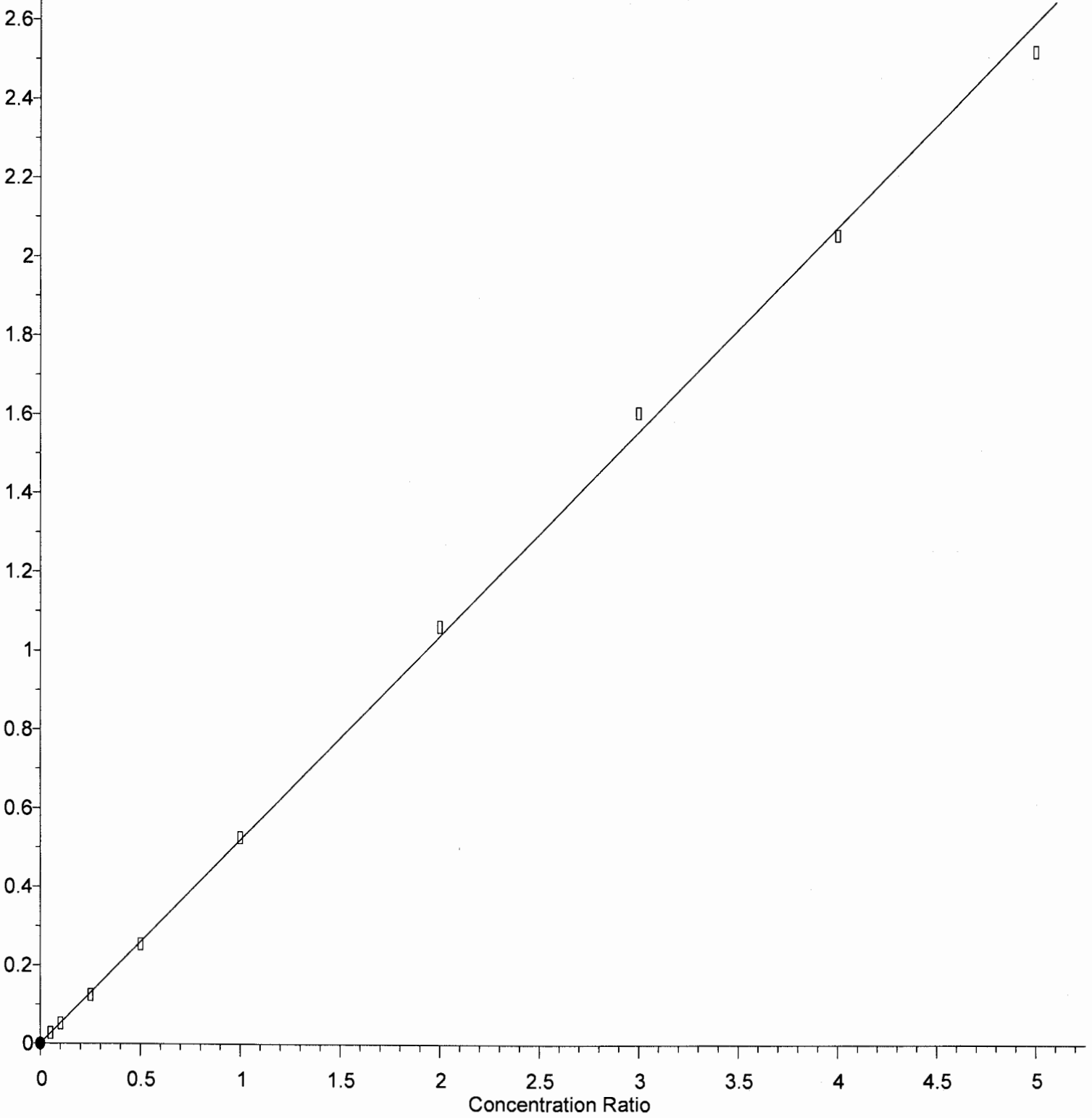
Response = 1.275e+000 * Amt
RF Rel Std Dev = 3.894%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

1-Methylnaphthalene

Response Ratio

Concentration Ratio

Response = 1.170e+000 * Amt
RF Rel Std Dev = 3.876%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

2-Fluorobiphenyl

Response Ratio

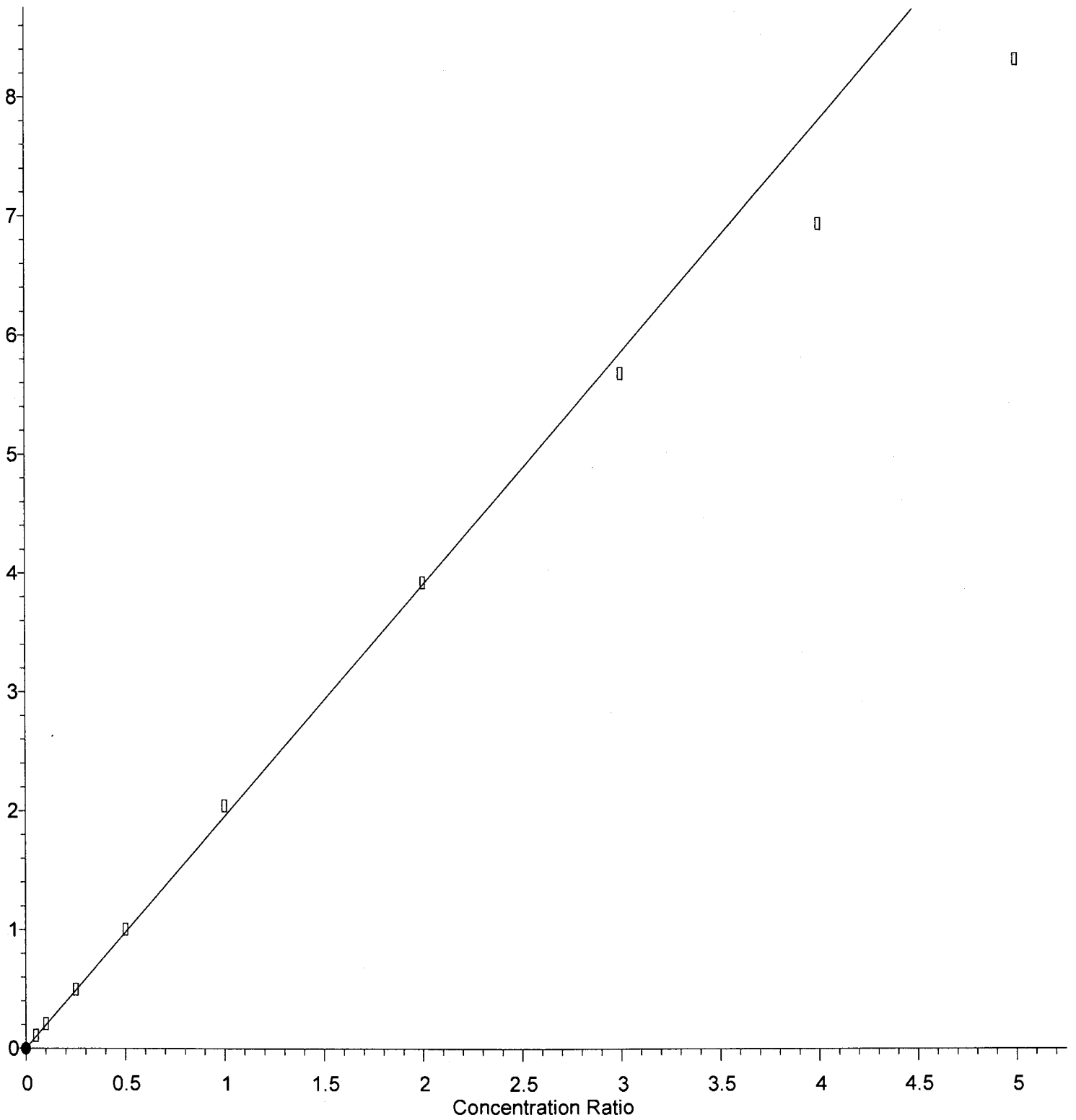Concentration Ratio

Response = 2.666e+000 * Amt
RF Rel Std Dev = 7.037%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Acenaphthylene

Response Ratio

Concentration Ratio

Response = 3.639e+000 * Amt
RF Rel Std Dev = 4.688%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Acenaphthene

Response Ratio

Concentration Ratio

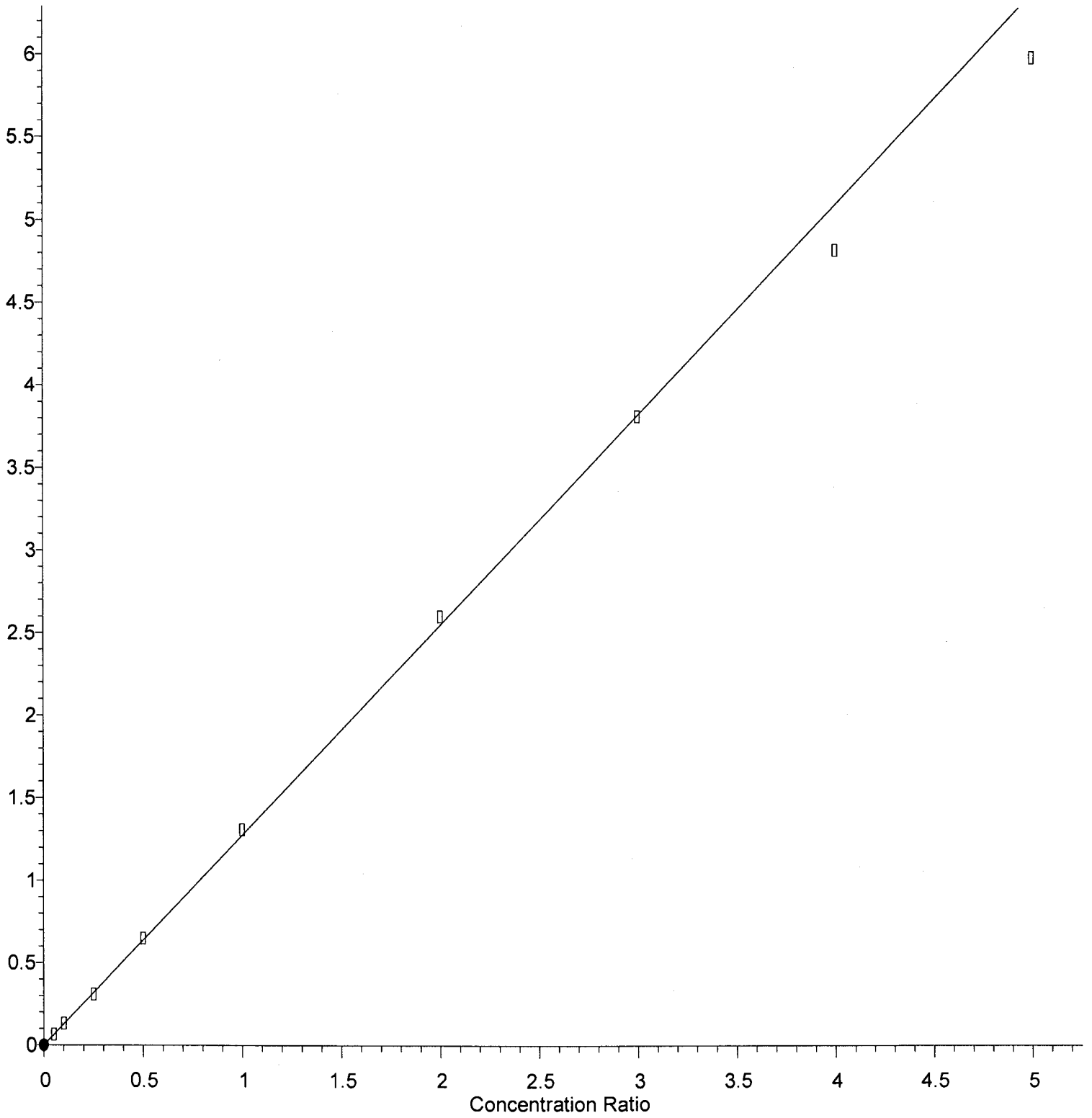Response = 2.431e+000 * Amt
RF Rel Std Dev = 5.918%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017
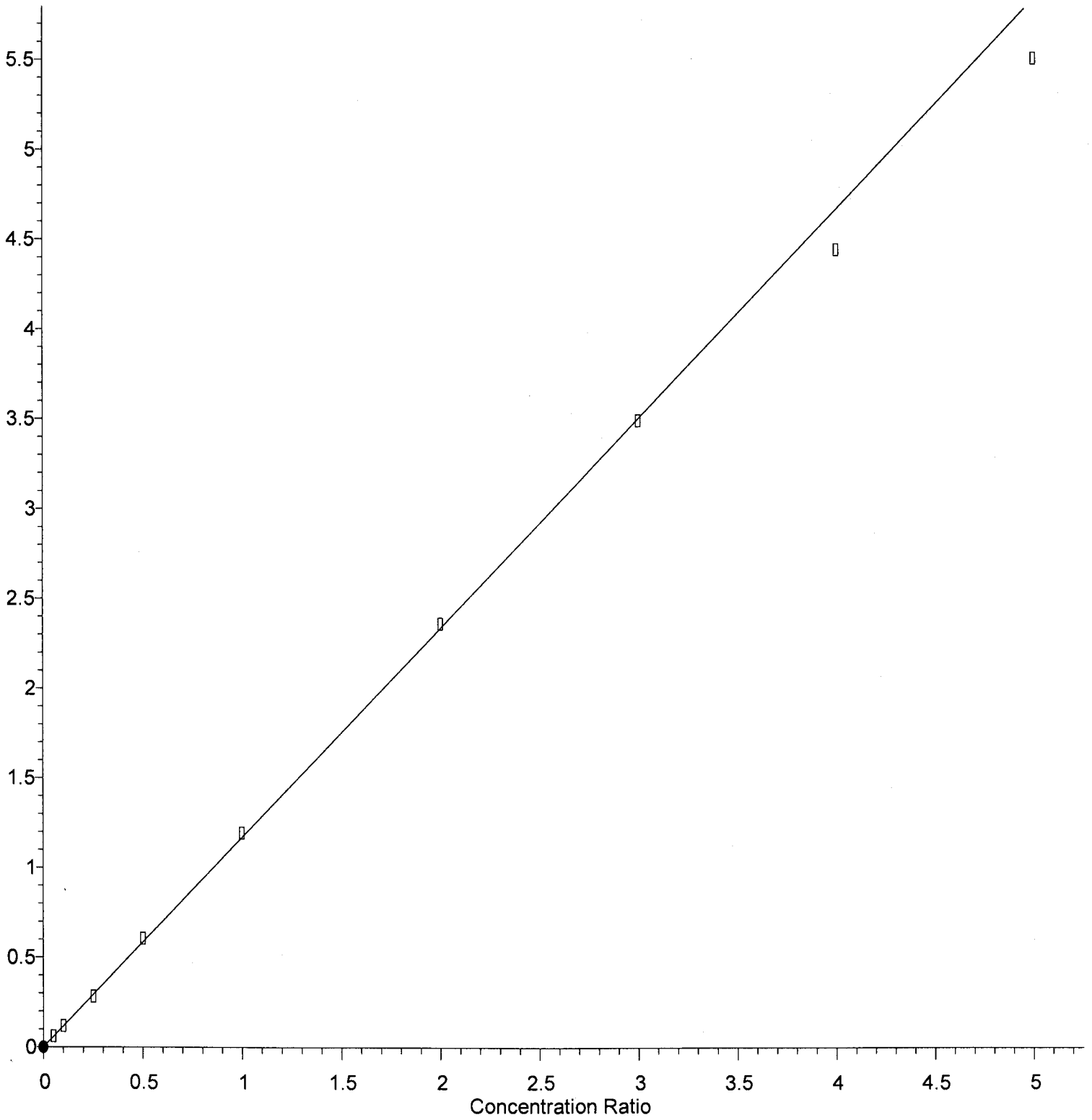
Fluorene

Response Ratio

Concentration Ratio

Response = 2.729e+000 * Amt
RF Rel Std Dev = 4.488%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

2,4,6-Tribromophenol

Response Ratio

Concentration Ratio

Response = 2.527e-001 * Amt - 1.859e-002
Coef of Det (r^2) = 0.999717   Curve Fit: Linear
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Phenanthrene

Response Ratio (y-axis)

Concentration Ratio (x-axis)

Response = 2.070e+000 * Amt
RF Rel Std Dev = 5.887%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Anthracene

Response Ratio

Concentration Ratio

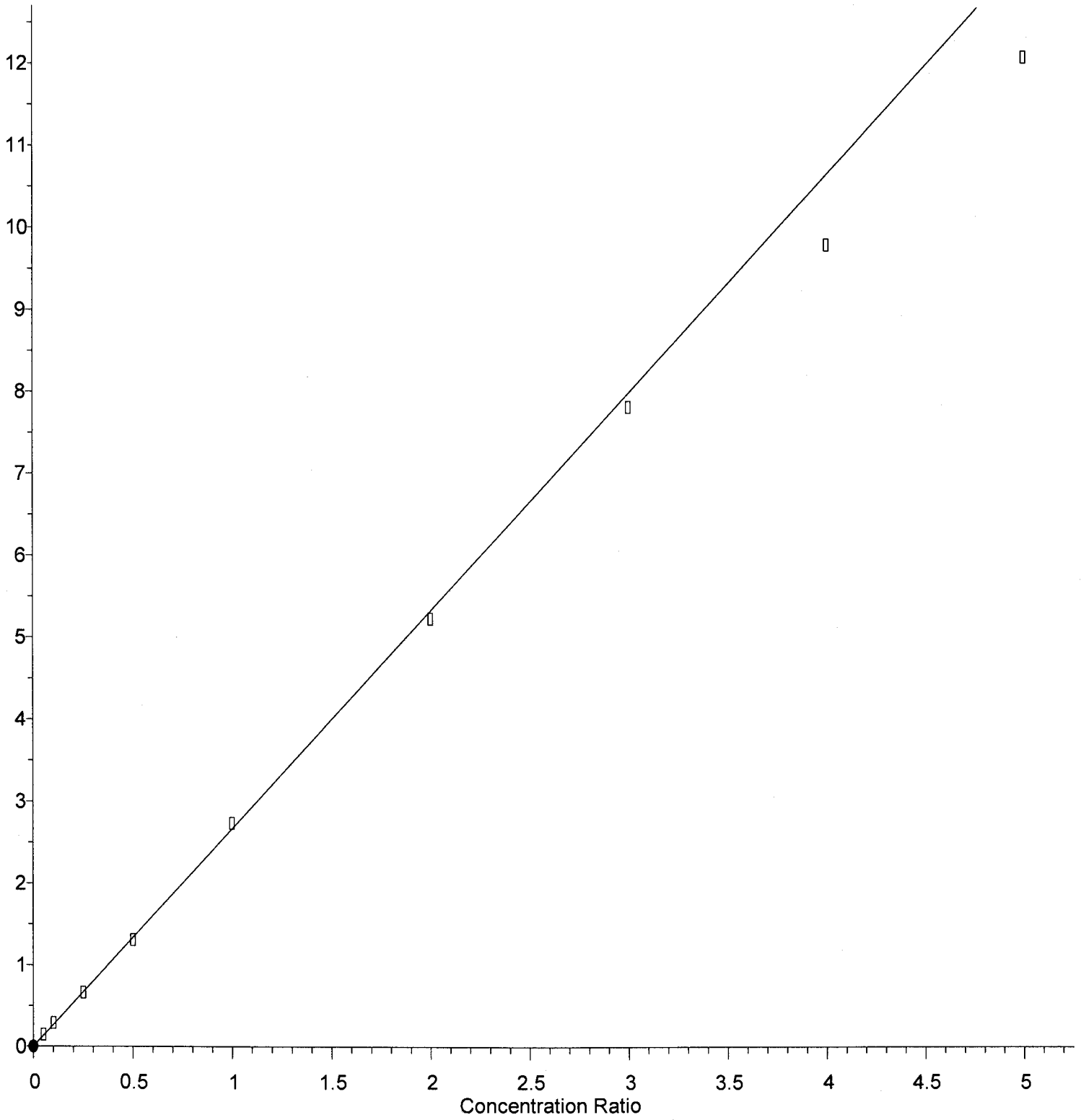Response = 2.192e+000 * Amt
RF Rel Std Dev = 3.944%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Response Ratio

Concentration Ratio

Response = 2.272e+000 * Amt
RF Rel Std Dev = 3.557%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Fluoranthene

Response Ratio (y-axis), Concentration Ratio (x-axis)
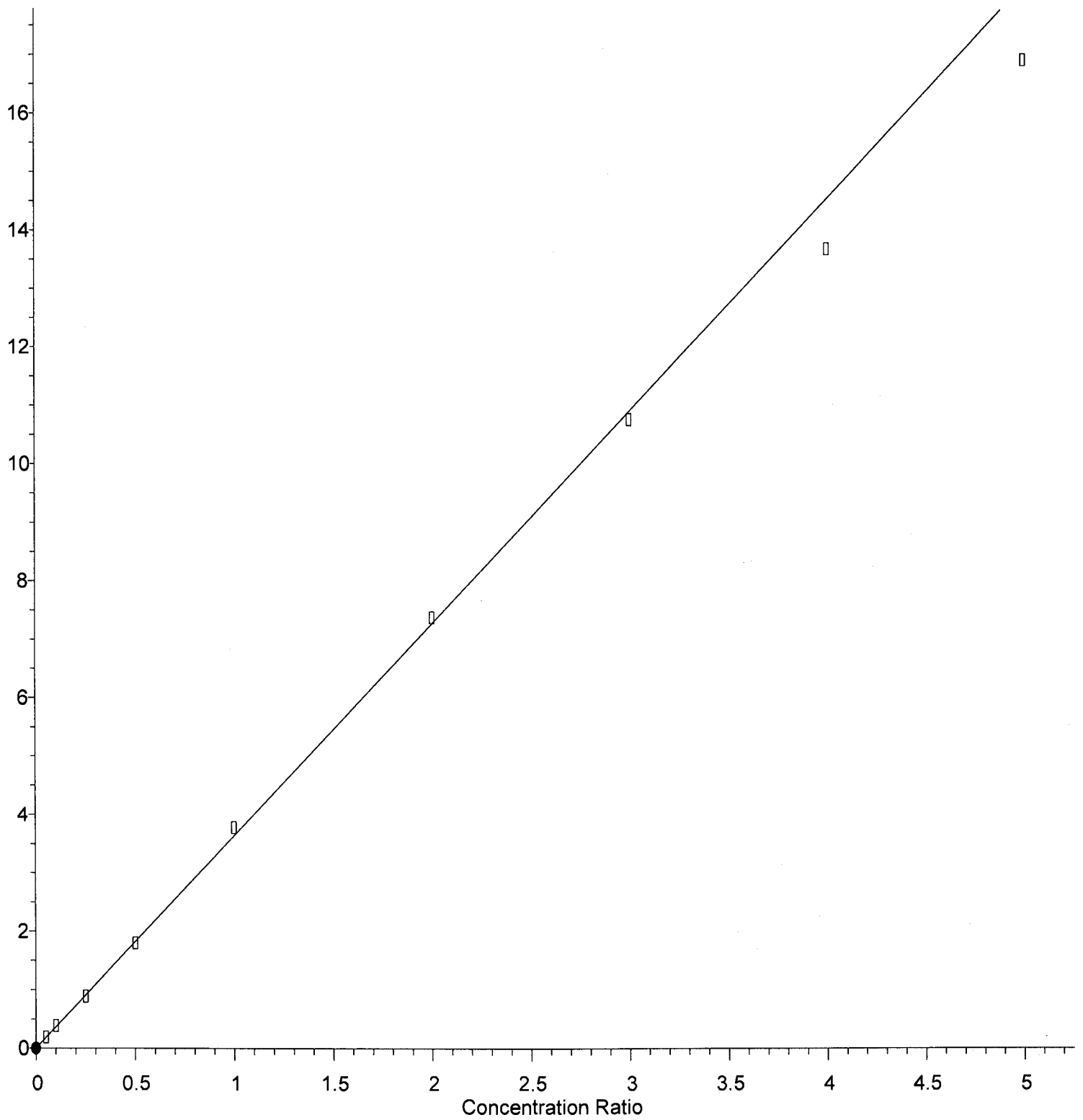
Response = 2.327e+000 * Amt
RF Rel Std Dev = 4.162%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Response Ratio

Response = 1.436e+000 * Amt
RF Rel Std Dev = 2.908%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Benzo(a)anthracene

Response Ratio

Concentration Ratio
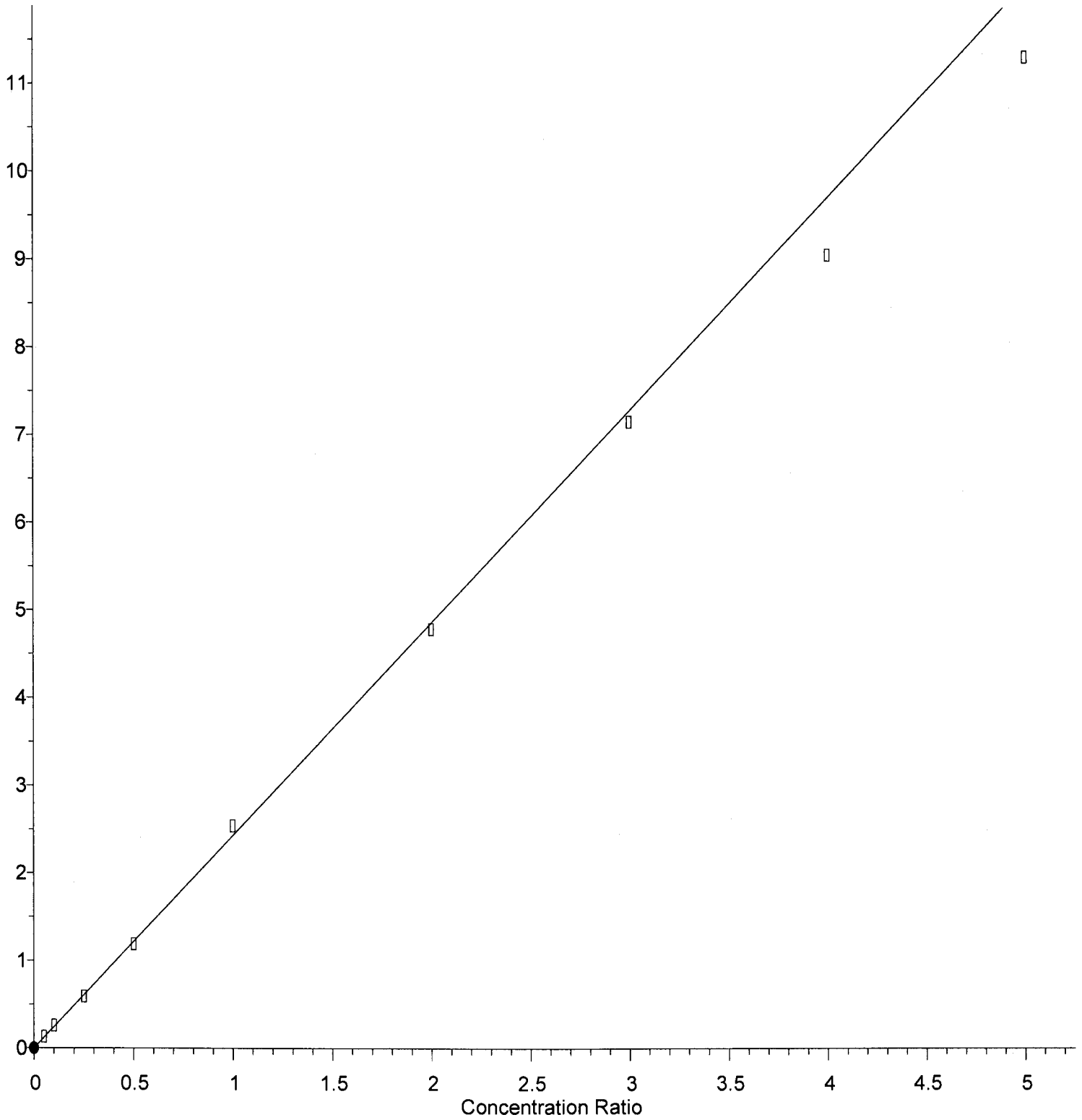
Response = 2.069e+000 * Amt
RF Rel Std Dev = 2.884%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Chrysene

Response Ratio

Concentration Ratio

Response = 2.002e+000 * Amt
RF Rel Std Dev = 3.205%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Benzo(b)fluoranthene
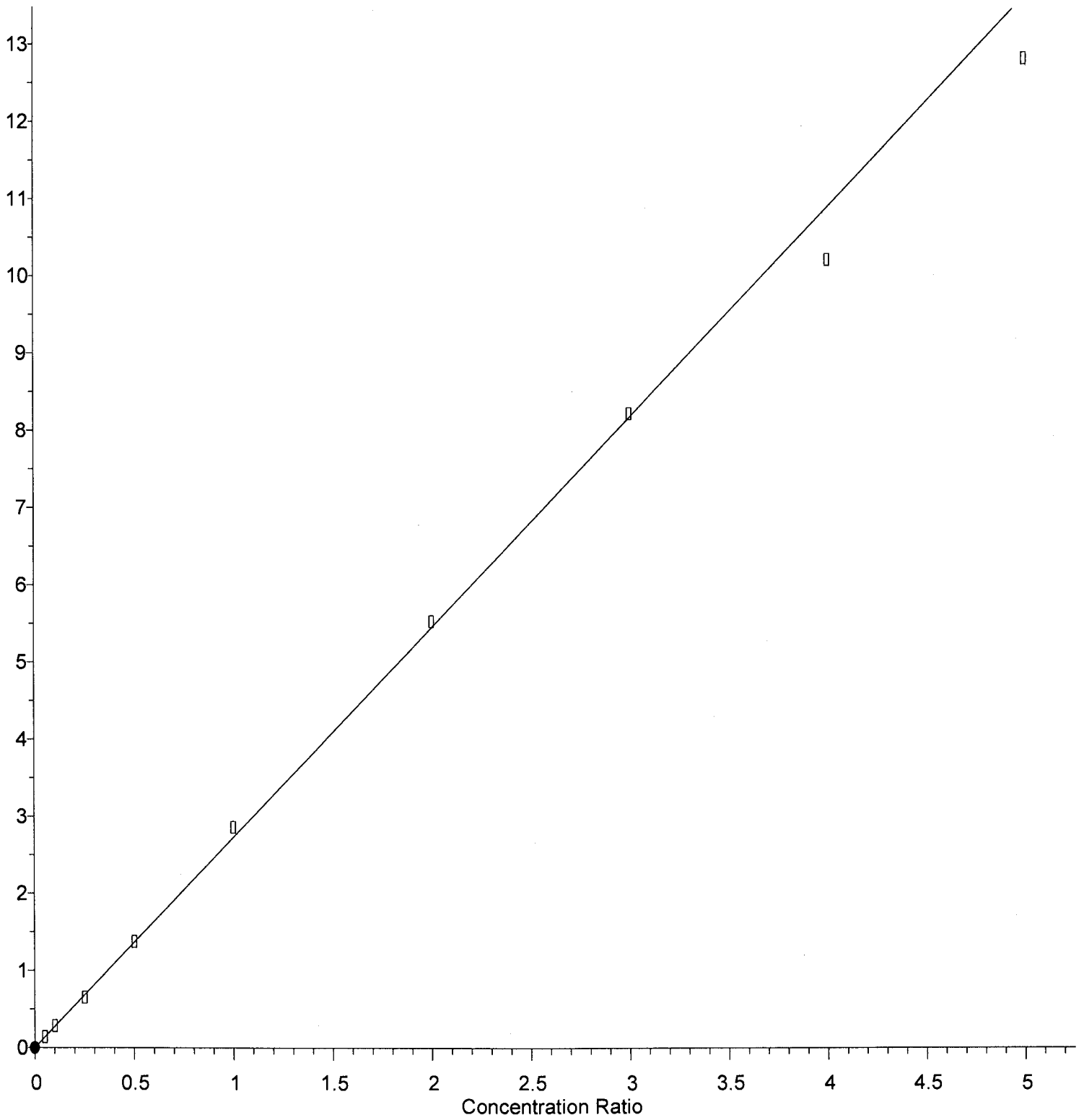
Response Ratio

Response = 2.187e+000 * Amt
RF Rel Std Dev = 2.630%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Benzo(k)fluoranthene

Response Ratio

Concentration Ratio

Response = 2.223e+000 * Amt
RF Rel Std Dev = 2.989%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Benzo(a)pyrene

Response Ratio

Concentration Ratio
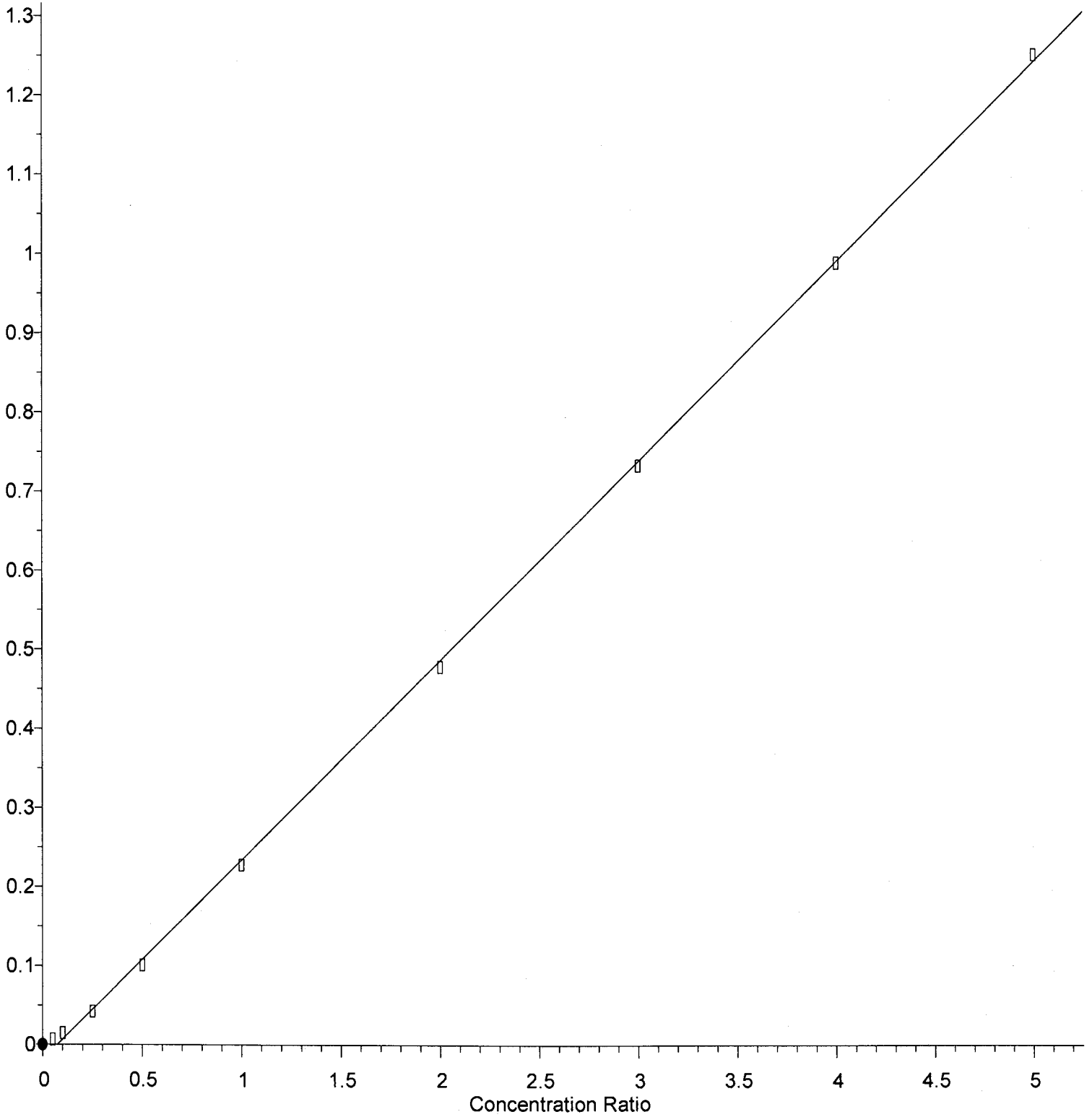
Response = 2.139e+000 * Amt
RF Rel Std Dev = 4.562%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Indeno(1,2,3-cd)pyrene

Response Ratio

Concentration Ratio

Response = 2.679e+000 * Amt
RF Rel Std Dev = 4.325%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Dibenz(a,h)anthracene
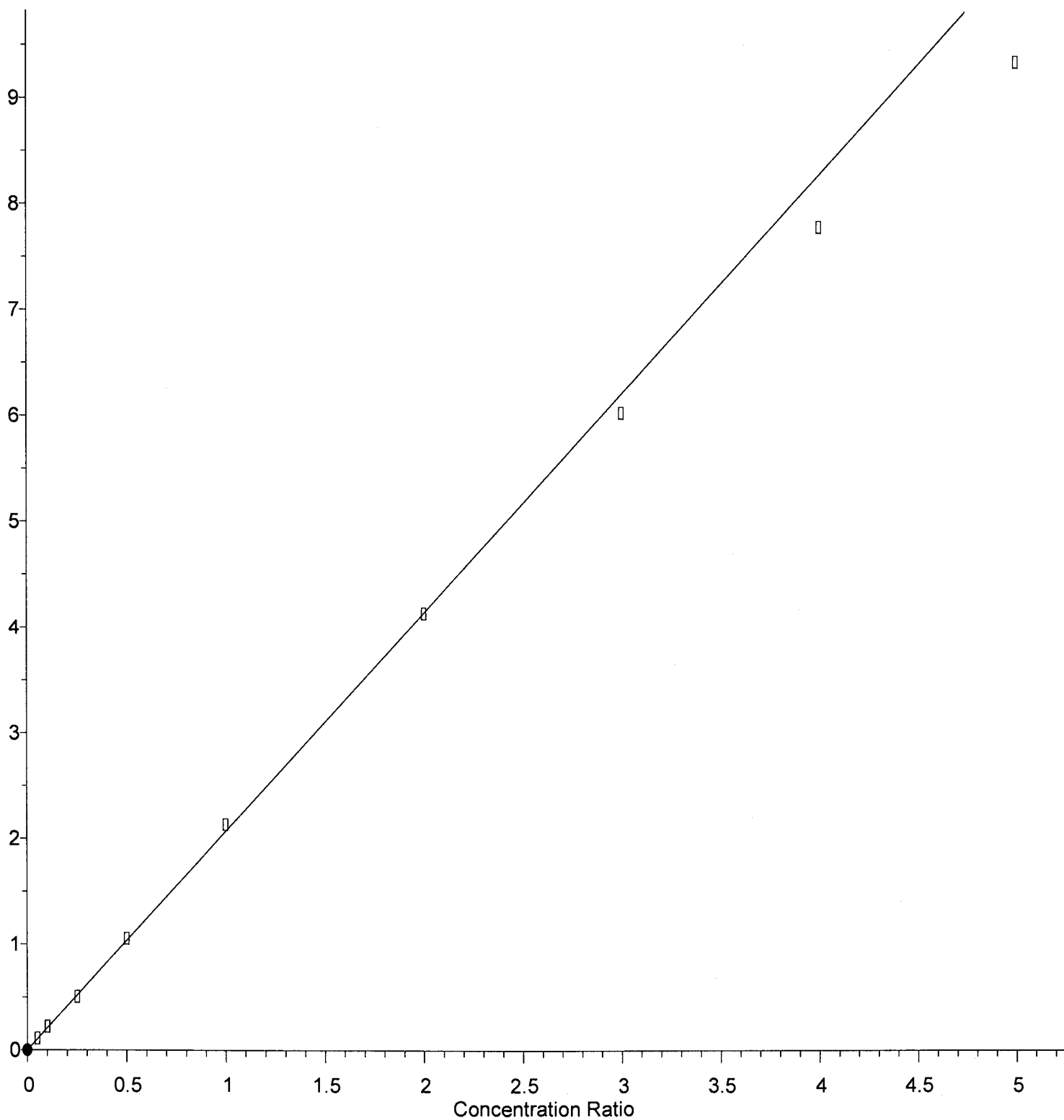

Response = 2.231e+000 * Amt
RF Rel Std Dev = 4.701%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Benzo(g,h,i)perylene

Response Ratio

Concentration Ratio

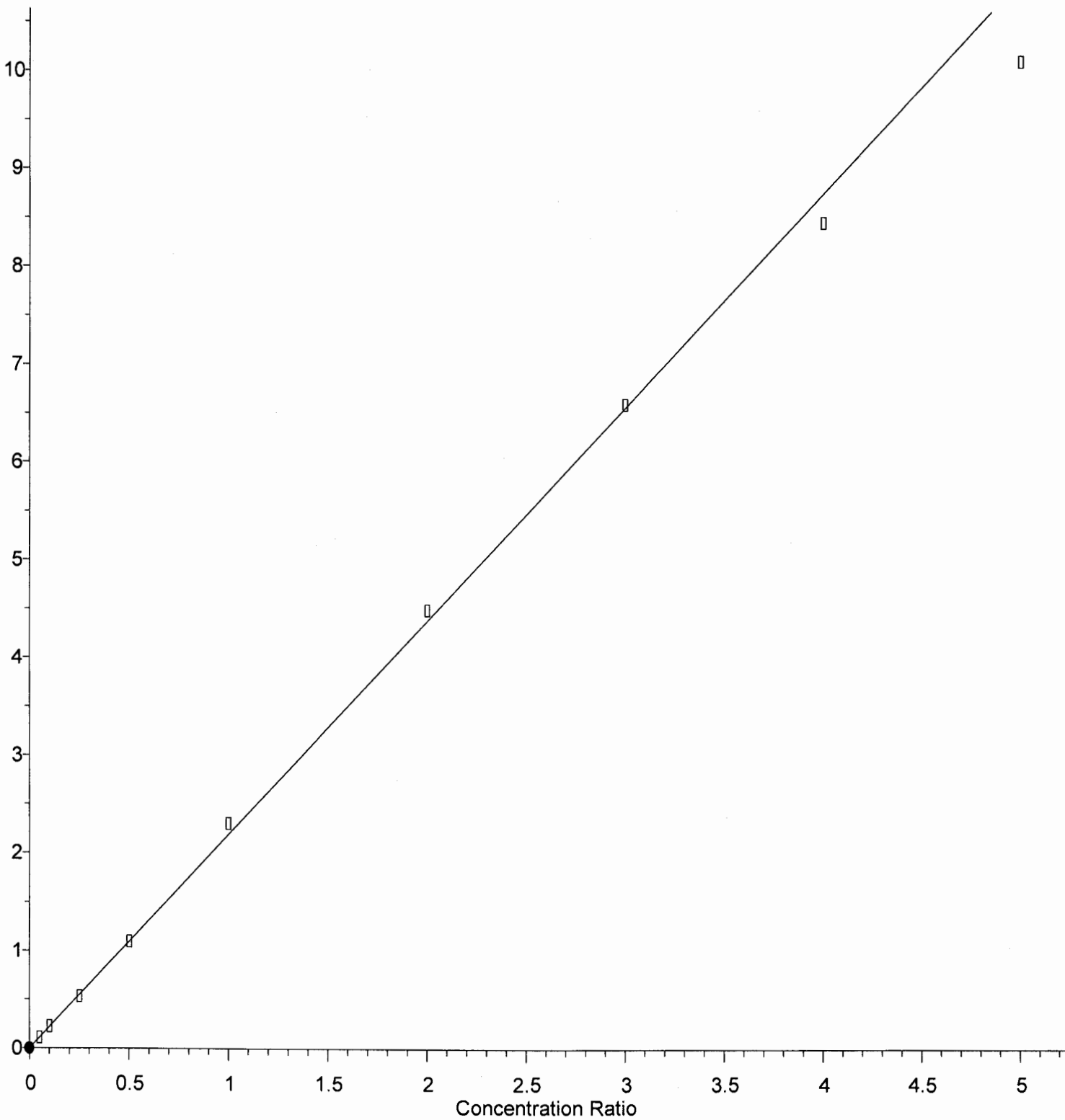Response = 2.264e+000 * Amt
RF Rel Std Dev = 4.154%   Curve Fit: Avg RF
Method Name: D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
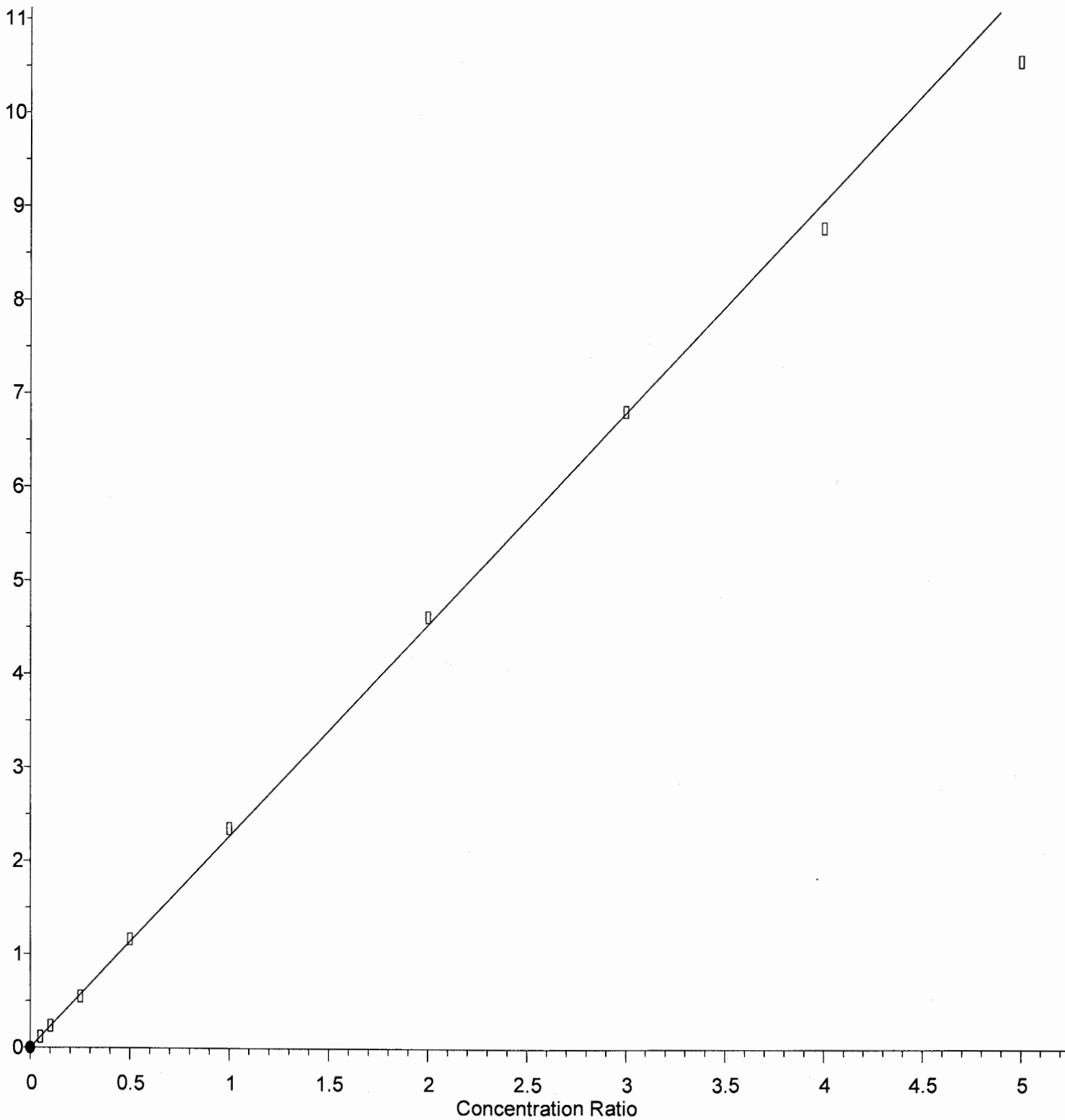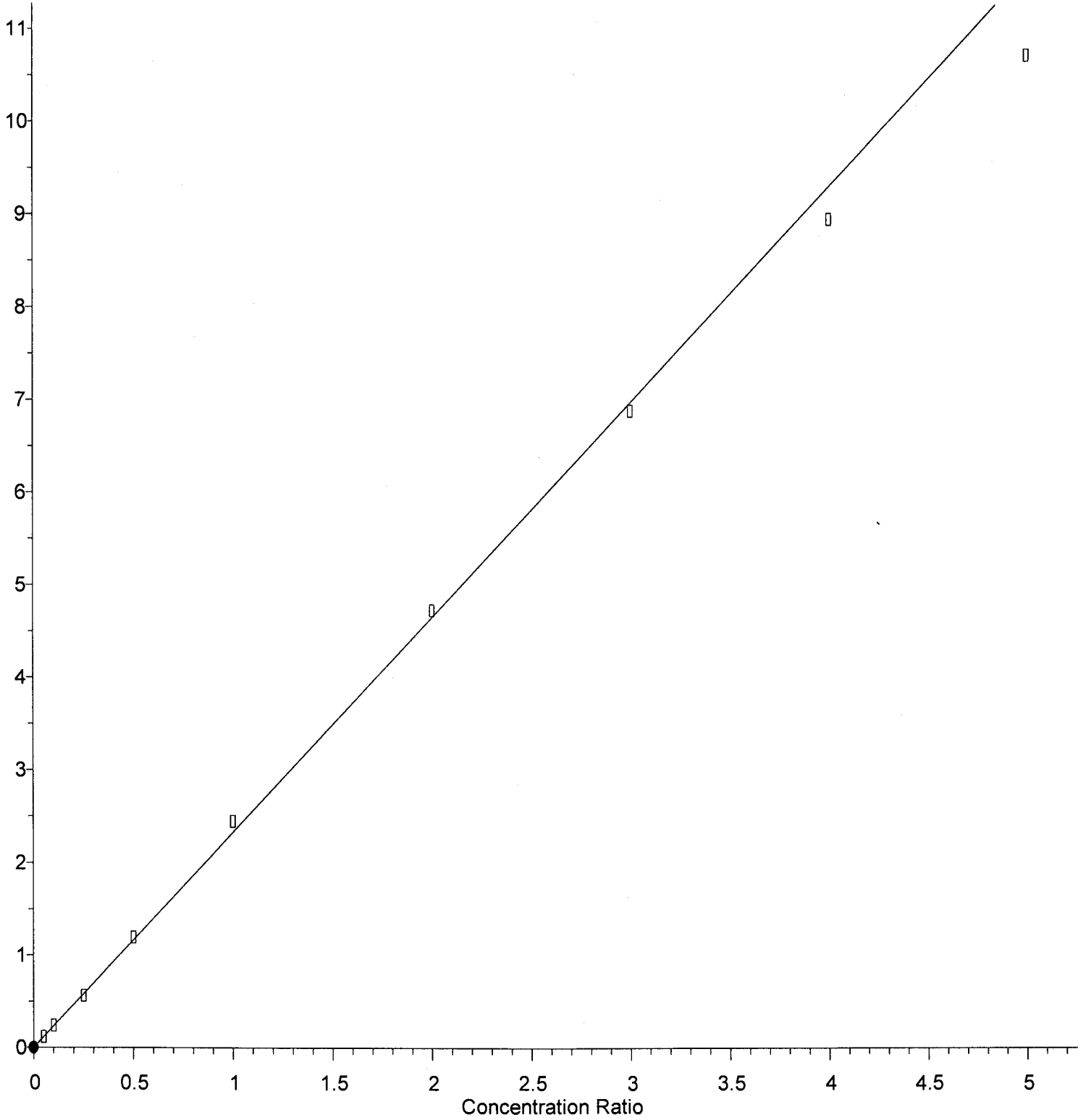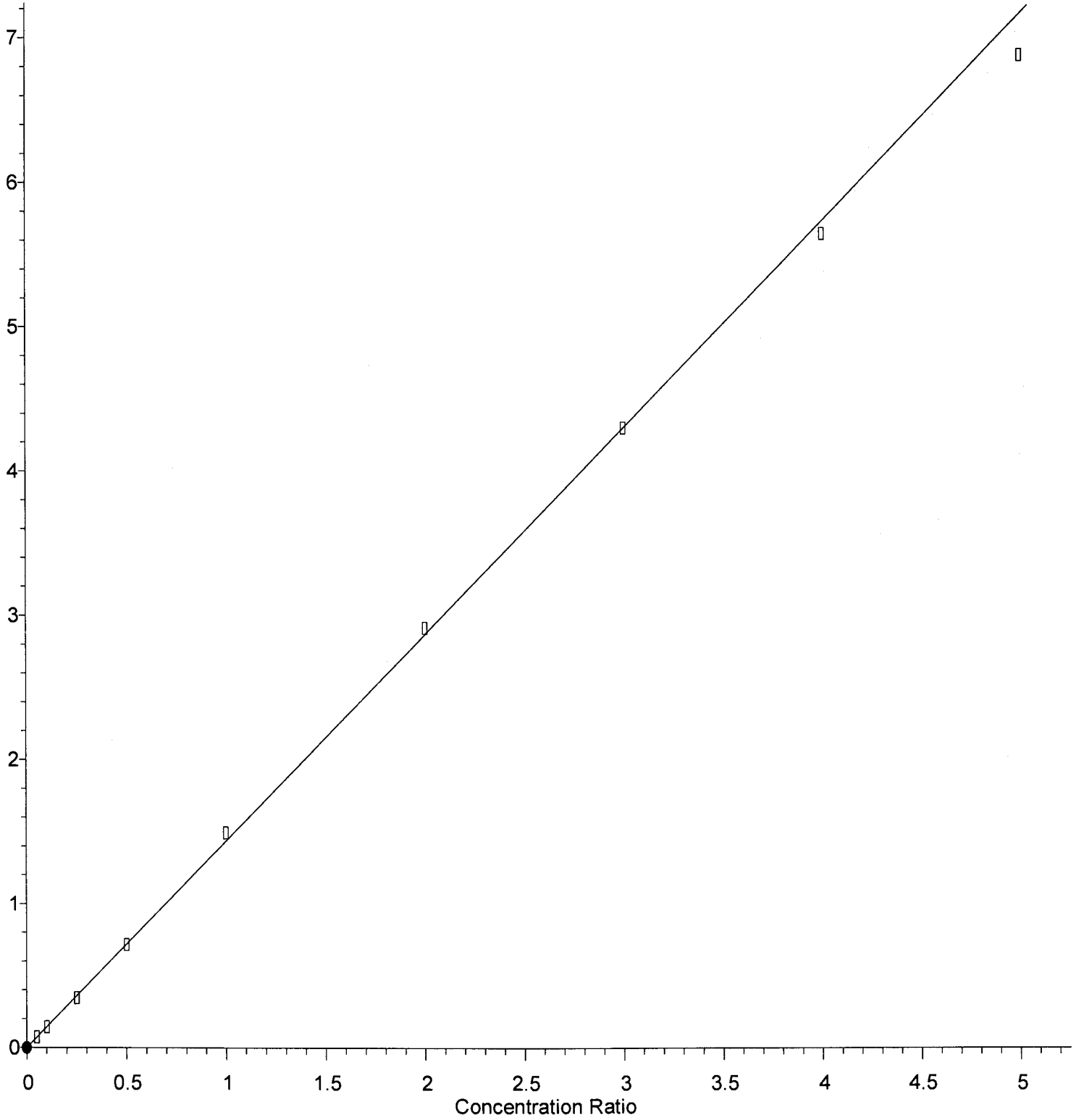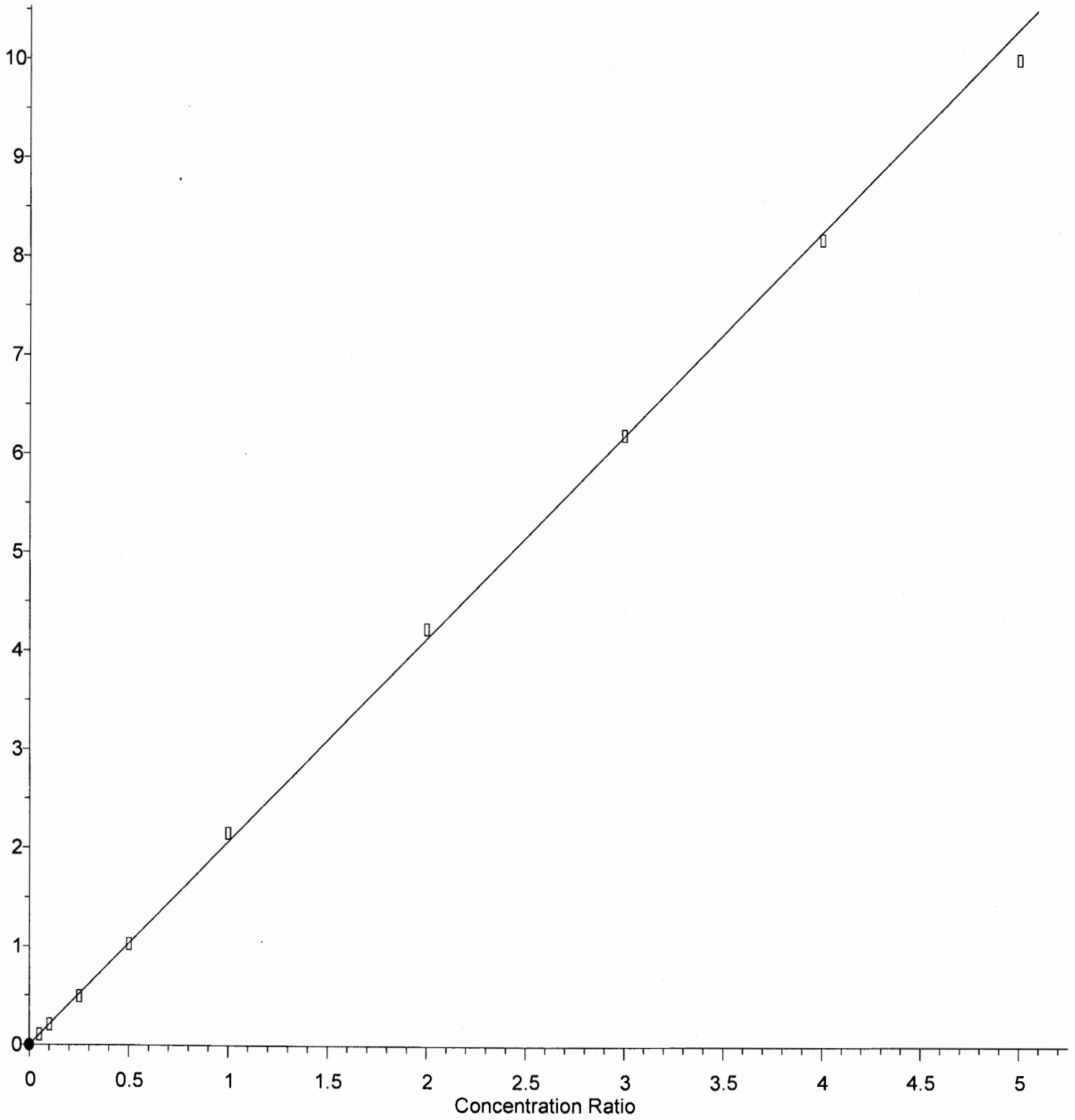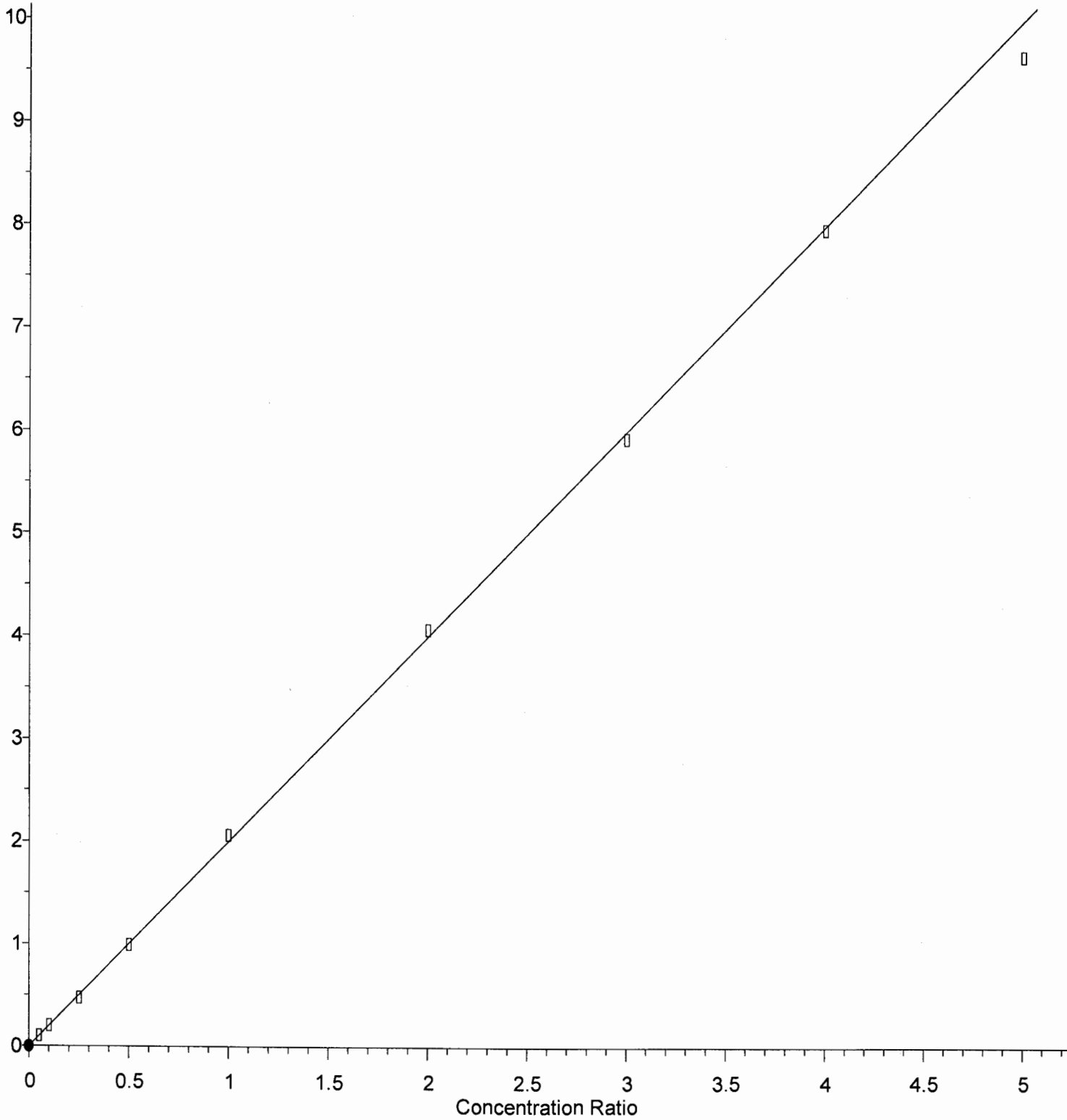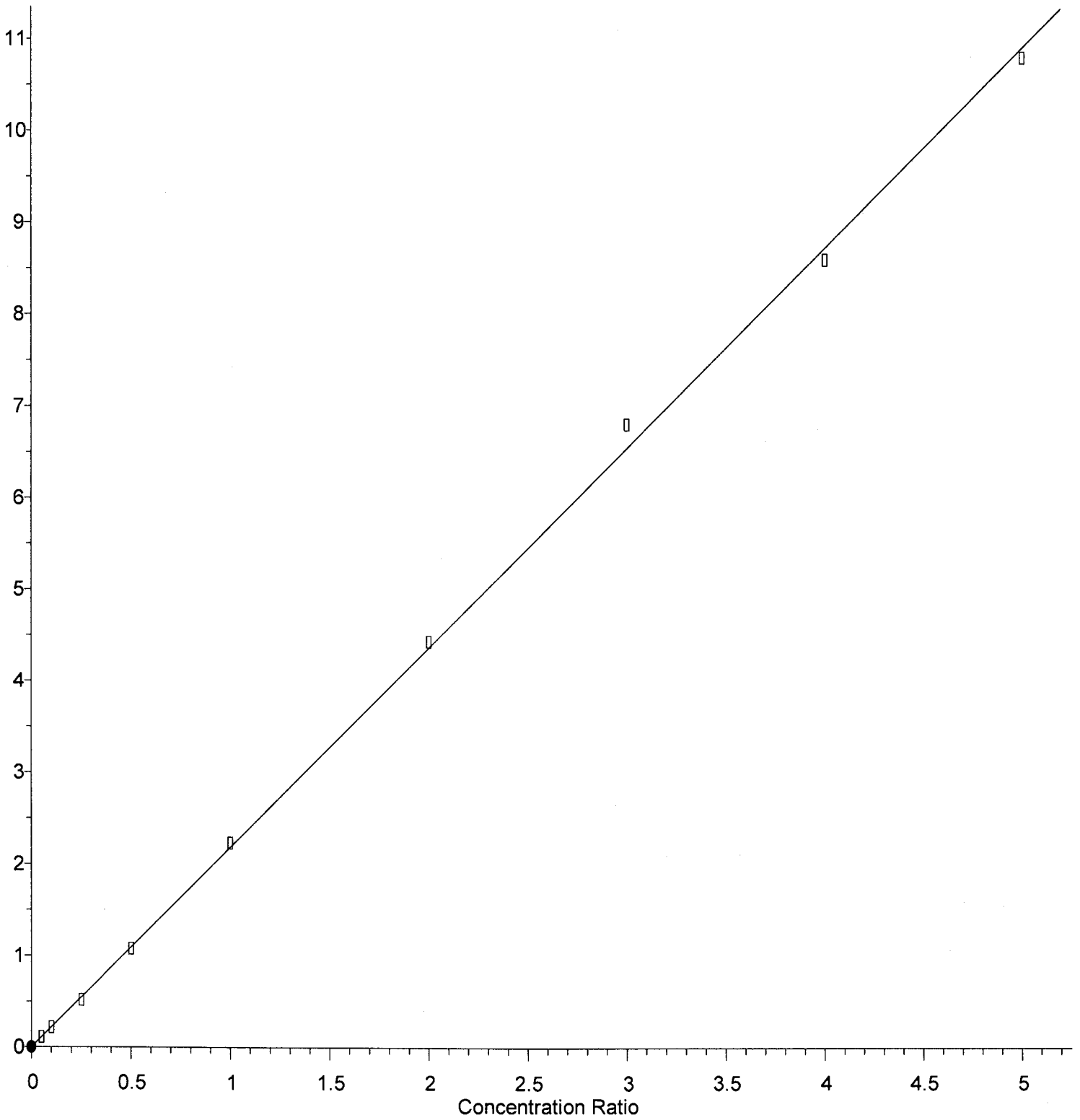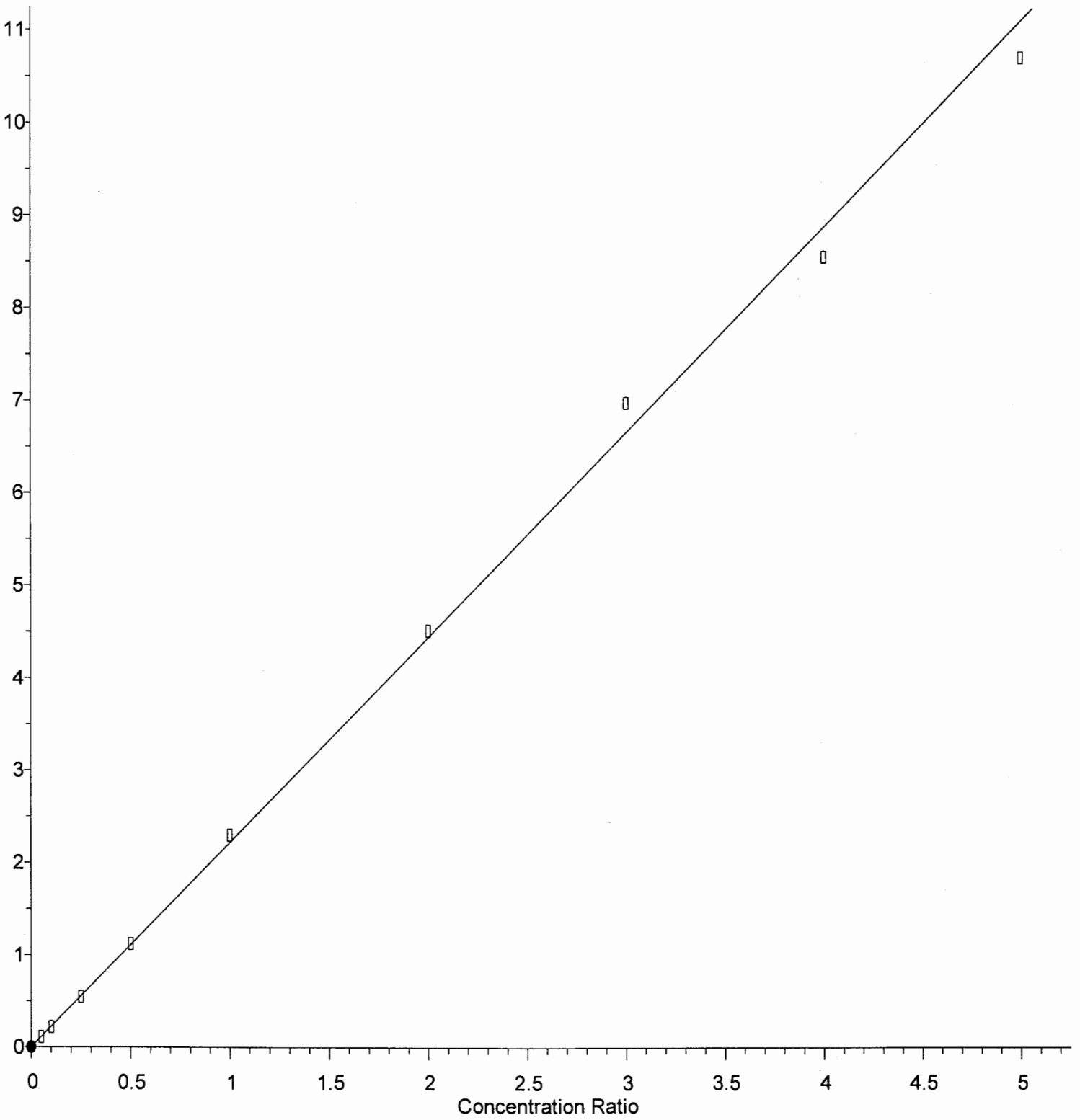Calibration Table Last Updated: Wed Feb 08 10:30:56 2017

Response Factor Report GCMS #1

Method Path : D:\MassHunter\GCMS\1\methods\
Method File : cole_8270_PAH.M
Title   : 8270D
Last Update : Wed Feb 08 10:30:56 2017
Response Via : Initial Calibration

Calibration Files
100 =IC02011709 100ppm 02-01-17.D   80 =IC02011708 80ppm 02-01-17.D   60 =IC02011707 60ppm 02-01-17.D   40 =IC02011706 40ppm 02-01-17.D
20 =IC02011705 20ppm 02-01-17.D   10 =IC02011704 10ppm 02-01-17.D   5   =IC02011703 5ppm 02-01-17.D   2   =IC02011702 2ppm 02-01-17.D
1   =IC02011701 1ppm 02-01-17.D

		Compound	100	80	60	40	20	10	5	2	1	Avg	%RSD
1)	I	1,4-Dichlorobenzen...	--------ISTD--------										
2)	S	2-Fluorophenol	2.443	2.403	2.475	2.322	2.233	2.028	1.877	1.812	2.162		12.39
3)	S	Phenol-d5	2.786	2.690	2.790	2.825	2.845	2.661	2.329	2.304	2.617		8.84
4)	I	Naphthalene-d8	--------ISTD--------										
5)	S	Nitrobenzene-d5	0.505	0.515	0.536	0.532	0.526	0.509	0.498	0.541	0.520		2.84
6)	CPM	Naphthalene	1.667	1.737	1.897	1.964	2.045	2.010	1.993	2.198	1.954		8.48
7)	CPM	2-Methylnaphth...	1.198	1.206	1.273	1.302	1.309	1.300	1.237	1.332	1.275		3.89
8)	CPM	1-Methylnaphth...	1.104	1.113	1.166	1.182	1.194	1.212	1.130	1.235	1.170		3.88
9)	I	Acenaphthene-d10	--------ISTD--------										
10)	S	2-Fluorobiphenyl	2.420	2.452	2.609	2.617	2.736	2.612	2.649	2.970	2.666		7.04
11)	CPM	Acenaphthylene	3.387	3.425	3.594	3.693	3.781	3.599	3.568	3.841	3.639		4.69
12)	CPM	Acenaphthene	2.264	2.266	2.388	2.394	2.542	2.376	2.374	2.680	2.431		5.92
13)	CPM	Fluorene	2.569	2.558	2.745	2.769	2.860	2.750	2.605	2.855	2.729		4.49
14)	I	Phenanthrene-d10	--------ISTD--------										
15)	S	2,4,6-Tribromo...	0.251	0.248	0.245	0.239	0.228	0.202	0.168	0.148	0.135	0.207	22.01
16)	CPM	Phenanthrene	1.870	1.948	2.013	2.070	2.136	2.112	2.020	2.241	2.070		5.89
17)	CPM	Anthracene	2.025	2.119	2.203	2.249	2.305	2.196	2.132	2.253	2.192		3.94
18)	CPM	Pyrene	2.117	2.200	2.276	2.313	2.353	2.326	2.202	2.322	2.272		3.56
19)	CPM	Fluoranthene	2.147	2.239	2.297	2.366	2.445	2.392	2.262	2.390	2.327		4.16
20)	I	Chrysene-d12	--------ISTD--------										
21)	S	Terphenyl-d14	1.379	1.414	1.436	1.459	1.494	1.494	1.432	1.382	1.433	1.436	2.91
22)	CPM	Benzo(a)anthra...	2.007	2.050	2.071	2.119	2.156	2.052	1.968	2.072	2.069		2.88
23)	CPM	Chrysene	1.931	1.992	1.977	2.034	2.062	1.982	1.897	2.039	2.002		3.20
24)	I	Perylene-d12	--------ISTD--------										
25)	CPM	Benzo(b)fluora...	2.164	2.153	2.271	2.219	2.232	2.156	2.079	2.175	2.187		2.63
26)	CPM	Benzo(k)fluora...	2.143	2.141	2.329	2.258	2.301	2.244	2.189	2.178	2.223		2.99
27)	CPM	Benzo(a)pyrene	2.176	2.185	2.291	2.213	2.198	2.086	1.987	2.033	2.139		4.56
28)	CPM	Indeno(1,2,3-c...	2.747	2.740	2.852	2.773	2.720	2.621	2.496	2.545	2.679		4.33
29)	CPM	Dibenz(a,h)ant...	2.238	2.282	2.376	2.351	2.298	2.201	2.072	2.135	2.231		4.70
30)	CPM	Benzo(g,h,i)pe...	2.360	2.319	2.398	2.311	2.276	2.200	2.099	2.196	2.264		4.15

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : DFTPP2 02-08-17.D
Acq On    : 08 Feb 2017  04:23 pm
Operator  :
Sample    : DFTPP2
Misc      :
ALS Vial  : 1   Sample Multiplier: 1

Integration File: autoint1.e

Method    : D:\MassHunter\GCMS\1\methods\Agilent_onsite_DFTPP.M
Title     :
Last Update  : Tue Dec 06 15:44:44 2016
```

AutoFind: Scans 2501, 2502, 2503; Background Corrected with Scan 2489

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	19.8	77846	PASS
68	69	0.00	2	0.3	247	PASS
69	198	0.00	100	21.0	82433	PASS
70	69	0.00	2	0.0	15	PASS
127	198	10	80	36.6	143999	PASS
197	198	0.00	2	0.0	0	PASS
198	198	50	100	100.0	393088	PASS
199	198	5	9	6.5	25488	PASS
275	198	10	60	23.9	94091	PASS
365	198	1	100	1.9	7633	PASS
441	442	0.01	24	16.0	71299	PASS
442	198	50	200	113.2	445056	PASS
443	442	17	23	19.7	87883	PASS

Agilent_onsite_DFTPP.M Fri Feb 10 09:51:35 2017 ARS-HP

File   :D:\Agilent_Onsite\02-08-17\DFTPP2 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017   04:23 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: DFTPP2
Misc Info   :
Vial Number: 1

Ion 265.90 (265.60 to 266.60): DFTPP2 02-08-17.D\data.ms

10.046   Tailing = 1.24

File   :D:\Agilent_Onsite\02-08-17\DFTPP2 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 04:23 pm using AcqMethod agilent_onsite_8270.M
Instrument : GCMS #1
Sample Name: DFTPP2
Misc Info   :
Vial Number: 1

Ion 184.10 (183.80 to 184.80): DFTPP2 02-08-17.D\data.ms

File   :D:\Agilent_Onsite\02-08-17\DFTPP2 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017   04:23 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: DFTPP2
Misc Info   :
Vial Number: 1

Ion 235.00 (234.70 to 235.70): DFTPP2 02-08-17.D\data.ms

Abundance

Degradation = 2.15%

12.096

Time-->

```
                        Evaluate Continuing Calibration Report

Data Path : D:\Agilent_Onsite\02-01-17\
Data File : ICV 40ppm 02-01-17.D
Acq On    : 01 Feb 2017  04:20 pm
Operator  :
Sample    : ICV 40ppm
Misc      :
ALS Vial  : 11    Sample Multiplier: 1

Quant Time: Feb 16 13:44:29 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration


Min. RRF      :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%      Max. Rel. Area : 150%


         Compound                   Amount  Calc.    %Dev Area% Dev(min)
--------------------------------------------------------------------------
 1 I    1,4-Dichlorobenzene-d4      20.000  20.000     0.0   91   0.00
 2 S    2-Fluorophenol              40.000  40.630    -1.6   86   0.00
 3 S    Phenol-d5                   40.000  40.714    -1.8   86   0.00

 4 I    Naphthalene-d8              20.000  20.000     0.0   94   0.00
 5 S    Nitrobenzene-d5             40.000  41.642    -4.1   95   0.00
 6 CPM  Naphthalene                 40.000  40.171    -0.4   93   0.00
 7 CPM  2-Methylnaphthalene         40.000  40.017    -0.0   92   0.00
 8 CPM  1-Methylnaphthalene         40.000  39.903     0.2   92   0.00

 9 I    Acenaphthene-d10            20.000  20.000     0.0   93   0.00
10 S    2-Fluorobiphenyl            40.000  40.317    -0.8   95   0.00
11 CPM  Acenaphthylene              40.000  40.675    -1.7   93   0.00
12 CPM  Acenaphthene                40.000  39.468     1.3   93   0.00
13 CPM  Fluorene                    40.000  40.335    -0.8   92   0.00

14 I    Phenanthrene-d10            20.000  20.000     0.0   92   0.00
15 S    2,4,6-Tribromophenol        40.000  36.483     8.8   85   0.00
16 CPM  Phenanthrene                40.000  40.069    -0.2   92   0.00
17 CPM  Anthracene                  40.000  40.496    -1.2   91   0.00
18 CPM  Pyrene                      40.000  40.736    -1.8   92   0.00
19 CPM  Fluoranthene                40.000  40.660    -1.6   92   0.00

20 I    Chrysene-d12                20.000  20.000     0.0   92   0.00
21 S    Terphenyl-d14               40.000  41.945    -4.9   95   0.00
22 CPM  Benzo(a)anthracene          40.000  41.025    -2.6   92   0.00
23 CPM  Chrysene                    40.000  40.828    -2.1   92   0.00

24 I    Perylene-d12                20.000  20.000     0.0   91   0.00
25 CPM  Benzo(b)fluoranthene        40.000  40.718    -1.8   91   0.00
26 CPM  Benzo(k)fluoranthene        40.000  41.966    -4.9   94  -0.01
27 CPM  Benzo(a)pyrene              40.000  41.676    -4.2   92  -0.01
28 CPM  Indeno(1,2,3-cd)pyrene      40.000  42.110    -5.3   92  -0.03
29 CPM  Dibenz(a,h)anthracene       40.000  42.362    -5.9   91  -0.04
30 CPM  Benzo(g,h,i)perylene        40.000  40.859    -2.1   91  -0.03
--------------------------------------------------------------------------

    (#) = Out of Range          SPCC's out = 0  CCC's out = 0
```

```
Data Path : D:\Agilent_Onsite\02-01-17\
Data File : ICV 40ppm 02-01-17.D
Acq On    : 01 Feb 2017  04:20 pm
Operator  :
Sample    : ICV 40ppm
Misc      :
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Feb 16 13:44:29 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.462	152	171995	20.00	ng	0.00
4) Naphthalene-d8	7.494	136	658119	20.00	ng	0.00
9) Acenaphthene-d10	8.930	164	298209	20.00	ng	0.00
14) Phenanthrene-d10	10.248	188	568473	20.00	ng	0.00
20) Chrysene-d12	13.097	240	595908	20.00	ng	0.00
24) Perylene-d12	15.572	264	581484	20.00	ng	0.00

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 2-Fluorophenol	5.409	112	755473	40.63	ng	0.00
Spiked Amount 40.000 Range 19 - 119 Recovery = 101.58%						
3) Phenol-d5	6.090	99	916238	40.71	ng	0.00
Spiked Amount 40.000 Range 33 - 122 Recovery = 101.77%						
5) Nitrobenzene-d5	6.892	82	712511	41.64	ng	0.00
Spiked Amount 40.000 Range 44 - 120 Recovery = 104.10%						
10) 2-Fluorobiphenyl	8.333	172	1602656	40.32	ng	0.00
Spiked Amount 40.000 Range 44 - 119 Recovery = 100.80%						
15) 2,4,6-Tribromophenol	9.599	330	251455	36.48	ng	0.00
Spiked Amount 40.000 Range 43 - 140 Recovery = 91.20%						
21) Terphenyl-d14	11.797	244	1794511	41.95	ng	0.00
Spiked Amount 40.000 Range 50 - 134 Recovery = 104.88%						

Target Compounds

Compound	R.T.	QIon	Response	Conc	Units	Qvalue
6) Naphthalene	7.511	128	2582886	40.17	ng	98
7) 2-Methylnaphthalene	8.061	142	1678819	40.02	ng	98
8) 1-Methylnaphthalene	8.149	142	1535707	39.90	ng	98
11) Acenaphthylene	8.820	152	2207155	40.68	ng	96
12) Acenaphthene	8.960	154	1430491	39.47	ng	100
13) Fluorene	9.392	166	1641235	40.34	ng	100
16) Phenanthrene	10.272	178	2357885	40.07	ng	99
17) Anthracene	10.321	178	2523216	40.50	ng	99
18) Pyrene	11.460	202	2630812	40.74	ng	96
19) Fluoranthene	11.718	202	2689464	40.66	ng	95
22) Benzo(a)anthracene	13.079	228	2529478	41.02	ng	96
23) Chrysene	13.132	228	2435031	40.83	ng	96
25) Benzo(b)fluoranthene	14.791	252	2588597	40.72	ng	100
26) Benzo(k)fluoranthene	14.838	252	2711813	41.97	ng	96
27) Benzo(a)pyrene	15.463	252	2591263	41.68	ng	93
28) Indeno(1,2,3-cd)pyrene	18.331	276	3279744	42.11	ng	94
29) Dibenz(a,h)anthracene	18.342	278	2748371	42.36	ng	100
30) Benzo(g,h,i)perylene	19.190	276	2688982	40.86	ng	100

```
(#) = qualifier out of range (m) = manual integration (+) = signals summed
```
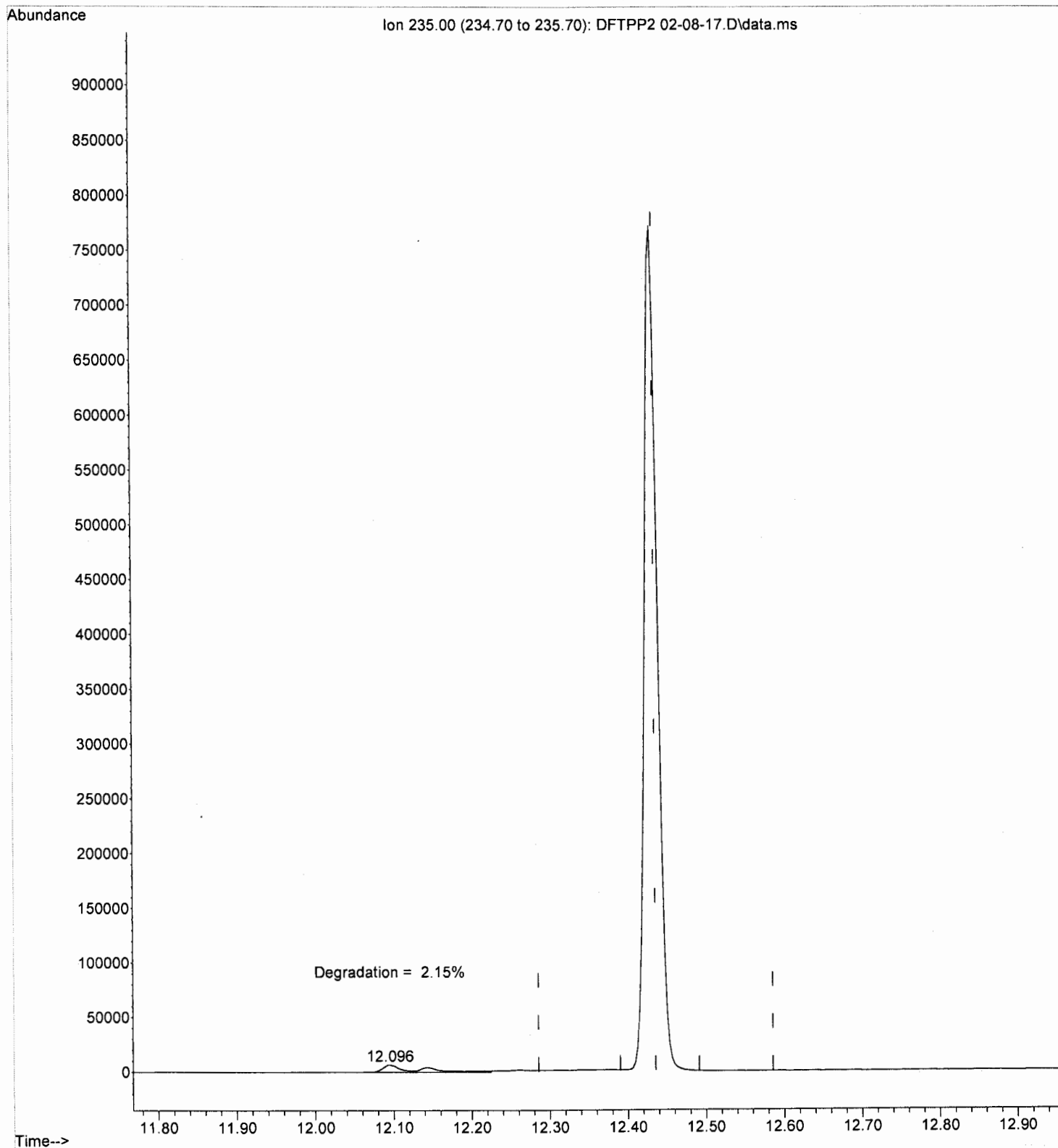
File   :D:\Agilent_Onsite\02-01-17\ICV 40ppm 02-01-17.D
Operator :
Acquired : 01 Feb 2017 04:20 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ICV 40ppm
Misc Info :
Vial Number: 11

TIC: ICV 40ppm 02-01-17.D\data.ms

Evaluate Continuing Calibration Report

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : CCV1 40ppm 02-08-17.D
Acq On    : 08 Feb 2017  04:53 pm
Operator  :
Sample    : CCV1 40ppm
Misc      :
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Feb 08 17:15:12 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration


Min. RRF     :   0.000  Min. Rel. Area :  50% Max. R.T. Dev  0.50min
Max. RRF Dev :  20%       Max. Rel. Area : 150%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00
2	S	2-Fluorophenol	2.162	2.457	-13.6	109	0.00
3	S	Phenol-d5	2.617	2.933	-12.1	107	0.00
4	I	Naphthalene-d8	1.000	1.000	0.0	105	0.00
5	S	Nitrobenzene-d5	0.520	0.535	-2.9	106	0.00
6	CPM	Naphthalene	1.954	1.943	0.6	104	0.00
7	CPM	2-Methylnaphthalene	1.275	1.265	0.8	102	0.00
8	CPM	1-Methylnaphthalene	1.170	1.141	2.5	102	0.00
9	I	Acenaphthene-d10	1.000	1.000	0.0	96	0.00
10	S	2-Fluorobiphenyl	2.666	2.718	-2.0	100	0.00
11	CPM	Acenaphthylene	3.639	3.753	-3.1	98	0.00
12	CPM	Acenaphthene	2.431	2.421	0.4	97	0.00
13	CPM	Fluorene	2.729	2.778	-1.8	97	0.00
14	I	Phenanthrene-d10	1.000	1.000	0.0	99	0.00
15	S	2,4,6-Tribromophenol	0.207	0.242	-16.9	100	0.00
16	CPM	Phenanthrene	2.070	2.057	0.6	98	0.00
17	CPM	Anthracene	2.192	2.229	-1.7	98	0.00
18	CPM	Pyrene	2.272	2.339	-2.9	100	0.00
19	CPM	Fluoranthene	2.327	2.364	-1.6	99	0.00
20	I	Chrysene-d12	1.000	1.000	0.0	99	0.00
21	S	Terphenyl-d14	1.436	1.447	-0.8	98	0.00
22	CPM	Benzo(a)anthracene	2.069	2.115	-2.2	99	0.00
23	CPM	Chrysene	2.002	2.048	-2.3	100	0.00
24	I	Perylene-d12	1.000	1.000	0.0	100	0.00
25	CPM	Benzo(b)fluoranthene	2.187	2.173	0.6	98	-0.01
26	CPM	Benzo(k)fluoranthene	2.223	2.250	-1.2	100	-0.01
27	CPM	Benzo(a)pyrene	2.139	2.223	-3.9	101	-0.01
28	CPM	Indeno(1,2,3-cd)pyrene	2.679	2.744	-2.4	99	-0.03
29	CPM	Dibenz(a,h)anthracene	2.231	2.284	-2.4	98	-0.03
30	CPM	Benzo(g,h,i)perylene	2.264	2.309	-2.0	100	-0.03

```
   (#) = Out of Range          SPCC's out = 0  CCC's out = 0
```

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : CCV1 40ppm 02-08-17.D
Acq On    : 08 Feb 2017  04:53 pm
Operator  :
Sample    : CCV1 40ppm
Misc      :
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Feb 08 17:15:12 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```
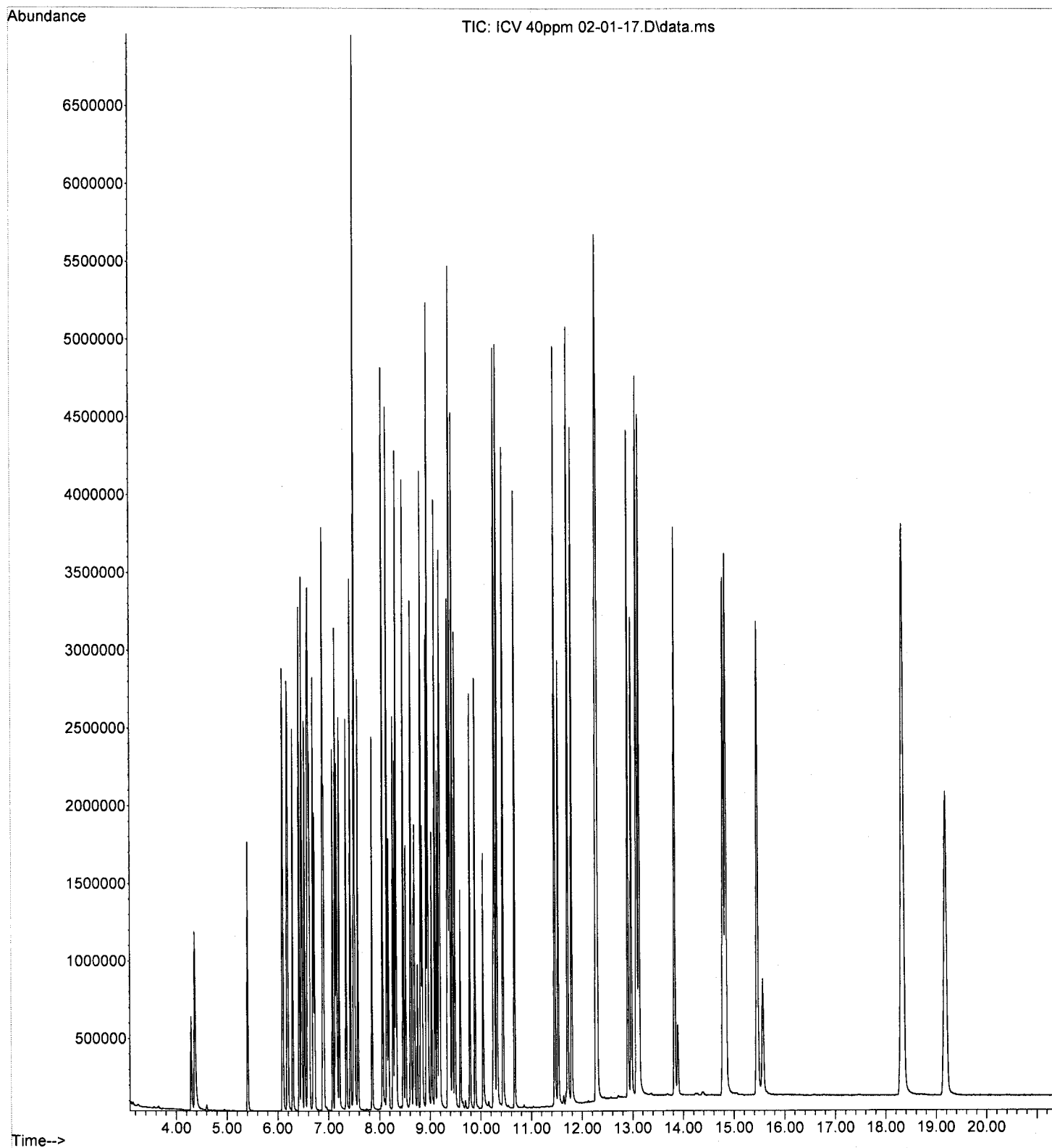
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.459	152	194134	20.00	ng	0.00
4) Naphthalene-d8	7.491	136	741384	20.00	ng	0.00
9) Acenaphthene-d10	8.929	164	309466	20.00	ng	0.00
14) Phenanthrene-d10	10.248	188	608885	20.00	ng	0.00
20) Chrysene-d12	13.093	240	643091	20.00	ng	0.00
24) Perylene-d12	15.571	264	641932	20.00	ng	0.00

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 2-Fluorophenol	5.406	112	953892	45.45	ng	0.00
Spiked Amount 40.000 Range 19 - 119 Recovery = 113.63%						
3) Phenol-d5	6.090	99	1138695	44.83	ng	0.00
Spiked Amount 40.000 Range 33 - 122 Recovery = 112.07%						
5) Nitrobenzene-d5	6.892	82	793199	41.15	ng	0.00
Spiked Amount 40.000 Range 44 - 120 Recovery = 102.88%						
10) 2-Fluorobiphenyl	8.331	172	1682101	40.78	ng	0.00
Spiked Amount 40.000 Range 44 - 119 Recovery = 101.95%						
15) 2,4,6-Tribromophenol	9.598	330	294479	39.75	ng	0.00
Spiked Amount 40.000 Range 43 - 140 Recovery = 99.38%						
21) Terphenyl-d14	11.795	244	1861704	40.32	ng	0.00
Spiked Amount 40.000 Range 50 - 134 Recovery = 100.80%						

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
6) Naphthalene	7.509	128	2881168	39.78	ng	96
7) 2-Methylnaphthalene	8.062	142	1875129	39.68	ng	99
8) 1-Methylnaphthalene	8.147	142	1692008	39.03	ng	98
11) Acenaphthylene	8.821	152	2322695	41.25	ng	96
12) Acenaphthene	8.958	154	1498160	39.83	ng	98
13) Fluorene	9.390	166	1719173	40.71	ng	99
16) Phenanthrene	10.271	178	2504668	39.74	ng	99
17) Anthracene	10.321	178	2714769	40.68	ng	99
18) Pyrene	11.461	202	2848794	41.18	ng	96
19) Fluoranthene	11.716	202	2878778	40.63	ng	96
22) Benzo(a)anthracene	13.078	228	2720416	40.88	ng	96
23) Chrysene	13.131	228	2633684	40.92	ng	96
25) Benzo(b)fluoranthene	14.789	252	2790192	39.76	ng	100
26) Benzo(k)fluoranthene	14.839	252	2888955	40.50	ng	96
27) Benzo(a)pyrene	15.462	252	2853829	41.58	ng	94
28) Indeno(1,2,3-cd)pyrene	18.331	276	3522549	40.97	ng	95
29) Dibenz(a,h)anthracene	18.346	278	2932018	40.94	ng	100
30) Benzo(g,h,i)perylene	19.189	276	2963968	40.80	ng	100

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

File   :D:\Agilent_Onsite\02-08-17\CCV1 40ppm 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 04:53 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: CCV1 40ppm
Misc Info :
Vial Number: 2

TIC: CCV1 40ppm 02-08-17.D\data.ms

Abundance

Time-->

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ClosingCCV1 40ppm 02-08-17.D
Acq On    : 09 Feb 2017  12:15 am
Operator  :
Sample    : ClosingCCV1 40ppm
Misc      :
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Feb 09 08:28:42 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration


Min. RRF      :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00
2	S	2-Fluorophenol	2.162	2.437	-12.7	109	0.00
3	S	Phenol-d5	2.617	2.707	-3.4	99	0.00
4	I	Naphthalene-d8	1.000	1.000	0.0	97	0.00
5	S	Nitrobenzene-d5	0.520	0.557	-7.1	101	0.00
6	CPM	Naphthalene	1.954	1.984	-1.5	98	0.00
7	CPM	2-Methylnaphthalene	1.275	1.313	-3.0	97	0.00
8	CPM	1-Methylnaphthalene	1.170	1.200	-2.6	98	0.00
9	I	Acenaphthene-d10	1.000	1.000	0.0	100	0.00
10	S	2-Fluorobiphenyl	2.666	2.603	2.4	99	0.00
11	CPM	Acenaphthylene	3.639	3.752	-3.1	101	0.00
12	CPM	Acenaphthene	2.431	2.431	0.0	101	0.00
13	CPM	Fluorene	2.729	2.890	-5.9	104	0.00
14	I	Phenanthrene-d10	1.000	1.000	0.0	103	0.00
15	S	2,4,6-Tribromophenol	0.207	0.247	-19.3	107	0.00
16	CPM	Phenanthrene	2.070	2.062	0.4	103	0.00
17	CPM	Anthracene	2.192	2.232	-1.8	103	0.00
18	CPM	Pyrene	2.272	2.367	-4.2	106	0.00
19	CPM	Fluoranthene	2.327	2.402	-3.2	105	0.00
20	I	Chrysene-d12	1.000	1.000	0.0	103	0.00
21	S	Terphenyl-d14	1.436	1.468	-2.2	103	0.00
22	CPM	Benzo(a)anthracene	2.069	2.150	-3.9	104	0.00
23	CPM	Chrysene	2.002	2.079	-3.8	105	0.00
24	I	Perylene-d12	1.000	1.000	0.0	107	0.00
25	CPM	Benzo(b)fluoranthene	2.187	2.233	-2.1	108	0.00
26	CPM	Benzo(k)fluoranthene	2.223	2.232	-0.4	106	0.00
27	CPM	Benzo(a)pyrene	2.139	2.232	-4.3	108	-0.01
28	CPM	Indeno(1,2,3-cd)pyrene	2.679	2.845	-6.2	110	-0.02
29	CPM	Dibenz(a,h)anthracene	2.231	2.383	-6.8	109	-0.03
30	CPM	Benzo(g,h,i)perylene	2.264	2.429	-7.3	113	-0.03

```
    (#) = Out of Range          SPCC's out = 0  CCC's out = 0
```

cole_8270_PAH.M Thu Feb 16 13:49:29 2017 ARS-HP

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ClosingCCV1 40ppm 02-08-17.D
Acq On    : 09 Feb 2017  12:15 am
Operator  :
Sample    : ClosingCCV1 40ppm
Misc      :
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Feb 09 08:28:42 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```
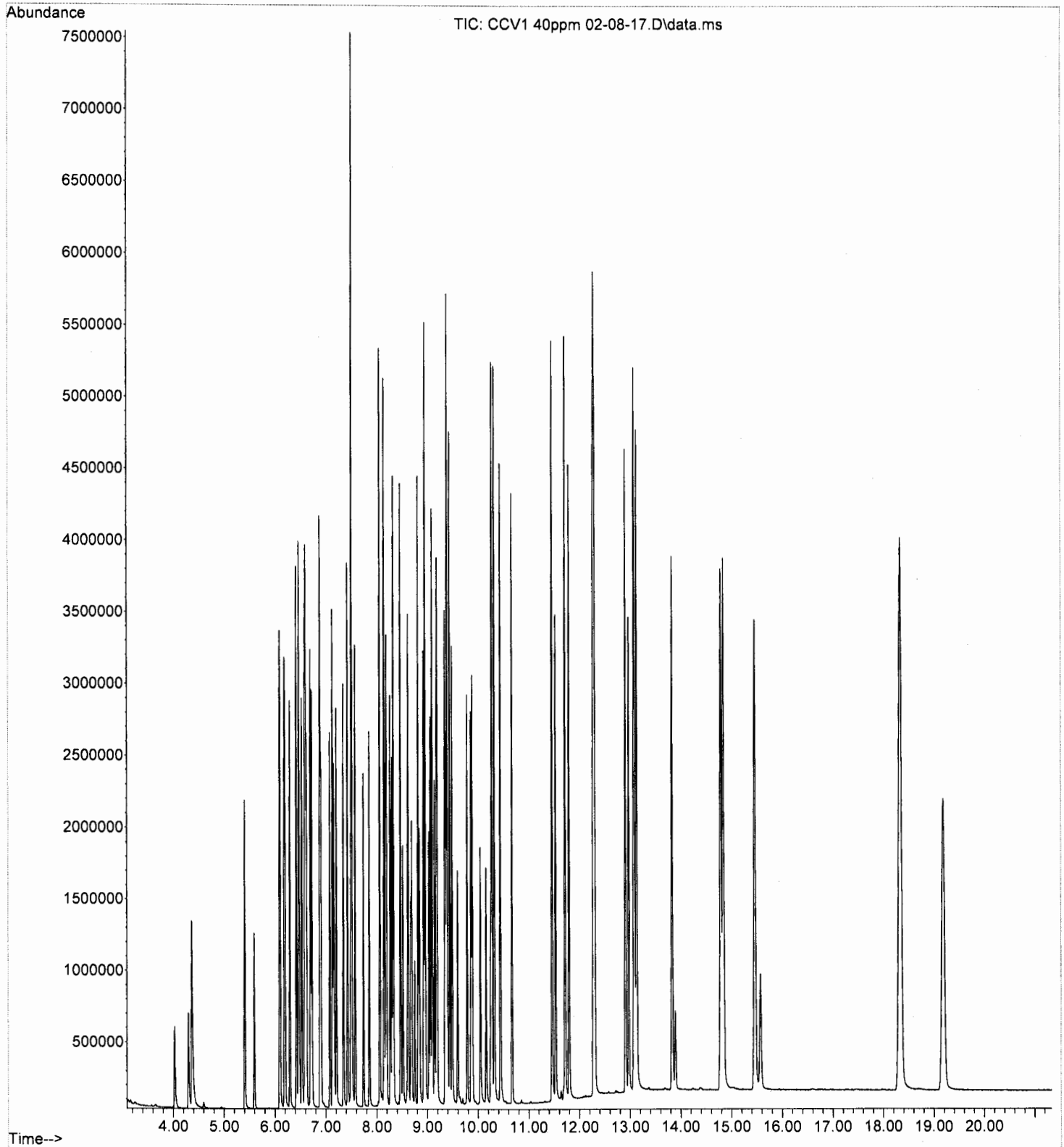
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.459	152	194882	20.00	ng	0.00
4) Naphthalene-d8	7.493	136	679791	20.00	ng	0.00
9) Acenaphthene-d10	8.929	164	320320	20.00	ng	0.00
14) Phenanthrene-d10	10.249	188	638309	20.00	ng	0.00
20) Chrysene-d12	13.096	240	667167	20.00	ng	0.00
24) Perylene-d12	15.574	264	687203	20.00	ng	0.00

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 2-Fluorophenol	5.410	112	949806	45.08	ng	0.00
Spiked Amount 40.000	Range 19 - 119	Recovery = 112.70%				
3) Phenol-d5	6.096	99	1055114	41.38	ng	0.00
Spiked Amount 40.000	Range 33 - 122	Recovery = 103.45%				
5) Nitrobenzene-d5	6.893	82	756995	42.83	ng	0.00
Spiked Amount 40.000	Range 44 - 120	Recovery = 107.07%				
10) 2-Fluorobiphenyl	8.330	172	1667633	39.06	ng	0.00
Spiked Amount 40.000	Range 44 - 119	Recovery = 97.65%				
15) 2,4,6-Tribromophenol	9.598	330	315491	40.59	ng	0.00
Spiked Amount 40.000	Range 43 - 140	Recovery = 101.48%				
21) Terphenyl-d14	11.797	244	1958729	40.89	ng	0.00
Spiked Amount 40.000	Range 50 - 134	Recovery = 102.23%				

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
6) Naphthalene	7.510	128	2697408	40.61	ng	99
7) 2-Methylnaphthalene	8.061	142	1784991	41.19	ng	98
8) 1-Methylnaphthalene	8.149	142	1630945	41.03	ng	99
11) Acenaphthylene	8.820	152	2403628	41.24	ng	97
12) Acenaphthene	8.958	154	1557384	40.00	ng	100
13) Fluorene	9.394	166	1851293	42.36	ng	99
16) Phenanthrene	10.272	178	2632793	39.85	ng	99
17) Anthracene	10.322	178	2849049	40.72	ng	99
18) Pyrene	11.462	202	3021281	41.66	ng	96
19) Fluoranthene	11.718	202	3066606	41.29	ng	96
22) Benzo(a)anthracene	13.079	228	2868618	41.56	ng	96
23) Chrysene	13.132	228	2773578	41.54	ng	96
25) Benzo(b)fluoranthene	14.792	252	3069613	40.86	ng	100
26) Benzo(k)fluoranthene	14.842	252	3068357	40.18	ng	96
27) Benzo(a)pyrene	15.465	252	3067386	41.74	ng	93
28) Indeno(1,2,3-cd)pyrene	18.340	276	3910763	42.49	ng	93
29) Dibenz(a,h)anthracene	18.352	278	3274966	42.71	ng	100
30) Benzo(g,h,i)perylene	19.195	276	3338192	42.92	ng	100

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

File   :D:\Agilent_Onsite\02-08-17\ClosingCCV1 40ppm 02-08-17.D
Operator   :
Acquired   : 09 Feb 2017 12:15 am using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ClosingCCV1 40ppm
Misc Info   :
Vial Number: 2

TIC: ClosingCCV1 40ppm 02-08-17.D\data.ms

Abundance

Time-->

```
                 GC/MS QA-QC Check Report

Tune File : D:\Agilent_Onsite\02-08-17\DFTPP2 02-08-17.D
Tune Time : 08 Feb 2017  04:23 pm

Daily Calibration File : D:\Agilent_Onsite\02-01-17\IC02011706 40ppm 02-01-17.D

              C6H5FC6HD5C6D5NC12H9       C6C12      C10D8     C12D1
                                         188327     703390    321370

              C6H3BC18D1                 C14D1      C18D1     C20D1
                                         617076     650290    639389

File       Sample    Surrogate Recovery %    Internal Standard Responses
==========================================================================
ARS1-B17-00170-01 LCS 02-08-17.D
        ARS1-B17-0  85    89    86    90    206105   783191   320838
                    91   101                623555   665435   649967
--------------------------------------------------------------------------
ARS1-B17-00170-02 LCSD 02-08-17.D
        ARS1-B17-0  58    65    66    73    179306   718752   311471
                    82   103                604689   640333   627105
--------------------------------------------------------------------------
ARS1-B17-00170-03 MBLK 02-08-17.D
        ARS1-B17-0  53    56    55    58    196385   777806   322986
                    54   105                600512   629799   607076
--------------------------------------------------------------------------
ARS1-B17-00170-04 02-08-17.D
        ARS1-B17-0  18*   33*   24*   47    202974   719864   328305
                    74    75                641545   690272   689262
--------------------------------------------------------------------------
ARS1-B17-00170-05 02-08-17.D
        ARS1-B17-0  55    63    75    75    207978   716159   342676
                    85    80                676407   711393   746076
--------------------------------------------------------------------------
ARS1-B17-00170-07 02-08-17.D
        ARS1-B17-0  58    63    55    53    172709   636454   305625
                    80    60                599727   611934   637850
--------------------------------------------------------------------------
ARS1-B17-00170-08 02-08-17.D
        ARS1-B17-0  46    57    58    72    184236   669657   327955
                    81    87                628325   650461   666285
--------------------------------------------------------------------------
ARS1-B17-00170-09 02-08-17.D
        ARS1-B17-0  81    82    81    76    200420   703087   341395
                    94    82                670381   706981   744379
--------------------------------------------------------------------------
ARS1-B17-00170-10 MS 02-08-17.D
        ARS1-B17-0  15*   33*   20*   38*   199266   718972   332207
                    79    78                659976   708493   731587
--------------------------------------------------------------------------
ARS1-B17-00170-11 MSD 02-08-17.D
        ARS1-B17-0  11*   29*   18*   34*   207959   756265   358453
                    71    68                693928   732148   753037
--------------------------------------------------------------------------
CCV1 40ppm 02-08-17.D
        CCV1 40ppm 114   112   103   102    194134   741384   309466
                    99   101                608885   643091   641932
--------------------------------------------------------------------------
ClosingCCV1 40ppm 02-08-17.D
        ClosingCCV 113   103   107    98    194882   679791   320320
                   101   102                638309   667167   687203
--------------------------------------------------------------------------
(fails) - fails 12hr time check   * - fails criteria

     Created: Fri Feb 10 09:58:37 2017  GCMS #1
```

```
                        Quantitation Report     (QT Reviewed)


Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-01 LCS 02-08-17.D
Acq On     : 08 Feb 2017  05:52 pm
Operator   :
Sample     : ARS1-B17-00170-01
Misc       : Soil
ALS Vial   : 4   Sample Multiplier: 1


Quant Time: Feb 09 08:27:51 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration


        Compound              R.T. QIon  Response  Conc Units Dev(Min)
-------------------------------------------------------------------------
Internal Standards
   1) 1,4-Dichlorobenzene-d4   6.458  152   206105   20.00 ng      0.00
   4) Naphthalene-d8           7.489  136   783191   20.00 ng      0.00
   9) Acenaphthene-d10         8.927  164   320838   20.00 ng      0.00
  14) Phenanthrene-d10        10.249  188   623555   20.00 ng      0.00
  20) Chrysene-d12            13.092  240   665435   20.00 ng     -0.01
  24) Perylene-d12            15.568  264   649967   20.00 ng     -0.01


System Monitoring Compounds
   2) 2-Fluorophenol           5.410  112   756969   33.97 ng      0.00
   Spiked Amount     40.000  Range  35 - 115   Recovery  =   84.92%
   3) Phenol-d5                6.089   99   956261   35.46 ng      0.00
   Spiked Amount     40.000  Range  33 - 122   Recovery  =   88.65%
   5) Nitrobenzene-d5          6.889   82   699666   34.36 ng      0.00
   Spiked Amount     40.000  Range  37 - 122   Recovery  =   85.90%
  10) 2-Fluorobiphenyl         8.328  172  1535046   35.89 ng      0.00
   Spiked Amount     40.000  Range  44 - 115   Recovery  =   89.72%
  15) 2,4,6-Tribromophenol     9.599  330   275587   36.45 ng      0.00
   Spiked Amount     40.000  Range  39 - 132   Recovery  =   91.13%
  21) Terphenyl-d14           11.795  244  1930034   40.40 ng      0.00
   Spiked Amount     40.000  Range  54 - 127   Recovery  =  101.00%


Target Compounds                                              Qvalue
   6) Naphthalene             7.509  128  1309507   17.11 ng       86
   7) 2-Methylnaphthalene     8.060  142   844284   16.91 ng       98
   8) 1-Methylnaphthalene     8.147  142   767403   16.76 ng       98
  11) Acenaphthylene          8.819  152  1060594   18.17 ng       96
  12) Acenaphthene            8.956  154   698649   17.92 ng       99
  13) Fluorene                9.391  166   816140   18.64 ng       98
  16) Phenanthrene           10.269  178  1247838   19.33 ng       98
  17) Anthracene             10.319  178  1308855   19.15 ng       99
  18) Pyrene                 11.461  202  1415084   19.98 ng       96
  19) Fluoranthene           11.713  202  1461561   20.14 ng       95
  22) Benzo(a)anthracene     13.077  228  1377983   20.01 ng       95
  23) Chrysene               13.130  228  1328724   19.95 ng       96
  25) Benzo(b)fluoranthene   14.786  252  1418792   19.97 ng      100
  26) Benzo(k)fluoranthene   14.836  252  1440868   19.95 ng       96
  27) Benzo(a)pyrene         15.459  252  1362674   19.61 ng       93
  28) Indeno(1,2,3-cd)pyrene 18.321  276  1719671   19.75 ng       95
  29) Dibenz(a,h)anthracene  18.339  278  1421835   19.61 ng      100
  30) Benzo(g,h,i)perylene   19.182  276  1434527   19.50 ng      100
-------------------------------------------------------------------------


  (#) = qualifier out of range (m) = manual integration (+) = signals summed
```
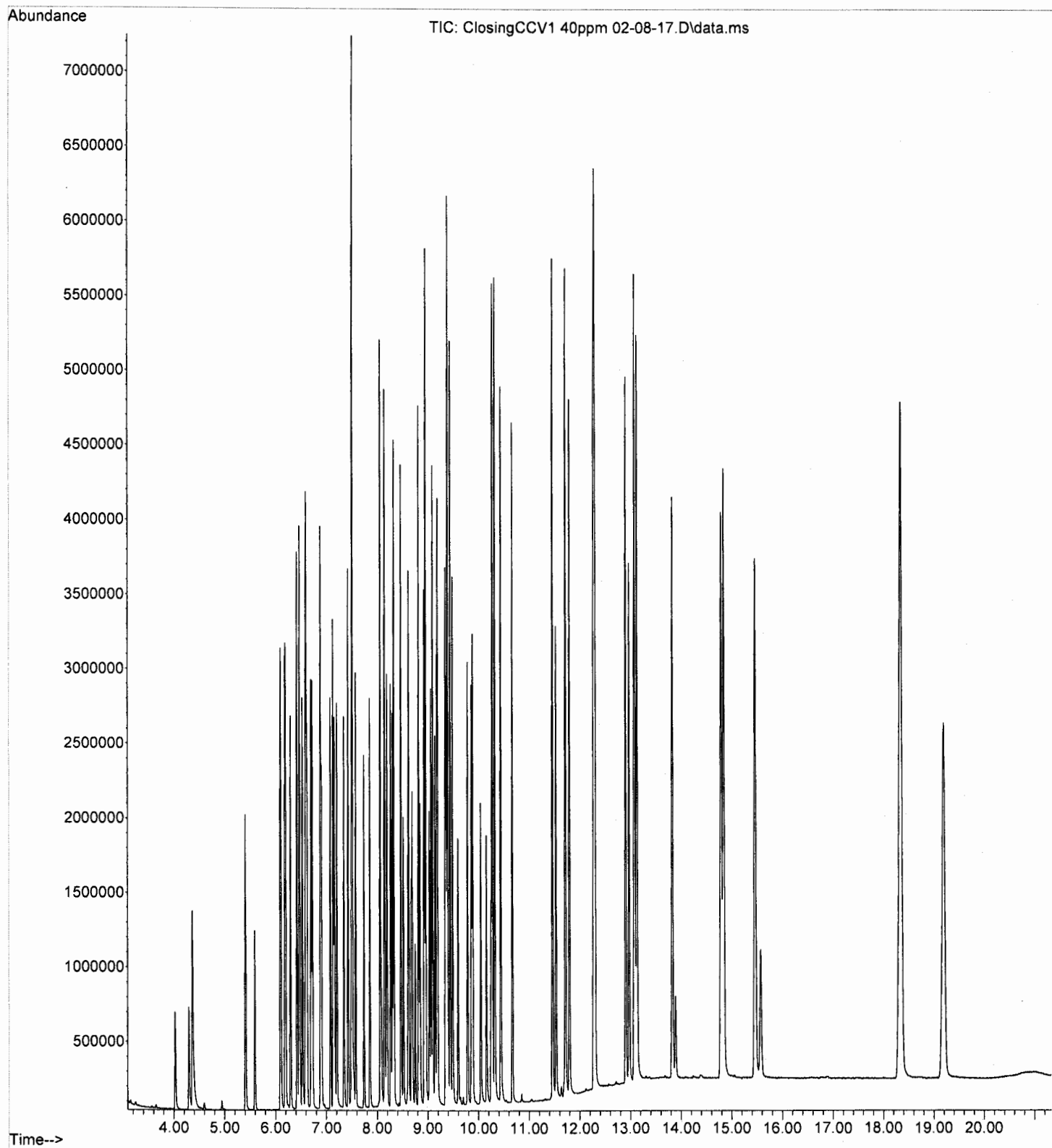
cole_8270_PAH.M Fri Feb 10 10:00:28 2017 ARS-HP

File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-01 LCS 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017   05:52 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-01
Misc Info : Soil
Vial Number: 4

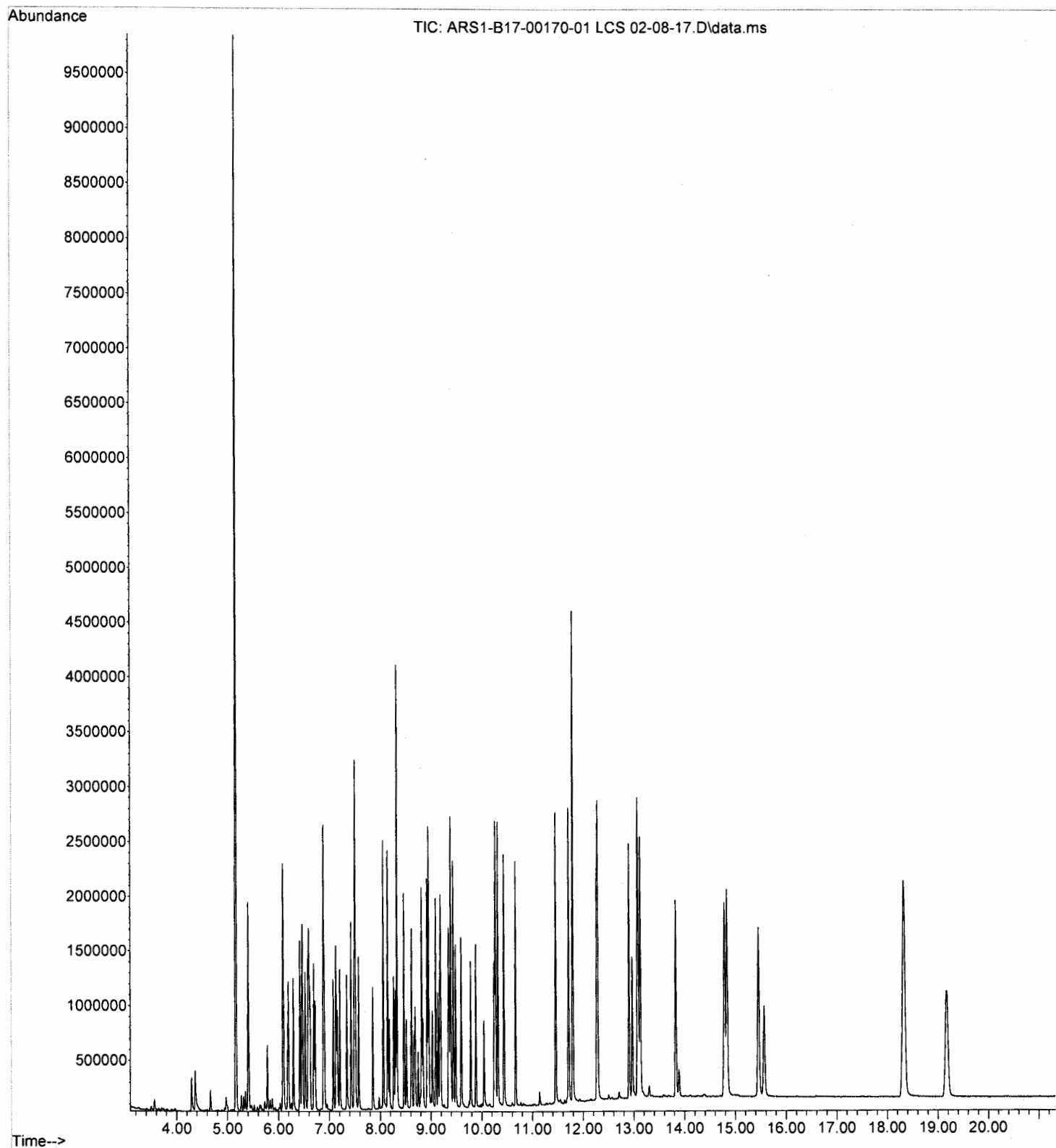TIC: ARS1-B17-00170-01 LCS 02-08-17.D\data.ms

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-02 LCSD 02-08-17.D
Acq On    : 08 Feb 2017  06:21 pm
Operator  :
Sample    : ARS1-B17-00170-02
Misc      : Soil
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Feb 09 08:28:06 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards							
1)	1,4-Dichlorobenzene-d4	6.458	152	179306	20.00	ng	0.00
4)	Naphthalene-d8	7.490	136	718752	20.00	ng	0.00
9)	Acenaphthene-d10	8.928	164	311471	20.00	ng	0.00
14)	Phenanthrene-d10	10.247	188	604689	20.00	ng	0.00
20)	Chrysene-d12	13.093	240	640333	20.00	ng	0.00
24)	Perylene-d12	15.569	264	627105	20.00	ng	0.00

System Monitoring Compounds

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2)	2-Fluorophenol	5.406	112	450180	23.22	ng	0.00
	Spiked Amount 40.000	Range 35 - 115		Recovery = 58.05%			
3)	Phenol-d5	6.089	99	610875	26.04	ng	0.00
	Spiked Amount 40.000	Range 33 - 122		Recovery = 65.10%			
5)	Nitrobenzene-d5	6.888	82	492429	26.35	ng	0.00
	Spiked Amount 40.000	Range 37 - 122		Recovery = 65.88%			
10)	2-Fluorobiphenyl	8.330	172	1212692	29.21	ng	0.00
	Spiked Amount 40.000	Range 44 - 115		Recovery = 73.03%			
15)	2,4,6-Tribromophenol	9.597	330	239858	32.87	ng	0.00
	Spiked Amount 40.000	Range 39 - 132		Recovery = 82.17%			
21)	Terphenyl-d14	11.797	244	1895359	41.23	ng	0.00
	Spiked Amount 40.000	Range 54 - 127		Recovery = 103.07%			

Target Compounds

	Compound	R.T.	QIon	Response	Conc	Units	Qvalue
6)	Naphthalene	7.508	128	935868	13.33	ng	81
7)	2-Methylnaphthalene	8.058	142	628447	13.72	ng	99
8)	1-Methylnaphthalene	8.146	142	585927	13.94	ng	99
11)	Acenaphthylene	8.817	152	880606	15.54	ng	96
12)	Acenaphthene	8.957	154	576284	15.22	ng	100
13)	Fluorene	9.390	166	734208	17.28	ng	98
16)	Phenanthrene	10.270	178	1169684	18.69	ng	98
17)	Anthracene	10.320	178	1220025	18.41	ng	98
18)	Pyrene	11.460	202	1351657	19.68	ng	96
19)	Fluoranthene	11.715	202	1355459	19.26	ng	95
22)	Benzo(a)anthracene	13.076	228	1300532	19.63	ng	95
23)	Chrysene	13.129	228	1261982	19.69	ng	96
25)	Benzo(b)fluoranthene	14.787	252	1331311	19.42	ng	100
26)	Benzo(k)fluoranthene	14.837	252	1378439	19.78	ng	96
27)	Benzo(a)pyrene	15.457	252	1276645	19.04	ng	93
28)	Indeno(1,2,3-cd)pyrene	18.323	276	1651780	19.67	ng	94
29)	Dibenz(a,h)anthracene	18.340	278	1384628	19.79	ng	100
30)	Benzo(g,h,i)perylene	19.174	276	1381523	19.47	ng	100

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

File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-02 LCSD 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 06:21 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-02
Misc Info   : Soil
Vial Number: 5

TIC: ARS1-B17-00170-02 LCSD 02-08-17.D\data.ms

```
                        Quantitation Report    (QT Reviewed)


Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-03 MBLK 02-08-17.D
Acq On    : 08 Feb 2017  05:22 pm
Operator  :
Sample    : ARS1-B17-00170-03
Misc      : Soil
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Feb 09 08:28:27 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration

         Compound            R.T. QIon  Response  Conc Units Dev(Min)
-----------------------------------------------------------------------
Internal Standards
   1) 1,4-Dichlorobenzene-d4    6.460  152    196385    20.00 ng      0.00
   4) Naphthalene-d8            7.489  136    777806    20.00 ng      0.00
   9) Acenaphthene-d10          8.928  164    322986    20.00 ng      0.00
  14) Phenanthrene-d10         10.248  188    600512    20.00 ng      0.00
  20) Chrysene-d12             13.091  240    629799    20.00 ng     -0.01
  24) Perylene-d12             15.570  264    607076    20.00 ng      0.00


System Monitoring Compounds
   2) 2-Fluorophenol            5.406  112    452471    21.31 ng      0.00
   Spiked Amount    40.000  Range  35 - 115   Recovery  =   53.27%
   3) Phenol-d5                 6.088   99    580042    22.57 ng      0.00
   Spiked Amount    40.000  Range  33 - 122   Recovery  =   56.43%
   5) Nitrobenzene-d5           6.890   82    447060    22.11 ng      0.00
   Spiked Amount    40.000  Range  37 - 122   Recovery  =   55.27%
  10) 2-Fluorobiphenyl          8.329  172   1002342    23.28 ng      0.00
   Spiked Amount    40.000  Range  44 - 115   Recovery  =   58.20%
  15) 2,4,6-Tribromophenol      9.598  330    153873    21.75 ng      0.00
   Spiked Amount    40.000  Range  39 - 132   Recovery  =   54.37%
  21) Terphenyl-d14            11.797  244   1896695    41.95 ng      0.00
   Spiked Amount    40.000  Range  54 - 127   Recovery  =  104.88%

Target Compounds                                              Qvalue
   6) Naphthalene               0.000          0    N.D. d
   7) 2-Methylnaphthalene       0.000          0    N.D.
   8) 1-Methylnaphthalene       0.000          0    N.D.
  11) Acenaphthylene            0.000          0    N.D.
  12) Acenaphthene              0.000          0    N.D. d
  13) Fluorene                  0.000          0    N.D. d
  16) Phenanthrene              0.000          0    N.D.
  17) Anthracene                0.000          0    N.D.
  18) Pyrene                    0.000          0    N.D.
  19) Fluoranthene              0.000          0    N.D. d
  22) Benzo(a)anthracene        0.000          0    N.D. d
  23) Chrysene                  0.000          0    N.D. d
  25) Benzo(b)fluoranthene      0.000          0    N.D.
  26) Benzo(k)fluoranthene      0.000          0    N.D.
  27) Benzo(a)pyrene            0.000          0    N.D. d
  28) Indeno(1,2,3-cd)pyrene    0.000          0    N.D. d
  29) Dibenz(a,h)anthracene     0.000          0    N.D.
  30) Benzo(g,h,i)perylene      0.000          0    N.D.
-----------------------------------------------------------------------


 (#) = qualifier out of range (m) = manual integration (+) = signals summed
```
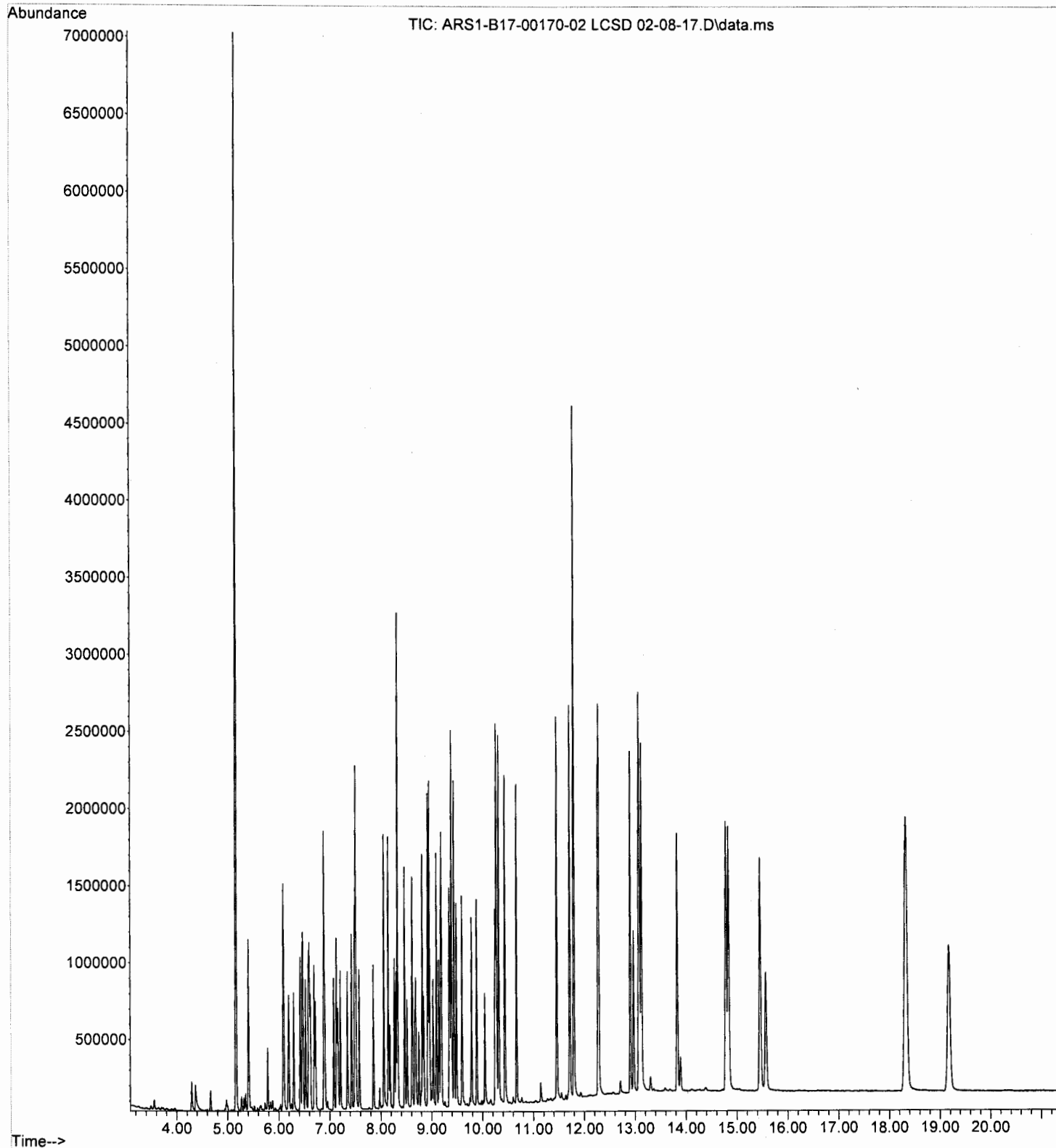
File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-03 MBLK 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 05:22 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-03
Misc Info : Soil
Vial Number: 3

TIC: ARS1-B17-00170-03 MBLK 02-08-17.D\data.ms

```
                         Quantitation Report     (QT Reviewed)


Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-04 02-08-17.D
Acq On    : 08 Feb 2017  06:51 pm
Operator  :
Sample    : ARS1-B17-00170-04
Misc      : Soil
ALS Vial  : 6   Sample Multiplier: 1


Quant Time: Feb 09 08:29:54 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration

        Compound              R.T. QIon  Response  Conc Units Dev(Min)
-----------------------------------------------------------------------
Internal Standards
   1) 1,4-Dichlorobenzene-d4   6.459  152   202974   20.00 ng      0.00
   4) Naphthalene-d8           7.490  136   719864   20.00 ng      0.00
   9) Acenaphthene-d10         8.928  164   328305   20.00 ng      0.00
  14) Phenanthrene-d10        10.246  188   641545   20.00 ng      0.00
  20) Chrysene-d12            13.092  240   690272   20.00 ng     -0.01
  24) Perylene-d12            15.571  264   689262   20.00 ng      0.00


System Monitoring Compounds
   2) 2-Fluorophenol           5.408  112   159018    7.25 ng      0.00
   Spiked Amount    40.000   Range  35 - 115   Recovery  =   18.13%#
   3) Phenol-d5                6.090   99   350109   13.18 ng      0.00
   Spiked Amount    40.000   Range  33 - 122   Recovery  =   32.95%#
   5) Nitrobenzene-d5          6.890   82   182927    9.77 ng      0.00
   Spiked Amount    40.000   Range  37 - 122   Recovery  =   24.43%#
  10) 2-Fluorobiphenyl         8.329  172   822196   18.79 ng      0.00
   Spiked Amount    40.000   Range  44 - 115   Recovery  =   46.98%
  15) 2,4,6-Tribromophenol     9.598  330   229084   29.74 ng      0.00
   Spiked Amount    40.000   Range  39 - 132   Recovery  =   74.35%
  21) Terphenyl-d14           11.796  244  1482575   29.92 ng      0.00
   Spiked Amount    40.000   Range  54 - 127   Recovery  =   74.80%

Target Compounds                                             Qvalue
   6) Naphthalene              0.000            0    N.D. d
   7) 2-Methylnaphthalene      0.000            0    N.D.
   8) 1-Methylnaphthalene      0.000            0    N.D.
  11) Acenaphthylene           0.000            0    N.D. d
  12) Acenaphthene             0.000            0    N.D. d
  13) Fluorene                 0.000            0    N.D. d
  16) Phenanthrene             0.000            0    N.D. d
  17) Anthracene               0.000            0    N.D. d
  18) Pyrene                   0.000            0    N.D. d
  19) Fluoranthene             0.000            0    N.D. d
  22) Benzo(a)anthracene       0.000            0    N.D. d
  23) Chrysene                 0.000            0    N.D. d
  25) Benzo(b)fluoranthene     0.000            0    N.D. d
  26) Benzo(k)fluoranthene     0.000            0    N.D. d
  27) Benzo(a)pyrene           0.000            0    N.D. d
  28) Indeno(1,2,3-cd)pyrene   0.000            0    N.D. d
  29) Dibenz(a,h)anthracene    0.000            0    N.D. d
  30) Benzo(g,h,i)perylene     0.000            0    N.D. d
-----------------------------------------------------------------------


 (#) = qualifier out of range (m) = manual integration (+) = signals summed
```
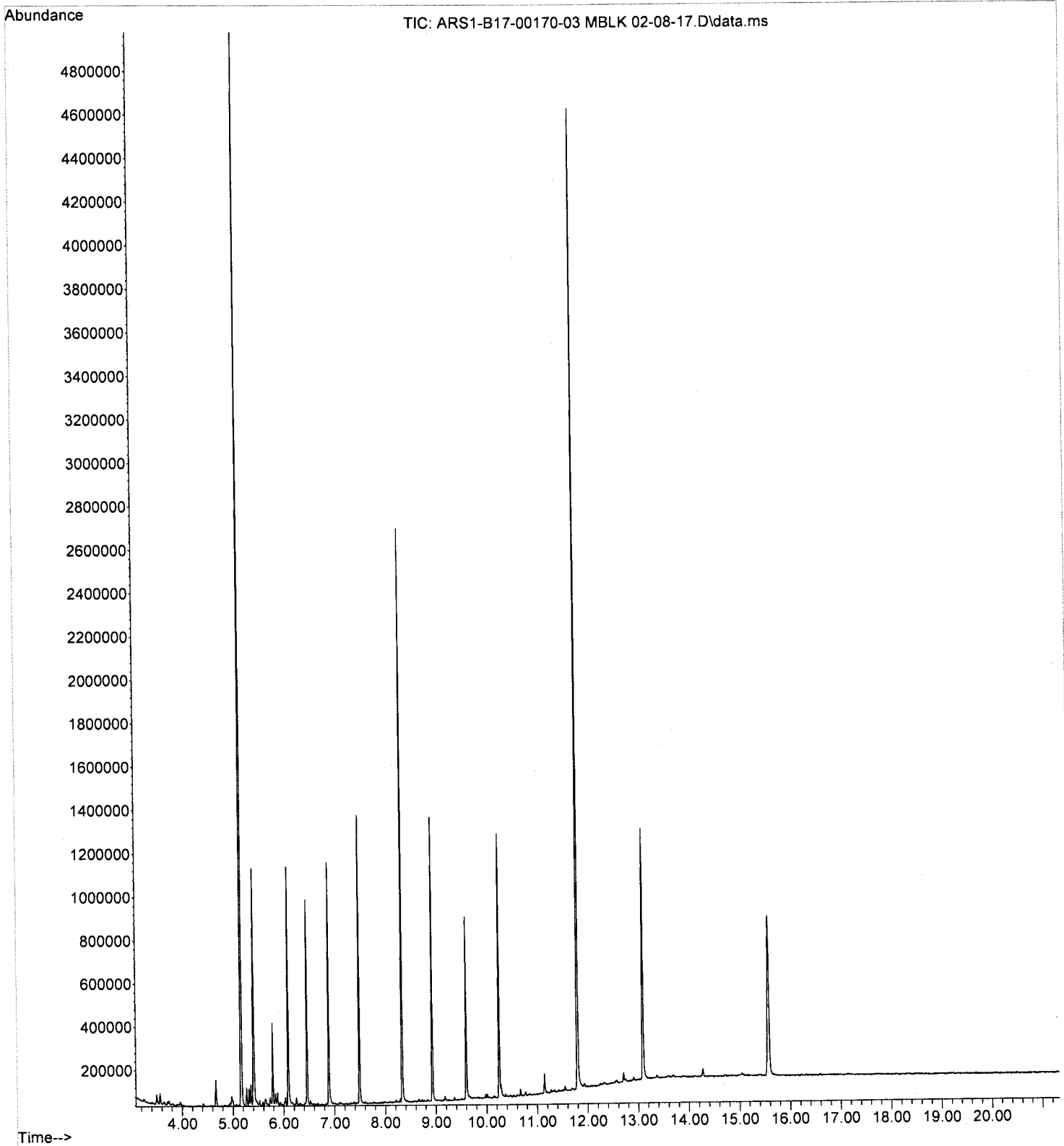
File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-04 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 06:51 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-04
Misc Info   : Soil
Vial Number: 6

TIC: ARS1-B17-00170-04 02-08-17.D\data.ms

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-05 02-08-17.D
Acq On    : 08 Feb 2017  08:19 pm
Operator  :
Sample    : ARS1-B17-00170-05
Misc      : Soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Feb 09 08:30:13 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```
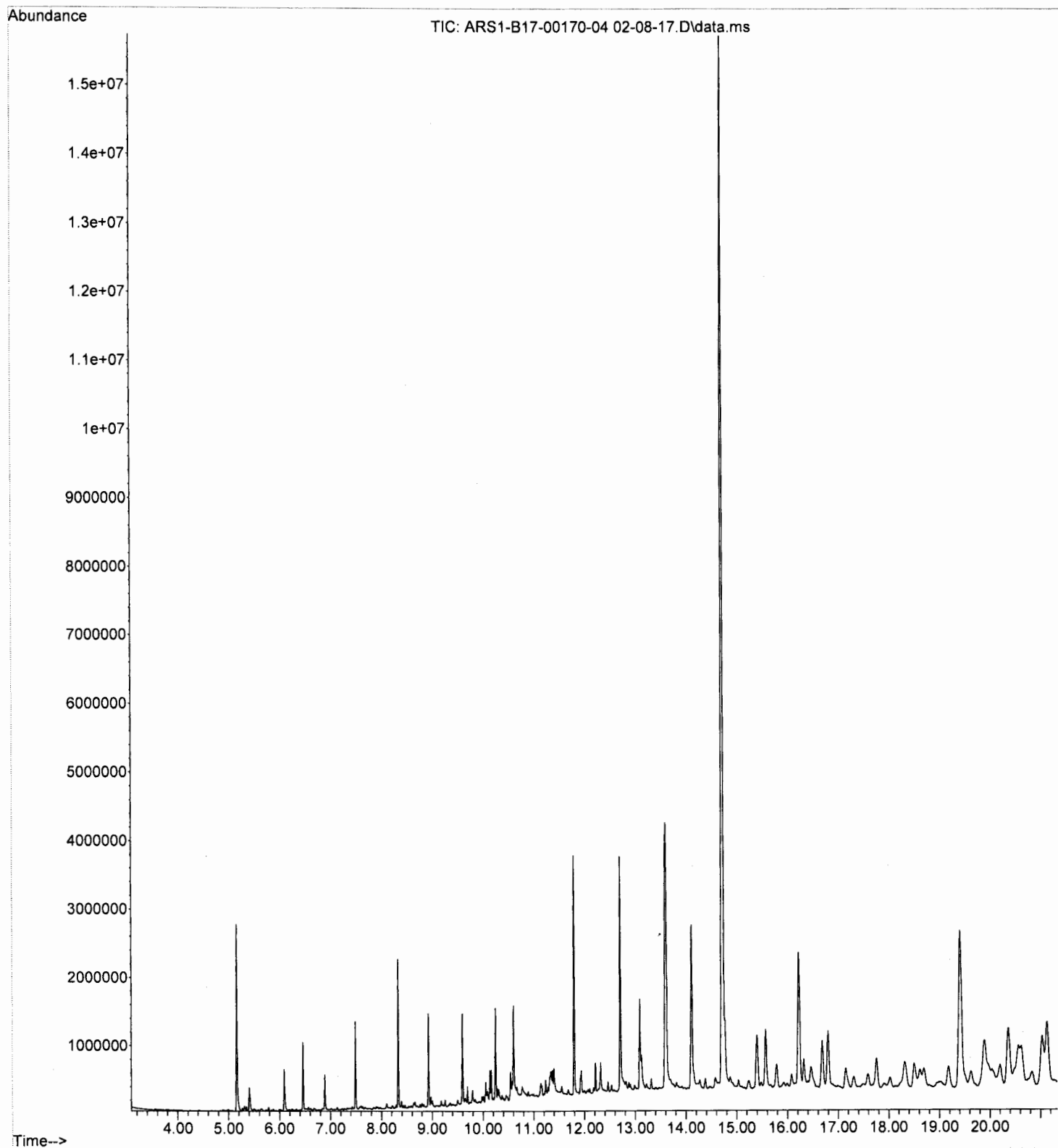
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.459	152	207978	20.00	ng	0.00
4) Naphthalene-d8	7.489	136	716159	20.00	ng	0.00
9) Acenaphthene-d10	8.928	164	342676	20.00	ng	0.00
14) Phenanthrene-d10	10.247	188	676407	20.00	ng	0.00
20) Chrysene-d12	13.092	240	711393	20.00	ng	0.00
24) Perylene-d12	15.575	264	746076	20.00	ng	0.00

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 2-Fluorophenol	5.410	112	492349	21.90	ng	0.00
Spiked Amount 40.000	Range 35 - 115		Recovery =	54.75%		
3) Phenol-d5	6.095	99	684869	25.17	ng	0.00
Spiked Amount 40.000	Range 33 - 122		Recovery =	62.93%		
5) Nitrobenzene-d5	6.891	82	558842	30.01	ng	0.00
Spiked Amount 40.000	Range 37 - 122		Recovery =	75.03%		
10) 2-Fluorobiphenyl	8.329	172	1376897	30.14	ng	0.00
Spiked Amount 40.000	Range 44 - 115		Recovery =	75.35%		
15) 2,4,6-Tribromophenol	9.596	330	277749	33.97	ng	0.00
Spiked Amount 40.000	Range 39 - 132		Recovery =	84.92%		
21) Terphenyl-d14	11.798	244	1639766	32.11	ng	0.00
Spiked Amount 40.000	Range 54 - 127		Recovery =	80.27%		

Target Compounds						Qvalue
6) Naphthalene	0.000		0	N.D.	d	
7) 2-Methylnaphthalene	0.000		0	N.D.	d	
8) 1-Methylnaphthalene	0.000		0	N.D.	d	
11) Acenaphthylene	0.000		0	N.D.	d	
12) Acenaphthene	0.000		0	N.D.	d	
13) Fluorene	0.000		0	N.D.	d	
16) Phenanthrene	0.000		0	N.D.	d	
17) Anthracene	0.000		0	N.D.	d	
18) Pyrene	0.000		0	N.D.	d	
19) Fluoranthene	0.000		0	N.D.	d	
22) Benzo(a)anthracene	0.000		0	N.D.	d	
23) Chrysene	0.000		0	N.D.	d	
25) Benzo(b)fluoranthene	0.000		0	N.D.	d	
26) Benzo(k)fluoranthene	0.000		0	N.D.	d	
27) Benzo(a)pyrene	0.000		0	N.D.	d	
28) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
29) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
30) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

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

File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-05 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 08:19 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-05
Misc Info : Soil
Vial Number: 9

TIC: ARS1-B17-00170-05 02-08-17.D\data.ms

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-07 02-08-17.D
Acq On    : 08 Feb 2017  09:18 pm
Operator  :
Sample    : ARS1-B17-00170-07
Misc      : Soil
ALS Vial  : 11    Sample Multiplier: 1

Quant Time: Feb 09 08:30:39 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```
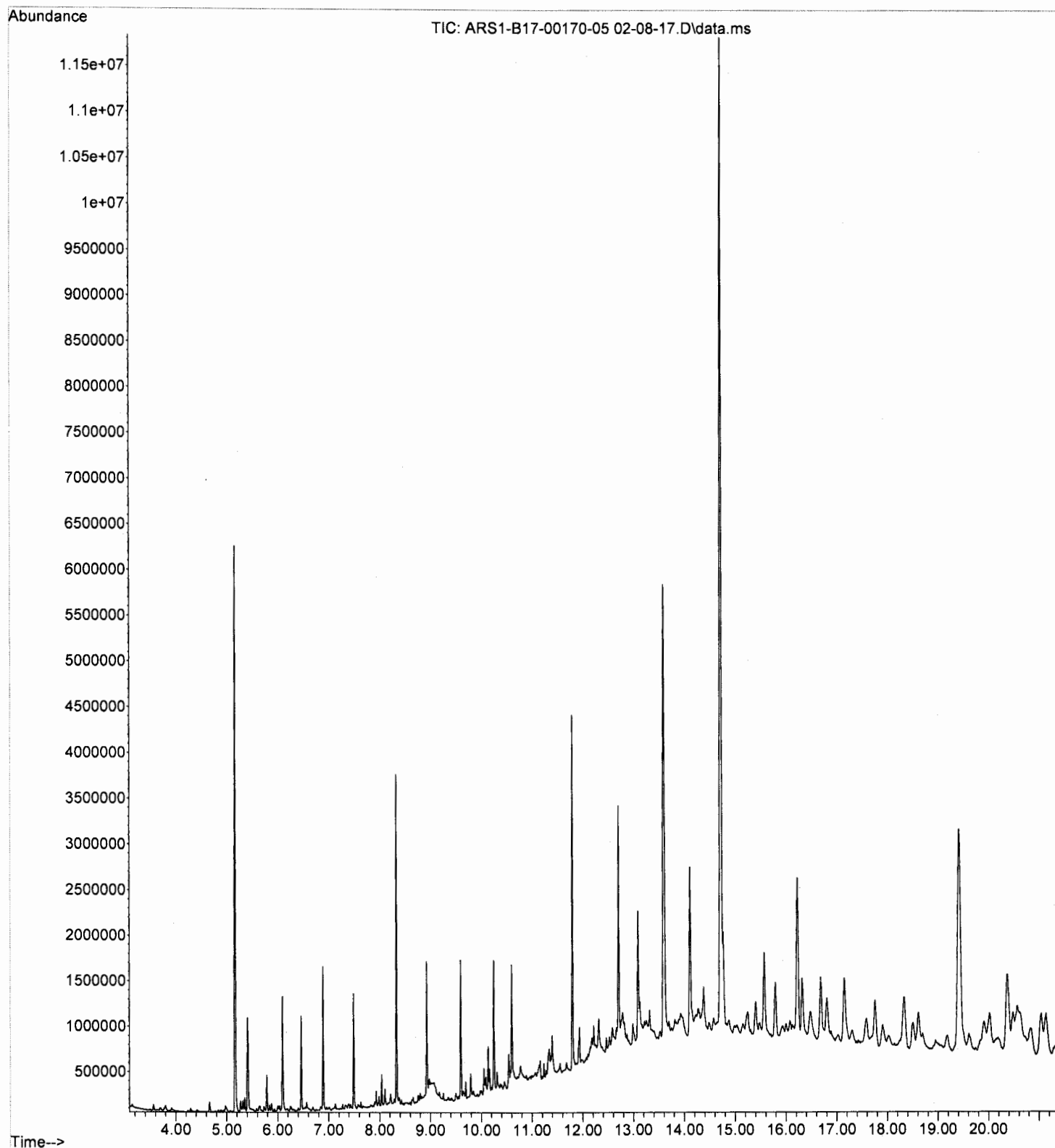
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.460	152	172709	20.00	ng	0.00
4) Naphthalene-d8	7.492	136	636454	20.00	ng	0.00
9) Acenaphthene-d10	8.929	164	305625	20.00	ng	0.00
14) Phenanthrene-d10	10.249	188	599727	20.00	ng	0.00
20) Chrysene-d12	13.093	240	611934	20.00	ng	0.00
24) Perylene-d12	15.574	264	637850	20.00	ng	0.00

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 2-Fluorophenol	5.409	112	431287	23.10	ng	0.00
Spiked Amount 40.000 Range 35 - 115 Recovery = 57.75%						
3) Phenol-d5	6.093	99	572104	25.32	ng	0.00
Spiked Amount 40.000 Range 33 - 122 Recovery = 63.30%						
5) Nitrobenzene-d5	6.892	82	364832	22.05	ng	0.00
Spiked Amount 40.000 Range 37 - 122 Recovery = 55.13%						
10) 2-Fluorobiphenyl	8.330	172	866412	21.27	ng	0.00
Spiked Amount 40.000 Range 44 - 115 Recovery = 53.17%						
15) 2,4,6-Tribromophenol	9.598	330	231228	31.99	ng	0.00
Spiked Amount 40.000 Range 39 - 132 Recovery = 79.97%						
21) Terphenyl-d14	11.798	244	1053479	23.98	ng	0.00
Spiked Amount 40.000 Range 54 - 127 Recovery = 59.95%						

Target Compounds	R.T.	Response	Conc	Units	Qvalue
6) Naphthalene	0.000	0	N.D.	d	
7) 2-Methylnaphthalene	0.000	0	N.D.	d	
8) 1-Methylnaphthalene	0.000	0	N.D.	d	
11) Acenaphthylene	0.000	0	N.D.	d	
12) Acenaphthene	0.000	0	N.D.	d	
13) Fluorene	0.000	0	N.D.	d	
16) Phenanthrene	0.000	0	N.D.	d	
17) Anthracene	0.000	0	N.D.	d	
18) Pyrene	0.000	0	N.D.	d	
19) Fluoranthene	0.000	0	N.D.	d	
22) Benzo(a)anthracene	0.000	0	N.D.	d	
23) Chrysene	0.000	0	N.D.	d	
25) Benzo(b)fluoranthene	0.000	0	N.D.	d	
26) Benzo(k)fluoranthene	0.000	0	N.D.	d	
27) Benzo(a)pyrene	0.000	0	N.D.	d	
28) Indeno(1,2,3-cd)pyrene	0.000	0	N.D.	d	
29) Dibenz(a,h)anthracene	0.000	0	N.D.	d	
30) Benzo(g,h,i)perylene	0.000	0	N.D.	d	

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

File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-07 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017   09:18 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-07
Misc Info   : Soil
Vial Number: 11

TIC: ARS1-B17-00170-07 02-08-17.D\data.ms

```
                    Quantitation Report      (QT Reviewed)


Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-08 02-08-17.D
Acq On    : 08 Feb 2017  09:48 pm
Operator  :
Sample    : ARS1-B17-00170-08
Misc      : Soil
ALS Vial  : 12    Sample Multiplier: 1


Quant Time: Feb 09 08:31:01 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration


        Compound              R.T. QIon  Response  Conc Units Dev(Min)
-----------------------------------------------------------------------
Internal Standards
  1) 1,4-Dichlorobenzene-d4    6.460  152   184236   20.00 ng        0.00
  4) Naphthalene-d8            7.489  136   669657   20.00 ng        0.00
  9) Acenaphthene-d10          8.929  164   327955   20.00 ng        0.00
 14) Phenanthrene-d10         10.246  188   628325   20.00 ng        0.00
 20) Chrysene-d12             13.094  240   650461   20.00 ng        0.00
 24) Perylene-d12             15.571  264   666285   20.00 ng        0.00


System Monitoring Compounds
  2) 2-Fluorophenol            5.412  112   363742   18.26 ng        0.00
  Spiked Amount    40.000   Range  35 - 115    Recovery   =    45.65%
  3) Phenol-d5                 6.093   99   547413   22.71 ng        0.00
  Spiked Amount    40.000   Range  33 - 122    Recovery   =    56.77%
  5) Nitrobenzene-d5           6.892   82   400535   23.01 ng        0.00
  Spiked Amount    40.000   Range  37 - 122    Recovery   =    57.53%
 10) 2-Fluorobiphenyl          8.331  172  1263746   28.91 ng        0.00
  Spiked Amount    40.000   Range  44 - 115    Recovery   =    72.28%
 15) 2,4,6-Tribromophenol      9.599  330   244236   32.24 ng        0.00
  Spiked Amount    40.000   Range  39 - 132    Recovery   =    80.60%
 21) Terphenyl-d14            11.796  244  1630478   34.91 ng        0.00
  Spiked Amount    40.000   Range  54 - 127    Recovery   =    87.27%

Target Compounds                                             Qvalue
  6) Naphthalene              0.000            0    N.D. d
  7) 2-Methylnaphthalene      0.000            0    N.D.
  8) 1-Methylnaphthalene      0.000            0    N.D.
 11) Acenaphthylene           0.000            0    N.D.
 12) Acenaphthene             0.000            0    N.D. d
 13) Fluorene                 0.000            0    N.D. d
 16) Phenanthrene             0.000            0    N.D. d
 17) Anthracene               0.000            0    N.D. d
 18) Pyrene                   0.000            0    N.D. d
 19) Fluoranthene             0.000            0    N.D. d
 22) Benzo(a)anthracene       0.000            0    N.D. d
 23) Chrysene                 0.000            0    N.D. d
 25) Benzo(b)fluoranthene     0.000            0    N.D. d
 26) Benzo(k)fluoranthene     0.000            0    N.D. d
 27) Benzo(a)pyrene           0.000            0    N.D. d
 28) Indeno(1,2,3-cd)pyrene   0.000            0    N.D. d
 29) Dibenz(a,h)anthracene    0.000            0    N.D.
 30) Benzo(g,h,i)perylene     0.000            0    N.D. d
-----------------------------------------------------------------------


 (#) = qualifier out of range (m) = manual integration (+) = signals summed
```
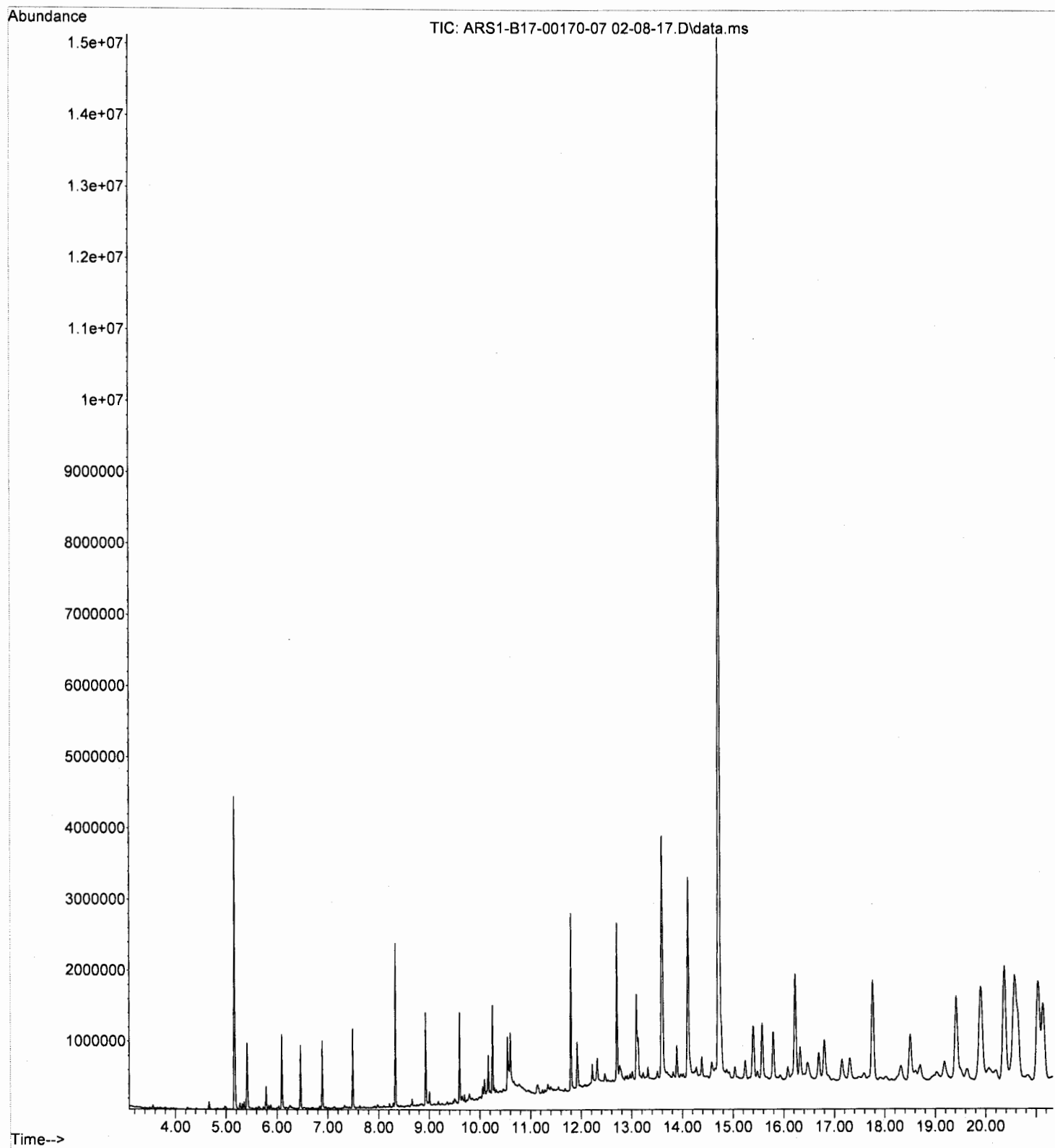
File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-08 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 09:48 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-08
Misc Info   : Soil
Vial Number: 12

TIC: ARS1-B17-00170-08 02-08-17.D\data.ms

```
                        Quantitation Report    (QT Reviewed)


Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-09 02-08-17.D
Acq On    : 08 Feb 2017  10:17 pm
Operator  :
Sample    : ARS1-B17-00170-09
Misc      : Soil
ALS Vial  : 13    Sample Multiplier: 1

Quant Time: Feb 09 08:31:13 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration

        Compound            R.T. QIon  Response  Conc Units Dev(Min)
------------------------------------------------------------------------
Internal Standards
   1) 1,4-Dichlorobenzene-d4   6.461  152   200420   20.00 ng      0.00
   4) Naphthalene-d8           7.490  136   703087   20.00 ng      0.00
   9) Acenaphthene-d10         8.927  164   341395   20.00 ng      0.00
  14) Phenanthrene-d10        10.247  188   670381   20.00 ng      0.00
  20) Chrysene-d12            13.093  240   706981   20.00 ng      0.00
  24) Perylene-d12            15.576  264   744379   20.00 ng      0.00


System Monitoring Compounds
   2) 2-Fluorophenol           5.412  112   702957   32.44 ng      0.00
  Spiked Amount     40.000  Range  35 - 115   Recovery  =   81.10%
   3) Phenol-d5                6.094   99   860047   32.80 ng      0.00
  Spiked Amount     40.000  Range  33 - 122   Recovery  =   82.00%
   5) Nitrobenzene-d5          6.889   82   595610   32.58 ng      0.00
  Spiked Amount     40.000  Range  37 - 122   Recovery  =   81.45%
  10) 2-Fluorobiphenyl         8.330  172  1381239   30.35 ng      0.00
  Spiked Amount     40.000  Range  44 - 115   Recovery  =   75.88%
  15) 2,4,6-Tribromophenol     9.597  330   307283   37.75 ng      0.00
  Spiked Amount     40.000  Range  39 - 132   Recovery  =   94.38%
  21) Terphenyl-d14           11.796  244  1672393   32.95 ng      0.00
  Spiked Amount     40.000  Range  54 - 127   Recovery  =   82.38%

Target Compounds                                             Qvalue
   6) Naphthalene              0.000           0    N.D. d
   7) 2-Methylnaphthalene      0.000           0    N.D.
   8) 1-Methylnaphthalene      0.000           0    N.D.
  11) Acenaphthylene           0.000           0    N.D.
  12) Acenaphthene             0.000           0    N.D. d
  13) Fluorene                 0.000           0    N.D. d
  16) Phenanthrene             0.000           0    N.D. d
  17) Anthracene               0.000           0    N.D. d
  18) Pyrene                   0.000           0    N.D. d
  19) Fluoranthene             0.000           0    N.D. d
  22) Benzo(a)anthracene       0.000           0    N.D. d
  23) Chrysene                 0.000           0    N.D. d
  25) Benzo(b)fluoranthene     0.000           0    N.D. d
  26) Benzo(k)fluoranthene     0.000           0    N.D. d
  27) Benzo(a)pyrene           0.000           0    N.D. d
  28) Indeno(1,2,3-cd)pyrene   0.000           0    N.D. d
  29) Dibenz(a,h)anthracene    0.000           0    N.D. d
  30) Benzo(g,h,i)perylene     0.000           0    N.D. d
------------------------------------------------------------------------

  (#) = qualifier out of range (m) = manual integration (+) = signals summed
```
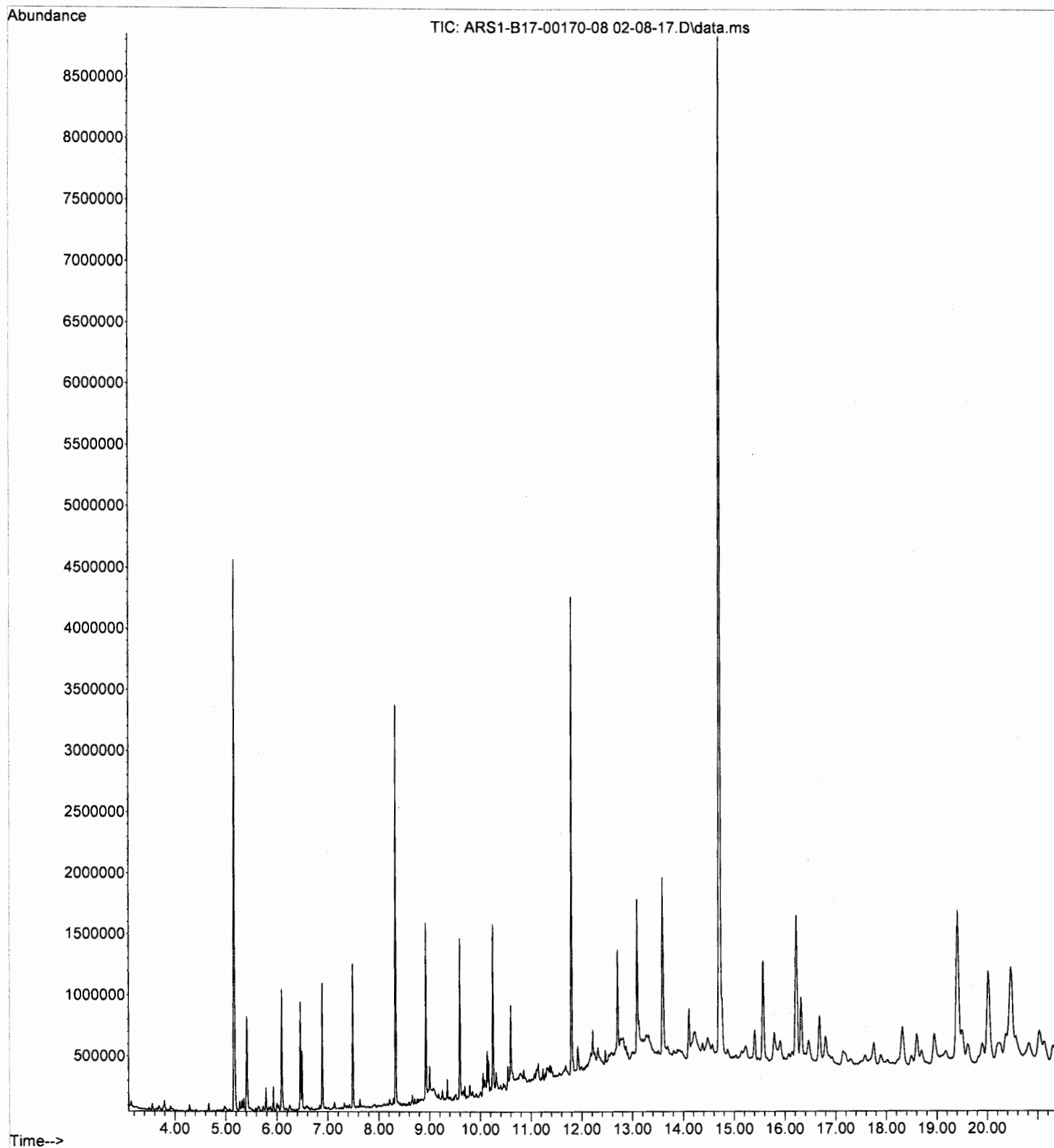
File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-09 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 10:17 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-09
Misc Info   : Soil
Vial Number: 13

TIC: ARS1-B17-00170-09 02-08-17.D\data.ms

```
Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-10 MS 02-08-17.D
Acq On    : 08 Feb 2017  07:20 pm
Operator  :
Sample    : ARS1-B17-00170-10
Misc      : Soil
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Feb 09 08:31:23 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```
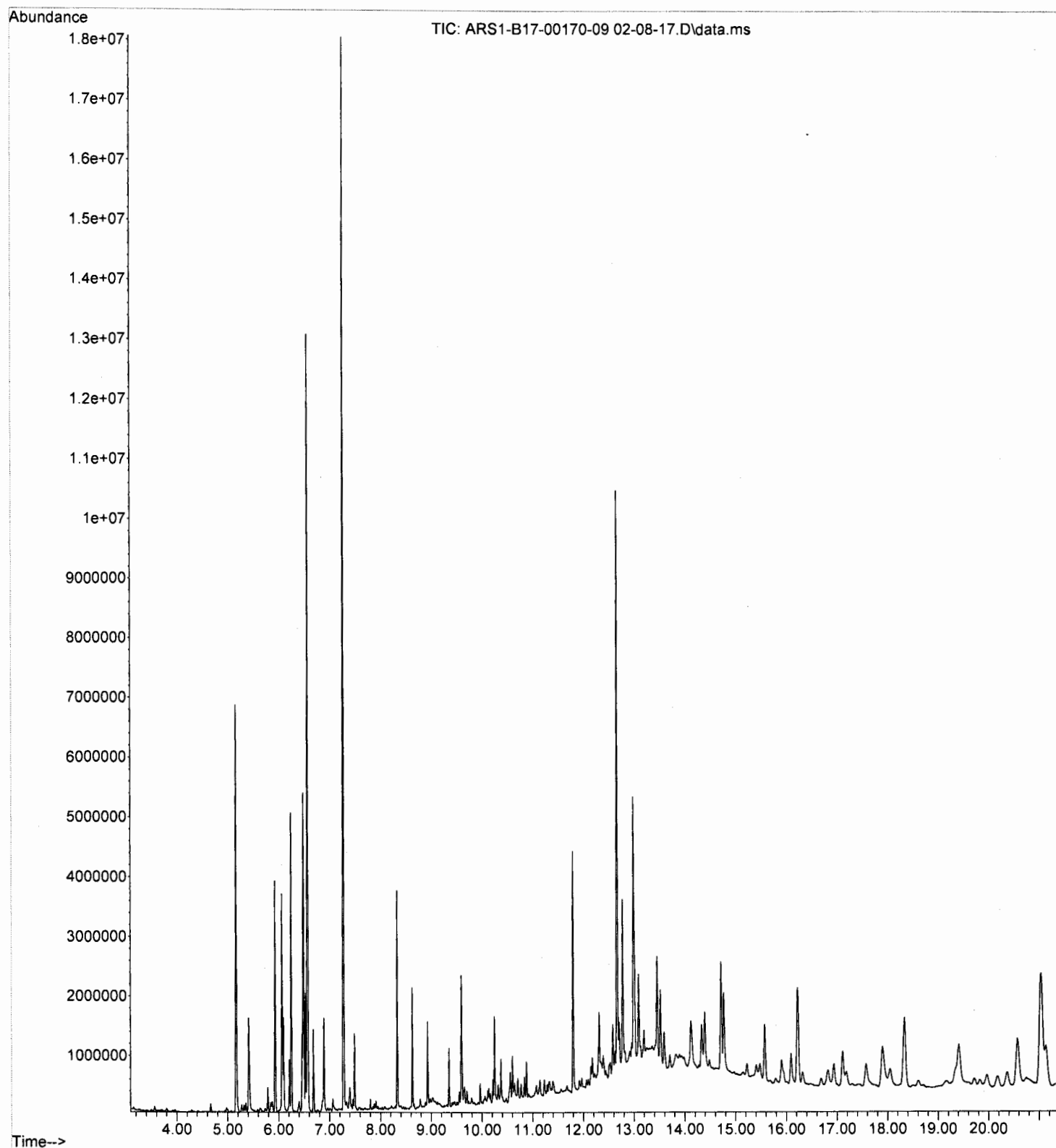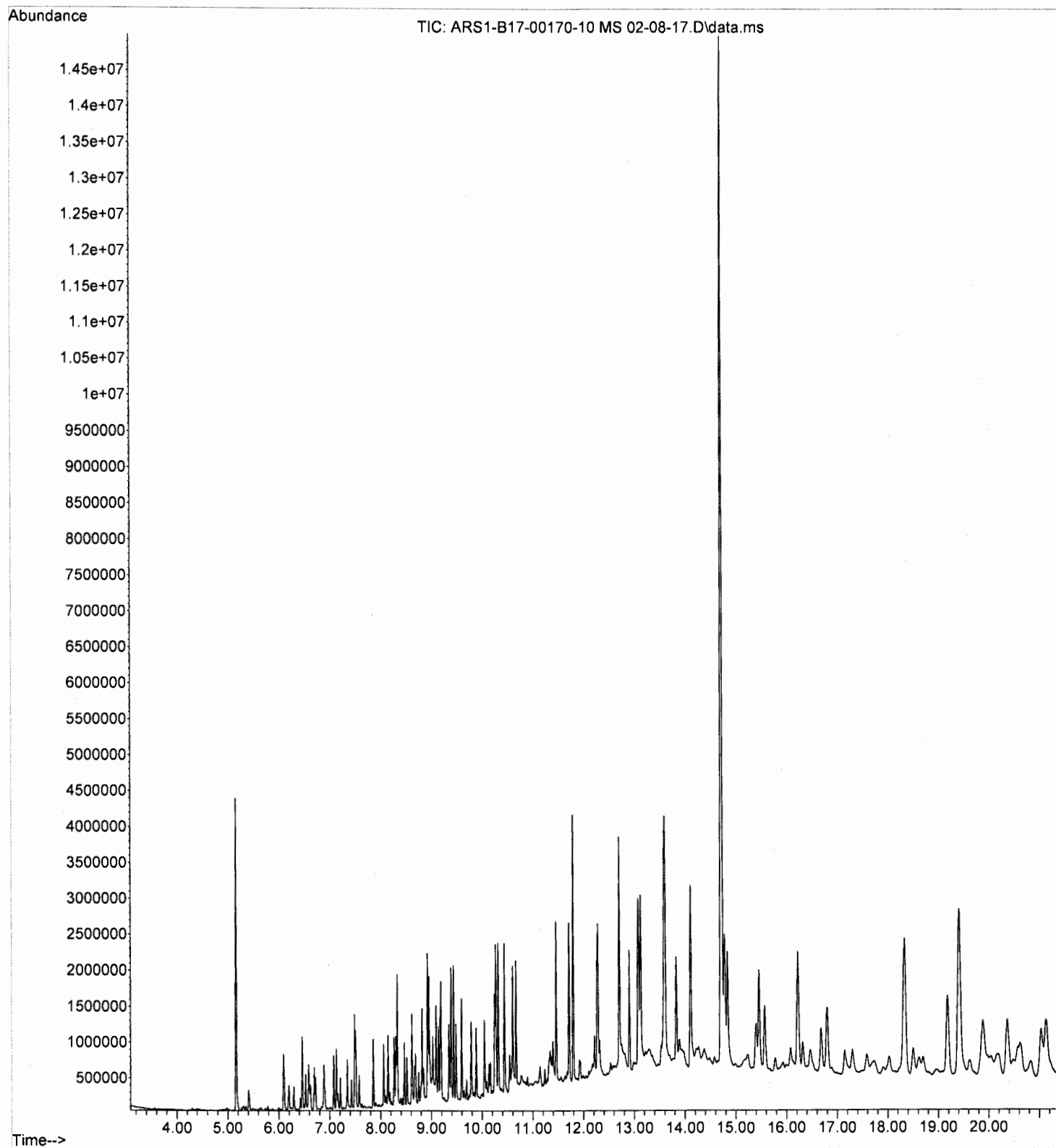
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.461	152	199266	20.00	ng	0.00
4) Naphthalene-d8	7.490	136	718972	20.00	ng	0.00
9) Acenaphthene-d10	8.928	164	332207	20.00	ng	0.00
14) Phenanthrene-d10	10.249	188	659976	20.00	ng	0.00
20) Chrysene-d12	13.093	240	708493	20.00	ng	0.00
24) Perylene-d12	15.571	264	731587	20.00	ng	0.00

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
System Monitoring Compounds						
2) 2-Fluorophenol	5.410	112	128668	5.97	ng	0.00
Spiked Amount 40.000 Range 35 - 115 Recovery = 14.92%#						
3) Phenol-d5	6.091	99	343670	13.18	ng	0.00
Spiked Amount 40.000 Range 33 - 122 Recovery = 32.95%#						
5) Nitrobenzene-d5	6.889	82	152441	8.16	ng	0.00
Spiked Amount 40.000 Range 37 - 122 Recovery = 20.40%#						
10) 2-Fluorobiphenyl	8.329	172	667339	15.07	ng	0.00
Spiked Amount 40.000 Range 44 - 115 Recovery = 37.68%#						
15) 2,4,6-Tribromophenol	9.599	330	252610	31.77	ng	0.00
Spiked Amount 40.000 Range 39 - 132 Recovery = 79.42%						
21) Terphenyl-d14	11.798	244	1584493	31.15	ng	0.00
Spiked Amount 40.000 Range 54 - 127 Recovery = 77.88%						

Compound	R.T.	QIon	Response	Conc	Units	Qvalue
Target Compounds						
6) Naphthalene	7.507	128	356204	5.07	ng	99
7) 2-Methylnaphthalene	8.060	142	297650	6.49	ng	99
8) 1-Methylnaphthalene	8.147	142	330309	7.86	ng	99
11) Acenaphthylene	8.819	152	676972	11.20	ng	95
12) Acenaphthene	8.957	154	422718	10.47	ng	98
13) Fluorene	9.390	166	549632	12.13	ng	99
16) Phenanthrene	10.270	178	967202	14.16	ng	99
17) Anthracene	10.320	178	1035579	14.32	ng	98
18) Pyrene	11.460	202	1181175	15.75	ng	95
19) Fluoranthene	11.715	202	1202215	15.66	ng	95
22) Benzo(a)anthracene	13.078	228	1108004	15.11	ng	95
23) Chrysene	13.129	228	1081512	15.25	ng	95
25) Benzo(b)fluoranthene	14.788	252	1114830	13.94	ng	100
26) Benzo(k)fluoranthene	14.838	252	1139847	14.02	ng	96
27) Benzo(a)pyrene	15.461	252	1102007	14.09	ng	92
28) Indeno(1,2,3-cd)pyrene	18.335	276	1372184	14.00	ng	93
29) Dibenz(a,h)anthracene	18.347	278	1163850	14.26	ng	100
30) Benzo(g,h,i)perylene	19.187	276	1121131	13.54	ng	100

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

File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-10 MS 02-08-17.D
Operator   :
Acquired   : 08 Feb 2017 07:20 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-10
Misc Info : Soil
Vial Number: 7

Abundance

TIC: ARS1-B17-00170-10 MS 02-08-17.D\data.ms

Time-->

```
                    Quantitation Report     (QT Reviewed)


Data Path : D:\Agilent_Onsite\02-08-17\
Data File : ARS1-B17-00170-11 MSD 02-08-17.D
Acq On    : 08 Feb 2017  07:50 pm
Operator  :
Sample    : ARS1-B17-00170-11
Misc      : Soil
ALS Vial  : 8   Sample Multiplier: 1


Quant Time: Feb 09 08:31:38 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration


         Compound             R.T. QIon  Response  Conc Units Dev(Min)
--------------------------------------------------------------------------
Internal Standards
   1) 1,4-Dichlorobenzene-d4   6.461  152   207959   20.00 ng        0.00
   4) Naphthalene-d8           7.490  136   756265   20.00 ng        0.00
   9) Acenaphthene-d10         8.930  164   358453   20.00 ng        0.00
  14) Phenanthrene-d10        10.247  188   693928   20.00 ng        0.00
  20) Chrysene-d12            13.093  240   732148   20.00 ng        0.00
  24) Perylene-d12            15.572  264   753037   20.00 ng        0.00


System Monitoring Compounds
   2) 2-Fluorophenol           5.410  112   102910    4.58 ng        0.00
   Spiked Amount     40.000  Range   35 - 115    Recovery   =    11.45%#
   3) Phenol-d5                6.094   99   311246   11.44 ng        0.00
   Spiked Amount     40.000  Range   33 - 122    Recovery   =    28.60%#
   5) Nitrobenzene-d5          6.889   82   140585    7.15 ng        0.00
   Spiked Amount     40.000  Range   37 - 122    Recovery   =    17.88%#
  10) 2-Fluorobiphenyl         8.328  172   656036   13.73 ng        0.00
   Spiked Amount     40.000  Range   44 - 115    Recovery   =    34.33%#
  15) 2,4,6-Tribromophenol     9.598  330   234345   28.20 ng        0.00
   Spiked Amount     40.000  Range   39 - 132    Recovery   =    70.50%
  21) Terphenyl-d14           11.795  244  1425237   27.11 ng        0.00
   Spiked Amount     40.000  Range   54 - 127    Recovery   =    67.77%

Target Compounds                                              Qvalue
   6) Naphthalene              7.508  128   319309    4.32 ng          99
   7) 2-Methylnaphthalene      8.061  142   275540    5.72 ng          98
   8) 1-Methylnaphthalene      8.146  142   304039    6.87 ng          99
  11) Acenaphthylene           8.818  152   630218    9.66 ng          96
  12) Acenaphthene             8.956  154   404250    9.28 ng          99
  13) Fluorene                 9.390  166   520262   10.64 ng          99
  16) Phenanthrene            10.271  178   892120   12.42 ng          99
  17) Anthracene              10.321  178   924232   12.15 ng          98
  18) Pyrene                  11.460  202  1023612   12.98 ng          95
  19) Fluoranthene            11.715  202  1043919   12.93 ng          95
  22) Benzo(a)anthracene      13.078  228   944620   12.47 ng          95
  23) Chrysene                13.128  228   912123   12.45 ng          95
  25) Benzo(b)fluoranthene    14.789  252   935098   11.36 ng         100
  26) Benzo(k)fluoranthene    14.839  252   953219   11.39 ng          96
  27) Benzo(a)pyrene          15.460  252   912249   11.33 ng          92
  28) Indeno(1,2,3-cd)pyrene  18.334  276  1150623   11.41 ng          93
  29) Dibenz(a,h)anthracene   18.343  278   977447   11.63 ng         100
  30) Benzo(g,h,i)perylene    19.184  276   950540   11.15 ng         100
--------------------------------------------------------------------------

 (#) = qualifier out of range (m) = manual integration (+) = signals summed
```
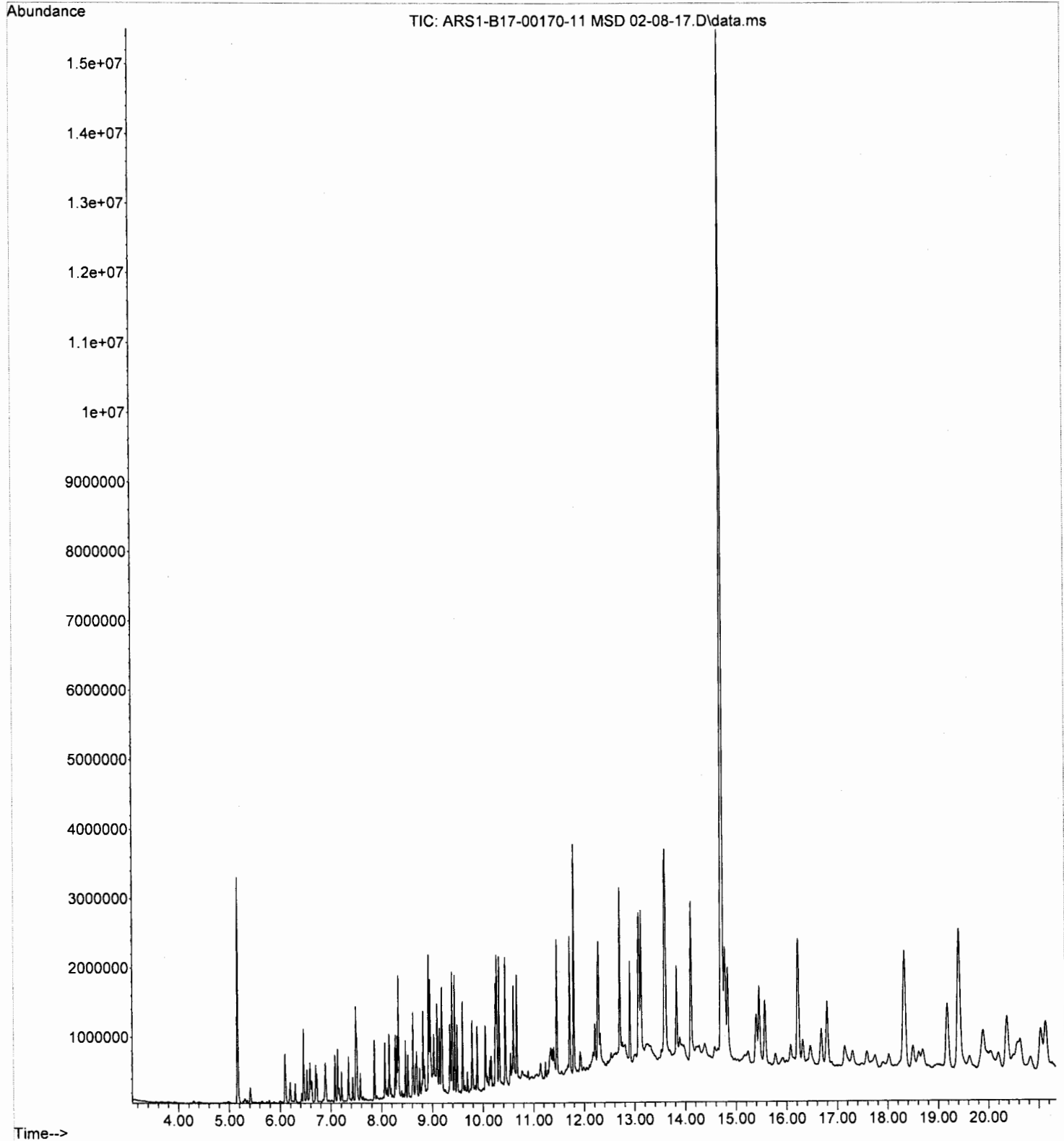
File   :D:\Agilent_Onsite\02-08-17\ARS1-B17-00170-11 MSD 02-08-17.D
Operator :
Acquired : 08 Feb 2017 07:50 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-11
Misc Info : Soil
Vial Number: 8

TIC: ARS1-B17-00170-11 MSD 02-08-17.D\data.ms

Data Path : D:\Agilent_Onsite\02-09-17\
Data File : DFTPP3 02-09-17.D
Acq On   : 09 Feb 2017 11:57 am
Operator :
Sample   : DFTPP3
Misc   :
ALS Vial : 1   Sample Multiplier: 1

Integration File: autoint1.e

Method   : D:\MassHunter\GCMS\1\methods\Agilent_onsite_DFTPP.M
Title   :
Last Update : Tue Dec 06 15:44:44 2016

AutoFind: Scans 2505, 2506, 2507; Background Corrected with Scan 2493

| Target | Rel. to | Lower | Upper | Rel. | Raw | Result |
Mass	Mass	Limit%	Limit%	Abn%	Abn	Pass/Fail
51	198	10	80	20.4	79247	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	21.6	83803	PASS
70	69	0.00	2	0.5	436	PASS
127	198	10	80	37.8	146632	PASS
197	198	0.00	2	0.0	0	PASS
198	198	50	100	100.0	387755	PASS
199	198	5	9	6.8	26179	PASS
275	198	10	60	24.8	96115	PASS
365	198	1	100	1.9	7273	PASS
441	442	0.01	24	16.4	73965	PASS
442	198	50	200	116.6	452096	PASS
443	442	17	23	19.0	85949	PASS

Agilent_onsite_DFTPP.M Thu Feb 09 14:05:09 2017 ARS-HP

File   :D:\Agilent_Onsite\02-09-17\DFTPP3 02-09-17.D
Operator   :
Acquired   : 09 Feb 2017 11:57 am using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: DFTPP3
Misc Info   :
Vial Number: 1

Ion 265.90 (265.60 to 266.60): DFTPP3 02-09-17.D\data.ms

File   :D:\Agilent_Onsite\02-09-17\DFTPP3 02-09-17.D
Operator   :
Acquired   : 09 Feb 2017 11:57 am using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: DFTPP3
Misc Info   :
Vial Number: 1

Ion 184.10 (183.80 to 184.80): DFTPP3 02-09-17.D\data.ms

11.534   Tailing = 1.01

Abundance

Time-->

Ion 235.00 (234.70 to 235.70): DFTPP3 02-09-17.D\data.ms

Degradation = 2.48%

12.100

```
Data Path : D:\Agilent_Onsite\02-09-17\
Data File : CCV 40ppm 02-09-17.D
Acq On    : 09 Feb 2017  12:26 pm
Operator  :
Sample    : CCV 40ppm
Misc      :
ALS Vial  : 2   Sample Multiplier: 1
```

```
Quant Time: Feb 09 13:08:23 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```

```
Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

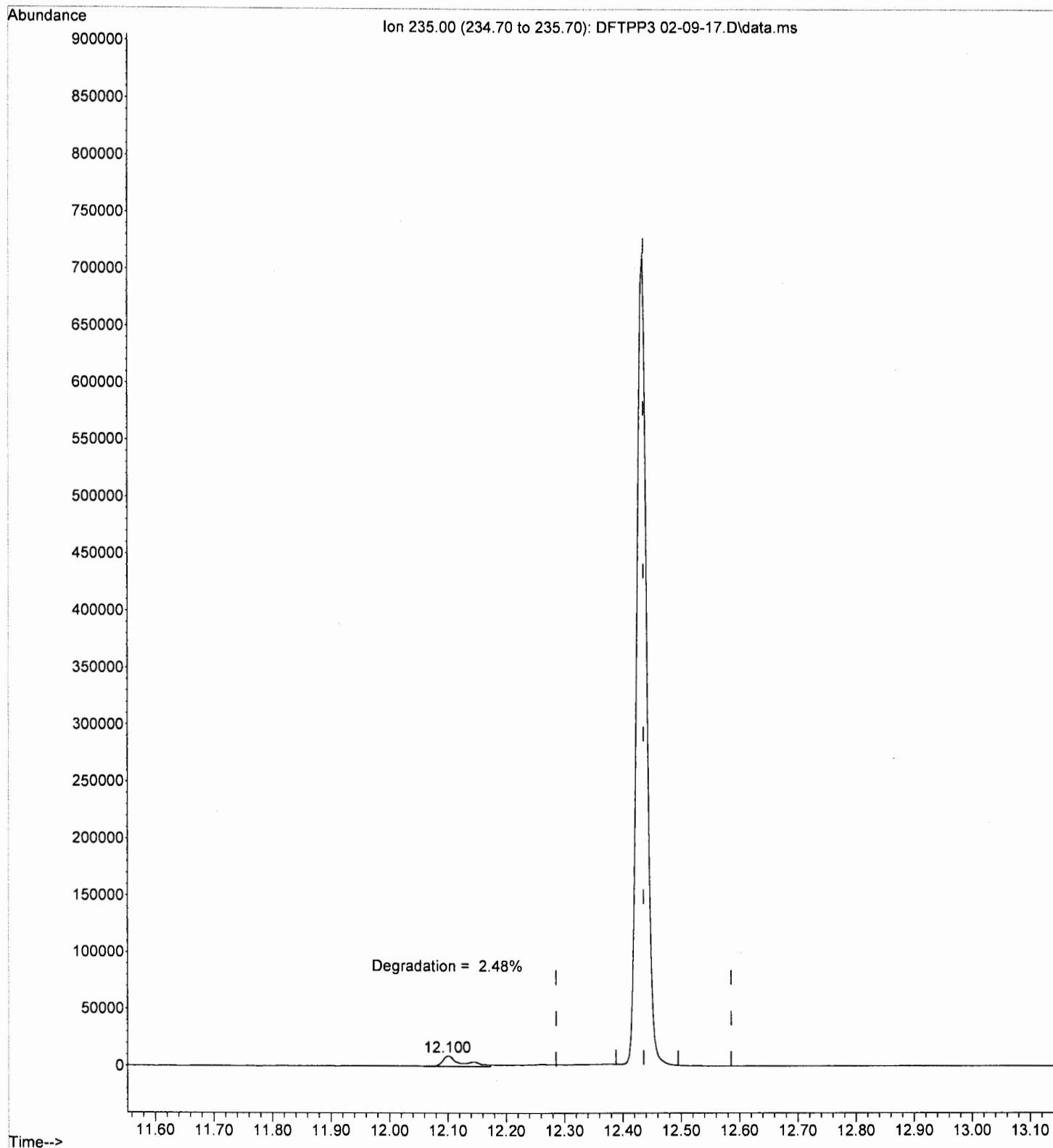|		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	108	0.00
2	S	2-Fluorophenol	2.162	2.521	-16.6	118	0.00
3	S	Phenol-d5	2.617	2.789	-6.6	107	0.00
4	I	Naphthalene-d8	1.000	1.000	0.0	100	0.00
5	S	Nitrobenzene-d5	0.520	0.556	-6.9	104	0.00
6	CPM	Naphthalene	1.954	1.985	-1.6	101	0.00
7	CPM	2-Methylnaphthalene	1.275	1.280	-0.4	98	0.00
8	CPM	1-Methylnaphthalene	1.170	1.171	-0.1	99	0.00
9	I	Acenaphthene-d10	1.000	1.000	0.0	96	0.00
10	S	2-Fluorobiphenyl	2.666	2.650	0.6	97	0.00
11	CPM	Acenaphthylene	3.639	3.761	-3.4	98	0.00
12	CPM	Acenaphthene	2.431	2.438	-0.3	98	0.00
13	CPM	Fluorene	2.729	2.847	-4.3	99	0.00
14	I	Phenanthrene-d10	1.000	1.000	0.0	95	0.00
15	S	2,4,6-Tribromophenol	0.207	0.246	-18.8	98	0.00
16	CPM	Phenanthrene	2.070	2.140	-3.4	98	0.00
17	CPM	Anthracene	2.192	2.259	-3.1	96	0.00
18	CPM	Pyrene	2.272	2.361	-3.9	97	0.00
19	CPM	Fluoranthene	2.327	2.453	-5.4	99	0.00
20	I	Chrysene-d12	1.000	1.000	0.0	95	0.00
21	S	Terphenyl-d14	1.436	1.498	-4.3	98	0.00
22	CPM	Benzo(a)anthracene	2.069	2.150	-3.9	97	0.00
23	CPM	Chrysene	2.002	2.076	-3.7	97	0.00
24	I	Perylene-d12	1.000	1.000	0.0	95	0.00
25	CPM	Benzo(b)fluoranthene	2.187	2.310	-5.6	99	0.00
26	CPM	Benzo(k)fluoranthene	2.223	2.306	-3.7	97	0.00
27	CPM	Benzo(a)pyrene	2.139	2.261	-5.7	97	0.00
28	CPM	Indeno(1,2,3-cd)pyrene	2.679	2.813	-5.0	97	-0.03
29	CPM	Dibenz(a,h)anthracene	2.231	2.355	-5.6	95	-0.03
30	CPM	Benzo(g,h,i)perylene	2.264	2.357	-4.1	97	-0.03

```
    (#) = Out of Range        SPCC's out = 0  CCC's out = 0
```

```
Data Path : D:\Agilent_Onsite\02-09-17\
Data File : CCV 40ppm 02-09-17.D
Acq On    : 09 Feb 2017  12:26 pm
Operator  :
Sample    : CCV 40ppm
Misc      :
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Feb 09 13:08:23 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```
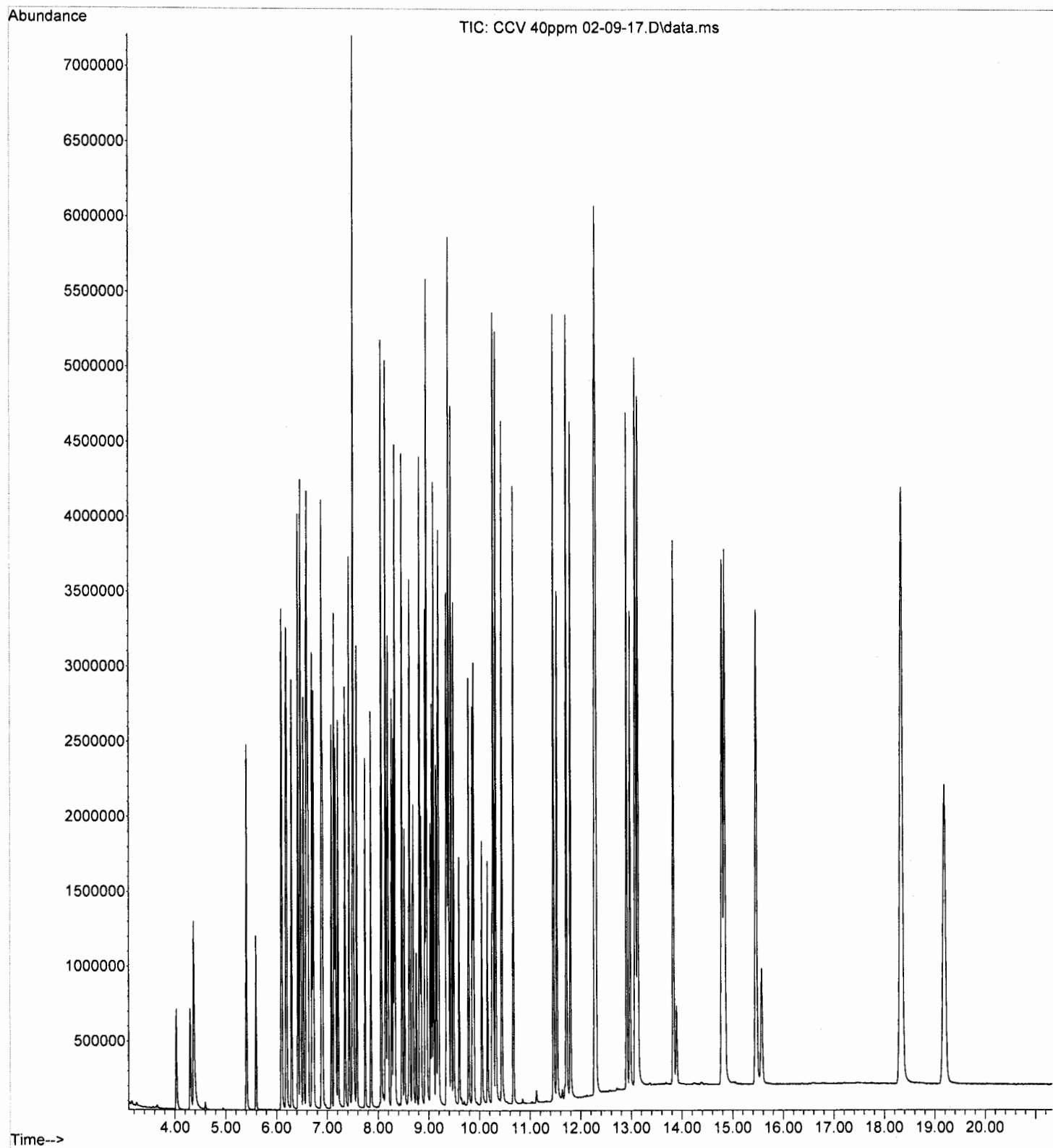
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.463	152	204119	20.00	ng	0.00
4) Naphthalene-d8	7.493	136	703089	20.00	ng	0.00
9) Acenaphthene-d10	8.930	164	307982	20.00	ng	0.00
14) Phenanthrene-d10	10.249	188	587158	20.00	ng	0.00
20) Chrysene-d12	13.095	240	619696	20.00	ng	0.00
24) Perylene-d12	15.574	264	608741	20.00	ng	0.00

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 2-Fluorophenol	5.409	112	1029159	46.64	ng	0.00
Spiked Amount 40.000	Range 19 - 119		Recovery	= 116.60%		
3) Phenol-d5	6.094	99	1138687	42.64	ng	0.00
Spiked Amount 40.000	Range 33 - 122		Recovery	= 106.60%		
5) Nitrobenzene-d5	6.893	82	781933	42.78	ng	0.00
Spiked Amount 40.000	Range 44 - 120		Recovery	= 106.95%		
10) 2-Fluorobiphenyl	8.332	172	1632555	39.77	ng	0.00
Spiked Amount 40.000	Range 44 - 119		Recovery	= 99.43%		
15) 2,4,6-Tribromophenol	9.600	330	289359	40.48	ng	0.00
Spiked Amount 40.000	Range 43 - 140		Recovery	= 101.20%		
21) Terphenyl-d14	11.797	244	1856773	41.73	ng	0.00
Spiked Amount 40.000	Range 50 - 134		Recovery	= 104.33%		

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
6) Naphthalene	7.510	128	2791095	40.63	ng	94
7) 2-Methylnaphthalene	8.061	142	1799820	40.16	ng	98
8) 1-Methylnaphthalene	8.148	142	1647118	40.06	ng	99
11) Acenaphthylene	8.822	152	2316891	41.34	ng	97
12) Acenaphthene	8.960	154	1501614	40.12	ng	99
13) Fluorene	9.392	166	1753576	41.73	ng	97
16) Phenanthrene	10.273	178	2512455	41.34	ng	98
17) Anthracene	10.322	178	2653114	41.23	ng	99
18) Pyrene	11.463	202	2772820	41.57	ng	97
19) Fluoranthene	11.718	202	2880157	42.16	ng	96
22) Benzo(a)anthracene	13.081	228	2664496	41.56	ng	96
23) Chrysene	13.131	228	2572985	41.49	ng	96
25) Benzo(b)fluoranthene	14.792	252	2811795	42.25	ng	100
26) Benzo(k)fluoranthene	14.842	252	2807619	41.50	ng	96
27) Benzo(a)pyrene	15.465	252	2752144	42.28	ng	93
28) Indeno(1,2,3-cd)pyrene	18.337	276	3424463	42.00	ng	94
29) Dibenz(a,h)anthracene	18.349	278	2867274	42.22	ng	100
30) Benzo(g,h,i)perylene	19.193	276	2869159	41.65	ng	100

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

File   :D:\Agilent_Onsite\02-09-17\CCV 40ppm 02-09-17.D
Operator :
Acquired : 09 Feb 2017 12:26 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: CCV 40ppm
Misc Info :
Vial Number: 2

TIC: CCV 40ppm 02-09-17.D\data.ms

```
Data Path : D:\Agilent_Onsite\02-09-17\
Data File : ClosingCCV 40ppm 02-09-17.D
Acq On    : 09 Feb 2017  01:25 pm
Operator  :
Sample    : ClosingCCV 40ppm
Misc      :
ALS Vial  : 2   Sample Multiplier: 1


Quant Time: Feb 09 13:52:29 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration



Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	115	0.00
2	S	2-Fluorophenol	2.162	2.493	-15.3	124	0.00
3	S	Phenol-d5	2.617	2.722	-4.0	111	0.00
4	I	Naphthalene-d8	1.000	1.000	0.0	101	0.00
5	S	Nitrobenzene-d5	0.520	0.557	-7.1	106	0.00
6	CPM	Naphthalene	1.954	1.983	-1.5	102	0.00
7	CPM	2-Methylnaphthalene	1.275	1.280	-0.4	99	0.00
8	CPM	1-Methylnaphthalene	1.170	1.168	0.2	100	0.00
9	I	Acenaphthene-d10	1.000	1.000	0.0	96	0.00
10	S	2-Fluorobiphenyl	2.666	2.642	0.9	97	0.00
11	CPM	Acenaphthylene	3.639	3.741	-2.8	98	0.00
12	CPM	Acenaphthene	2.431	2.431	0.0	98	0.00
13	CPM	Fluorene	2.729	2.771	-1.5	96	0.00
14	I	Phenanthrene-d10	1.000	1.000	0.0	95	0.00
15	S	2,4,6-Tribromophenol	0.207	0.247	-19.3	98	0.00
16	CPM	Phenanthrene	2.070	2.131	-2.9	98	0.00
17	CPM	Anthracene	2.192	2.287	-4.3	96	0.00
18	CPM	Pyrene	2.272	2.392	-5.3	98	0.00
19	CPM	Fluoranthene	2.327	2.431	-4.5	97	0.00
20	I	Chrysene-d12	1.000	1.000	0.0	95	0.00
21	S	Terphenyl-d14	1.436	1.463	-1.9	95	0.00
22	CPM	Benzo(a)anthracene	2.069	2.159	-4.3	96	0.00
23	CPM	Chrysene	2.002	2.059	-2.8	96	0.00
24	I	Perylene-d12	1.000	1.000	0.0	94	0.00
25	CPM	Benzo(b)fluoranthene	2.187	2.296	-5.0	97	0.00
26	CPM	Benzo(k)fluoranthene	2.223	2.311	-4.0	96	-0.01
27	CPM	Benzo(a)pyrene	2.139	2.288	-7.0	97	0.00
28	CPM	Indeno(1,2,3-cd)pyrene	2.679	2.817	-5.2	95	-0.03
29	CPM	Dibenz(a,h)anthracene	2.231	2.350	-5.3	94	-0.03
30	CPM	Benzo(g,h,i)perylene	2.264	2.365	-4.5	96	-0.03

```
    (#) = Out of Range          SPCC's out = 0  CCC's out = 0
```
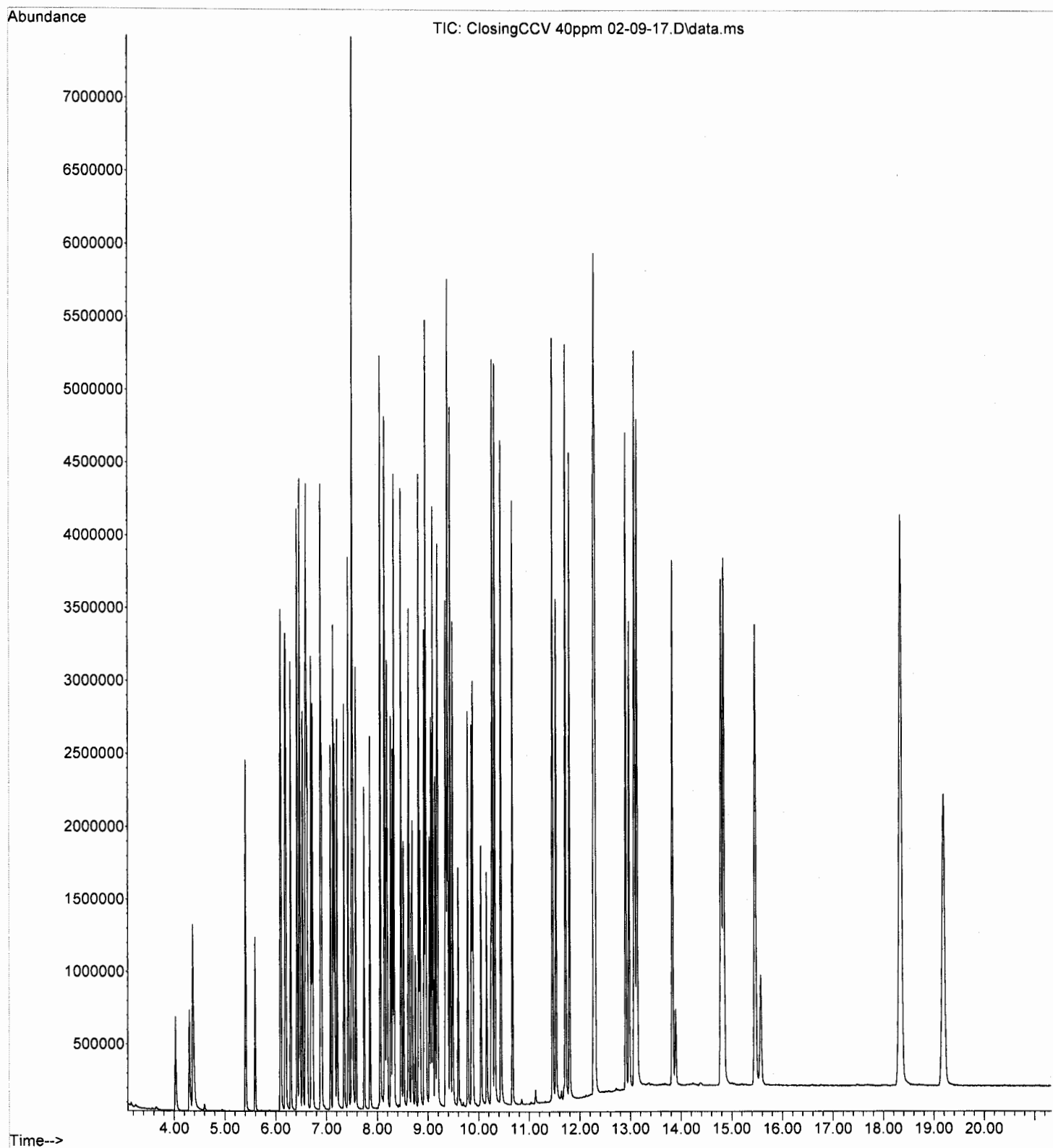
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Data Path : D:\Agilent_Onsite\02-09-17\
Data File : ClosingCCV 40ppm 02-09-17.D
Acq On    : 09 Feb 2017  01:25 pm
Operator  :
Sample    : ClosingCCV 40ppm
Misc      :
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Feb 09 13:52:29 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.462	152	217098	20.00	ng	0.00
4) Naphthalene-d8	7.491	136	709932	20.00	ng	0.00
9) Acenaphthene-d10	8.929	164	309598	20.00	ng	0.00
14) Phenanthrene-d10	10.248	188	585299	20.00	ng	0.00
20) Chrysene-d12	13.096	240	615865	20.00	ng	0.00
24) Perylene-d12	15.571	264	599669	20.00	ng	0.00

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 2-Fluorophenol	5.411	112	1082575	46.13	ng	0.00
Spiked Amount 40.000 Range 19 - 119 Recovery = 115.33%						
3) Phenol-d5	6.092	99	1182043	41.61	ng	0.00
Spiked Amount 40.000 Range 33 - 122 Recovery = 104.02%						
5) Nitrobenzene-d5	6.892	82	790604	42.83	ng	0.00
Spiked Amount 40.000 Range 44 - 120 Recovery = 107.07%						
10) 2-Fluorobiphenyl	8.331	172	1635748	39.64	ng	0.00
Spiked Amount 40.000 Range 44 - 119 Recovery = 99.10%						
15) 2,4,6-Tribromophenol	9.601	330	288978	40.55	ng	0.00
Spiked Amount 40.000 Range 43 - 140 Recovery = 101.38%						
21) Terphenyl-d14	11.797	244	1802443	40.77	ng	0.00
Spiked Amount 40.000 Range 50 - 134 Recovery = 101.93%						

Compound	R.T.	QIon	Response	Conc	Units	Qvalue
Target Compounds						
6) Naphthalene	7.512	128	2815979	40.60	ng	97
7) 2-Methylnaphthalene	8.062	142	1817370	40.16	ng	97
8) 1-Methylnaphthalene	8.147	142	1657714	39.93	ng	99
11) Acenaphthylene	8.821	152	2316693	41.12	ng	97
12) Acenaphthene	8.958	154	1505224	40.00	ng	97
13) Fluorene	9.394	166	1715944	40.62	ng	99
16) Phenanthrene	10.275	178	2494722	41.18	ng	99
17) Anthracene	10.321	178	2676801	41.73	ng	99
18) Pyrene	11.463	202	2799821	42.11	ng	96
19) Fluoranthene	11.718	202	2845346	41.78	ng	95
22) Benzo(a)anthracene	13.082	228	2658792	41.72	ng	96
23) Chrysene	13.134	228	2536338	41.15	ng	96
25) Benzo(b)fluoranthene	14.791	252	2753478	42.00	ng	100
26) Benzo(k)fluoranthene	14.842	252	2771603	41.59	ng	96
27) Benzo(a)pyrene	15.465	252	2744534	42.80	ng	93
28) Indeno(1,2,3-cd)pyrene	18.339	276	3378940	42.07	ng	93
29) Dibenz(a,h)anthracene	18.348	278	2818955	42.13	ng	100
30) Benzo(g,h,i)perylene	19.195	276	2836113	41.79	ng	100

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

File   :D:\Agilent_Onsite\02-09-17\ClosingCCV 40ppm 02-09-17.D
Operator   :
Acquired   : 09 Feb 2017 01:25 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ClosingCCV 40ppm
Misc Info   :
Vial Number: 2

TIC: ClosingCCV 40ppm 02-09-17.D\data.ms

```
                    GC/MS QA-QC Check Report

Tune File : D:\Agilent_Onsite\02-09-17\DFTPP3 02-09-17.D
Tune Time : 09 Feb 2017  11:57 am

Daily Calibration File : D:\Agilent_Onsite\02-01-17\IC02011706 40ppm 02-01-17.D

              C6H5FC6HD5C6D5NC12H9        C6C12      C10D8      C12D1
                                          188327     703390     321370

              C6H3BC18D1                  C14D1      C18D1      C20D1
                                          617076     650290     639389

File      Sample     Surrogate Recovery %    Internal Standard Responses
==========================================================================
ARS1-B17-00170-06 02-06-17.D
       ARS1-B17-0   51   52   58   47    194901     693297     284936
                    79   62               553109     583946     560790
--------------------------------------------------------------------------
CCV 40ppm 02-09-17.D
       CCV 40ppm   117  107  107   99    204119     703089     307982
                   101  104               587158     619696     608741
--------------------------------------------------------------------------
ClosingCCV 40ppm 02-09-17.D
       ClosingCCV  115  104  107   99    217098     709932     309598
                   101  102               585299     615865     599669
--------------------------------------------------------------------------
(fails) - fails 12hr time check   * - fails criteria

     Created: Thu Feb 09 14:15:11 2017  GCMS #1
```

```
Data Path : D:\Agilent_Onsite\02-09-17\
Data File : ARS1-B17-00170-06 02-06-17.D
Acq On    : 09 Feb 2017  12:56 pm
Operator  :
Sample    : ARS1-B17-00170-06
Misc      :
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Feb 09 13:19:16 2017
Quant Method : D:\MassHunter\GCMS\1\methods\cole_8270_PAH.M
Quant Title  : 8270D
QLast Update : Wed Feb 08 10:30:56 2017
Response via : Initial Calibration
```
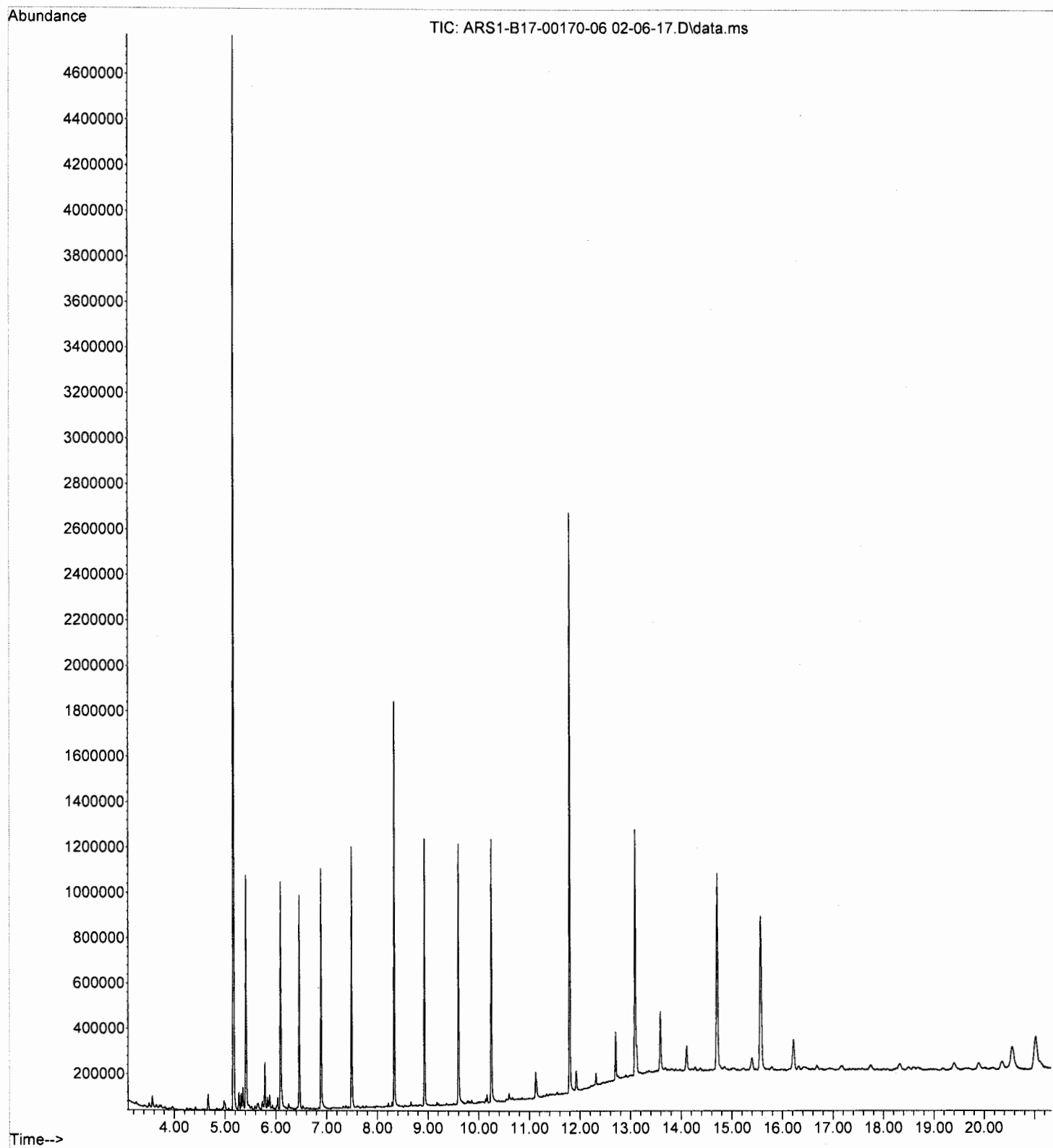
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.462	152	194901	20.00	ng	0.00
4) Naphthalene-d8	7.491	136	693297	20.00	ng	0.00
9) Acenaphthene-d10	8.931	164	284936	20.00	ng	0.00
14) Phenanthrene-d10	10.249	188	553109	20.00	ng	0.00
20) Chrysene-d12	13.092	240	583946	20.00	ng	-0.01
24) Perylene-d12	15.568	264	560790	20.00	ng	-0.01

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 2-Fluorophenol	5.411	112	427445	20.29	ng	0.00
Spiked Amount 40.000	Range 19 - 119		Recovery =	50.72%		
3) Phenol-d5	6.093	99	532937	20.90	ng	0.00
Spiked Amount 40.000	Range 33 - 122		Recovery =	52.25%		
5) Nitrobenzene-d5	6.892	82	421213	23.37	ng	0.00
Spiked Amount 40.000	Range 44 - 120		Recovery =	58.43%		
10) 2-Fluorobiphenyl	8.331	172	706497	18.60	ng	0.00
Spiked Amount 40.000	Range 44 - 119		Recovery =	46.50%		
15) 2,4,6-Tribromophenol	9.601	330	209313	31.42	ng	0.00
Spiked Amount 40.000	Range 43 - 140		Recovery =	78.55%		
21) Terphenyl-d14	11.797	244	1034735	24.68	ng	0.00
Spiked Amount 40.000	Range 50 - 134		Recovery =	61.70%		

Target Compounds (Qvalue)

Compound	R.T.	Response	Conc		Qvalue
6) Naphthalene	0.000	0	N.D.	d	
7) 2-Methylnaphthalene	0.000	0	N.D.	d	
8) 1-Methylnaphthalene	0.000	0	N.D.	d	
11) Acenaphthylene	0.000	0	N.D.		
12) Acenaphthene	0.000	0	N.D.		
13) Fluorene	0.000	0	N.D.	d	
16) Phenanthrene	0.000	0	N.D.	d	
17) Anthracene	0.000	0	N.D.	d	
18) Pyrene	0.000	0	N.D.		
19) Fluoranthene	0.000	0	N.D.	d	
22) Benzo(a)anthracene	0.000	0	N.D.	d	
23) Chrysene	0.000	0	N.D.	d	
25) Benzo(b)fluoranthene	0.000	0	N.D.	d	
26) Benzo(k)fluoranthene	0.000	0	N.D.	d	
27) Benzo(a)pyrene	0.000	0	N.D.	d	
28) Indeno(1,2,3-cd)pyrene	0.000	0	N.D.		
29) Dibenz(a,h)anthracene	0.000	0	N.D.		
30) Benzo(g,h,i)perylene	0.000	0	N.D.	d	

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

File   :D:\Agilent_Onsite\02-09-17\ARS1-B17-00170-06 02-06-17.D
Operator   :
Acquired   : 09 Feb 2017 12:56 pm using AcqMethod agilent_onsite_8270.M
Instrument :   GCMS #1
Sample Name: ARS1-B17-00170-06
Misc Info :
Vial Number: 3

TIC: ARS1-B17-00170-06 02-06-17.D\data.ms

```
Starting sequence Wed Feb 08 16:48:03 2017

Instrument Name: GCMS #1
   Sequence File: D:\MassHunter\GCMS\1\sequence\02-08-17.sequence.xml
         Comment:
        Operator:
       Data Path: D:\Agilent_Onsite\02-08-17\

Line  Type            Vials   DataFile               Sample Name
-----------------------------------------------------------------------
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: agilent_onsite_8270.M
    3) CC               2      CCV1 40ppm 02-08-17    CCV1 40ppm
    4) Method Blank     3      ARS1-B17-00170-...8-17  ARS1-B17-00170-03
       Comment: Soil
    5) Sample           4      ARS1-B17-00170-...8-17  ARS1-B17-00170-01
       Comment: Soil
    6) Sample           5      ARS1-B17-00170-...8-17  ARS1-B17-00170-02
       Comment: Soil
    7) Sample           6      ARS1-B17-00170-...8-17  ARS1-B17-00170-04
       Comment: Soil
    8) Sample           7      ARS1-B17-00170-...8-17  ARS1-B17-00170-10
       Comment: Soil
    9) Sample           8      ARS1-B17-00170-...8-17  ARS1-B17-00170-11
       Comment: Soil
   10) Sample           9      ARS1-B17-00170-...8-17  ARS1-B17-00170-05
       Comment: Soil
   11) Sample          10      ARS1-B17-00170-...8-17  ARS1-B17-00170-06
       Comment: Soil
   12) Sample          11      ARS1-B17-00170-...8-17  ARS1-B17-00170-07
       Comment: Soil
   13) Sample          12      ARS1-B17-00170-...8-17  ARS1-B17-00170-08
       Comment: Soil
   14) Sample          13      ARS1-B17-00170-...8-17  ARS1-B17-00170-09
       Comment: Soil
   15) Sample         142      ISBLK1 02-08-17        ISBLK1
   16) Sample         142      ISBLK2 02-08-17        ISBLK2
   17) Sample         142      ISBLK3 02-08-17        ISBLK3
   18) CC               2      ClosingCCV1 40p...8-17  ClosingCCV1 40ppm

Sequence completed Thu Feb 09 00:37:02 2017

    D:\Agilent_Onsite\02-08-17\2017 Feb 08 1648 Quality Log.LOG
    D:\Agilent_Onsite\02-08-17\2017 Feb 08 1648 Sequence Log .LOG
```

PCB Analysis

SW 846 8082

SDG# ARS1-17-00215
COC Solid Samples

Analytical Batch Report

Analysis Batch ID ARS1-B17-00184

	Method	Analysis	Matrix
	ARS-157	GCSV-8082A-SO	SO

Description PCB's (Soil, Sludge)

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Prep Code	Client ID	Group Name	Lab Deadline
ARS1-B17-00184-01	LCS	m29h12202 016-1	m29h12192 016-4								
ARS1-B17-00184-02	LCSD	m29h12202 016-1	m29h12192 016-4								
ARS1-B17-00184-03	MBL		m29h12192 016-4								
ARS1-B17-00184-04	TRG				ARS1-17-00216	002	1	3550C	BB-18		02/11/17
ARS1-B17-00184-08	MS	m29h12202 016-1	m29h12192 016-4		Parent: ARS1-17-00216-002						
ARS1-B17-00184-09	MSD	m29h12202 016-1	m29h12192 016-4		Parent: ARS1-17-00216-002						
ARS1-B17-00184-05	TRG				ARS1-17-00216	003	1	3550C	OS-2		02/11/17
ARS1-B17-00184-06	TRG				ARS1-17-00216	004	1	3550C	BB-19M		02/11/17
ARS1-B17-00184-07	TRG				ARS1-17-00216	007	1	3550C	BB-17		02/11/17

Calculation Report

Analytical Batch ID: ARS1-B17-00184
Analysis Code: GCSV-8082A-SO
Procedure No: ARS-157
Matrix: SO

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (mg/L)	DF	Final Volume (L)	Initial Weight (g)	Cleanup Factor	Sample Result (mg/g)	% Solids	Dry Wt Corrected (mg/g)	Q	MDL (mg/g)	PQL (mg/g)	Spiked Amount (mg/L)	Expected Result (mg/g)	% Rec	RPD
01 - LCS	Aroclor-1016		02/13/17 16:31	0.788	1.0	0.001	30.000	1	2.626E-5	100%	2.626E-5		3.330E-6	3.330E-6	1.000	3.333E-5	78.8%	
	Aroclor-1260		02/13/17 16:31	0.927	1.0	0.001	30.000	1	3.090E-5	100%	3.090E-5		3.330E-6	3.330E-6	1.000	3.333E-5	92.7%	
02 - LCSD	Aroclor-1016		02/13/17 16:59	0.792	1.0	0.001	30.000	1	2.640E-5	100%	2.640E-5		3.330E-6	3.330E-6	1.000	3.333E-5	79.2%	0.5%
	Aroclor-1260		02/13/17 16:59	0.914	1.0	0.001	30.000	1	3.047E-5	100%	3.047E-5		3.330E-6	3.330E-6	1.000	3.333E-5	91.4%	1.4%
03 - MBL	Aroclor-1016		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1221		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1232		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1242		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1248		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1254		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1260		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	3.330E-6	3.330E-6				
04 - TRG	Aroclor-1016	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U*	3.330E-6	3.330E-6				
	Aroclor-1221	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1232	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1242	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1248	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1254	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1260	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	3.330E-6	3.330E-6				
	DCBP (Surr)	ARS1-17-00216-002	02/07/17 17:51	0.019	1.0	0.001	30.000	1	6.191E-7	86.4%	7.168E-7		N/A	N/A	0.020	7.718E-7	92.9%	
	TCMX (Surr)	ARS1-17-00216-002	02/07/17 17:51	0.019	1.0	0.001	30.000	1	6.345E-7	86.4%	7.345E-7		N/A	N/A	0.020	7.718E-7	95.2%	
05 - TRG	Aroclor-1016	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U*	3.330E-6	3.330E-6				
	Aroclor-1221	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1232	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1242	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1248	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1254	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1260	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	3.330E-6	3.330E-6				
	DCBP (Surr)	ARS1-17-00216-003	02/07/17 18:19	0.017	1.0	0.001	30.000	1	5.682E-7	77.7%	7.313E-7		N/A	N/A	0.020	8.580E-7	85.2%	
	TCMX (Surr)	ARS1-17-00216-003	02/07/17 18:19	0.018	1.0	0.001	30.000	1	6.047E-7	77.7%	7.783E-7		N/A	N/A	0.020	8.580E-7	90.7%	
06 - TRG	Aroclor-1016	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U*	3.330E-6	3.330E-6				
	Aroclor-1221	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1232	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1242	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1248	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1254	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	3.330E-6	3.330E-6				

Calculation Report

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (mg/L)	DF	Final Volume (L)	Initial Weight (g)	Cleanup Factor	Sample Result (mg/g)	% Solids	Dry Wt Corrected (mg/g)	Q	MDL (mg/g)	PQL (mg/g)	Spiked Amount (mg/L)	Expected Result (mg/g)	% Rec	RPD
06 - TRG	Aroclor-1260	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	3.330E-6	3.330E-6				
	DCBP (Surr)	ARS1-17-00216-004	02/07/17 18:48	0.064	1.0	0.001	30.000	1	2.125E-6	59.5%	3.569E-6		N/A	N/A	0.020	1.120E-6	318.7%	
	TCMX (Surr)	ARS1-17-00216-004	02/07/17 18:48	0.166	1.0	0.001	30.000	1	5.534E-6	59.5%	9.297E-6		N/A	N/A	0.020	1.120E-6	830.1%	
07 - TRG	Aroclor-1016	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U*	3.330E-6	3.330E-6				
	Aroclor-1221	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1232	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1242	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1248	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1254	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	3.330E-6	3.330E-6				
	Aroclor-1260	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	3.330E-6	3.330E-6				
	DCBP (Surr)	ARS1-17-00216-007	02/07/17 19:16	0.004	1.0	0.001	30.000	1	1.372E-7	82.5%	1.662E-7		N/A	N/A	0.020	8.079E-7	20.6%	
	TCMX (Surr)	ARS1-17-00216-007	02/07/17 19:16	0.008	1.0	0.001	30.000	1	2.658E-7	82.5%	3.221E-7		N/A	N/A	0.020	8.079E-7	39.9%	
08 - MS	Aroclor-1016	ARS1-17-00216-002	02/07/17 19:44	1.570	1.0	0.001	30.000	1	5.233E-5	86.4%	6.058E-5		3.330E-6	3.330E-6	1.000	3.859E-5	157.0%	
	Aroclor-1260	ARS1-17-00216-002	02/07/17 19:44	0.644	1.0	0.001	30.000	1	2.145E-5	86.4%	2.484E-5		3.330E-6	3.330E-6	1.000	3.859E-5	64.4%	
09 - MSD	Aroclor-1016	ARS1-17-00216-002	02/07/17 20:13	3.301	1.0	0.001	30.000	1	1.100E-4	86.4%	1.274E-4		3.330E-6	3.330E-6	1.000	3.859E-5	330.1%	71.1%
	Aroclor-1260	ARS1-17-00216-002	02/07/17 20:13	0.700	1.0	0.001	30.000	1	2.333E-5	86.4%	2.702E-5		3.330E-6	3.330E-6	1.000	3.859E-5	70.0%	8.4%

ARS-157

Procedure Data

ABatch Sample ID	Client ID	Parent	Wi/Vi (g/ml)	Extraction Type	Extraction Date/Time	Conc. Extract Vol (ml)	Cleanup Type	Cleanup Factor	User ID
ARS1-B17-00184-01			30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA
ARS1-B17-00184-02			30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA
ARS1-B17-00184-03			30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA
ARS1-B17-00184-04	BB-18		30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA
ARS1-B17-00184-05	OS-2		30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA
ARS1-B17-00184-06	BB-19M		30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA
ARS1-B17-00184-07	BB-17		30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA
ARS1-B17-00184-08		ARS1-17-00216-002	30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA
ARS1-B17-00184-09		ARS1-17-00216-002	30.0000	Sonification	1/31/2017 1:00:00 PM	1.0000			RCHANIYAVA

No reagents were used for this procedure.

No reagents were scanned.

Semi-Volatiles/PCB Sample Preparation Worksheet

Sample or QC ID	Sample Type (W, S, O)	Sample amount (g, mL)	Water Sample pH	pH Adjusted to:	Surrogate Amount / Conc	Spike Amount / Conc	Final Volume, mL	Notes
1-B17-00184-01	S	30 g	-	-	100 uL	1 mL	1 mL	LCS
1-B17-00184-02	S	30 g	(	-	100 uL	1 mL	1 mL	LCSD
1-B17-00184-03	S	30 g	-	-	100 uL	RG 1st 2014	1 mL	MBL
1-B17-00184-04	S	30 g	(	(			1 mL	
1-B17-00184-08	S	30 g	(	(	100 uL	1 mL	1 mL	MS
1-B17-00184-04	S	30 g	(	(	100 uL	1 mL	1 mL	MSD
1-B17-00184-05	S	30 g	(	(	100 uL		1 mL	
1-B17-00184-06	S	30 g	(	(	100 uL		1 mL	
1-B17-00184-07	S	37 g	(	(	100 uL		1 mL	

Note only what is used:
DCM Lot# R17-0655
Hexane Lot#
1:1 H2SO4 Lot#

Na2SO4 Lot# W11225
10 N NaOH Lot#
Surrogate Lot# M24129 2016-4
Spike Lot# M24129 2016-1

Analyst Initials R.C.

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\076F0301.D
Sample Name: ARS1-B17-00184-03 MB
=====================================================================
Acq. Operator   :                        Seq. Line :   3
Acq. Instrument : Instrument 1            Location : Vial 76
Injection Date  : 2/7/2017 3:00:40 PM          Inj :   1
                                       Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/21/2017 4:03:03 PM


Sample-related custom fields:

Name                          |Value
------------------------------|---------------------------------------
Additional Info : Peak(s) manually integrated
=====================================================================
```
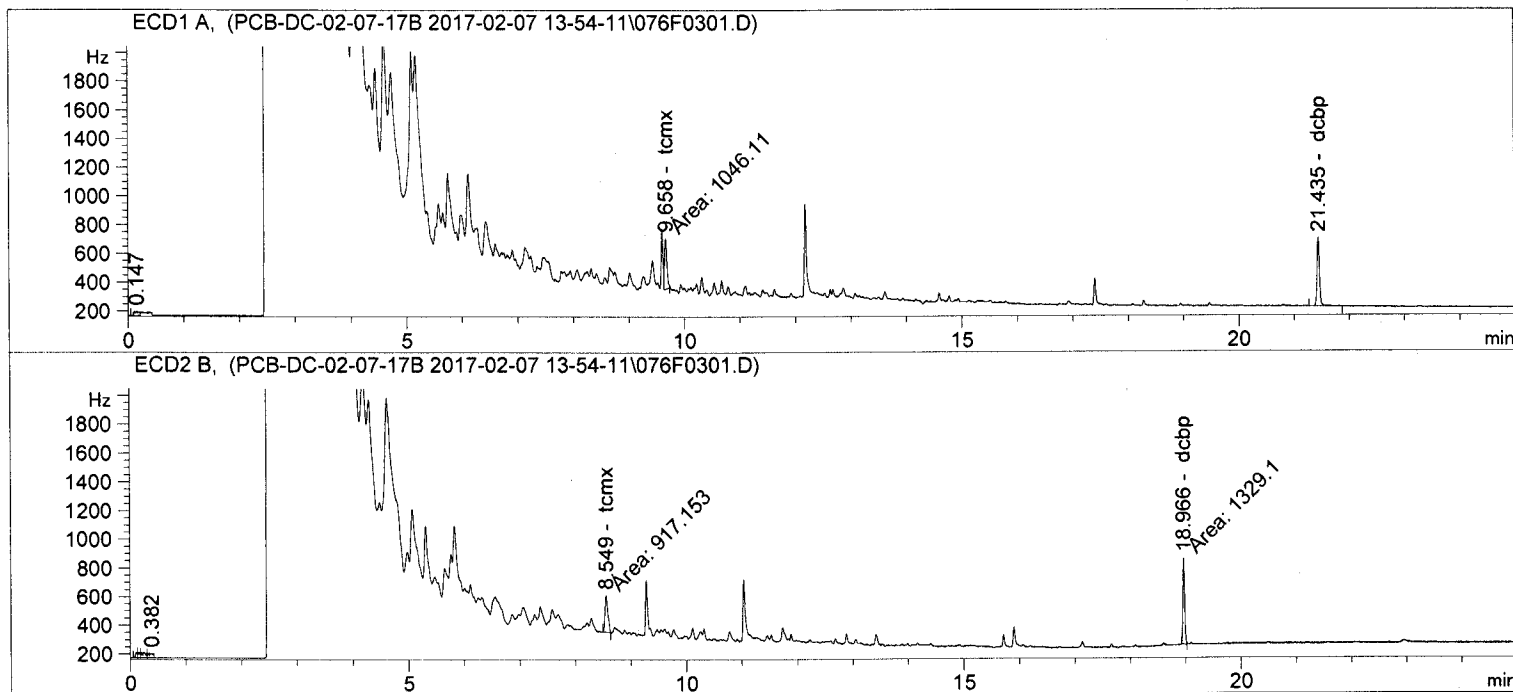


```
=====================================================================
                    External Standard Report
=====================================================================

Sorted By          :      Signal
Calib. Data Modified :     2/4/2017 11:22:32 AM
Multiplier:          :        1.0000
Dilution:            :        1.0000
Do not use Multiplier & Dilution Factor with ISTDs


Signal 1: ECD1 A,

RetTime Type    Area       Amt/Area    Amount   Grp   Name
 [min]          [Hz*s]                 [ng/ul]
-------|------|----------|----------|----------|--|-------------------
  9.658 MM   1046.11377 2.55155e-5 2.66921e-2       tcmx
 10.815         -          -          -           1016#1
 12.193         -          -          -           1016#2
 12.890         -          -          -           1016#3
 13.443         -          -          -           1016#4
```

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\076F0301.D
Sample Name: ARS1-B17-00184-03 MB

==

```
Acq. Operator   :                          Seq. Line :   3
Acq. Instrument : Instrument 1              Location : Vial 76
Injection Date  : 2/7/2017 3:00:40 PM            Inj :   1
                                           Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/21/2017 4:03:03 PM
```

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated	

==

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.798		-	-	-		1016#5
16.154		-	-	-		1260#1
16.530		-	-	-		1260#2
17.188		-	-	-		1260#3
17.335		-	-	-		1260#4
17.873		-	-	-		1260#5
21.435	BB	1572.45435	8.28276e-5	1.30243e-1		dcbp

Totals :   1.56935e-1

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.549	MM	917.15283	2.89195e-5	2.65236e-2		tcmx
10.181		-	-	-		1016#1
11.519		-	-	-		1016#2
11.750		-	-	-		1016#3
11.797		-	-	-		1016#4
12.890		-	-	-		1016#5
14.425		-	-	-		1260#1
15.447		-	-	-		1260#2
15.608		-	-	-		1260#3
16.043		-	-	-		1260#4
16.587		-	-	-		1260#5
18.966	MM	1329.09790	9.17682e-5	1.21969e-1		dcbp

Totals :   1.48493e-1

2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

==
                        Summed Peaks Report

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\076F0301.D
Sample Name: ARS1-B17-00184-03 MB
===
Acq. Operator   :   Seq. Line :   3
Acq. Instrument : Instrument 1   Location : Vial 76
Injection Date : 2/7/2017 3:00:40 PM   Inj :   1
                                          Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/21/2017 4:03:03 PM

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated
===

===

Signal 1: ECD1 A,
Signal 2: ECD2 B,
===
                    Final Summed Peaks Report
===

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                    *** End of Report ***

Data File C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\076F1501.D
Sample Name: ARS1-B17-00184-01 LCS

```
========================================================================
```

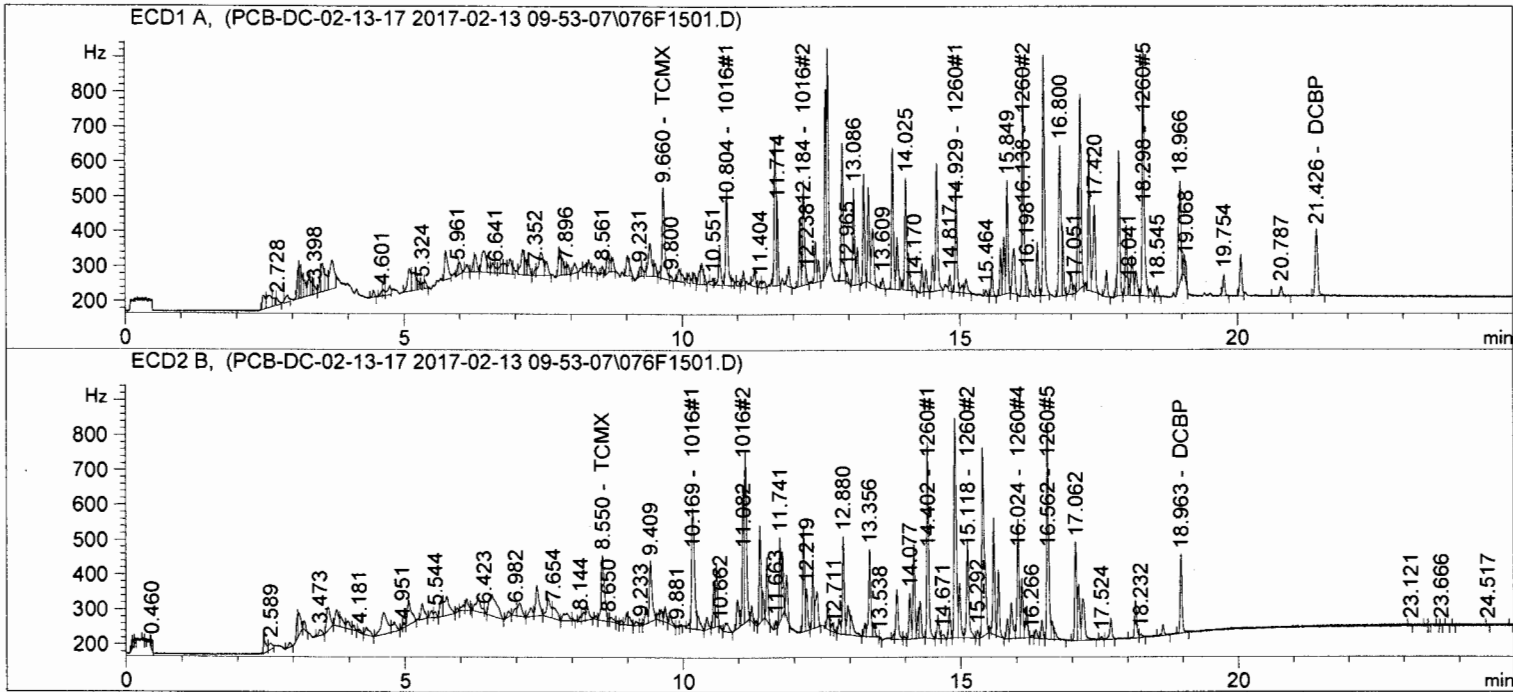Acq. Operator   :   Seq. Line : 15
Acq. Instrument : Instrument 1   Location : Vial 76
Injection Date : 2/13/2017 4:31:30 PM   Inj :   1
                                            Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed   : 2/15/2017 1:54:25 PM

Sample-related custom fields:

Name	Value
```
========================================================================
```



```
========================================================================
                    External Standard Report
========================================================================
```

Sorted By   :   Signal
Calib. Data Modified :   2/15/2017 1:50:53 PM
Multiplier: :   1.0000
Dilution: :   1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.660	VV	819.97058	1.43031e-5	1.17281e-2		TCMX
10.804	VV	767.02747	8.93492e-4	6.85333e-1		1016#1
12.184	VV	719.93164	1.14470e-3	8.24109e-1		1016#2
12.883	BV	1055.28955	7.46094e-4	7.87345e-1		1016#3
13.354	BV	614.07379	1.26929e-3	7.79436e-1		1016#4
13.789	BV	891.99750	9.15770e-4	8.16865e-1		1016#5

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\076F1501.D
Sample Name: ARS1-B17-00184-01 LCS
========================================================================
Acq. Operator   :                          Seq. Line :  15
Acq. Instrument : Instrument 1             Location : Vial 76
Injection Date  : 2/13/2017 4:31:30 PM          Inj :   1
                                          Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed    : 2/15/2017 1:54:25 PM


Sample-related custom fields:

Name                           |Value
-------------------------------|----------------------------------------
========================================================================


RetTime  Type     Area      Amt/Area     Amount   Grp    Name
 [min]            [Hz*s]                  [ng/ul]
-------|------|----------|----------|----------|--|-------------------
 14.929 BV     719.22620 1.33125e-3 9.57470e-1        1260#1
 16.138 BV    1472.05237 6.12381e-4 9.01456e-1        1260#2
 16.508 BV    1639.83496 5.83173e-4 9.56307e-1        1260#3
 17.321 BV     881.09241 9.60380e-4 8.46183e-1        1260#4
 18.298 BV    1778.15344 5.42751e-4 9.65095e-1        1260#5
 21.426 BV     604.99713 7.44528e-5 4.50437e-2        DCBP

Totals :                             8.57637



Signal 2: ECD2 B,

RetTime  Type     Area      Amt/Area     Amount   Grp    Name
 [min]            [Hz*s]                  [ng/ul]
-------|------|----------|----------|----------|--|-------------------
  8.550 BV     670.56342 1.68633e-5 1.13079e-2        TCMX
 10.169 VV    1253.21680 5.24749e-4 6.57624e-1        1016#1
 11.082 VV     845.92596 1.01474e-3 8.58396e-1        1016#2
 11.124 VB    1231.68774 6.26688e-4 7.71884e-1        1016#3
 11.382 BV     650.61157 1.33291e-3 8.67207e-1        1016#4
 12.168 BV     705.45691 1.23885e-3 8.73952e-1        1016#5
 14.402 BB    1282.52905 7.38857e-4 9.47606e-1        1260#1
 15.118 VB     784.32312 1.31880e-3    1.03437        1260#2
 15.587 VV     742.61456 1.16219e-3 8.63057e-1        1260#3
 16.024 VV     810.98187 1.28720e-3    1.04390        1260#4
 16.562 BV    1478.29382 5.55008e-4 8.20464e-1        1260#5
 18.963 BB     525.59442 8.64602e-5 4.54430e-2        DCBP

Totals :                             8.79520



1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

========================================================================
                     Summed Peaks Report
========================================================================

 Signal 1: ECD1 A,
```

```
========================================================================
Acq. Operator   :                           Seq. Line :   15
Acq. Instrument : Instrument 1               Location : Vial 76
Injection Date  : 2/13/2017 4:31:30 PM             Inj :    1
                                            Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed    : 2/15/2017 1:54:25 PM
```

Sample-related custom fields:

```
Name                          |Value
------------------------------|--------------------------------------
------------------------------------------------------------------------
```

Signal 2: ECD2 B,
```
========================================================================
                       Final Summed Peaks Report
========================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:

                        *** End of Report ***

```
===================================================================
Acq. Operator     :                        Seq. Line :  16
Acq. Instrument : Instrument 1             Location : Vial 77
Injection Date  : 2/13/2017 4:59:58 PM        Inj :   1
                                        Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed    : 2/15/2017 1:54:25 PM
```
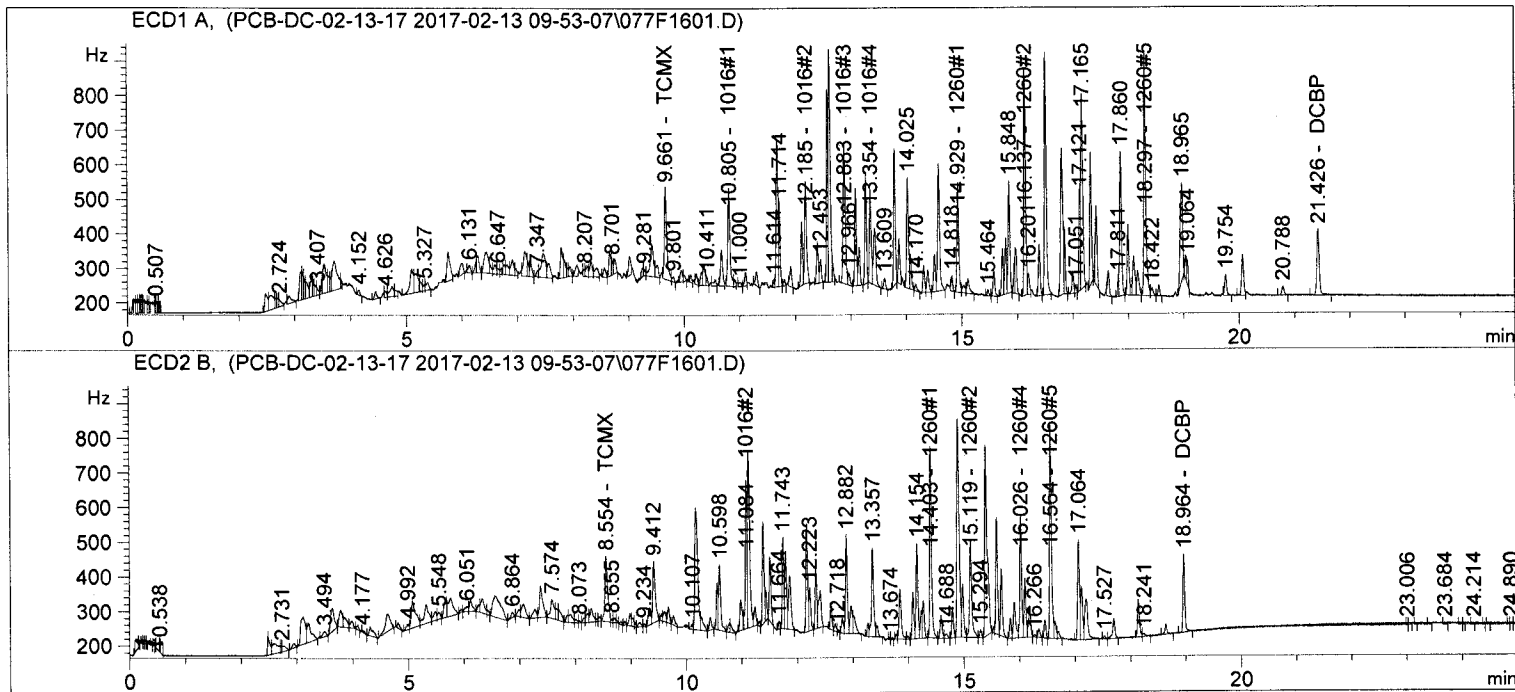
Sample-related custom fields:

```
Name                          |Value
------------------------------|--------------------------------------
------------------------------------------------------------------
```



```
===================================================================
                    External Standard Report
===================================================================
```

```
Sorted By          :      Signal
Calib. Data Modified :    2/15/2017 1:50:53 PM
Multiplier:          :      1.0000
Dilution:            :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.661	VV	828.43945	1.43054e-5	1.18512e-2		TCMX
10.805	VV	775.82410	8.93810e-4	6.93440e-1		1016#1
12.185	VB	745.20532	1.14552e-3	8.53644e-1		1016#2
12.883	BV	1129.64221	7.46061e-4	8.42782e-1		1016#3
13.354	BV	631.06799	1.26978e-3	8.01317e-1		1016#4
13.790	BB	840.02850	9.14814e-4	7.68470e-1		1016#5

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\077F1601.D
Sample Name: ARS1-B17-00184-02 LCSD
```

===

Acq. Operator	:			Seq. Line :	16
Acq. Instrument	: Instrument 1			Location :	Vial 77
Injection Date	: 2/13/2017 4:59:58 PM			Inj :	1
				Inj Volume :	1 µl

```
Acq. Method    : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed   : 2/15/2017 1:54:25 PM
```

Sample-related custom fields:

Name	Value

===

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
14.929	BV	733.32043	1.33339e-3	9.77805e-1		1260#1
16.137	BV	1477.54248	6.12459e-4	9.04934e-1		1260#2
16.508	BV	1647.07227	5.83249e-4	9.60654e-1		1260#3
17.321	BB	796.32416	9.57203e-4	7.62244e-1		1260#4
18.297	BV	1776.44250	5.42739e-4	9.64145e-1		1260#5
21.426	BB	613.02557	7.45099e-5	4.56765e-2		DCBP

Totals :   8.58696

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.554	BV	670.41205	1.68635e-5	1.13055e-2		TCMX
10.173	VV	1268.93494	5.24921e-4	6.66091e-1		1016#1
11.084	VV	930.05267	1.01557e-3	9.44534e-1		1016#2
11.125	VV	1344.57568	6.26043e-4	8.41762e-1		1016#3
11.383	BV	673.14514	1.33287e-3	8.97213e-1		1016#4
12.169	BV	715.24866	1.23876e-3	8.86025e-1		1016#5
14.403	BB	1297.79248	7.39028e-4	9.59105e-1		1260#1
15.119	VB	786.86603	1.31886e-3	1.03776		1260#2
15.589	VV	745.76898	1.16229e-3	8.66801e-1		1260#3
16.026	VV	806.22168	1.28713e-3	1.03771		1260#4
16.564	BV	1472.85510	5.55002e-4	8.17438e-1		1260#5
18.964	BB	525.21222	8.64610e-5	4.54103e-2		DCBP

Totals :   9.01116

1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

===
                          Summed Peaks Report
===

Signal 1: ECD1 A,

==
Acq. Operator   :   Seq. Line : 16
Acq. Instrument : Instrument 1   Location : Vial 77
Injection Date : 2/13/2017 4:59:58 PM   Inj :   1
                                             Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed   : 2/15/2017 1:54:25 PM

Sample-related custom fields:

Name	Value
==

Signal 2: ECD2 B,
==
                        Final Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                     *** End of Report ***

Calculation Report

Analytical Batch ID	ARS1-B17-00184
Analysis Code	GCSV-8082A-SO
Procedure No	ARS-157
Matrix	SO

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (ug/L)	DF	Final Volume (L)	Initial Weight (g)	Cleanup Factor	Sample Result (ug/g)	% Solids	Dry Wt Corrected (ug/g)	Q	MDL (ug/g)	PQL (ug/g)	Spiked Amount (ug/L)	Expected Result (ug/g)	% Rec	RPD
01 - LCS	Aroclor-1016		02/13/17 16:31	0.788	1.0	0.001	30.000	1	2.626E-5	100%	2.626E-5		0.036	0.100	1.000	3.333E-5	78.8%	
	Aroclor-1260		02/13/17 16:31	0.927	1.0	0.001	30.000	1	3.090E-5	100%	3.090E-5		0.036	0.100	1.000	3.333E-5	92.7%	
02 - LCSD	Aroclor-1016		02/13/17 16:59	0.792	1.0	0.001	30.000	1	2.640E-5	100%	2.640E-5		0.036	0.100	1.000	3.333E-5	79.2%	0.5%
	Aroclor-1260		02/13/17 16:59	0.914	1.0	0.001	30.000	1	3.047E-5	100%	3.047E-5		0.036	0.100	1.000	3.333E-5	91.4%	1.4%
03 - MBL	Aroclor-1016		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	0.036	0.100				
	Aroclor-1221		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	0.036	0.100				
	Aroclor-1232		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	0.036	0.100				
	Aroclor-1242		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	0.036	0.100				
	Aroclor-1248		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	0.036	0.100				
	Aroclor-1254		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	0.036	0.100				
	Aroclor-1260		02/07/17 15:00	0.000	1.0	0.001	30.000	1	0.000	100%	0.000	U	0.036	0.100				
04 - TRG	Aroclor-1016	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U*	0.036	0.100				
	Aroclor-1221	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	0.036	0.100				
	Aroclor-1232	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	0.036	0.100				
	Aroclor-1242	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	0.036	0.100				
	Aroclor-1248	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	0.036	0.100				
	Aroclor-1254	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	0.036	0.100				
	Aroclor-1260	ARS1-17-00216-002	02/07/17 17:51	0.000	1.0	0.001	30.000	1	0.000	86.4%	0.000	U	0.036	0.100				
	DCBP (Surr)	ARS1-17-00216-002	02/07/17 17:51	0.019	1.0	0.001	30.000	1	6.191E-7	86.4%	7.168E-7		N/A	N/A	0.020	7.718E-7	92.9%	
	TCMX (Surr)	ARS1-17-00216-002	02/07/17 17:51	0.019	1.0	0.001	30.000	1	6.345E-7	86.4%	7.345E-7		N/A	N/A	0.020	7.718E-7	95.2%	
05 - TRG	Aroclor-1016	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U*	0.036	0.100				
	Aroclor-1221	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	0.036	0.100				
	Aroclor-1232	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	0.036	0.100				
	Aroclor-1242	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	0.036	0.100				
	Aroclor-1248	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	0.036	0.100				
	Aroclor-1254	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	0.036	0.100				
	Aroclor-1260	ARS1-17-00216-003	02/07/17 18:19	0.000	1.0	0.001	30.000	1	0.000	77.7%	0.000	U	0.036	0.100				
	DCBP (Surr)	ARS1-17-00216-003	02/07/17 18:19	0.017	1.0	0.001	30.000	1	5.682E-7	77.7%	7.313E-7		N/A	N/A	0.020	8.580E-7	85.2%	
	TCMX (Surr)	ARS1-17-00216-003	02/07/17 18:19	0.018	1.0	0.001	30.000	1	6.047E-7	77.7%	7.783E-7		N/A	N/A	0.020	8.580E-7	90.7%	
06 - TRG	Aroclor-1016	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U*	0.036	0.100				
	Aroclor-1221	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	0.036	0.100				
	Aroclor-1232	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	0.036	0.100				
	Aroclor-1242	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	0.036	0.100				
	Aroclor-1248	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	0.036	0.100				
	Aroclor-1254	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	0.036	0.100				

Calculation Report

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (ug/L)	DF	Final Volume (L)	Initial Weight (g)	Cleanup Factor	Sample Result (ug/g)	% Solids	Dry Wt Corrected (ug/g)	Q	MDL (ug/g)	PQL (ug/g)	Spiked Amount (ug/L)	Expected Result (ug/g)	% Rec	RPD
06 - TRG	Aroclor-1260	ARS1-17-00216-004	02/07/17 18:48	0.000	1.0	0.001	30.000	1	0.000	59.5%	0.000	U	0.036	0.100				
	DCBP (Surr)	ARS1-17-00216-004	02/07/17 18:48	0.064	1.0	0.001	30.000	1	2.125E-6	59.5%	3.569E-6		N/A	N/A	0.020	1.120E-6	318.7%	
	TCMX (Surr)	ARS1-17-00216-004	02/07/17 18:48	0.166	1.0	0.001	30.000	1	5.534E-6	59.5%	9.297E-6		N/A	N/A	0.020	1.120E-6	830.1%	
07 - TRG	Aroclor-1016	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U*	0.036	0.100				
	Aroclor-1221	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	0.036	0.100				
	Aroclor-1232	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	0.036	0.100				
	Aroclor-1242	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	0.036	0.100				
	Aroclor-1248	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	0.036	0.100				
	Aroclor-1254	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	0.036	0.100				
	Aroclor-1260	ARS1-17-00216-007	02/07/17 19:16	0.000	1.0	0.001	30.000	1	0.000	82.5%	0.000	U	0.036	0.100				
	DCBP (Surr)	ARS1-17-00216-007	02/07/17 19:16	0.004	1.0	0.001	30.000	1	1.372E-7	82.5%	1.662E-7		N/A	N/A	0.020	8.079E-7	20.6%	
	TCMX (Surr)	ARS1-17-00216-007	02/07/17 19:16	0.008	1.0	0.001	30.000	1	2.658E-7	82.5%	3.221E-7		N/A	N/A	0.020	8.079E-7	39.9%	
08 - MS	Aroclor-1016	ARS1-17-00216-002	02/07/17 19:44	1.570	1.0	0.001	30.000	1	5.233E-5	86.4%	6.058E-5	U	0.036	0.100	1.000	3.859E-5	157.0%	
	Aroclor-1260	ARS1-17-00216-002	02/07/17 19:44	0.644	1.0	0.001	30.000	1	2.145E-5	86.4%	2.484E-5	U	0.036	0.100	1.000	3.859E-5	64.4%	
09 - MSD	Aroclor-1016	ARS1-17-00216-002	02/07/17 20:13	3.301	1.0	0.001	30.000	1	1.100E-4	86.4%	1.274E-4	U	0.036	0.100	1.000	3.859E-5	330.1%	71.1%
	Aroclor-1260	ARS1-17-00216-002	02/07/17 20:13	0.700	1.0	0.001	30.000	1	2.333E-5	86.4%	2.702E-5	U	0.036	0.100	1.000	3.859E-5	70.0%	8.4%

```
=====================================================================
  Acq. Operator   :                          Seq. Line :    9
  Acq. Instrument : Instrument 1              Location : Vial 79
  Injection Date  : 2/7/2017 5:51:09 PM            Inj :    1
                                             Inj Volume : 1 µl
  Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
  Last changed    : 2/2/2017 9:17:18 AM
  Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
  Last changed    : 2/8/2017 10:07:09 AM
                    (modified after loading)


  Sample-related custom fields:


  Name                           |Value
  -------------------------------|-------------------------------------
  Additional Info : Peak(s) manually integrated
=====================================================================
```
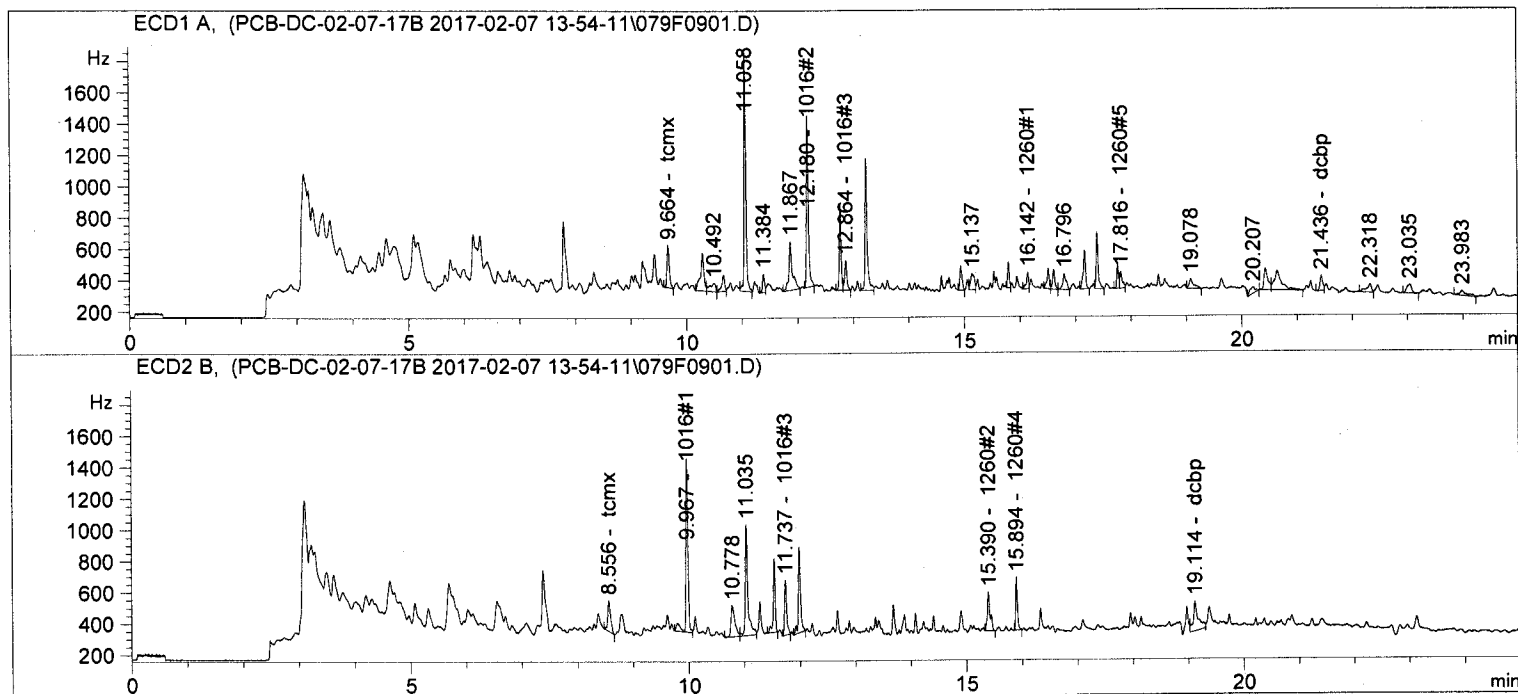

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

```
=====================================================================
                      External Standard Report
=====================================================================


  Sorted By          :        Signal
  Calib. Data Modified :      2/4/2017 11:22:32 AM
  Multiplier:                 :        1.0000
  Dilution:                   :        1.0000
  Do not use Multiplier & Dilution Factor with ISTDs


  Signal 1: ECD1 A,


  RetTime  Type     Area      Amt/Area    Amount    Grp    Name
   [min]            [Hz*s]                [ng/ul]
  -------|------|----------|----------|----------|--|------------------
   9.664  BV     792.16748  2.40277e-5 1.90340e-2        tcmx
  10.663  BV     413.56122  1.36425e-3 5.64202e-1        1016#1
  12.180  BB    2748.43115  1.79088e-3    4.92212        1016#2
  12.864  VB     550.95032  1.17859e-3 6.49344e-1        1016#3
```

```
=================================================================
Acq. Operator   :                           Seq. Line :   9
Acq. Instrument : Instrument 1               Location : Vial 79
Injection Date  : 2/7/2017 5:51:09 PM             Inj :   1
                                           Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 10:07:09 AM
                  (modified after loading)
```

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated	

```
=================================================================
```

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.233	BV	2228.52661	2.43789e-3	5.43291		1016#4
13.798		-	-	-		1016#5
16.142	BV	281.55954	6.12167e-4	1.72361e-1		1260#1
16.511	BV	351.97629	6.08521e-4	2.14185e-1		1260#2
17.165	VB	749.68048	5.08290e-4	3.81055e-1		1260#3
17.390	VV	910.40338	9.86730e-4	8.98322e-1		1260#4
17.816	VV	339.58466	9.30998e-4	3.16153e-1		1260#5
21.436	BV	352.97122	5.26189e-5	1.85730e-2		dcbp

```
Totals :                                   13.58825
```

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.556	BB	699.33008	2.79747e-5	1.95635e-2		tcmx
9.967	BV	3041.85620	7.93160e-4	2.41268		1016#1
11.537	BB	1162.88147	3.08149e-3	3.58341		1016#2
11.737	BB	951.84528	3.22860e-3	3.07313		1016#3
11.987	BB	1534.72058	3.89905e-3	5.98395		1016#4
12.890		-	-	-		1016#5
14.425		-	-	-		1260#1
15.390	BB	880.63037	6.50803e-4	5.73117e-1		1260#2
15.608		-	-	-		1260#3
15.894	BB	735.76501	1.33085e-3	9.79192e-1		1260#4
16.587		-	-	-		1260#5
19.114	VV	1202.78149	9.09689e-5	1.09416e-1		dcbp

```
Totals :                                   16.73445
```

2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

```
========================================================================
Acq. Operator   :                         Seq. Line :   9
Acq. Instrument : Instrument 1             Location : Vial 79
Injection Date  : 2/7/2017 5:51:09 PM            Inj :   1
                                          Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 10:07:09 AM
                  (modified after loading)
```

Sample-related custom fields:

```
Name                          |Value
------------------------------|------------------------------------------
Additional Info : Peak(s) manually integrated
========================================================================


========================================================================
                       Summed Peaks Report
========================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,

```
========================================================================
                    Final Summed Peaks Report
========================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
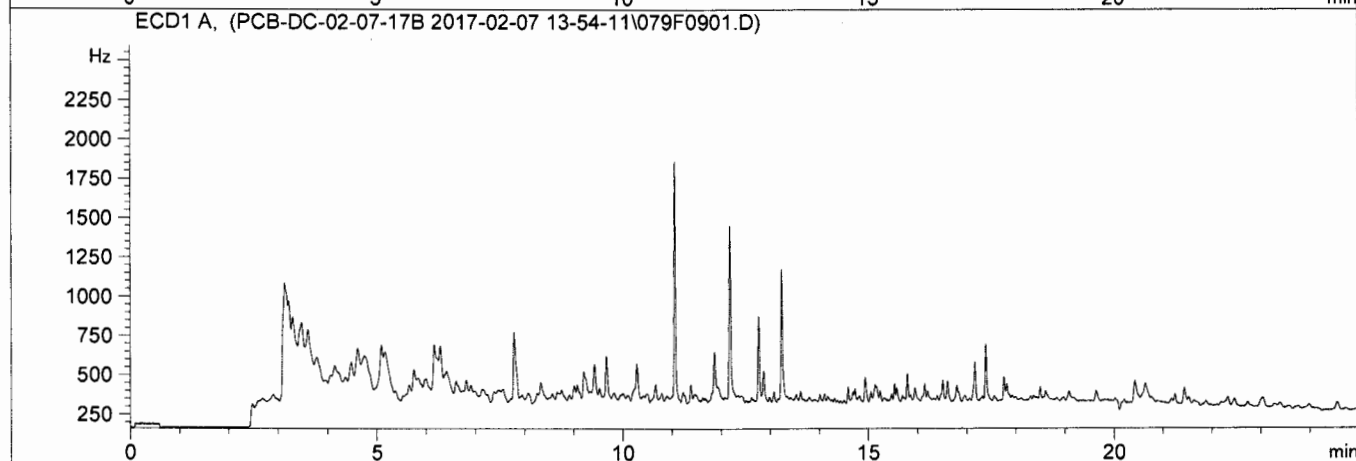   *** End of Report ***

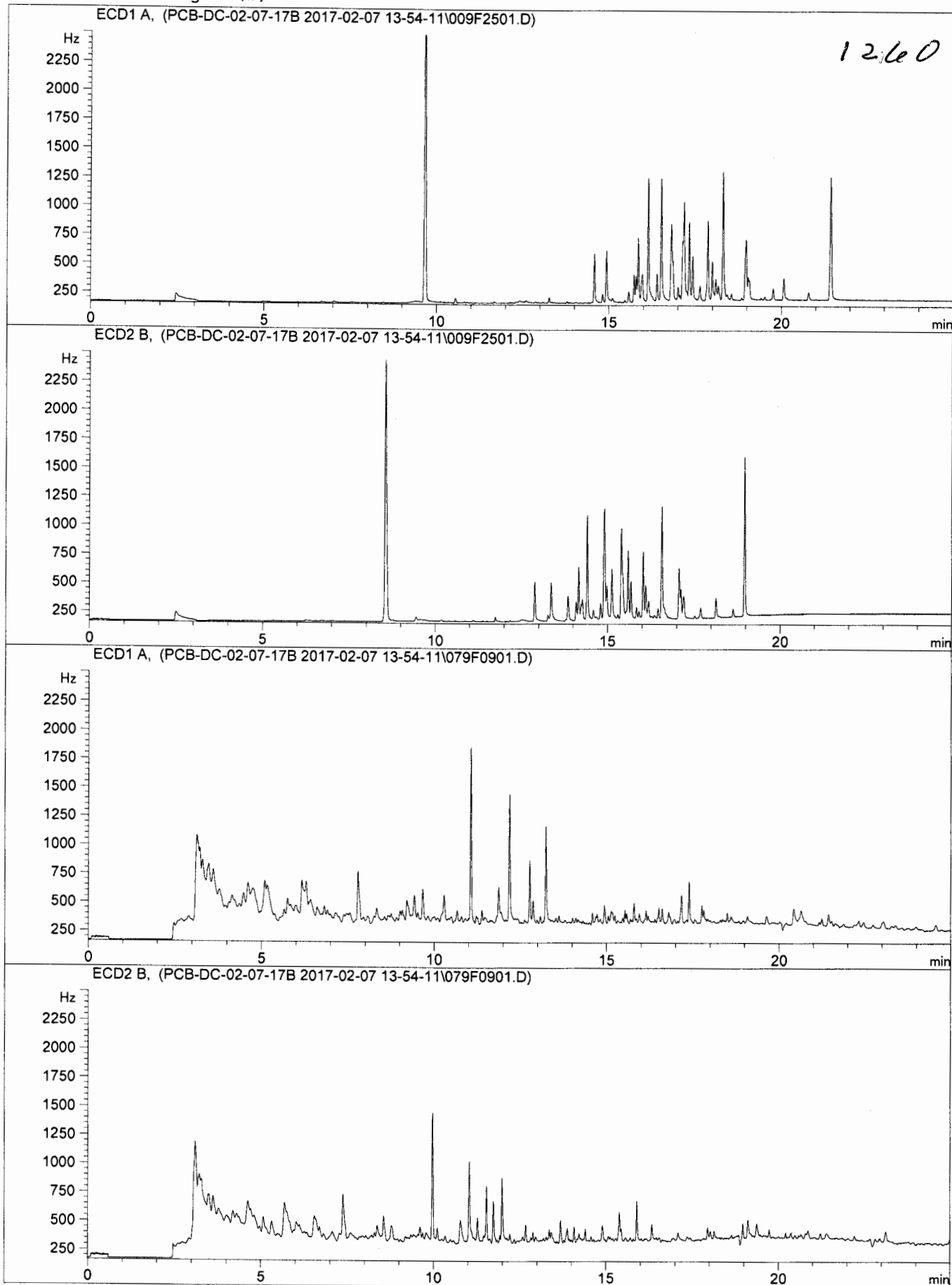Current Chromatogram(s)

1016

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

1221

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\004F2001.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\004F2001.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\005F2101.D)

1232

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\005F2101.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\006F2201.D)

1242

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\006F2201.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\007F2301.D)

1248

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\007F2301.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\008F2401.D)

1254

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\008F2401.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

Current Chromatogram(s)

12:60

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\009F2501.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\009F2501.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\079F0901.D)

==

Acq. Operator   :   Seq. Line :   10
Acq. Instrument : Instrument 1   Location : Vial 80
Injection Date : 2/7/2017 6:19:33 PM   Inj :   1
                                              Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 10:12:17 AM
                   (modified after loading)

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated

==

==
                        External Standard Report
==

Sorted By   :   Signal
Calib. Data Modified :   2/4/2017 11:22:32 AM
Multiplier: :   1.0000
Dilution: :   1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.667	BV	762.55957	2.37898e-5	1.81411e-2		tcmx
10.792	VB	79.87797	1.18502e-3	9.46569e-2		1016#1
12.182	VV	2498.16113	1.79037e-3	4.47264		1016#2
12.854	VB	219.01204	1.26986e-3	2.78115e-1		1016#3

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D
Sample Name: ARS1-B17-00184-05
===================================================================
Acq. Operator    :                          Seq. Line :  10
Acq. Instrument  : Instrument 1             Location : Vial 80
Injection Date   : 2/7/2017 6:19:33 PM           Inj :   1
                                         Inj Volume : 1 µl
Acq. Method      : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed     : 2/2/2017 9:17:18 AM
Analysis Method  : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed     : 2/8/2017 10:12:17 AM
                   (modified after loading)


Sample-related custom fields:

Name                          |Value
------------------------------|------------------------------------
Additional Info : Peak(s) manually integrated
===================================================================
```

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.532	BV	76.84234	1.95653e-3	1.50345e-1		1016#4
13.618	VB	78.04550	1.30239e-3	1.01646e-1		1016#5
16.079	BB	79.47666	4.23440e-4	3.36536e-2		1260#1
16.633	BB	46.29071	2.20836e-4	1.02227e-2		1260#2
16.934	BB	195.15271	4.69035e-4	9.15334e-2		1260#3
17.397	BV	615.88147	9.74842e-4	6.00387e-1		1260#4
17.904	VV	846.47760	9.54810e-4	8.08225e-1		1260#5
21.442	BV	336.29321	5.06871e-5	1.70457e-2		dcbp

```
Totals :                              6.67661




Signal 2: ECD2 B,
```

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.554	BB	547.90070	2.68752e-5	1.47249e-2		tcmx
10.239	BV	75.45995	6.26937e-4	4.73086e-2		1016#1
11.538	VB	846.04987	3.08418e-3	2.60937		1016#2
11.736	BB	6835.22070	3.24311e-3	22.16738		1016#3
11.797		-	-	-		1016#4
12.590	BV	221.74686	1.34788e-3	2.98889e-1		1016#5
14.066	VV	82.93234	7.83721e-4	6.49958e-2		1260#1
15.447		-	-	-		1260#2
15.713	BV	87.17980	1.23975e-3	1.08081e-1		1260#3
15.900	VB	186.58827	1.38476e-3	2.58379e-1		1260#4
16.587		-	-	-		1260#5
18.968	BB	321.52667	6.79159e-5	2.18368e-2		dcbp

```
Totals :                             25.59096




3 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found
Warning : Elution order of calibrated compounds may have changed
```

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D
Sample Name: ARS1-B17-00184-05

```
==================================================================
Acq. Operator   :                        Seq. Line :  10
Acq. Instrument : Instrument 1            Location : Vial 80
Injection Date  : 2/7/2017 6:19:33 PM         Inj :   1
                                       Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 10:12:17 AM
                  (modified after loading)
```

Sample-related custom fields:

```
Name                        |Value
----------------------------|-------------------------------------
Additional Info : Peak(s) manually integrated
==================================================================
```

```
==================================================================
                       Summed Peaks Report
==================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,

```
==================================================================
                    Final Summed Peaks Report
==================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
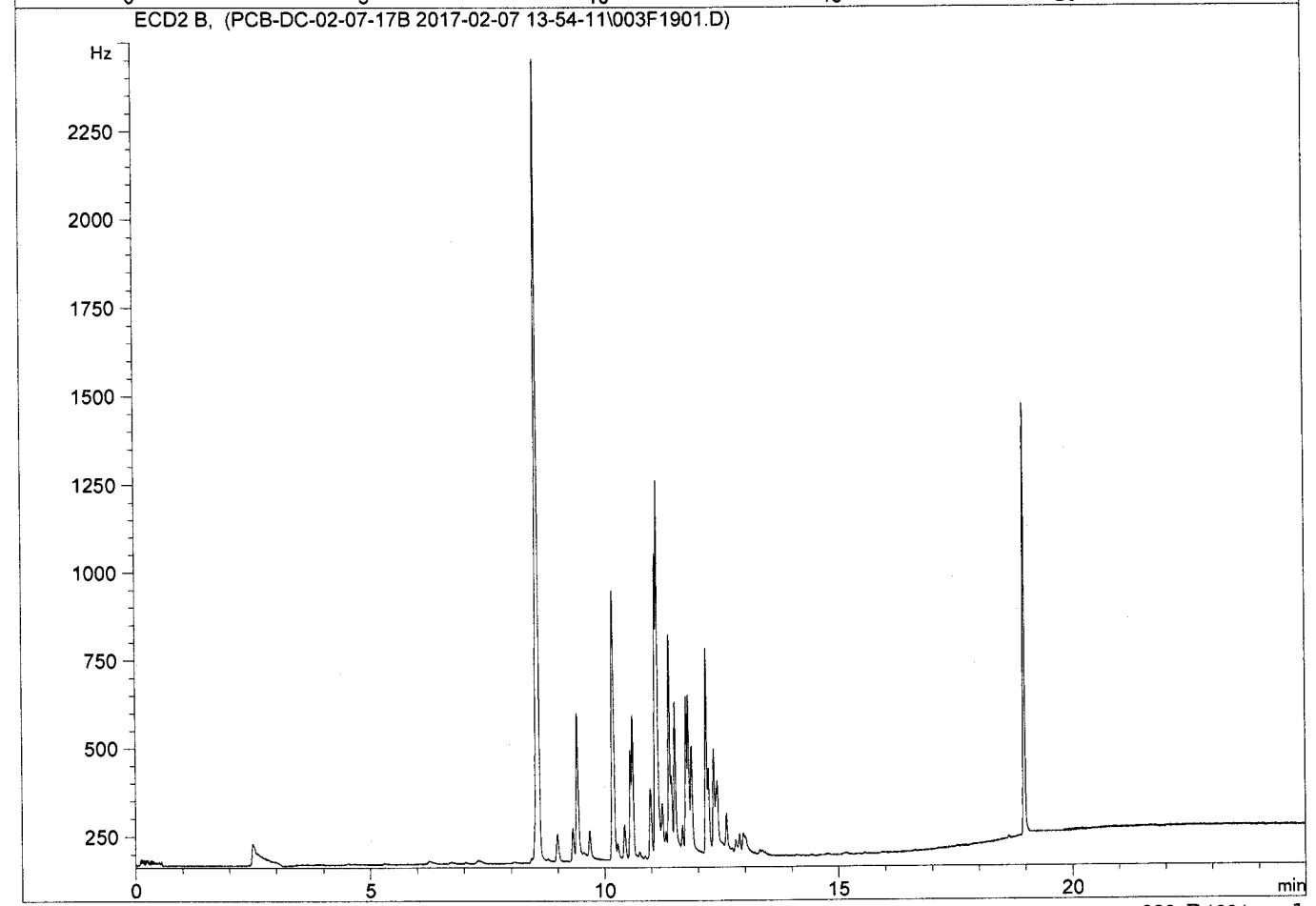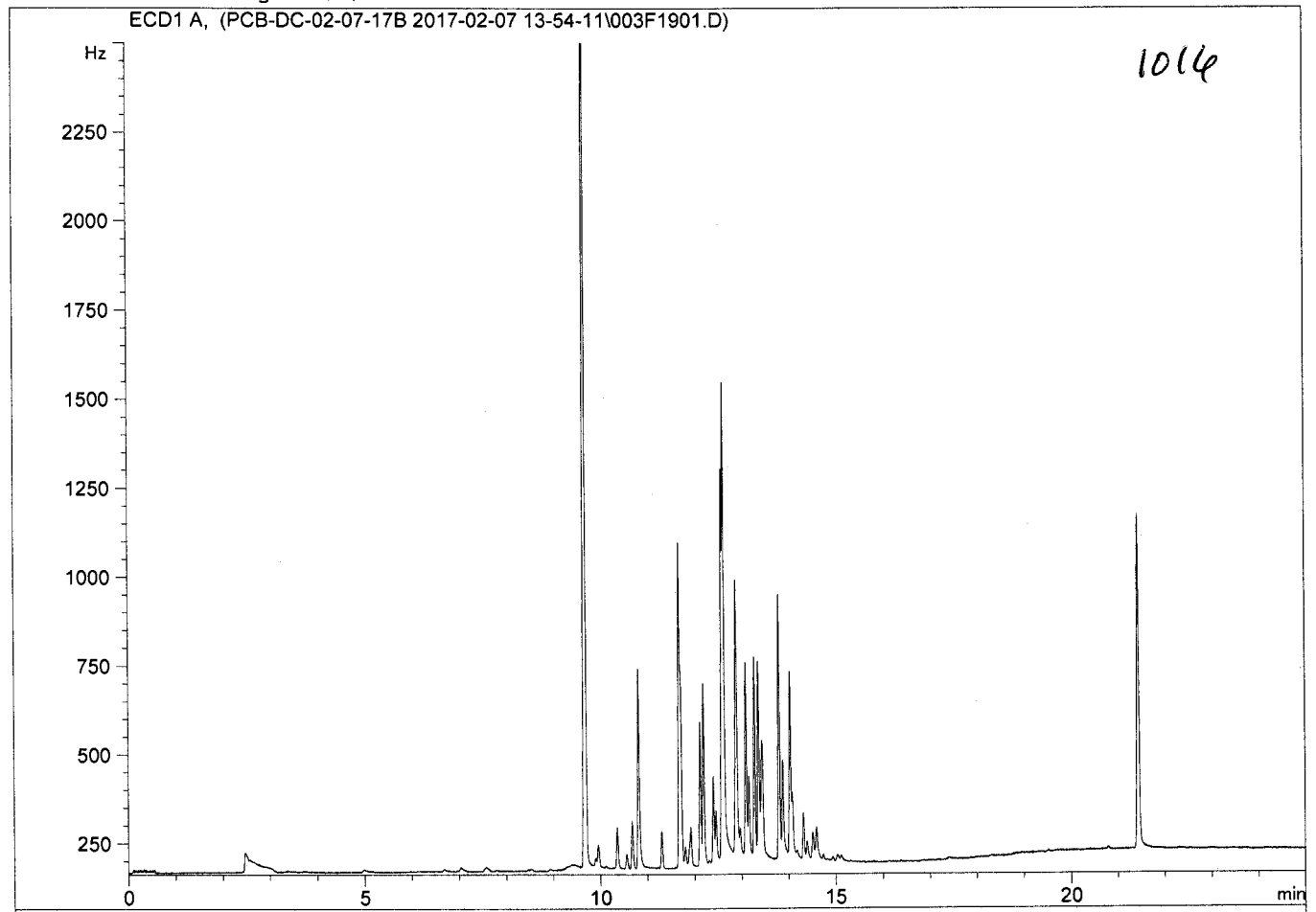   *** End of Report ***

Sample
- 005

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\081F1101.D)
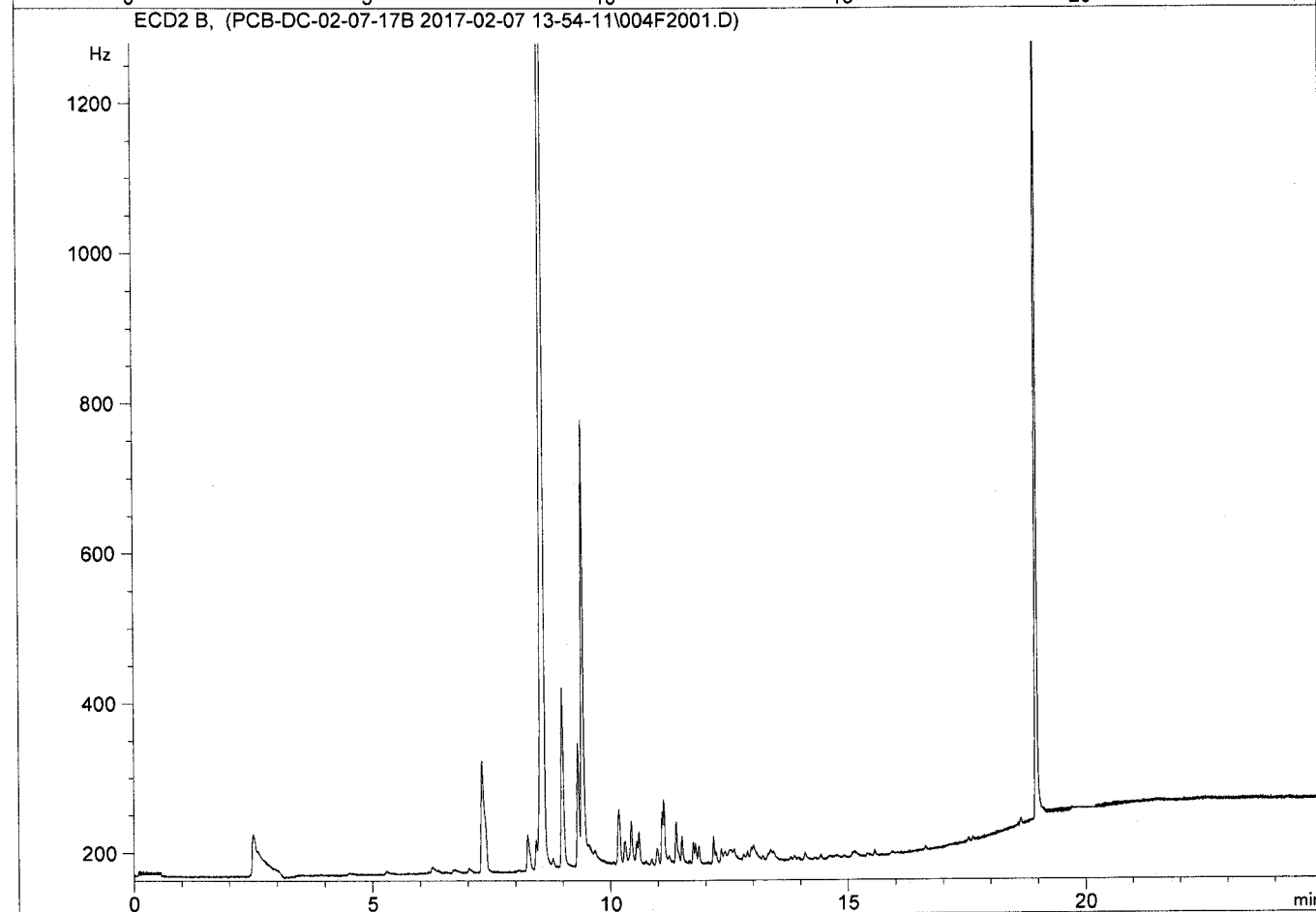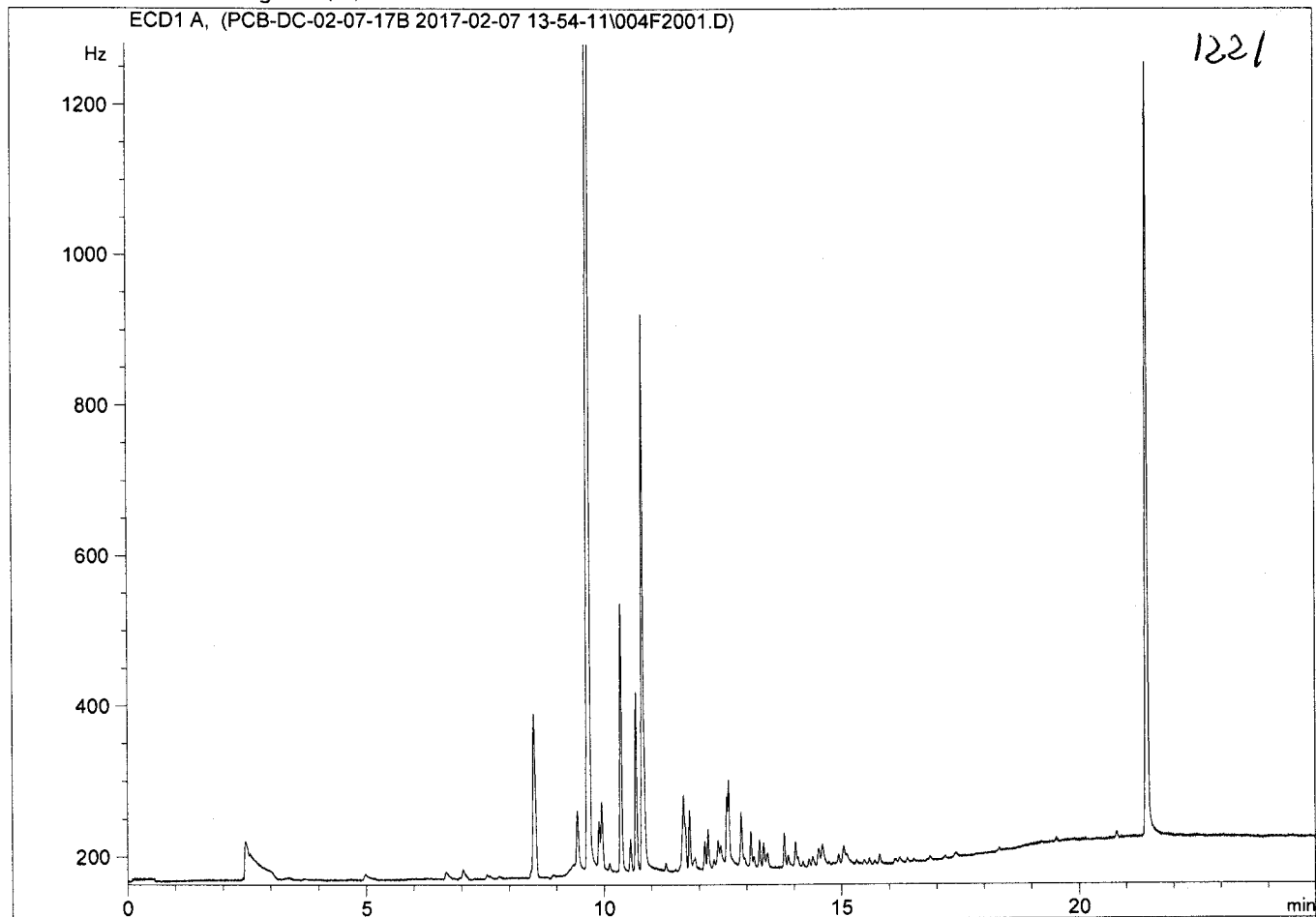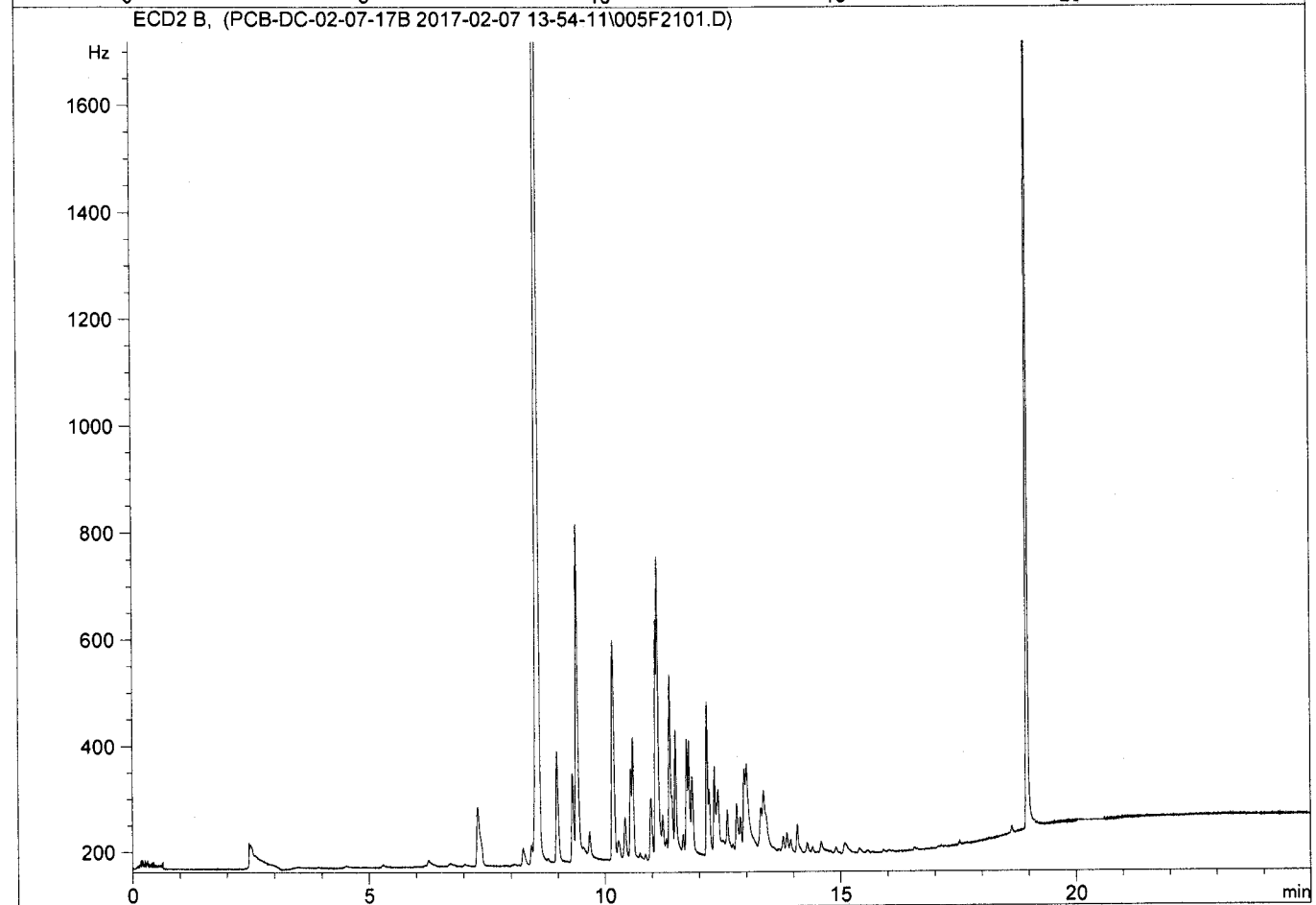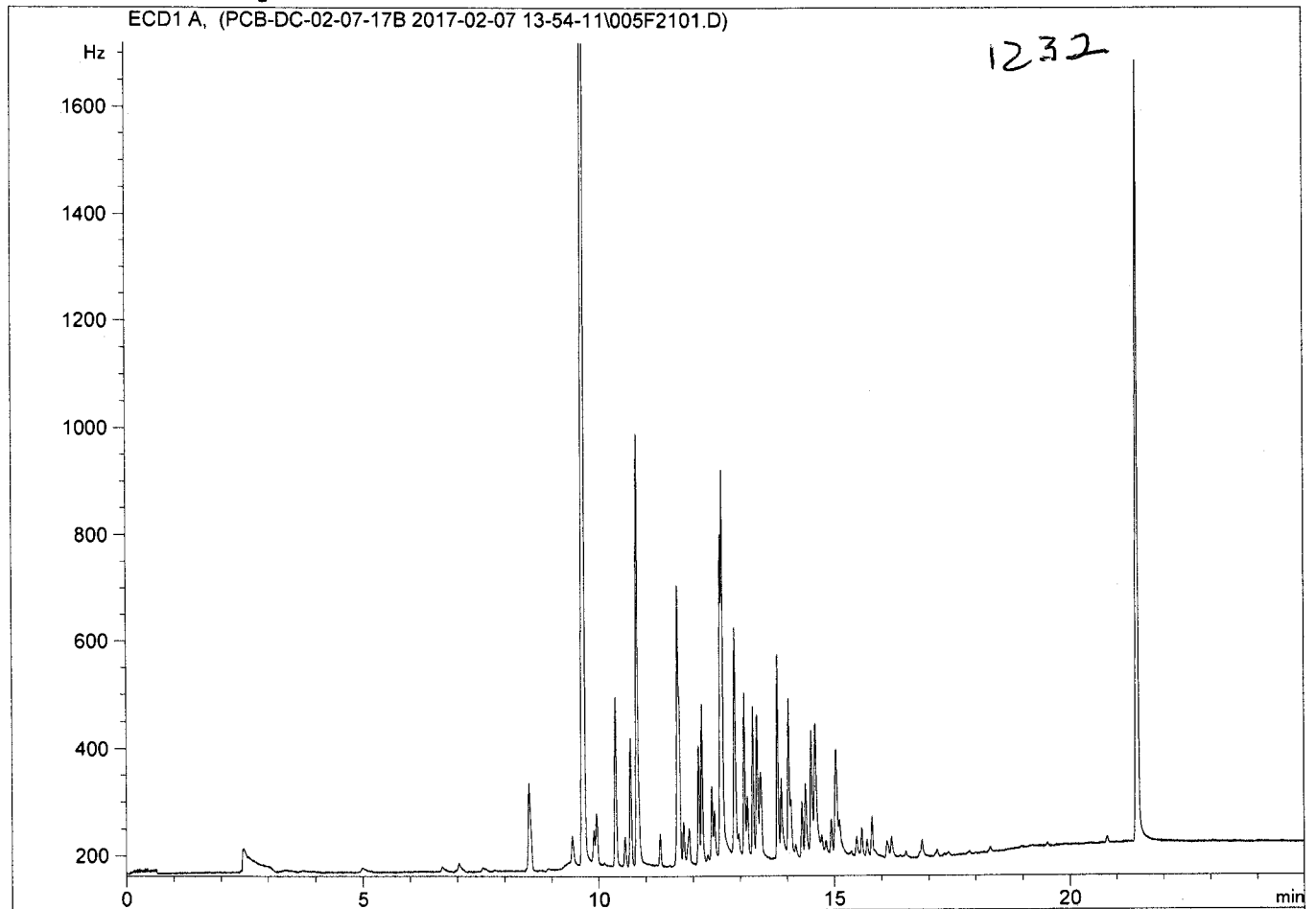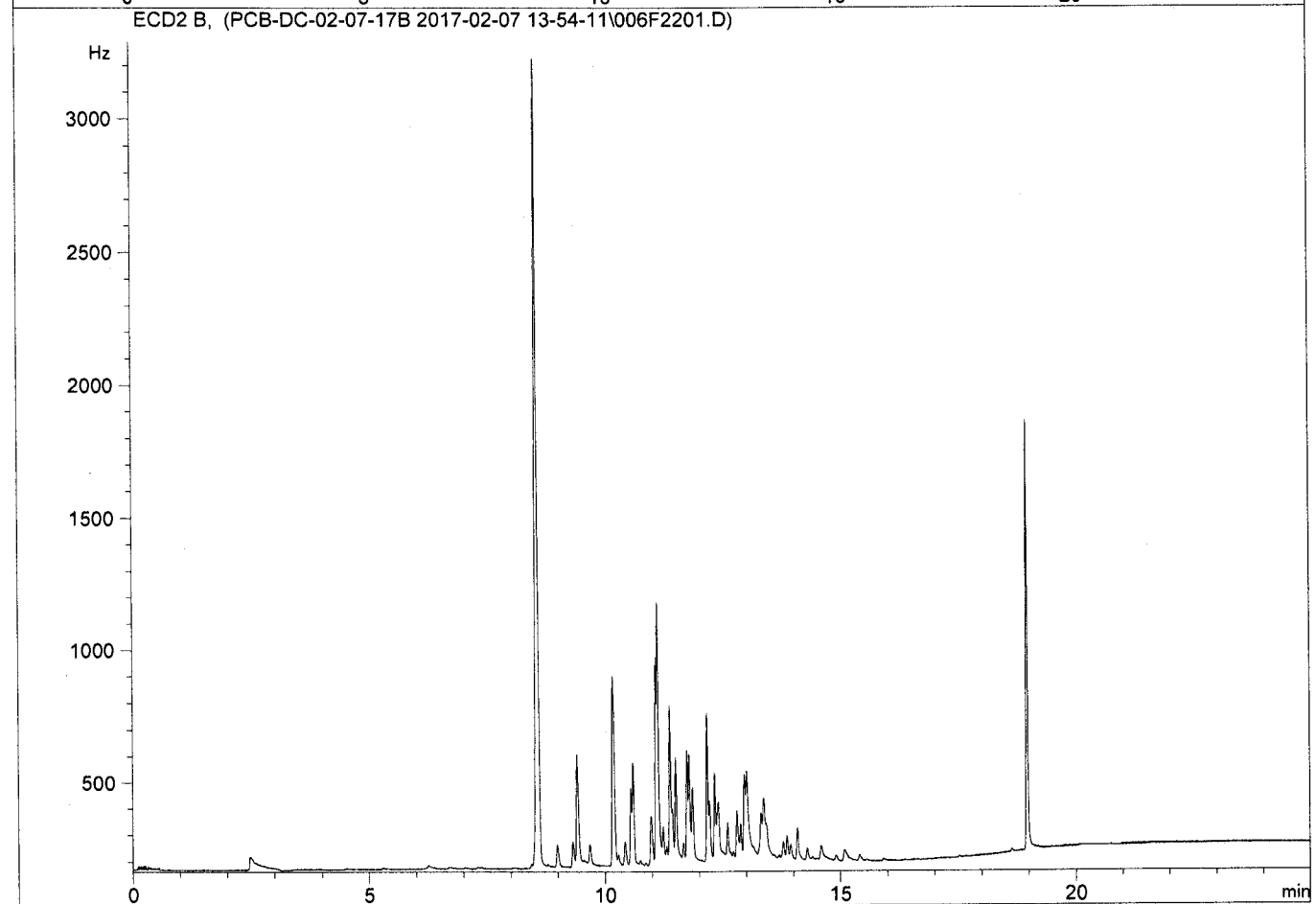
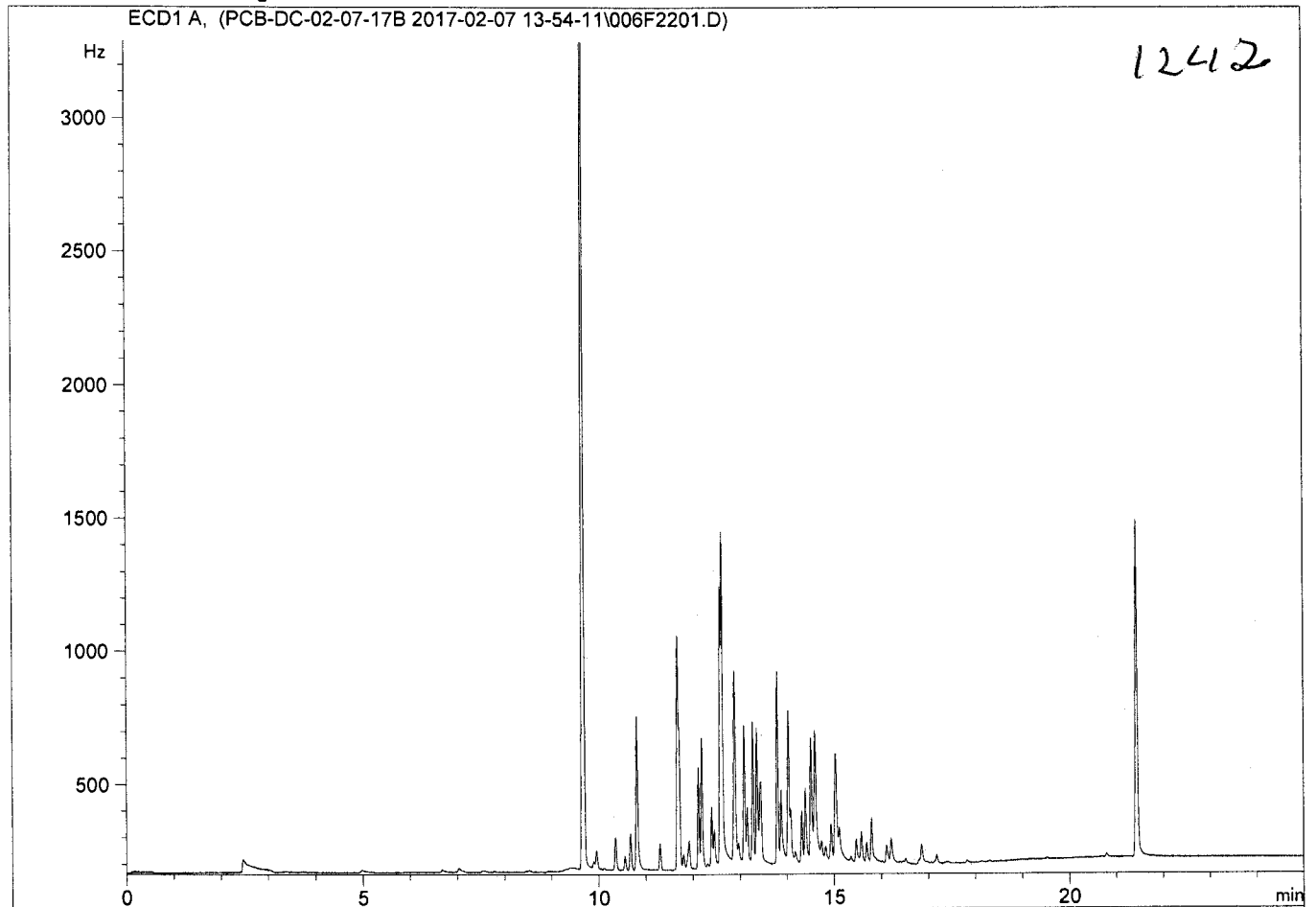ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\081F1101.D)

Print of window 38: Current Chromatogram(s)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\003F1901.D)

1014

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\003F1901.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\004F2001.D)

1221

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\004F2001.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\005F2101.D)

1232

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\005F2101.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\006F2201.D)

1242

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\006F2201.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\007F2301.D)

1248

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\007F2301.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\008F2401.D)

1254

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\008F2401.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\009F2501.D)

1260

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\009F2501.D)

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\081F1101.D
Sample Name: ARS1-B17-00184-06

```
================================================================
Acq. Operator    :                        Seq. Line :  11
Acq. Instrument : Instrument 1             Location : Vial 81
Injection Date  : 2/7/2017 6:48:03 PM           Inj :   1
                                           Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 12:41:22 PM
                  (modified after loading)
```
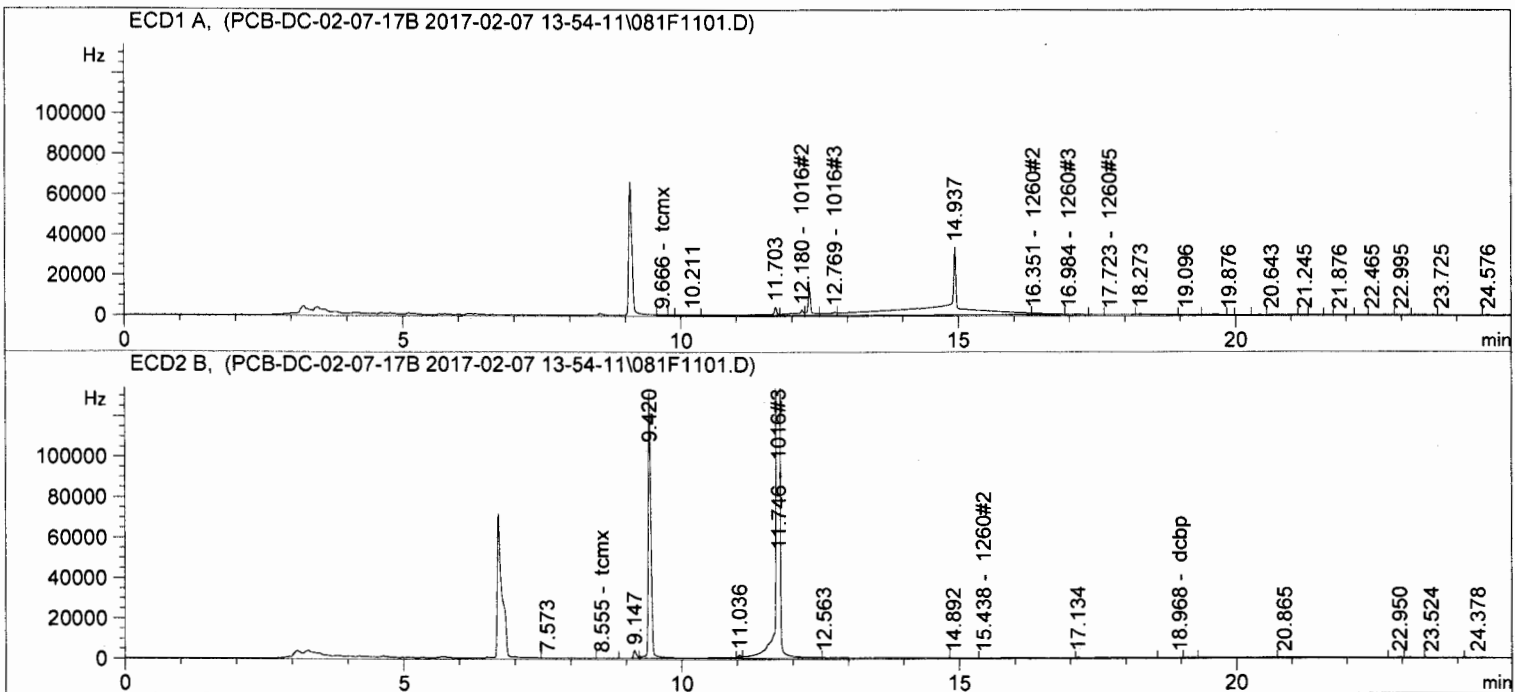
Sample-related custom fields:

```
Name                          |Value
------------------------------|----------------------------------------
Additional Info : Peak(s) manually integrated
================================================================
```



```
================================================================
                  External Standard Report
================================================================
```

```
Sorted By          :       Signal
Calib. Data Modified :      2/4/2017 11:22:32 AM
Multiplier:                 :       1.0000
Dilution:                   :       1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.666	VV S	5666.46191	2.92996e-5	1.66025e-1		tcmx
10.815		-	-	-		1016#1
12.180	VV S	2.93706e4	1.79550e-3	52.73478		1016#2
12.769	VV S	2.02842e4	1.12001e-3	22.71842		1016#3

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\081F1101.D
Sample Name: ARS1-B17-00184-06

===
Acq. Operator   :   Seq. Line : 11
Acq. Instrument : Instrument 1   Location : Vial 81
Injection Date : 2/7/2017 6:48:03 PM   Inj :   1
                                           Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 12:41:22 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated
===

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.443		-	-	-		1016#4
13.798		-	-	-		1016#5
16.154		-	-	-		1260#1
16.351	VV S	1.82821e4	6.66099e-4	12.17768		1260#2
16.984	VV S	4656.68848	5.19881e-4	2.42092		1260#3
17.394	VV S	1268.61145	9.93749e-4	1.26068		1260#4
17.723	VB S	717.24908	9.51936e-4	6.82775e-1		1260#5
21.437	VV	846.21997	7.53236e-5	6.37404e-2		dcbp

Totals :   92.22503

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.555	VB	661.68890	2.77484e-5	1.83608e-2		tcmx
10.181		-	-	-		1016#1
11.519		-	-	-		1016#2
11.746	VV S	3.68487e6	3.24545e-3	1.19591e4		1016#3
11.797		-	-	-		1016#4
12.890		-	-	-		1016#5
14.425		-	-	-		1260#1
15.438	BB	708.78790	6.53531e-4	4.63215e-1		1260#2
15.608		-	-	-		1260#3
16.043		-	-	-		1260#4
16.587		-	-	-		1260#5
18.968	BV	483.38864	7.84515e-5	3.79226e-2		dcbp

Totals :   1.19596e4

2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\081F1101.D
Sample Name: ARS1-B17-00184-06
================================================================================
Acq. Operator   :                           Seq. Line :  11
Acq. Instrument : Instrument 1               Location : Vial 81
Injection Date  : 2/7/2017 6:48:03 PM             Inj :   1
                                           Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 12:41:22 PM
                  (modified after loading)


Sample-related custom fields:


Name                          |Value
------------------------------|-----------------------------------------
Additional Info : Peak(s) manually integrated
================================================================================


================================================================================
                        Summed Peaks Report
================================================================================


Signal 1: ECD1 A,
Signal 2: ECD2 B,
================================================================================
                     Final Summed Peaks Report
================================================================================


Signal 1: ECD1 A,
Signal 2: ECD2 B,


Compound-related custom fields:
                     *** End of Report ***
```
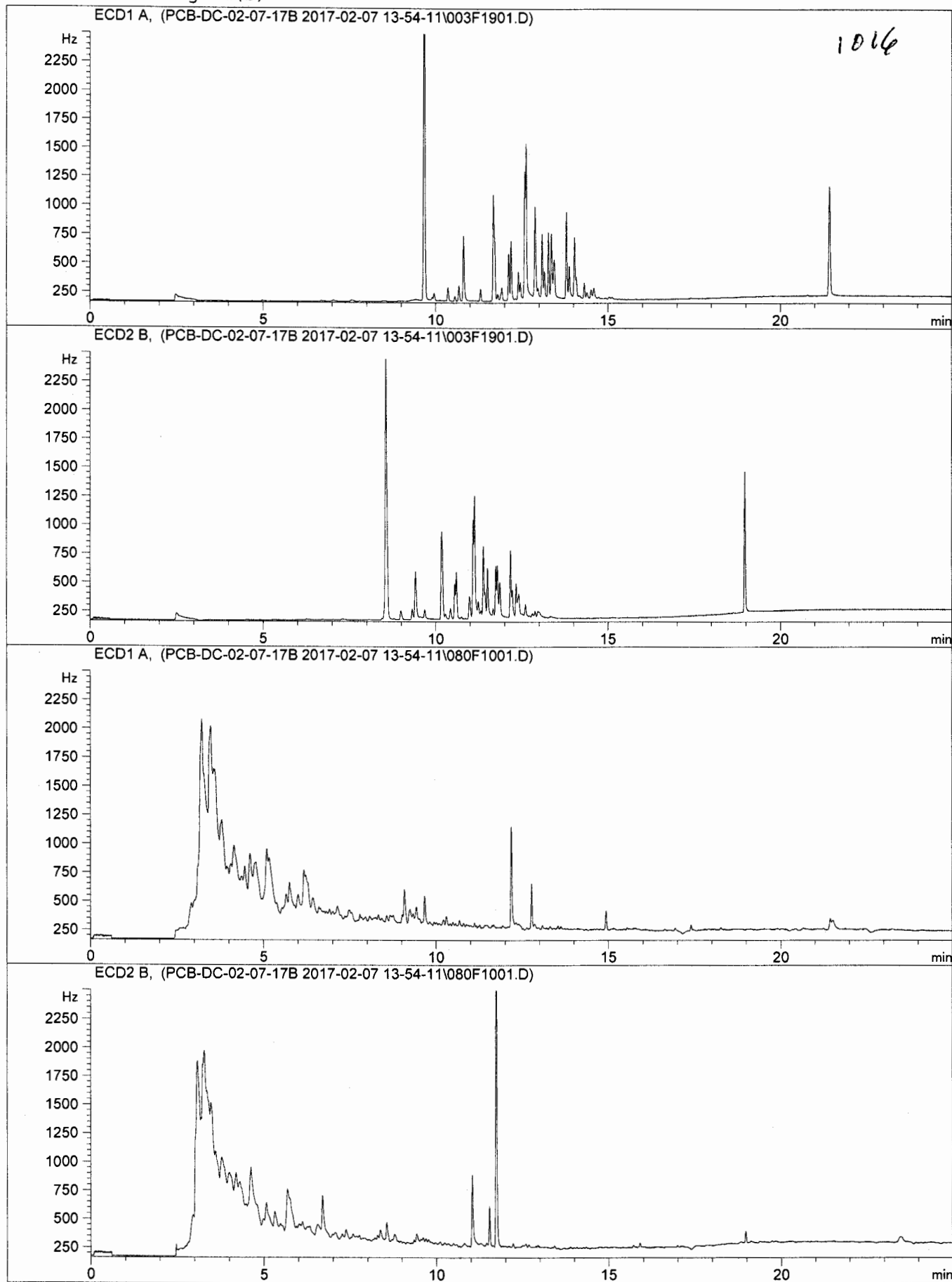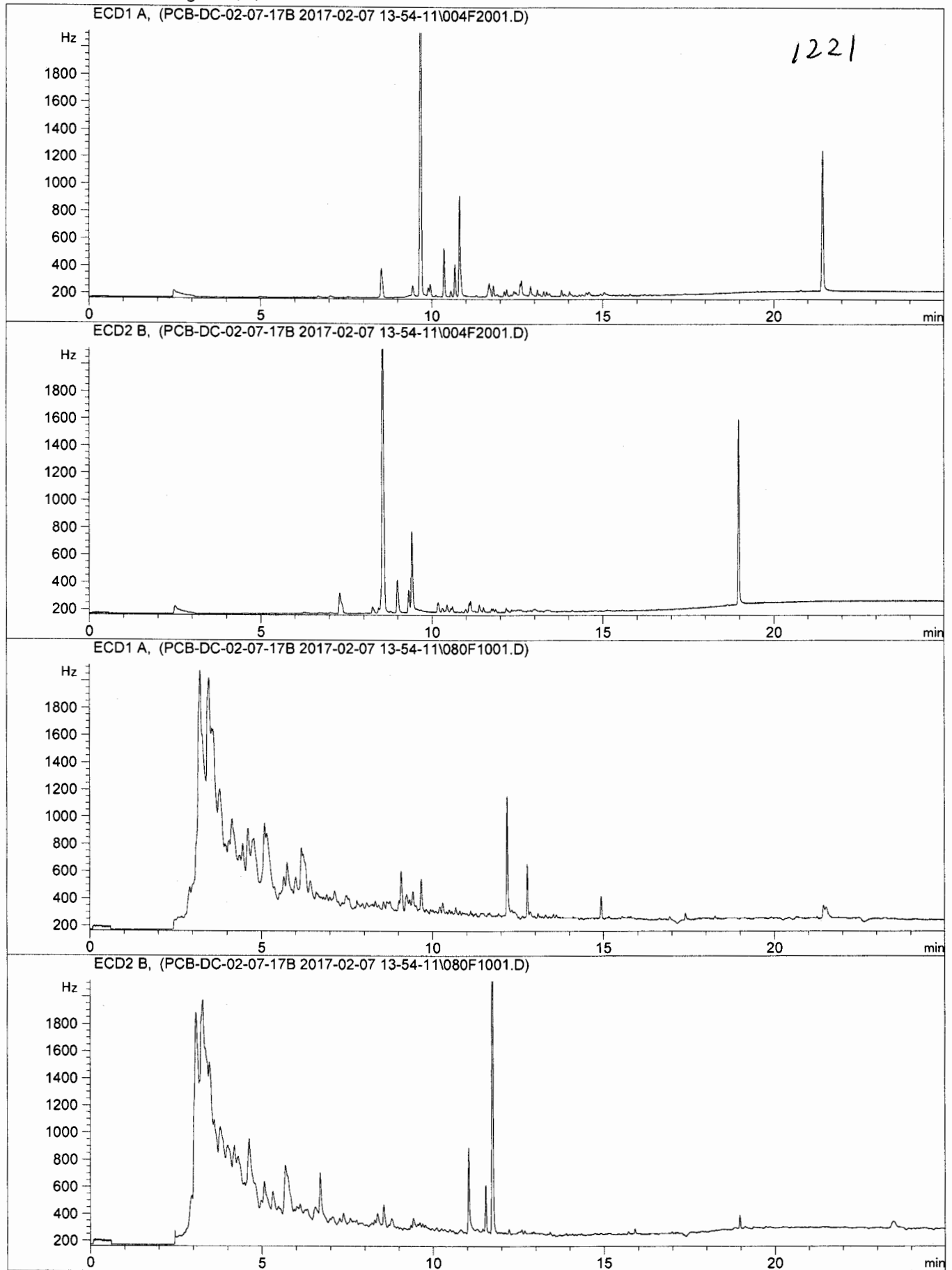
Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\003F1901.D)

1016

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\003F1901.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D)

Current Chromatogram(s)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\005F2101.D)

1232

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\005F2101.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D)

Current Chromatogram(s)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\007F2301.D)

1248

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\007F2301.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D)

Current Chromatogram(s)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\009F2501.D)

1260

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\009F2501.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\080F1001.D)

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D
Sample Name: ARS1-B17-00184-07
================================================================
Acq. Operator   :                          Seq. Line :   12
Acq. Instrument : Instrument 1              Location : Vial 82
Injection Date  : 2/7/2017 7:16:22 PM           Inj :    1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 12:47:36 PM
                  (modified after loading)


Sample-related custom fields:


Name                          |Value
------------------------------|---------------------------------------
Additional Info : Peak(s) manually integrated
================================================================
```
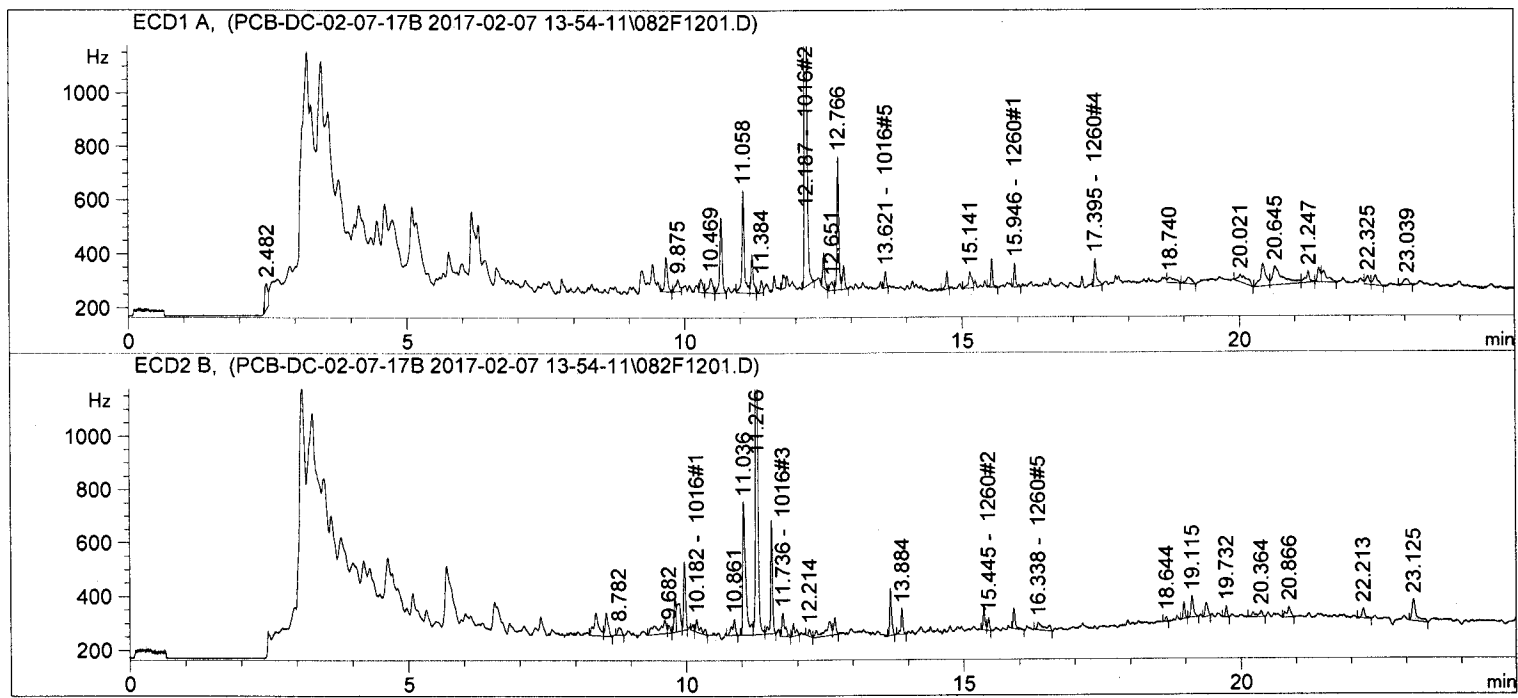


```
================================================================
                    External Standard Report
================================================================


Sorted By             :        Signal
Calib. Data Modified  :        2/4/2017 11:22:32 AM
Multiplier:                    :        1.0000
Dilution:                      :        1.0000
Do not use Multiplier & Dilution Factor with ISTDs


Signal 1: ECD1 A,


RetTime  Type      Area      Amt/Area      Amount   Grp    Name
 [min]            [Hz*s]                  [ng/ul]
-------|------|----------|----------|----------|--|-------------------
  9.664 BB      425.39560 1.87437e-5 7.97347e-3     tcmx
 10.655 BV      841.65851 1.38608e-3   1.16660       1016#1
 12.187 BB     6920.74023 1.79395e-3  12.41547       1016#2
 12.864 VB      247.04019 1.25267e-3 3.09460e-1      1016#3
```

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D
Sample Name: ARS1-B17-00184-07

```
=========================================================================
Acq. Operator   :                              Seq. Line :  12
Acq. Instrument : Instrument 1                  Location : Vial 82
Injection Date  : 2/7/2017 7:16:22 PM                Inj :   1
                                            Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 12:47:36 PM
                  (modified after loading)
```

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated	

```
=========================================================================
```

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.443		-	-	-		1016#4
13.621	BB	143.57745	1.33697e-3	1.91959e-1		1016#5
15.946	VB	210.08064	5.86913e-4	1.23299e-1		1260#1
16.530		-	-	-		1260#2
17.188		-	-	-		1260#3
17.395	VV	329.42917	9.42890e-4	3.10616e-1		1260#4
17.873		-	-	-		1260#5
21.439	BV	195.08702	2.10947e-5	4.11531e-3		dcbp

Totals :   14.52949

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.555	VB	330.98666	2.35476e-5	7.79393e-3		tcmx
10.182	BB	231.74347	7.41886e-4	1.71927e-1		1016#1
11.536	VB	1005.12482	3.08262e-3	3.09841		1016#2
11.736	BB	327.39401	3.19644e-3	1.04649		1016#3
11.923	BB	159.67238	3.81987e-3	6.09927e-1		1016#4
12.670	VB	184.61641	1.27967e-3	2.36248e-1		1016#5
14.425		-	-	-		1260#1
15.358	BV	184.67665	1.19650e-3	2.20965e-1		1260#3
15.445	VB	107.93499	7.31357e-4	7.89390e-2		1260#2
15.898	BB	209.24226	1.37694e-3	2.88113e-1		1260#4
16.338	BB	258.25043	5.34246e-4	1.37969e-1		1260#5
18.968	BB	141.83875	2.80559e-5	3.97942e-3		dcbp

Totals :   5.90077

3 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found
Warning : Elution order of calibrated compounds may have changed

===
```
Acq. Operator   :                          Seq. Line :  12
Acq. Instrument : Instrument 1             Location : Vial 82
Injection Date  : 2/7/2017 7:16:22 PM           Inj :   1
                                          Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 12:47:36 PM
                  (modified after loading)
```

Sample-related custom fields:

```
Name                          |Value
------------------------------|---------------------------------------
Additional Info : Peak(s) manually integrated
```
===

===
                       Summed Peaks Report
===

Signal 1: ECD1 A,
Signal 2: ECD2 B,

===
                    Final Summed Peaks Report
===
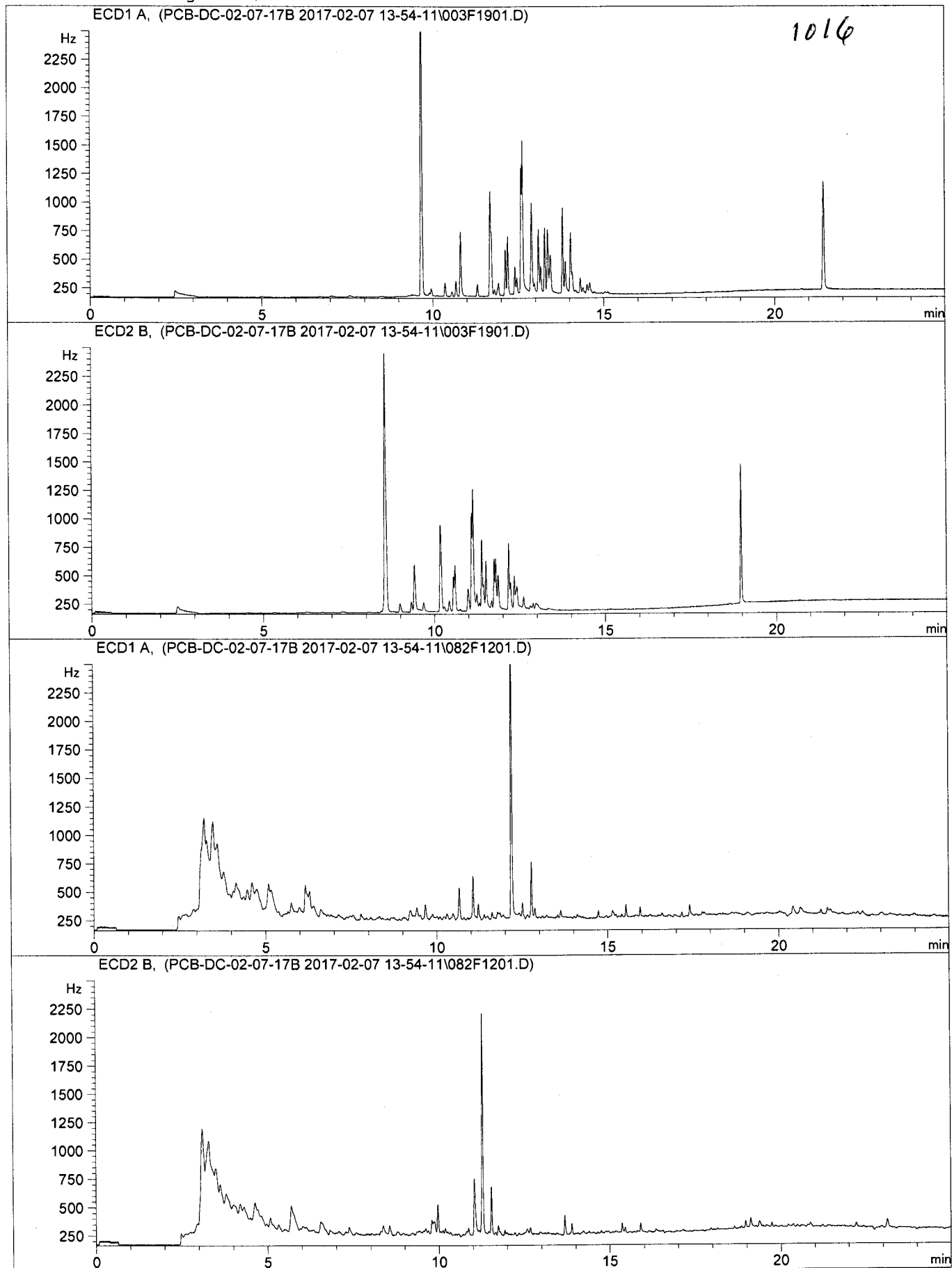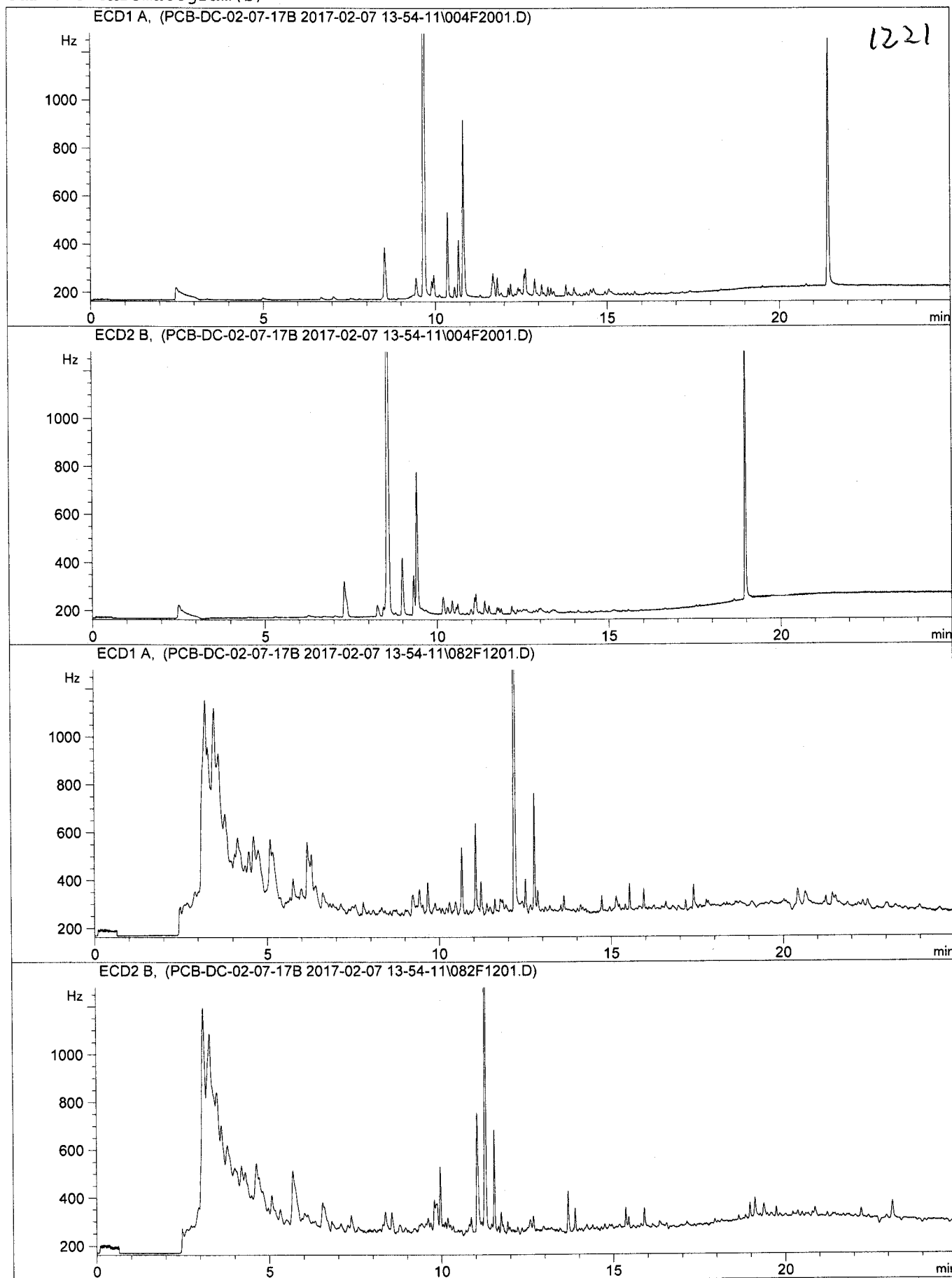

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                       *** End of Report ***

Current Chromatogram(s)

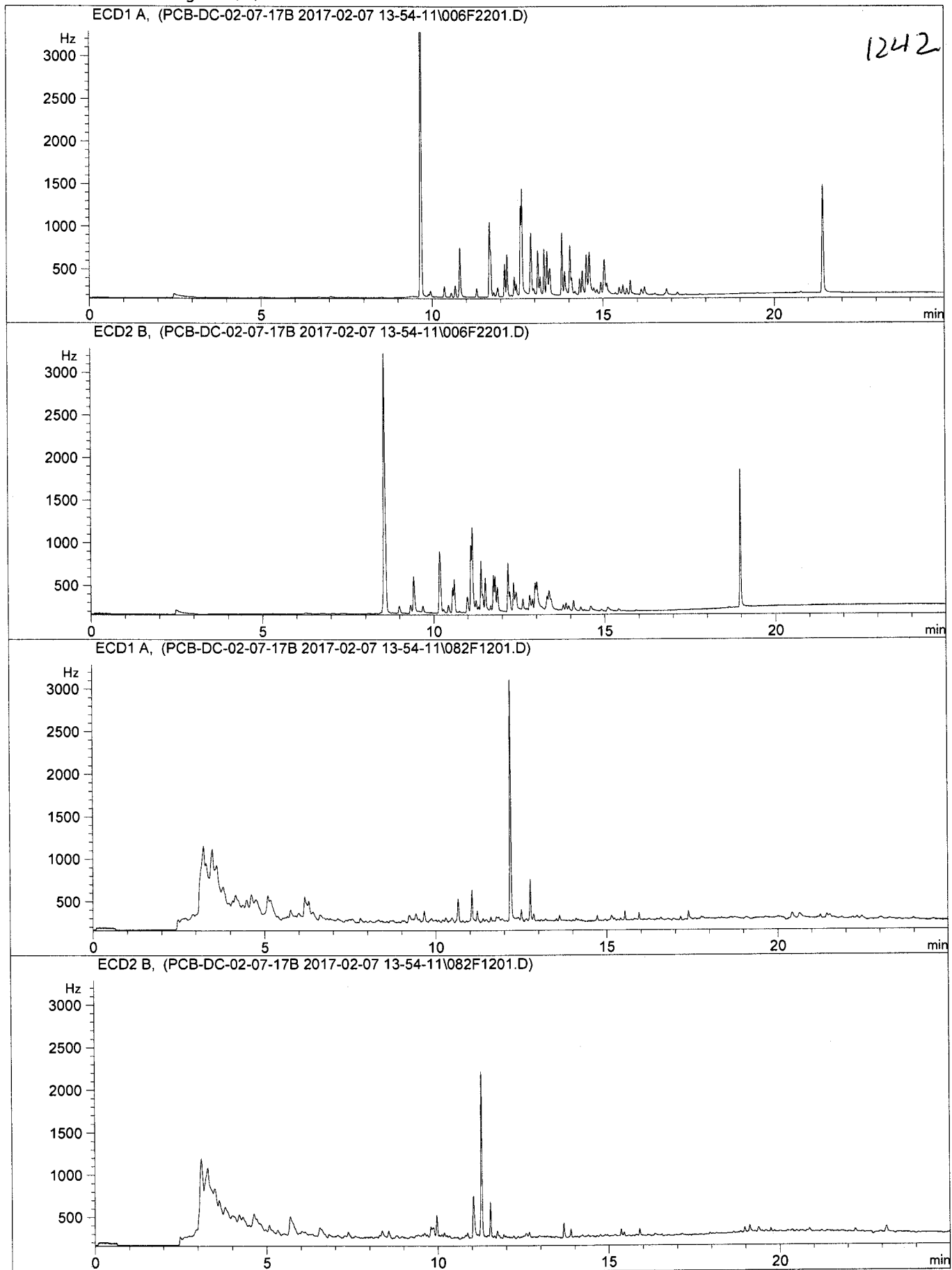ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\003F1901.D)

1016

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\003F1901.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\004F2001.D)

1221

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\004F2001.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\005F2101.D)

1232

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\005F2101.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\006F2201.D)

1242

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\006F2201.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

Current Chromatogram(s)

1248

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\008F2401.D)

1254

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\008F2401.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\009F2501.D)

1260

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\009F2501.D)

ECD1 A, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

ECD2 B, (PCB-DC-02-07-17B 2017-02-07 13-54-11\082F1201.D)

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\083F1301.D
Sample Name: ARS1-B17-00184-08   MS
========================================================================
 Acq. Operator   :                           Seq. Line :  13
 Acq. Instrument : Instrument 1              Location : Vial 83
 Injection Date  : 2/7/2017 7:44:46 PM            Inj :   1
                                           Inj Volume : 1 µl
 Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
 Last changed    : 2/2/2017 9:17:18 AM
 Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
 Last changed    : 2/8/2017 12:32:23 PM
                   (modified after loading)


Sample-related custom fields:


Name                           |Value
-------------------------------|---------------------------------------
Additional Info : Peak(s) manually integrated
========================================================================
```
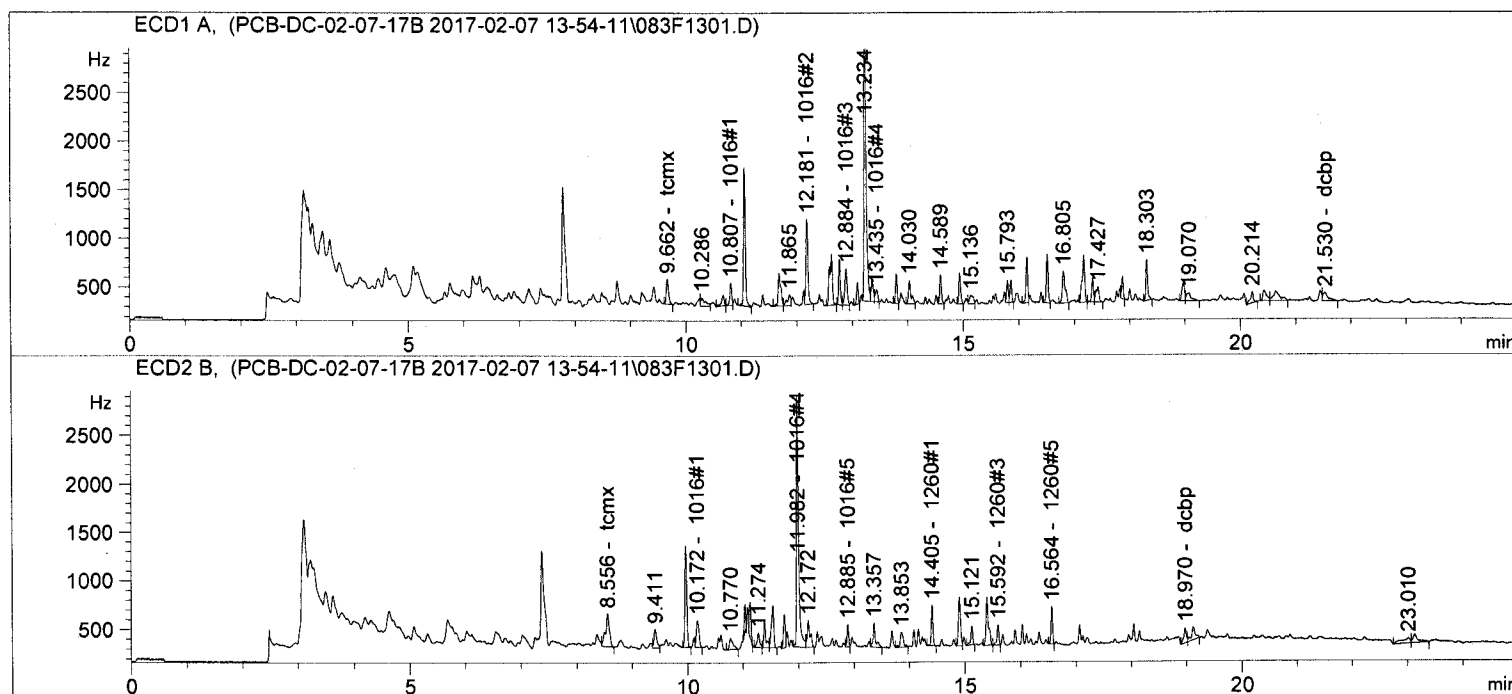


```
========================================================================
                      External Standard Report
========================================================================


Sorted By           :        Signal
Calib. Data Modified :        2/4/2017 11:22:32 AM
Multiplier:                  :        1.0000
Dilution:                    :        1.0000
Do not use Multiplier & Dilution Factor with ISTDs


Signal 1: ECD1 A,

RetTime  Type     Area      Amt/Area     Amount    Grp    Name
 [min]            [Hz*s]                 [ng/ul]
-------|------|----------|----------|----------|--|-------------------
  9.662 BB    738.11871 2.35790e-5 1.74041e-2        tcmx
 10.807 BV    577.02466 1.37641e-3 7.94221e-1        1016#1
 12.181 VB   2263.09058 1.78979e-3    4.05046        1016#2
 12.884 VV   1096.01672 1.14864e-3    1.25893        1016#3
```

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\083F1301.D
Sample Name: ARS1-B17-00184-08   MS

===
Acq. Operator   :   Seq. Line : 13
Acq. Instrument : Instrument 1   Location : Vial 83
Injection Date : 2/7/2017 7:44:46 PM   Inj :   1
                                          Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 12:32:23 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated
===

RetTime Type   Area   Amt/Area   Amount   Grp   Name
 [min]   [Hz*s]   [ng/ul]
-------|------|----------|----------|----------|--|------------------
 13.435 VB   370.59100 2.35171e-3 8.71522e-1   1016#4
 13.795 BV   638.29865 1.36890e-3 8.73766e-1   1016#5
 16.144 BV   1053.74121 6.66558e-4 7.02380e-1   1260#1
 16.513 BV   1142.74048 6.49147e-4 7.41806e-1   1260#2
 17.170 VB   1534.49048 5.15356e-4 7.90808e-1   1260#3
 17.328 BV   553.77179 9.70721e-4 5.37558e-1   1260#4
 17.867 VB   472.78302 9.42201e-4 4.45456e-1   1260#5
 21.530 VB   590.30090 6.82797e-5 4.03055e-2   dcbp

Totals :   11.12462

Signal 2: ECD2 B,

RetTime Type   Area   Amt/Area   Amount   Grp   Name
 [min]   [Hz*s]   [ng/ul]
-------|------|----------|----------|----------|--|------------------
  8.556 VB   1658.64575 3.02755e-5 5.02163e-2   tcmx
 10.172 VB   914.33472 7.83321e-4 7.16217e-1   1016#1
 11.534 VB   1310.63171 3.08068e-3   4.03764   1016#2
 11.741 BV   817.09381 3.22582e-3   2.63579   1016#3
 11.982 BV   6704.89209 3.90614e-3   26.19023   1016#4
 12.885 VV   494.19199 1.53486e-3 7.58513e-1   1016#5
 14.405 BB   900.47583 8.92584e-4 8.03750e-1   1260#1
 15.393 BB   1546.15015 6.45959e-4 9.98750e-1   1260#2
 15.592 BV   494.40305 1.17227e-3 5.79575e-1   1260#3
 16.043   -   -   -   1260#4
 16.564 BB   783.09082 5.33795e-4 4.18010e-1   1260#5
 18.970 BV   483.03415 7.84361e-5 3.78873e-2   dcbp

Totals :   37.22658

2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\083F1301.D
Sample Name: ARS1-B17-00184-08   MS

```
========================================================================
Acq. Operator   :                          Seq. Line :  13
Acq. Instrument : Instrument 1              Location : Vial 83
Injection Date  : 2/7/2017 7:44:46 PM            Inj :   1
                                          Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 12:32:23 PM
                  (modified after loading)
```

Sample-related custom fields:

```
Name                          |Value
------------------------------|----------------------------------------
Additional Info : Peak(s) manually integrated
========================================================================


========================================================================
                     Summed Peaks Report
========================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,

```
========================================================================
                   Final Summed Peaks Report
========================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                     *** End of Report ***

```
========================================================================
Acq. Operator     :                        Seq. Line :  14
Acq. Instrument : Instrument 1              Location : Vial 84
Injection Date  : 2/7/2017 8:13:14 PM         Inj :   1
                                           Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 12:36:13 PM
                  (modified after loading)
```
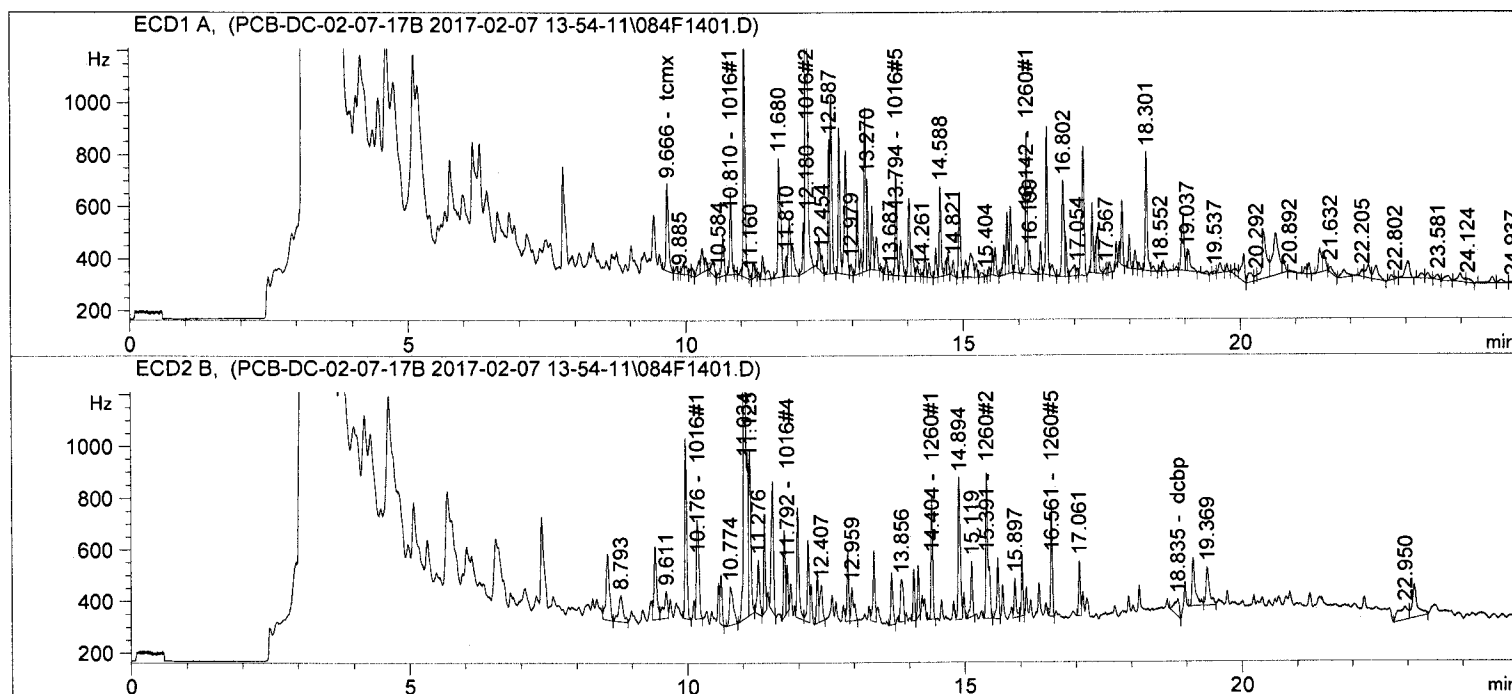
Sample-related custom fields:

```
Name                            |Value
--------------------------------|---------------------------------------
Additional Info : Peak(s) manually integrated
========================================================================
```



```
========================================================================
                    External Standard Report
========================================================================

Sorted By           :       Signal
Calib. Data Modified :      2/4/2017 11:22:32 AM
Multiplier:                 :       1.0000
Dilution:                   :       1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.666	BB	1015.54535	2.53758e-5	2.57703e-2		tcmx
10.810	VV	801.97668	1.38503e-3	1.11076		1016#1
12.180	VB	6541.01416	1.79383e-3	11.73349		1016#2
12.885	VV	1464.75330	1.14102e-3	1.67131		1016#3

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\084F1401.D
Sample Name: ARS1-B17-00184-09   MSD

===

Acq. Operator   :   Seq. Line : 14
Acq. Instrument : Instrument 1   Location : Vial 84
Injection Date : 2/7/2017 8:13:14 PM   Inj :   1
                                          Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 12:36:13 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated

===

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.436	VB	374.75784	$2.35286e-3$	$8.81752e-1$		1016#4
13.794	BV	808.34454	$1.37085e-3$	1.10812		1016#5
16.142	BV	1197.81226	$6.68944e-4$	$8.01269e-1$		1260#1
16.511	BV	1267.80652	$6.50931e-4$	$8.25254e-1$		1260#2
17.167	BB	1615.71973	$5.15695e-4$	$8.33219e-1$		1260#3
17.325	BV	570.11615	$9.71893e-4$	$5.54092e-1$		1260#4
17.864	VB	514.94464	$9.44539e-4$	$4.86385e-1$		1260#5
21.440	BV	384.07816	$5.57737e-5$	$2.14215e-2$		dcbp

Totals :   20.05285

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.558	VB	1016.53772	$2.92160e-5$	$2.96992e-2$		tcmx
10.176	VB	1273.69812	$7.87290e-4$	1.00277		1016#1
11.534	BB	1440.90552	$3.08011e-3$	4.43814		1016#2
11.743	BV	751.50989	$3.22410e-3$	2.42294		1016#3
11.792	VB	348.03812	$3.86770e-3$	1.34611		1016#4
12.884	VV	580.96112	$1.55758e-3$	$9.04896e-1$		1016#5
14.404	BB	1010.94031	$8.93791e-4$	$9.03569e-1$		1260#1
15.391	BB	1702.58203	$6.45371e-4$	1.09880		1260#2
15.590	BV	569.88007	$1.17036e-3$	$6.66964e-1$		1260#3
16.026	VB	470.30640	$1.34119e-3$	$6.30769e-1$		1260#4
16.561	VV	890.54865	$5.33768e-4$	$4.75346e-1$		1260#5
18.835	BB	394.88522	$7.37610e-5$	$2.91271e-2$		dcbp

Totals :   13.94913

2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Elution order of calibrated compounds may have changed

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\084F1401.D
Sample Name: ARS1-B17-00184-09   MSD
==
Acq. Operator   :   Seq. Line : 14
Acq. Instrument : Instrument 1   Location : Vial 84
Injection Date : 2/7/2017 8:13:14 PM   Inj :   1
                                         Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 12:36:13 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated
==

==
                    Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,
==
                  Final Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                    *** End of Report ***

Method C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M

```
====================================================================
                        Calibration Table
====================================================================
```

Calib. Data Modified   :   2/4/2017 12:01:07 PM

Rel. Reference Window :   5.000 %
Abs. Reference Window :   0.000 min
Rel. Non-ref. Window :   5.000 %
Abs. Non-ref. Window :   0.000 min
Uncalibrated Peaks   :   not reported
Partial Calibration   :   Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type   :   Linear
Origin   :   Ignored
Weight   :   Linear (Amnt)

Recalibration Settings:
Average Response   :   Average all calibrations
Average Retention Time: Average all calibrations

Calibration Report Options :
    Printout of recalibrations within a sequence:
        Calibration Table after Recalibration
        Normal Report after Recalibration
    If the sequence is done with bracketing:
        Results of first cycle (ending previous bracket)

Signal 1: ECD1 A,
Signal 2: ECD2 B,

```
RetTime   Lvl   Amount      Area     Amt/Area  Ref Grp Name
 [min] Sig      [ng/ul]
-------|--|--|----------|----------|----------|---|--|---------------
  8.563  2  1 4.00000e-3  207.49014 1.92780e-5        tcmx
            2 1.00000e-2  350.29849 2.85471e-5
            3 2.00000e-2  825.22705 2.42358e-5
            4 4.00000e-2 1481.63000 2.69973e-5
            5 8.00000e-2 2034.65710 3.93187e-5
            6 1.00000e-1 3333.47534 2.99987e-5
            7 1.20000e-1 4314.39014 2.78139e-5
            9 2.00000e-1 6113.37256 3.27152e-5
  9.669  1  1 4.00000e-3  283.57108 1.41058e-5        tcmx
            2 1.00000e-2  477.48077 2.09433e-5
            3 2.00000e-2  897.34052 2.22881e-5
            4 4.00000e-2 1627.79553 2.45731e-5
            5 8.00000e-2 2206.96460 3.62489e-5
            6 1.00000e-1 3611.21997 2.76915e-5
            7 1.20000e-1 4645.08447 2.58338e-5
            9 2.00000e-1 6572.57764 3.04295e-5
 10.181  2  1 5.00000e-2   64.54073 7.74705e-4        1016#1
            2 1.00000e-1  133.66855 7.48119e-4
            3 2.00000e-1  316.00793 6.32896e-4
            4 4.00000e-1  529.70923 7.55131e-4
            5 5.00000e-1  701.95435 7.12297e-4
            6 8.00000e-1 1040.15930 7.69113e-4
```

Method C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M

```
RetTime   Lvl    Amount      Area     Amt/Area  Ref Grp Name
[min] Sig        [ng/ul]
-------|--|--|----------|----------|----------|---|--|---------------
            7    1.00000 1323.39771 7.55631e-4
            9    1.60000 1851.14429 8.64330e-4
10.815  1  1 5.00000e-2    45.60406 1.09639e-3            1016#1
           2 1.00000e-1    69.69375 1.43485e-3
           3 2.00000e-1   175.22739 1.14137e-3
           4 4.00000e-1   302.45578 1.32251e-3
           5 5.00000e-1   398.85934 1.25357e-3
           6 8.00000e-1   607.48187 1.31691e-3
           7    1.00000   779.70172 1.28254e-3
           9    1.60000  1026.38831 1.55886e-3
11.519  2  1 5.00000e-2    15.23971 3.28090e-3            1016#2
           2 1.00000e-1    24.20983 4.13055e-3
           3 2.00000e-1    65.93283 3.03339e-3
           4 4.00000e-1   113.14131 3.53540e-3
           5 5.00000e-1   166.41948 3.00446e-3
           6 8.00000e-1   268.91815 2.97488e-3
           7    1.00000   361.76962 2.76419e-3
           9    1.60000   475.18155 3.36713e-3
11.750  2  1 5.00000e-2    17.40227 2.87319e-3            1016#3
           2 1.00000e-1    38.53780 2.59485e-3
           3 2.00000e-1    70.28287 2.84564e-3
           4 4.00000e-1   119.26826 3.35378e-3
           5 5.00000e-1   167.39635 2.98692e-3
           6 8.00000e-1   263.64011 3.03444e-3
           7    1.00000   346.14587 2.88896e-3
           9    1.60000   449.65909 3.55825e-3
11.797  2  1 5.00000e-2    13.60523 3.67506e-3            1016#4
           2 1.00000e-1    31.55272 3.16930e-3
           3 2.00000e-1    58.49398 3.41916e-3
           4 4.00000e-1   102.41528 3.90567e-3
           5 5.00000e-1   138.32378 3.61471e-3
           6 8.00000e-1   212.33279 3.76767e-3
           7    1.00000   288.07773 3.47129e-3
           9    1.60000   373.87631 4.27949e-3
12.193  1  2 1.00000e-1    51.81232 1.93004e-3            1016#2
           3 2.00000e-1   131.01570 1.52653e-3
           4 4.00000e-1   227.57130 1.75769e-3
           5 5.00000e-1   305.83530 1.63487e-3
           6 8.00000e-1   483.11618 1.65592e-3
           7    1.00000   610.39368 1.63829e-3
           9    1.60000   806.06238 1.98496e-3
12.890  1  2 1.00000e-1    46.45183 2.15277e-3            1016#3
           3 2.00000e-1   141.36113 1.41482e-3
           4 4.00000e-1   268.75323 1.48835e-3
           5 5.00000e-1   384.24619 1.30125e-3
           6 8.00000e-1   780.29901 1.02525e-3
           7    1.00000  1007.81201 9.92249e-4
12.890  2  2 1.00000e-1   108.40559 9.22462e-4            1016#5
           3 2.00000e-1   163.28340 1.22486e-3
           4 4.00000e-1   253.31912 1.57904e-3
           5 5.00000e-1   343.96219 1.45365e-3
           6 8.00000e-1   510.63098 1.56669e-3
           7    1.00000   666.13879 1.50119e-3
13.443  1  1 5.00000e-2    38.91771 1.28476e-3            1016#4
           2 1.00000e-1    43.93321 2.27618e-3
           3 2.00000e-1   102.03152 1.96018e-3
           4 4.00000e-1   170.99023 2.33931e-3
```

Method C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M

```
RetTime  Lvl   Amount      Area     Amt/Area  Ref Grp Name
[min] Sig      [ng/ul]
-------|--|--|----------|----------|----------|---|--|---------------
              5 5.00000e-1  232.31718 2.15223e-3
              6 8.00000e-1  366.31177 2.18393e-3
              7   1.00000   471.21255 2.12218e-3
              9   1.60000   593.14984 2.69746e-3
13.798  1  1 5.00000e-2   41.39292 1.20794e-3           1016#5
              2 1.00000e-1   61.05280 1.63793e-3
              3 2.00000e-1  165.27083 1.21013e-3
              4 4.00000e-1  283.59225 1.41048e-3
              5 5.00000e-1  390.31989 1.28100e-3
              6 8.00000e-1  620.75989 1.28874e-3
              7   1.00000   806.93866 1.23925e-3
              9   1.60000  1039.05664 1.53986e-3
14.425  2  1 5.00000e-2   60.56375 8.25576e-4           1260#1
              2 1.00000e-1  100.35081 9.96504e-4
              3 2.00000e-1  275.51465 7.25914e-4
              4 4.00000e-1  453.46390 8.82099e-4
              5 5.00000e-1  605.28107 8.26063e-4
              6 8.00000e-1  935.53326 8.55127e-4
              7   1.00000  1230.66602 8.12568e-4
              9   1.60000  1572.59192 1.01743e-3
15.447  2  1 5.00000e-2   52.48089 9.52728e-4           1260#2
              2 1.00000e-1  123.34299 8.10747e-4
              3 2.00000e-1  347.85193 5.74957e-4
              4 4.00000e-1  588.10986 6.80145e-4
              5 5.00000e-1  827.11469 6.04511e-4
              6 8.00000e-1 1275.41736 6.27246e-4
              7   1.00000  1742.29517 5.73956e-4
              9   1.60000  2190.16748 7.30538e-4
15.608  2  1 5.00000e-2   26.62747 1.87776e-3           1260#3
              2 1.00000e-1   79.29781 1.26107e-3
              3 2.00000e-1  203.16814 9.84406e-4
              4 4.00000e-1  332.33963 1.20359e-3
              5 5.00000e-1  457.88135 1.09199e-3
              6 8.00000e-1  685.35419 1.16728e-3
              7   1.00000   905.62823 1.10421e-3
              9   1.60000  1276.50427 1.25342e-3
16.043  2  1 5.00000e-2   25.20990 1.98335e-3           1260#4
              2 1.00000e-1   57.63525 1.73505e-3
              3 2.00000e-1  173.48642 1.15283e-3
              4 4.00000e-1  262.94757 1.52122e-3
              5 5.00000e-1  375.32373 1.33218e-3
              6 8.00000e-1  615.64844 1.29944e-3
              7   1.00000   841.23340 1.18873e-3
              9   1.60000  1109.14648 1.44255e-3
16.154  1  1 5.00000e-2   94.89642 5.26890e-4           1260#1
              2 1.00000e-1  150.75621 6.63323e-4
              3 2.00000e-1  371.65009 5.38141e-4
              4 4.00000e-1  607.95355 6.57945e-4
              5 5.00000e-1  827.33044 6.04353e-4
              6 8.00000e-1 1263.44910 6.33187e-4
              7   1.00000  1637.17297 6.10809e-4
              9   1.60000  2064.93140 7.74844e-4
16.530  1  1 5.00000e-2   98.29510 5.08672e-4           1260#2
              2 1.00000e-1  153.39114 6.51928e-4
              3 2.00000e-1  381.98624 5.23579e-4
              4 4.00000e-1  621.85382 6.43238e-4
              5 5.00000e-1  854.13269 5.85389e-4
```

Method C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M

```
RetTime   Lvl   Amount      Area       Amt/Area  Ref Grp Name
[min] Sig       [ng/ul]
-------|--|--|----------|----------|----------|---|--|---------------
            6 8.00000e-1 1288.69629 6.20782e-4
            7   1.00000 1685.67078 5.93236e-4
            9   1.60000 2132.84692 7.50171e-4
 16.587  2  1 5.00000e-2   84.27430 5.93301e-4          1260#5
            2 1.00000e-1  157.91661 6.33246e-4
            3 2.00000e-1  444.02090 4.50429e-4
            4 4.00000e-1  729.09674 5.48624e-4
            5 5.00000e-1 1017.59302 4.91356e-4
            6 8.00000e-1 1525.74072 5.24335e-4
            7   1.00000 2022.94092 4.94330e-4
            9   1.60000 2730.64697 5.85942e-4
 17.188  1  1 5.00000e-2  107.50050 4.65114e-4          1260#3
            2 1.00000e-1  182.17996 5.48908e-4
            3 2.00000e-1  459.73468 4.35034e-4
            4 4.00000e-1  764.41290 5.23277e-4
            5 5.00000e-1 1061.27917 4.71130e-4
            6 8.00000e-1 1606.29626 4.98040e-4
            7   1.00000 2130.68970 4.69332e-4
            9   1.60000 2752.85474 5.81215e-4
 17.335  1  1 5.00000e-2   64.05074 7.80631e-4          1260#4
            2 1.00000e-1  104.29836 9.58788e-4
            3 2.00000e-1  260.11435 7.68893e-4
            4 4.00000e-1  419.93045 9.52539e-4
            5 5.00000e-1  570.16553 8.76938e-4
            6 8.00000e-1  847.60712 9.43834e-4
            7   1.00000 1103.11243 9.06526e-4
            9   1.60000 1406.42761 1.13763e-3
 17.873  1  1 5.00000e-2   63.07708 7.92681e-4          1260#5
            2 1.00000e-1   98.07703 1.01961e-3
            3 2.00000e-1  248.83839 8.03734e-4
            4 4.00000e-1  414.62775 9.64721e-4
            5 5.00000e-1  574.65411 8.70089e-4
            6 8.00000e-1  864.52429 9.25364e-4
            7   1.00000 1143.72302 8.74338e-4
            9   1.60000 1493.80957 1.07109e-3
 18.972  2  1 8.00000e-3  155.74324 5.13666e-5          dcbp
            2 2.00000e-2  322.71283 6.19746e-5
            3 4.00000e-2  583.05145 6.86046e-5
            4 8.00000e-2 1007.98535 7.93662e-5
            5 1.60000e-1 1514.28870 1.05660e-4
            6 2.00000e-1 2010.97791 9.94541e-5
            7 2.40000e-1 2836.70703 8.46051e-5
            9 4.00000e-1 3934.55151 1.01663e-4
 21.437  1  1 8.00000e-3  231.19279 3.46032e-5          dcbp
            2 2.00000e-2  317.05734 6.30801e-5
            3 4.00000e-2  686.49658 5.82669e-5
            4 8.00000e-2 1165.19067 6.86583e-5
            5 1.60000e-1 1713.97717 9.33501e-5
            6 2.00000e-1 2270.34277 8.80924e-5
            7 2.40000e-1 3019.47998 7.94839e-5
            9 4.00000e-1 4334.11621 9.22910e-5


 11 Warnings or Errors (10 first messages follow) :

 Warning : Overlapping peak time windows at 12.89 min, signal 1
 Warning : Overlapping peak time windows at 13.443 min, signal 1
 Warning : Overlapping peak time windows at 16.154 min, signal 1
```
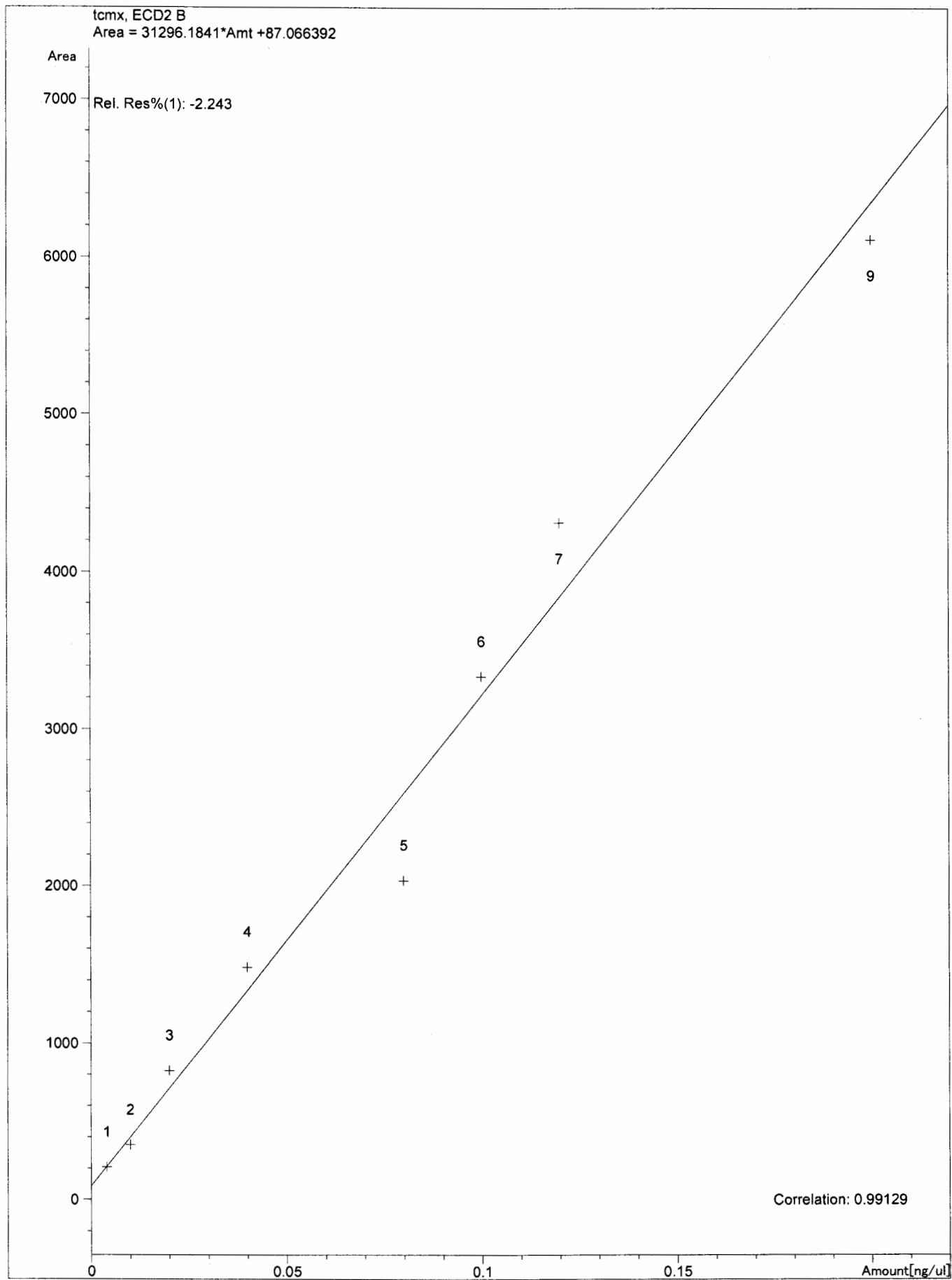
Warning : Overlapping peak time windows at 16.53 min, signal 1
Warning : Overlapping peak time windows at 17.188 min, signal 1
Warning : Overlapping peak time windows at 17.335 min, signal 1
Warning : Overlapping peak time windows at 11.519 min, signal 2
Warning : Overlapping peak time windows at 11.75 min, signal 2
Warning : Overlapping peak time windows at 15.447 min, signal 2
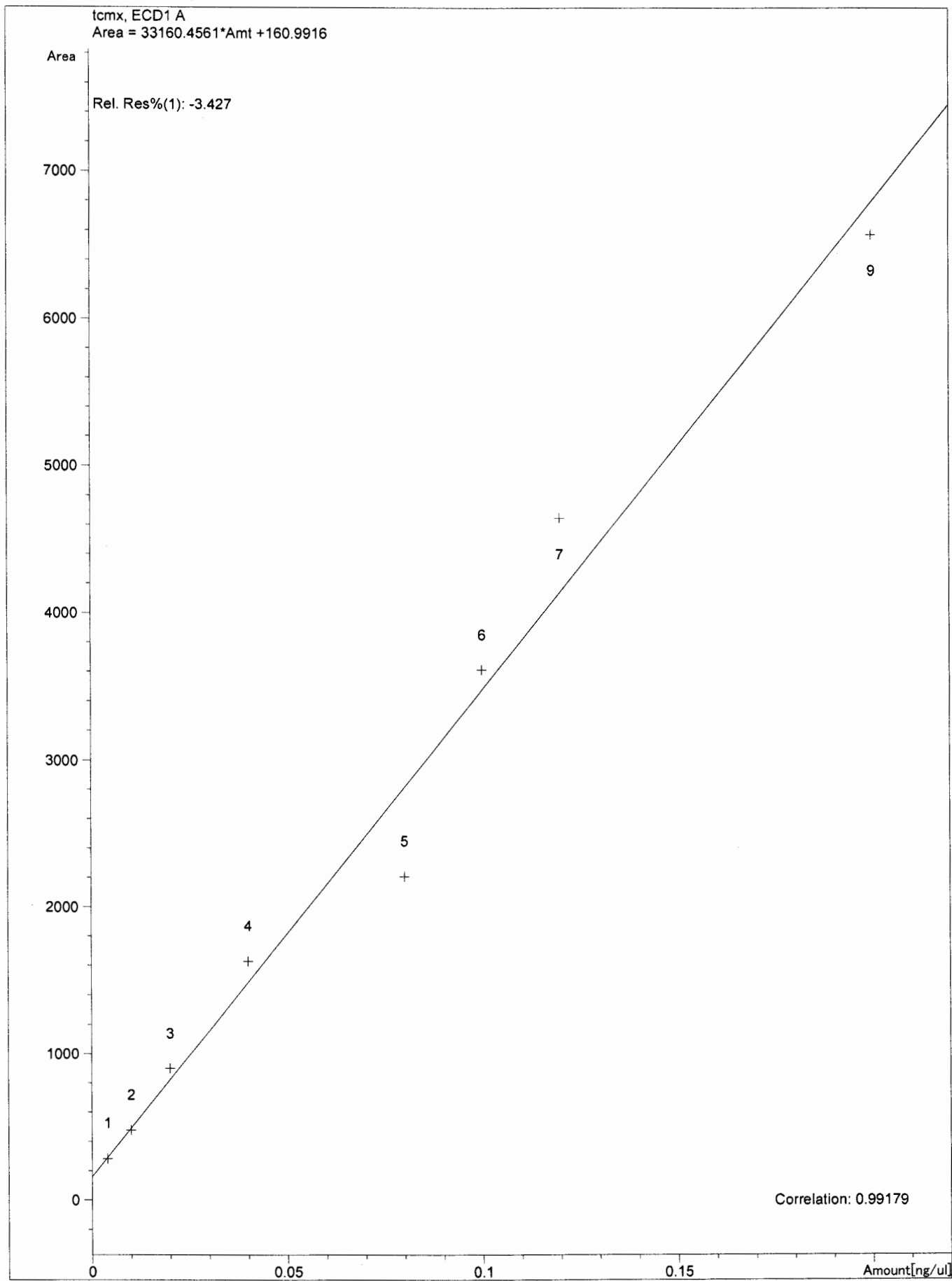Warning : Overlapping peak time windows at 15.608 min, signal 2

```
=====================================================================
                           Peak Sum Table
=====================================================================

***No Entries in table***

=====================================================================
```

Calibration Curve

tcmx, ECD2 B
Area = 31296.1841*Amt +87.066392

Area

Rel. Res%(1): -2.243

Correlation: 0.99129

Calibration Curve

tcmx, ECD1 A
Area = 33160.4561*Amt +160.9916

Rel. Res%(1): -3.427

Correlation: 0.99179

Calibration Curve

1016#1, ECD2 B
Area = 1254.09422*Amt +16.130494

Rel. Res%(1): -18.132

Correlation: 0.99540

Calibration Curve

1016#1, ECD1 A
Area = 710.652387*Amt +12.609827

Rel. Res%(1): -5.273

Correlation: 0.99384

Calibration Curve

1016#2, ECD2 B
Area = 325.276022*Amt -2.7151277

Rel. Res%(1): 12.481

Correlation: 0.99424

Calibration Curve

1016#3, ECD2 B
Area = 308.122871*Amt +4.9451579

Area

Rel. Res%(1): -14.491

Correlation: 0.99435

Calibration Curve

1016#4, ECD2 B
Area = 255.869529*Amt +3.610563

Rel. Res%(1): -17.062

Correlation: 0.99469

Calibration Curve

1016#2, ECD1 A
Area = 556.801659*Amt +7.7884607

Rel. Res%(2): -18.365

Correlation: 0.99244

Calibration Curve

1016#3, ECD1 A
Area = 1012.29993*Amt -67.996062

Rel. Res%(2): 39.772

Correlation: 0.99095

Calibration Curve

1016#5, ECD2 B
Area = 592.755927*Amt +44.578717

Rel. Res%(2): 4.382

Correlation: 0.99668

Calibration Curve

1016#4, ECD1 A
Area = 407.318385*Amt +15.60419

Rel. Res%(1): 8.195

Correlation: 0.99160

Calibration Curve

1016#5, ECD1 A
Area = 725.60333*Amt +4.2910493

Rel. Res%(1): 2.025

Correlation: 0.99322

Calibration Curve

1260#1, ECD2 B
Area = 1106.65128*Amt +11.004614

Rel. Res%(1): -8.703

Correlation: 0.99230

Calibration Curve

1260#2, ECD2 B
Area = 1563.5981*Amt -15.493847

Rel. Res%(1): -16.280

Correlation: 0.99221

Calibration Curve

1260#3, ECD2 B
Area = 863.687826*Amt -6.1684126

Rel. Res%(1): -28.065

Correlation: 0.99586

Calibration Curve

1260#4, ECD2 B
Area = 761.886003*Amt -10.26734

Rel. Res%(1): -9.405

Correlation: 0.99379

Calibration Curve

1260#1, ECD1 A
Area = 1456.89574*Amt +30.446875

Rel. Res%(1): -8.128

Correlation: 0.99164

Calibration Curve

1260#2, ECD1 A
Area = 1498.7346*Amt +30.969635

Rel. Res%(1): -7.187

Correlation: 0.99185

Calibration Curve

1260#5, ECD2 B
Area = 1874.15875*Amt -0.3260021

Rel. Res%(1): -9.753

Correlation: 0.99477

Calibration Curve

1260#3, ECD1 A
Area = 1915.32354*Amt +19.836684

Rel. Res%(1): -7.009

Correlation: 0.99348

Calibration Curve

1260#4, ECD1 A
Area = 988.544285*Amt +22.371958

Rel. Res%(1): -10.792

Correlation: 0.99160

Calibration Curve

1260#5, ECD1 A
Area = 1030.11817*Amt +13.91022

Rel. Res%(1): -3.576

Correlation: 0.99392

Calibration Curve

dcbp, ECD2 B
Area = 10062.4114*Amt +101.79621

Rel. Res%(1): -14.566

Correlation: 0.99322

Calibration Curve

dcbp, ECD1 A
Area = 10920.4582*Amt +150.14594

Area

Rel. Res%(1): -2.660

Correlation: 0.99423

Amount[ng/ul]

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\002F0301.D
Sample Name: ARO1660 L-1 0.05 ug/ml

```
========================================================================
Acq. Operator   :                          Seq. Line :    3
Acq. Instrument : Instrument 1              Location : Vial 2
Injection Date  : 2/2/2017 10:44:44 AM           Inj :    1
                                          Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)
```
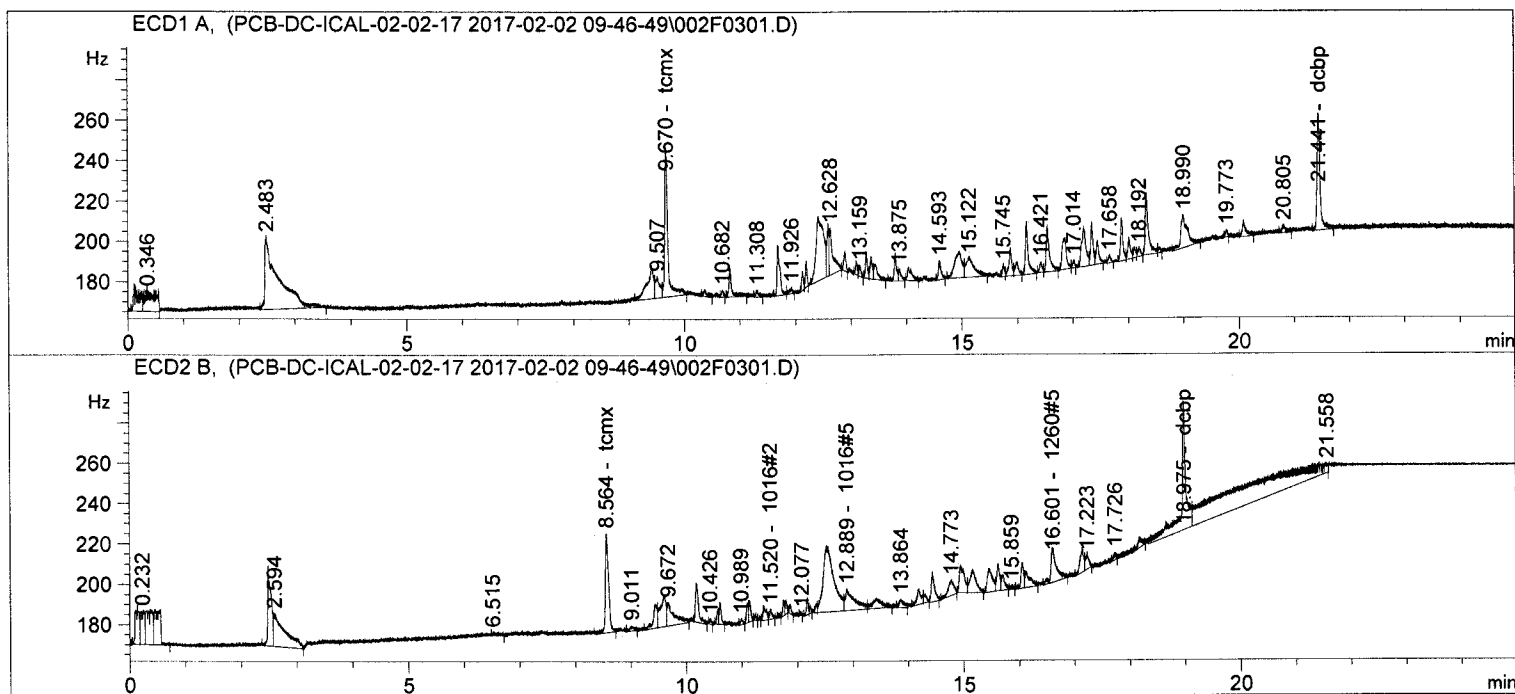
Sample-related custom fields:

```
Name                          |Value
------------------------------|--------------------------------------
Additional Info : Peak(s) manually integrated
========================================================================
```



```
========================================================================
                    External Standard Report
========================================================================
```

```
Sorted By          :        Signal
Calib. Data Modified :      2/4/2017 12:01:07 PM
Multiplier:                 :        1.0000
Dilution:                   :        1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.670	VB	295.67444	1.37366e-5	4.06155e-3		tcmx
10.816	BB	54.75792	1.08311e-3	5.93090e-2		1016#1
12.193	VB	27.13686	1.28052e-3	3.47492e-2		1016#2
12.890	BB	25.92000	3.57928e-3	9.27749e-2		1016#3

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\002F0301.D
Sample Name: ARO1660 L-1  0.05 ug/ml
       ==================================================================
   Acq. Operator   :                              Seq. Line :   3
   Acq. Instrument : Instrument 1                  Location : Vial 2
   Injection Date  : 2/2/2017 10:44:44 AM               Inj :   1
                                                 Inj Volume : 1 µl
   Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
   Last changed    : 2/2/2017 9:17:18 AM
   Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
   Last changed    : 2/4/2017 12:01:27 PM
                     (modified after loading)


   Sample-related custom fields:


   Name                           |Value
   -------------------------------|---------------------------------------
   Additional Info : Peak(s) manually integrated
       ==================================================================


   RetTime  Type     Area      Amt/Area     Amount    Grp    Name
   [min]             [Hz*s]                 [ng/ul]
   -------|------|----------|----------|----------|--|--------------------
   13.438  VB      39.02277  1.47336e-3 5.74945e-2        1016#4
   13.798  BV      42.93440  1.24042e-3 5.32569e-2        1016#5
   16.161  BB      92.45186  4.60344e-4 4.25597e-2        1260#1
   16.539  VB      96.28390  4.52616e-4 4.35796e-2        1260#2
   17.196  BV     107.72646  4.25965e-4 4.58877e-2        1260#3
   17.340  VV      63.64373  6.55996e-4 4.17501e-2        1260#4
   17.878  BV      66.45370  7.67561e-4 5.10072e-2        1260#5
   21.441  BB     225.69649  3.06529e-5 6.91826e-3        dcbp

   Totals :                              5.33349e-1




   Signal 2: ECD2 B,

   RetTime  Type     Area      Amt/Area     Amount    Grp    Name
   [min]             [Hz*s]                 [ng/ul]
   -------|------|----------|----------|----------|--|--------------------
    8.564  BB     207.49014  1.85448e-5 3.84787e-3        tcmx
   10.181  BB      79.58969  6.35781e-4 5.06016e-2        1016#1
   11.520  VB      15.23971  3.62204e-3 5.51988e-2        1016#2
   11.750  BV      17.40227  2.32320e-3 4.04290e-2        1016#3
   11.796  VB      13.60523  2.87107e-3 3.90616e-2        1016#4
   12.889  VV     121.99135  1.07055e-3 1.30598e-1        1016#5
   14.436  BB      60.56375  7.39435e-4 4.47830e-2        1260#1
   15.462  BV      75.75006  7.70364e-4 5.83551e-2        1260#2
   15.614  VV      48.00315  1.30661e-3 6.27212e-2        1260#3
   16.052  BV      44.34199  1.61645e-3 7.16765e-2        1260#4
   16.601  BB     122.25195  5.34996e-4 6.54042e-2        1260#5
   18.975  BV     396.43707  7.38612e-5 2.92813e-2        dcbp

   Totals :                              6.51958e-1



   2 Warnings or Errors :

   Warning : Calibration warnings (see calibration table listing)
   Warning : Elution order of calibrated compounds may have changed
```

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\002F0301.D
Sample Name: ARO1660 L-1  0.05 ug/ml
==================================================================
Acq. Operator   :                        Seq. Line :   3
Acq. Instrument : Instrument 1            Location : Vial 2
Injection Date  : 2/2/2017 10:44:44 AM        Inj :   1
                                       Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:

Name                          |Value
------------------------------|---------------------------------------
Additional Info : Peak(s) manually integrated
==================================================================


==================================================================
                    Summed Peaks Report
==================================================================


Signal 1: ECD1 A,
Signal 2: ECD2 B,
==================================================================
                  Final Summed Peaks Report
==================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,


Compound-related custom fields:
                    *** End of Report ***
```

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\003F0401.D
Sample Name: ARO1660 L-2 0.10 ug/ml

==

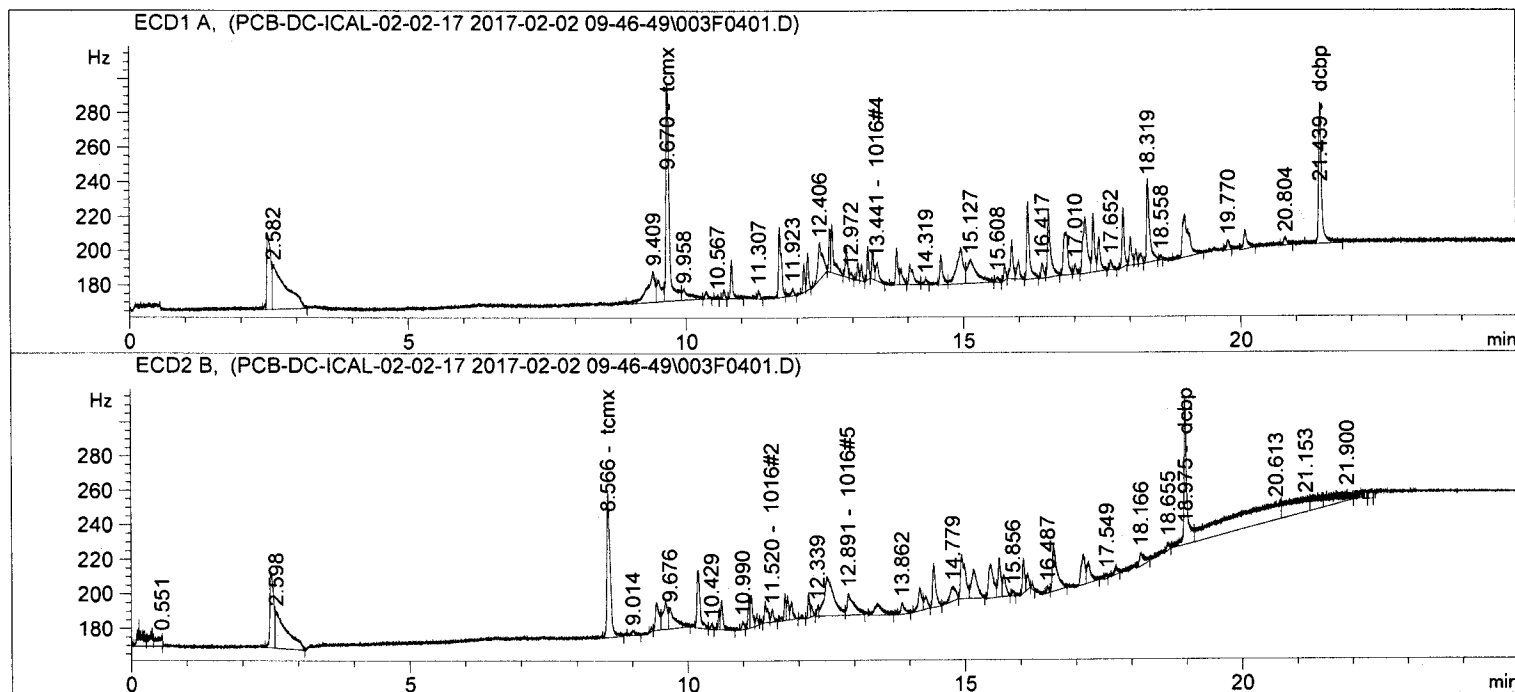Acq. Operator   :   Seq. Line :   4
Acq. Instrument : Instrument 1   Location : Vial 3
Injection Date : 2/2/2017 11:13:12 AM   Inj :   1
                                            Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/4/2017 12:01:27 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
==

==
                    External Standard Report
==

Sorted By   :   Signal
Calib. Data Modified :   2/4/2017 12:01:07 PM
Multiplier: :   1.0000
Dilution: :   1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.670	VV	481.31610	2.00696e-5	9.65983e-3		tcmx
10.815	BB	70.44854	1.15529e-3	8.13882e-2		1016#1
12.192	VB	50.88568	1.52108e-3	7.74014e-2		1016#2
12.889	BV	46.49495	2.43252e-3	1.13100e-1		1016#3
13.441	VB	43.80336	1.58050e-3	6.92313e-2		1016#4

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\003F0401.D
Sample Name: ARO1660 L-2  0.10 ug/ml
```

===

```
Acq. Operator   :                        Seq. Line :   4
Acq. Instrument : Instrument 1            Location : Vial 3
Injection Date  : 2/2/2017 11:13:12 AM        Inj :   1
                                       Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)
```

Sample-related custom fields:

Name	Value

===

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.797	BV	66.66651	1.28946e-3	8.59636e-2		1016#5
16.157	BB	149.31934	5.46433e-4	8.15930e-2		1260#1
16.535	VB	153.46872	5.32584e-4	8.17350e-2		1260#2
17.191	BV	184.26958	4.65900e-4	8.58512e-2		1260#3
17.337	VV	104.76514	7.95570e-4	8.33480e-2		1260#4
17.875	BB	96.80144	8.31265e-4	8.04677e-2		1260#5
21.439	BB	341.86588	5.13536e-5	1.75560e-2		dcbp

```
Totals :                                 8.67295e-1
```

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.566	BB	350.29849	2.40109e-5	8.41100e-3		tcmx
10.181	BV	133.66855	7.01163e-4	9.37235e-2		1016#1
11.520	VB	24.20983	3.41910e-3	8.27757e-2		1016#2
11.750	BV	38.53780	2.82900e-3	1.09024e-1		1016#3
11.797	VV	31.55272	3.46102e-3	1.09205e-1		1016#4
12.891	VB	108.40559	9.93290e-4	1.07678e-1		1016#5
14.432	BB	100.35081	8.04534e-4	8.07356e-2		1260#1
15.458	BV	123.34299	7.19888e-4	8.87932e-2		1260#2
15.613	VV	79.29781	1.24789e-3	9.89550e-2		1260#3
16.048	BV	57.63525	1.54635e-3	8.91243e-2		1260#4
16.595	VB	157.91661	5.34674e-4	8.44339e-2		1260#5
18.975	BV	322.71283	6.80315e-5	2.19546e-2		dcbp

```
Totals :                                 9.74813e-1
```

1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

===
                         Summed Peaks Report
===

==
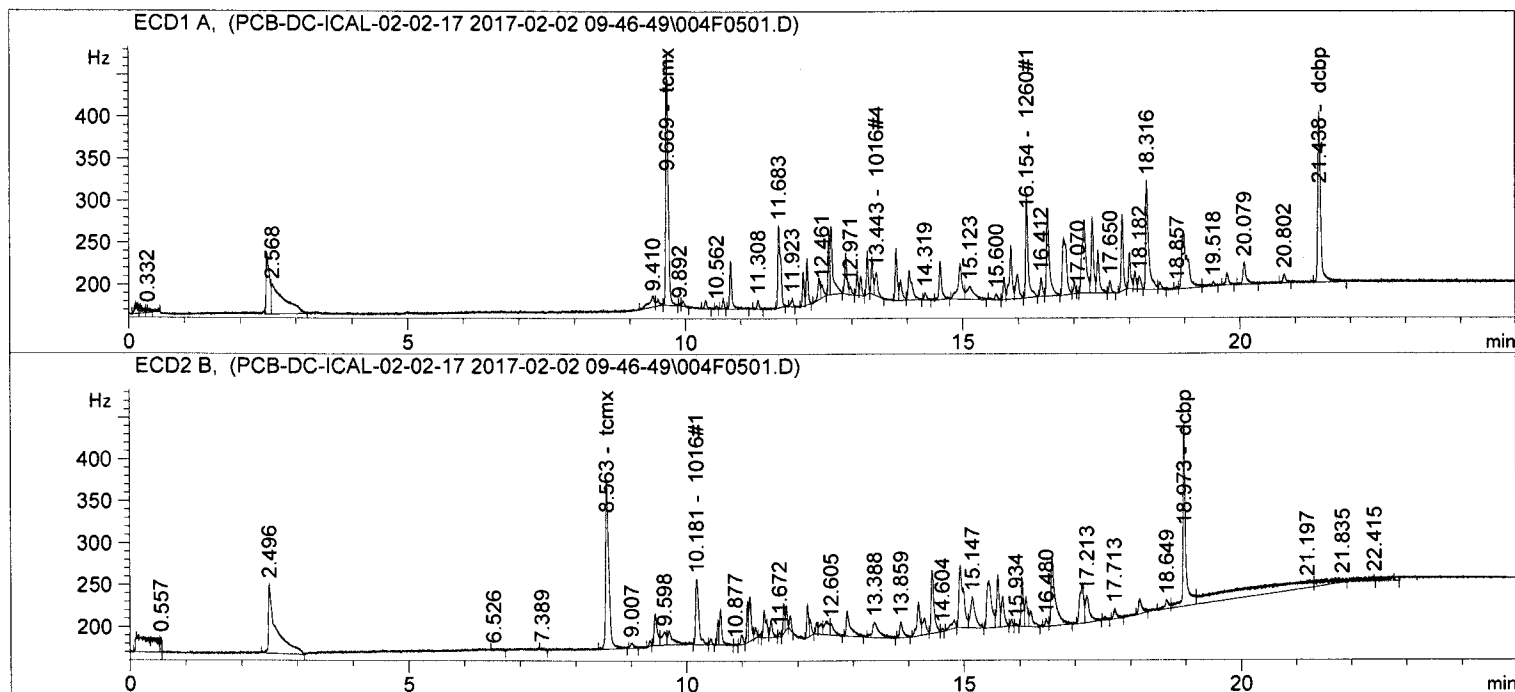Acq. Operator   :   Seq. Line :   4
Acq. Instrument : Instrument 1   Location : Vial 3
Injection Date : 2/2/2017 11:13:12 AM   Inj :   1
                                          Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/4/2017 12:01:27 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,
==
                    Final Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                    *** End of Report ***

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\004F0501.D
Sample Name: ARO1660 L-3  0.20 ug/ml
```

==

```
Acq. Operator   :                          Seq. Line :    5
Acq. Instrument : Instrument 1              Location : Vial 4
Injection Date  : 2/2/2017 11:41:32 AM         Inj :    1
                                        Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)
```

Sample-related custom fields:

```
Name                          |Value
------------------------------|---------------------------------------
```
==

==
External Standard Report
==

```
Sorted By            :       Signal
Calib. Data Modified :       2/4/2017 12:01:07 PM
Multiplier:                  :       1.0000
Dilution:                    :       1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.669	BB	897.34052	2.47460e-5	2.22056e-2		tcmx
10.815	BB	175.22739	1.30589e-3	2.28829e-1		1016#1
12.193	VB	131.01570	1.68921e-3	2.21313e-1		1016#2
12.890	BV	141.36113	1.46301e-3	2.06813e-1		1016#3
13.443	VB	102.03152	2.07961e-3	2.12186e-1		1016#4

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\004F0501.D
Sample Name: ARO1660 L-3  0.20 ug/ml
=========================================================================
Acq. Operator   :                        Seq. Line :   5
Acq. Instrument : Instrument 1            Location : Vial 4
Injection Date  : 2/2/2017 11:41:32 AM          Inj :   1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:


Name                         |Value
-----------------------------|---------------------------------------
=========================================================================


RetTime  Type     Area      Amt/Area    Amount   Grp    Name
  [min]          [Hz*s]                  [ng/ul]
-------|------|----------|----------|----------|--|------------------
 13.798 BV     165.27083 1.34238e-3 2.21856e-1        1016#5
 16.154 BB     371.65009 6.30159e-4 2.34199e-1        1260#1
 16.530 VB     381.98624 6.13134e-4 2.34209e-1        1260#2
 17.188 BV     459.73468 4.99577e-4 2.29673e-1        1260#3
 17.335 VV     260.11435 9.24584e-4 2.40497e-1        1260#4
 17.873 BB     248.83839 9.16496e-4 2.28059e-1        1260#5
 21.438 BB     758.64673 7.34481e-5 5.57212e-2        dcbp

Totals :                            2.33556




Signal 2: ECD2 B,

RetTime  Type     Area      Amt/Area    Amount   Grp    Name
  [min]          [Hz*s]                  [ng/ul]
-------|------|----------|----------|----------|--|------------------
  8.563 BB     825.22705 2.85816e-5 2.35863e-2        tcmx
 10.181 BV     316.00793 7.56686e-4 2.39119e-1        1016#1
 11.519 VB      65.93283 3.20091e-3 2.11045e-1        1016#2
 11.750 BV      70.28287 3.01711e-3 2.12051e-1        1016#3
 11.797 VB      58.49398 3.66700e-3 2.14498e-1        1016#4
 12.890 BB     163.28340 1.22645e-3 2.00259e-1        1016#5
 14.425 VV     275.51465 8.67534e-4 2.39018e-1        1260#1
 15.447 BV     347.85193 6.68037e-4 2.32378e-1        1260#2
 15.608 VV     203.16814 1.19298e-3 2.42375e-1        1260#3
 16.043 BV     173.48642 1.39021e-3 2.41183e-1        1260#4
 16.587 VB     444.02090 5.33964e-4 2.37091e-1        1260#5
 18.973 VV     771.14417 8.62610e-5 6.65196e-2        dcbp

Totals :                            2.35912




1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

=========================================================================
                        Summed Peaks Report
=========================================================================
```

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\004F0501.D
Sample Name: ARO1660 L-3  0.20 ug/ml
=====================================================================
Acq. Operator   :                          Seq. Line :   5
Acq. Instrument : Instrument 1              Location : Vial 4
Injection Date  : 2/2/2017 11:41:32 AM          Inj :   1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:

Name                            |Value
--------------------------------|------------------------------------
=====================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,
=====================================================================
                    Final Summed Peaks Report
=====================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                    *** End of Report ***
```

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\005F0601.D
Sample Name: ARO1660 L-4 0.40 ug/ml

```
========================================================================
Acq. Operator   :                          Seq. Line :   6
Acq. Instrument : Instrument 1              Location : Vial 5
Injection Date  : 2/2/2017 12:09:51 PM          Inj :   1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)
```
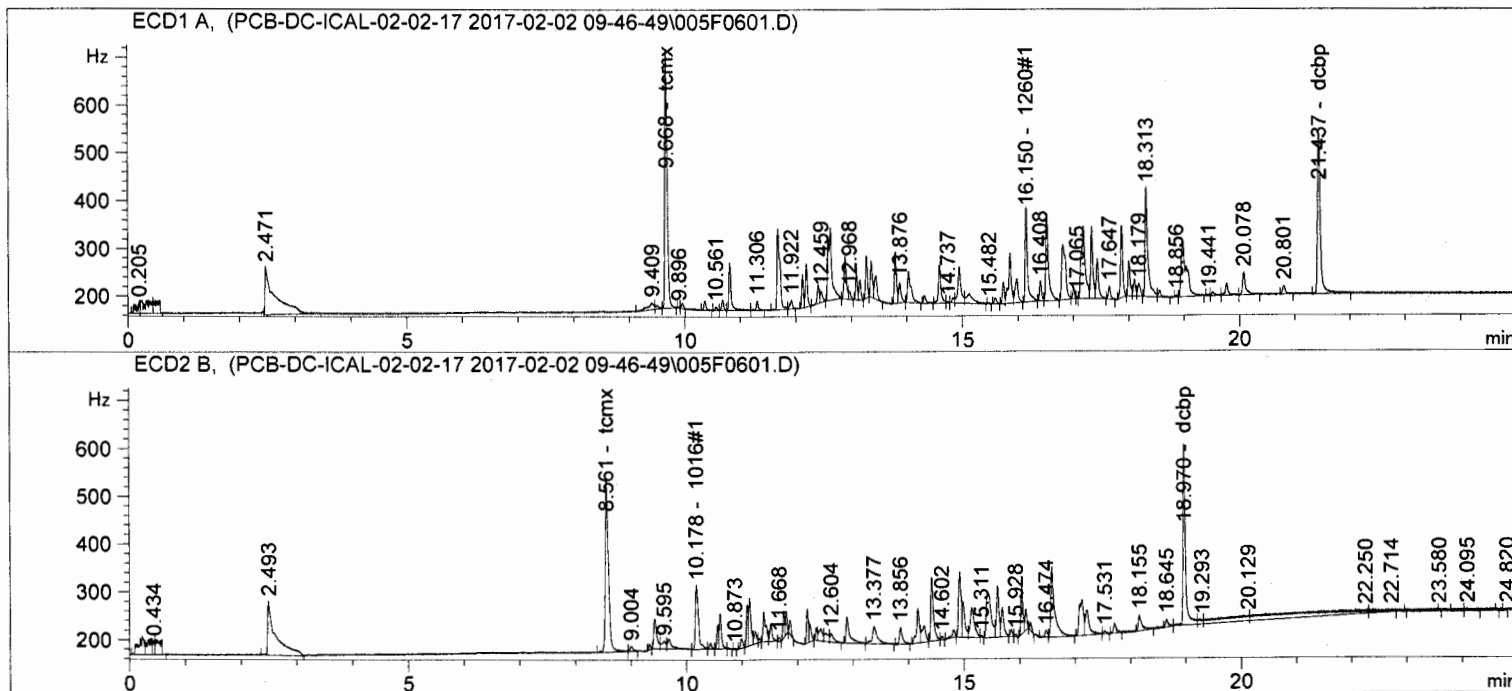
Sample-related custom fields:

```
Name                          |Value
------------------------------|---------------------------------------
========================================================================
```



```
========================================================================
                    External Standard Report
========================================================================
```

```
Sorted By          :      Signal
Calib. Data Modified :    2/4/2017 12:01:07 PM
Multiplier:              :       1.0000
Dilution:               :       1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.668	BB	1627.79553	2.71739e-5	4.42335e-2		tcmx
10.813	VV	302.45578	1.34849e-3	4.07859e-1		1016#1
12.191	VB	227.57130	1.73451e-3	3.94724e-1		1016#2
12.888	BV	268.75323	1.23778e-3	3.32658e-1		1016#3
13.441	VB	170.99023	2.23104e-3	3.81485e-1		1016#4

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\005F0601.D
Sample Name: ARO1660 L-4 0.40 ug/ml

==

```
Acq. Operator   :                           Seq. Line :   6
Acq. Instrument : Instrument 1              Location : Vial 5
Injection Date  : 2/2/2017 12:09:51 PM           Inj :   1
                                          Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                    (modified after loading)
```

Sample-related custom fields:

Name	Value

==

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.796	BV	283.59225	1.35731e-3	3.84923e-1		1016#5
16.150	BB	607.95355	6.52016e-4	3.96395e-1		1260#1
16.525	VB	621.85382	6.34000e-4	3.94255e-1		1260#2
17.181	BV	764.41290	5.08556e-4	3.88747e-1		1260#3
17.332	VV	419.93045	9.57696e-4	4.02166e-1		1260#4
17.870	BB	414.62775	9.38195e-4	3.89002e-1		1260#5
21.437	BB	1272.42151	8.07658e-5	1.02768e-1		dcbp

Totals :   4.01922

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.561	BB	1481.63000	3.00751e-5	4.45602e-2		tcmx
10.178	BV	529.70923	7.73107e-4	4.09522e-1		1016#1
11.516	VB	113.14131	3.14809e-3	3.56179e-1		1016#2
11.747	BV	119.26826	3.11089e-3	3.71031e-1		1016#3
11.794	VB	102.41528	3.77046e-3	3.86153e-1		1016#4
12.889	BB	253.31912	1.39015e-3	3.52152e-1		1016#5
14.419	VV	453.46390	8.81698e-4	3.99818e-1		1260#1
15.422	BV	588.10986	6.56400e-4	3.86035e-1		1260#2
15.602	VV	332.33963	1.17932e-3	3.91933e-1		1260#3
16.038	BV	262.94757	1.36378e-3	3.58603e-1		1260#4
16.582	VB	729.09674	5.33811e-4	3.89200e-1		1260#5
18.970	BV	1137.59155	9.04869e-5	1.02937e-1		dcbp

Totals :   3.94812

1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==
                    Summed Peaks Report
==

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\005F0601.D
Sample Name: ARO1660 L-4  0.40 ug/ml
========================================================================
Acq. Operator   :                           Seq. Line :   6
Acq. Instrument : Instrument 1               Location : Vial 5
Injection Date  : 2/2/2017 12:09:51 PM           Inj :   1
                                             Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:

Name                           |Value
-------------------------------|---------------------------------------
========================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,
========================================================================
                    Final Summed Peaks Report
========================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                    *** End of Report ***
```
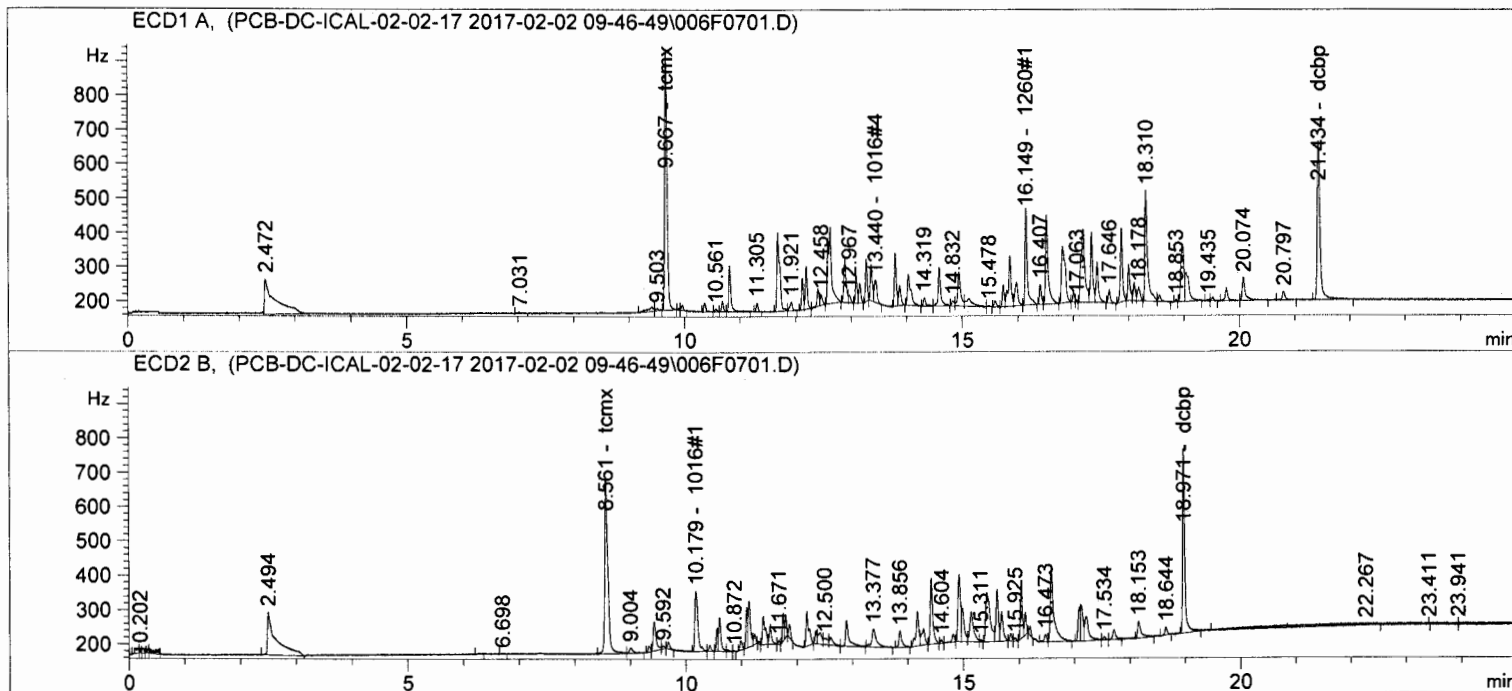
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\006F0701.D
Sample Name: ARO1660 L-5 0.50 ug/ml

===
Acq. Operator   :   Seq. Line :   7
Acq. Instrument : Instrument 1   Location : Vial 6
Injection Date   : 2/2/2017 12:38:17 PM   Inj :   1
                                          Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/4/2017 12:01:27 PM
                   (modified after loading)

Sample-related custom fields:

Name	Value
===

===
                    External Standard Report
===

Sorted By   :   Signal
Calib. Data Modified :   2/4/2017 12:01:07 PM
Multiplier: :   1.0000
Dilution: :   1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A,

RetTime Type   Area   Amt/Area   Amount   Grp   Name
 [min]   [Hz*s]   [ng/ul]
-------|------|----------|----------|----------|--|------------------
  9.667 BB   2206.96460 2.79566e-5 6.16992e-2   tcmx
 10.813 VB   398.85934 1.36267e-3 5.43514e-1   1016#1
 12.191 VB   305.83530 1.75024e-3 5.35284e-1   1016#2
 12.888 BV   384.24619 1.16266e-3 4.46747e-1   1016#3
 13.440 VB   232.31718 2.29018e-3 5.32048e-1   1016#4

Instrument 1 2/4/2017 12:46:16 PM   4Page 1081 1 of 3

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\006F0701.D
Sample Name: ARO1660 L-5  0.50 ug/ml
==================================================================
Acq. Operator   :                          Seq. Line :   7
Acq. Instrument : Instrument 1              Location : Vial 6
Injection Date  : 2/2/2017 12:38:17 PM           Inj :   1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:


Name                          |Value
------------------------------|------------------------------------
------------------------------|------------------------------------
==================================================================


RetTime  Type     Area      Amt/Area     Amount    Grp    Name
 [min]            [Hz*s]                  [ng/ul]
-------|------|----------|----------|-----------|--|--------------------
 13.797 BV     390.31989 1.36301e-3 5.32011e-1        1016#5
 16.149 BB     827.33044 6.61131e-4 5.46974e-1        1260#1
 16.522 VB     854.13269 6.43037e-4 5.49239e-1        1260#2
 17.180 BV    1061.27917 5.12346e-4 5.43742e-1        1260#3
 17.331 VV     570.16553 9.71896e-4 5.54142e-1        1260#4
 17.869 BB     574.65411 9.47264e-4 5.44349e-1        1260#5
 21.434 BB    1713.97717 8.35495e-5 1.43202e-1        dcbp

Totals :                             5.53295



Signal 2: ECD2 B,

RetTime  Type     Area      Amt/Area     Amount    Grp    Name
 [min]            [Hz*s]                  [ng/ul]
-------|------|----------|----------|-----------|--|--------------------
  8.561 BV    2034.65710 3.05855e-5 6.22309e-2        tcmx
 10.179 BV     701.95435 7.79065e-4 5.46868e-1        1016#1
 11.517 VB     166.41948 3.12447e-3 5.19973e-1        1016#2
 11.749 BV     167.39635 3.14958e-3 5.27229e-1        1016#3
 11.796 VB     138.32378 3.80623e-3 5.26492e-1        1016#4
 12.891 BB     343.96219 1.46839e-3 5.05070e-1        1016#5
 14.419 BB     605.28107 8.87198e-4 5.37004e-1        1260#1
 15.419 BV     827.11469 6.51531e-4 5.38891e-1        1260#2
 15.603 VV     457.88135 1.17342e-3 5.37289e-1        1260#3
 16.038 BV     375.32373 1.34844e-3 5.06101e-1        1260#4
 16.582 VB    1017.59302 5.33744e-4 5.43134e-1        1260#5
 18.971 BB    1481.07349 9.25492e-5 1.37072e-1        dcbp

Totals :                             5.48735



1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==================================================================
                     Summed Peaks Report
==================================================================
```
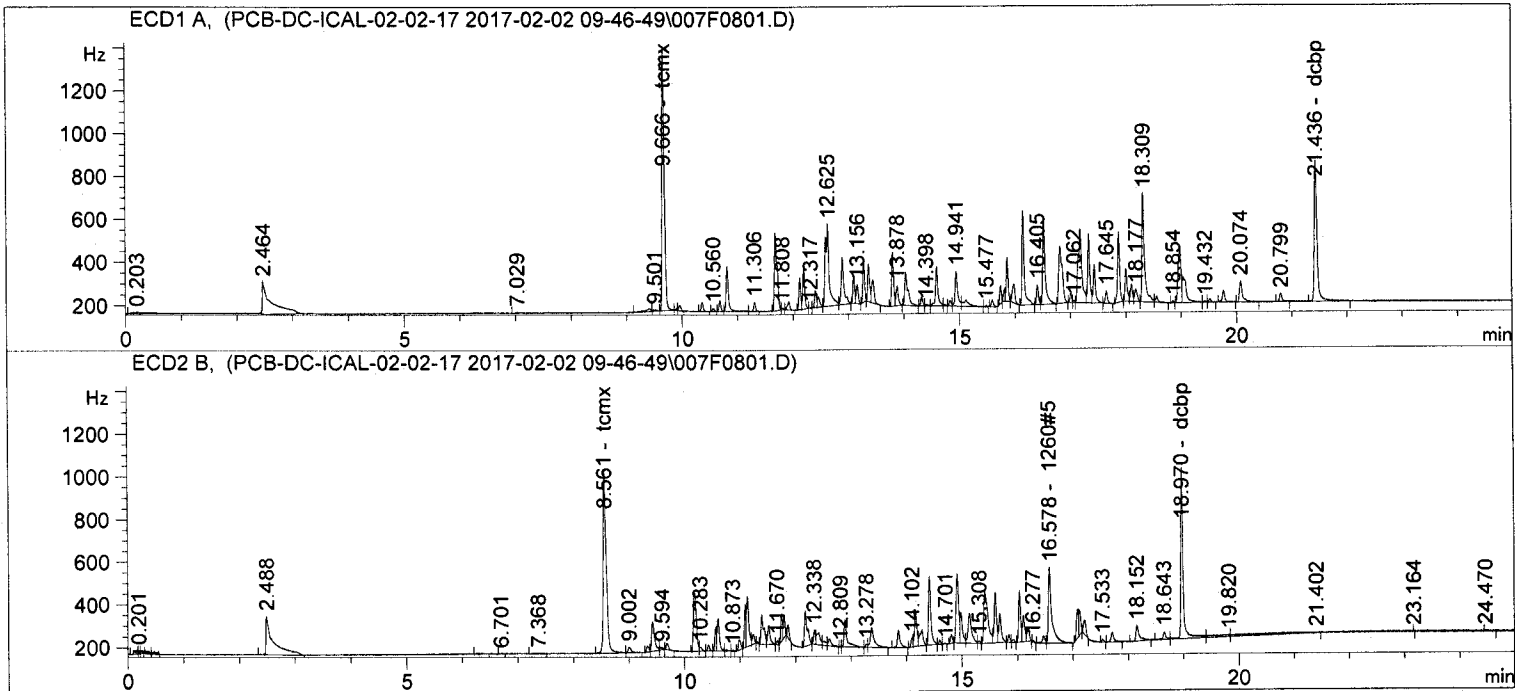
```
========================================================================
Acq. Operator   :                        Seq. Line :   7
Acq. Instrument : Instrument 1            Location : Vial 6
Injection Date  : 2/2/2017 12:38:17 PM        Inj :   1
                                       Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:

Name                           |Value
-------------------------------|--------------------------------------
-------------------------------------------------------------------------

Signal 1: ECD1 A,
Signal 2: ECD2 B,
========================================================================
                     Final Summed Peaks Report
========================================================================


Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                  *** End of Report ***
```

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\007F0801.D
Sample Name: ARO1660 L-6 0.80 ug/ml

==
Acq. Operator   :   Seq. Line :   8
Acq. Instrument : Instrument 1   Location : Vial 7
Injection Date : 2/2/2017 1:06:34 PM   Inj :   1
                                         Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/4/2017 12:01:27 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
==

==
                    External Standard Report
==

Sorted By   :   Signal
Calib. Data Modified :   2/4/2017 12:01:07 PM
Multiplier: :   1.0000
Dilution: :   1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.666	BB	3611.21997	2.88120e-5	1.04046e-1		tcmx
10.812	BV	607.48187	1.37795e-3	8.37079e-1		1016#1
12.191	VB	483.11618	1.76702e-3	8.53675e-1		1016#2
12.889	VB	780.29901	1.07393e-3	8.37988e-1		1016#3
13.440	VB	366.31177	2.35050e-3	8.61016e-1		1016#4

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\007F0801.D
Sample Name: ARO1660 L-6  0.80 ug/ml
=====================================================================
  Acq. Operator   :                         Seq. Line :   8
  Acq. Instrument : Instrument 1             Location : Vial 7
  Injection Date  : 2/2/2017 1:06:34 PM           Inj :   1
                                            Inj Volume : 1 µl
  Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
  Last changed    : 2/2/2017 9:17:18 AM
  Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
  Last changed    : 2/4/2017 12:01:27 PM
                    (modified after loading)


  Sample-related custom fields:


  Name                           |Value
  -------------------------------|-------------------------------------
  =====================================================================
```
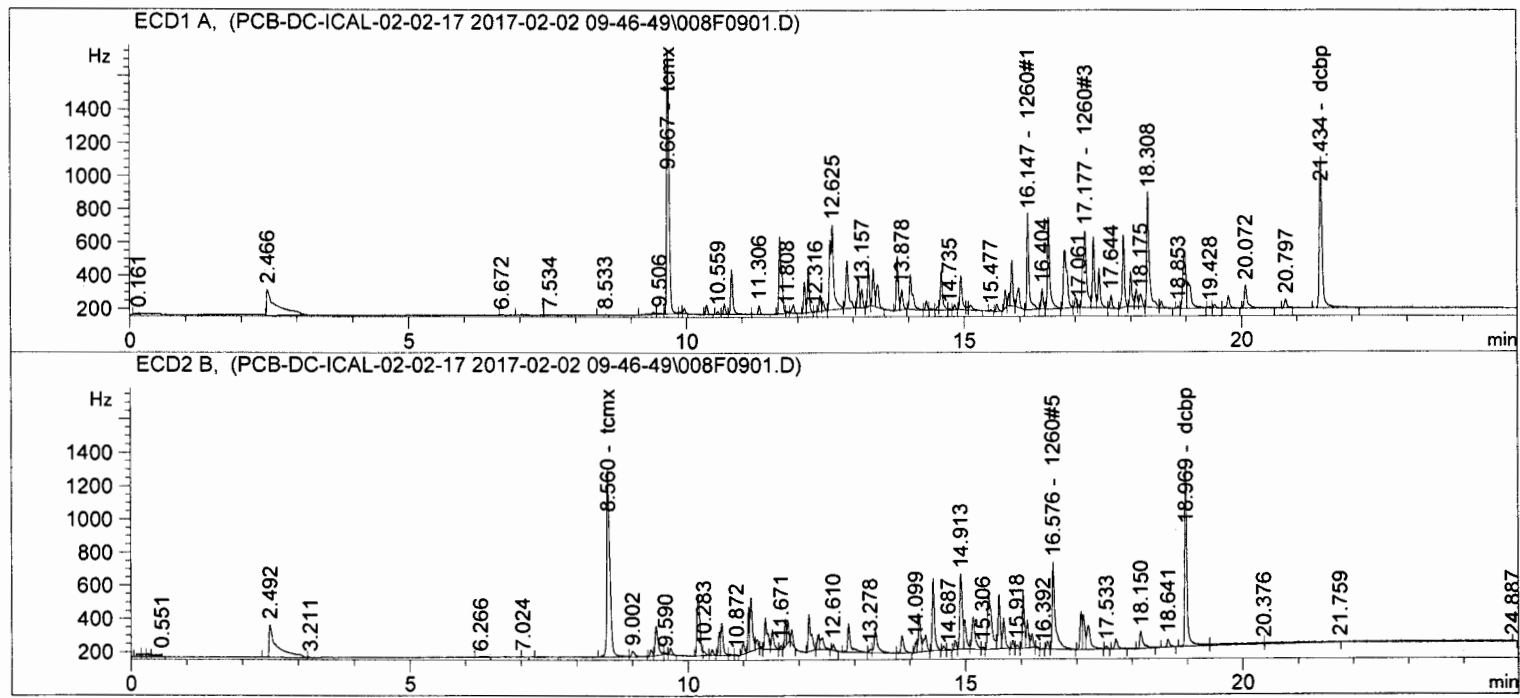
RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.797	BV	620.75989	1.36864e-3	8.49595e-1		1016#5
16.148	BB	1263.44910	6.69850e-4	8.46322e-1		1260#1
16.521	VB	1288.69629	6.51195e-4	8.39192e-1		1260#2
17.179	BV	1606.29626	5.15657e-4	8.28298e-1		1260#3
17.330	VV	847.60712	9.84888e-4	8.34798e-1		1260#4
17.869	BB	864.52429	9.55143e-4	8.25744e-1		1260#5
21.436	BB	2392.86035	8.58254e-5	2.05368e-1		dcbp

```
  Totals :                                  8.72312



Signal 2: ECD2 B,
```

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.561	BV	3333.47534	3.11182e-5	1.03732e-1		tcmx
10.178	BV	1040.15930	7.85023e-4	8.16549e-1		1016#1
11.515	VB	268.91815	3.10535e-3	8.35085e-1		1016#2
11.748	BV	263.64011	3.18458e-3	8.39584e-1		1016#3
11.795	VB	212.33279	3.84179e-3	8.15737e-1		1016#4
12.889	VB	510.63098	1.53975e-3	7.86246e-1		1016#5
14.415	BB	935.53326	8.92998e-4	8.35429e-1		1260#1
15.413	BV	1275.41736	6.47320e-4	8.25603e-1		1260#2
15.600	VV	685.35419	1.16825e-3	8.00663e-1		1260#3
16.036	BV	615.64844	1.33442e-3	8.21535e-1		1260#4
16.578	VB	1525.74072	5.33687e-4	8.14268e-1		1260#5
18.970	VV	2318.94556	9.50172e-5	2.20340e-1		dcbp

```
  Totals :                                  8.51477



  1 Warnings or Errors :

  Warning : Calibration warnings (see calibration table listing)

  =====================================================================
                         Summed Peaks Report
  =====================================================================
```

==
Acq. Operator   :   Seq. Line :   8
Acq. Instrument : Instrument 1   Location : Vial 7
Injection Date : 2/2/2017 1:06:34 PM   Inj :   1
                                               Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/4/2017 12:01:27 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,
==
                        Final Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                        *** End of Report ***

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\008F0901.D
Sample Name: ARO1660 L-7 1.0 ug/ml

```
================================================================
Acq. Operator   :                        Seq. Line :   9
Acq. Instrument : Instrument 1            Location : Vial 8
Injection Date  : 2/2/2017 1:34:54 PM         Inj :   1
                                        Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)
```

Sample-related custom fields:

```
Name                          |Value
------------------------------|---------------------------------------
================================================================
```



```
================================================================
                  External Standard Report
================================================================
```

```
Sorted By            :      Signal
Calib. Data Modified :      2/4/2017 12:01:07 PM
Multiplier:                 :        1.0000
Dilution:                   :        1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.667	BB	4645.08447	2.91112e-5	1.35224e-1		tcmx
10.812	VV	779.70172	1.38440e-3	1.07942		1016#1
12.192	VB	610.39368	1.77306e-3	1.08226		1016#2
12.889	VB	1007.81201	1.05450e-3	1.06274		1016#3
13.441	VB	471.21255	2.37378e-3	1.11856		1016#4

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\008F0901.D
Sample Name: ARO1660 L-7  1.0 ug/ml
   ====================================================================
   Acq. Operator   :                         Seq. Line :   9
   Acq. Instrument : Instrument 1             Location : Vial 8
   Injection Date  : 2/2/2017 1:34:54 PM          Inj :   1
                                             Inj Volume : 1 µl
   Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
   Last changed    : 2/2/2017 9:17:18 AM
   Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
   Last changed    : 2/4/2017 12:01:27 PM
                     (modified after loading)


   Sample-related custom fields:


   Name                          |Value
   ------------------------------|-------------------------------------
   ====================================================================


   RetTime  Type      Area     Amt/Area     Amount    Grp    Name
    [min]            [Hz*s]                  [ng/ul]
   -------|------|----------|----------|----------|--|------------------
    13.797 BV      806.93866 1.37083e-3    1.10618         1016#5
    16.147 BB     1637.17297 6.73626e-4    1.10284         1260#1
    16.520 VB     1685.67078 6.54971e-4    1.10407         1260#2
    17.177 BV     2130.68970 5.17244e-4    1.10209         1260#3
    17.329 VV     1103.11243 9.91073e-4    1.09326         1260#4
    17.869 BB     1143.72302 9.58956e-4    1.09678         1260#5
    21.434 BB     3242.62109 8.73311e-5 2.83182e-1         dcbp

   Totals :                                11.36660




   Signal 2: ECD2 B,

   RetTime  Type      Area     Amt/Area     Amount    Grp    Name
    [min]            [Hz*s]                  [ng/ul]
   -------|------|----------|----------|----------|--|------------------
     8.560 BV     4314.39014 3.13080e-5 1.35075e-1         tcmx
    10.178 BV     1323.39771 7.87669e-4    1.04240         1016#1
    11.516 VB      361.76962 3.09739e-3    1.12054         1016#2
    11.749 BV      346.14587 3.19909e-3    1.10735         1016#3
    11.795 VB      288.07773 3.85926e-3    1.11177         1016#4
    12.890 BB      666.13879 1.57414e-3    1.04859         1016#5
    14.414 BB     1230.66602 8.95547e-4    1.10212         1260#1
    15.411 BV     1742.29517 6.45238e-4    1.12419         1260#2
    15.599 VV      905.62823 1.16571e-3    1.05570         1260#3
    16.035 BV      841.23340 1.32855e-3    1.11762         1260#4
    16.576 VB     2022.94092 5.33659e-4    1.07956         1260#5
    18.969 BV     3040.84839 9.60529e-5 2.92082e-1         dcbp

   Totals :                                11.33701




   1 Warnings or Errors :

   Warning : Calibration warnings (see calibration table listing)

   ====================================================================
                           Summed Peaks Report
   ====================================================================
```
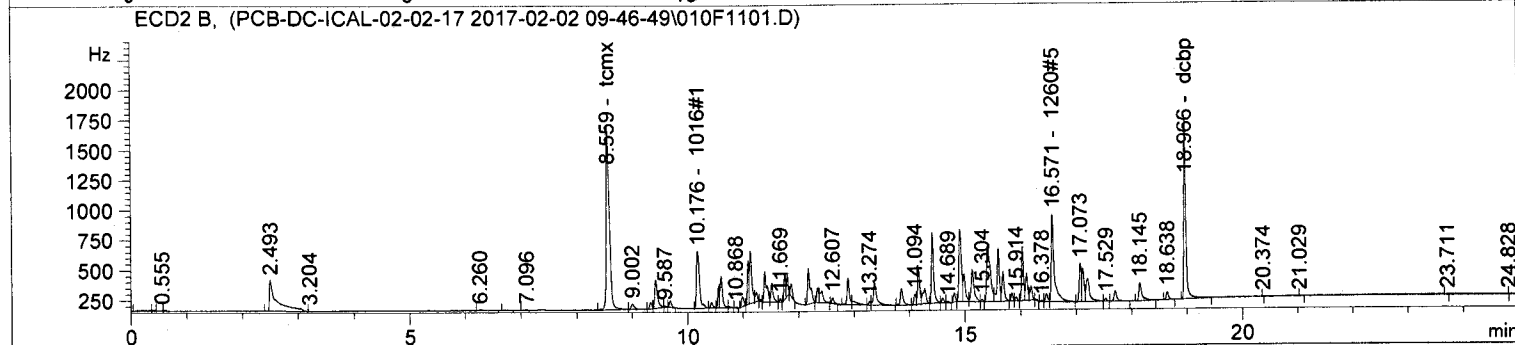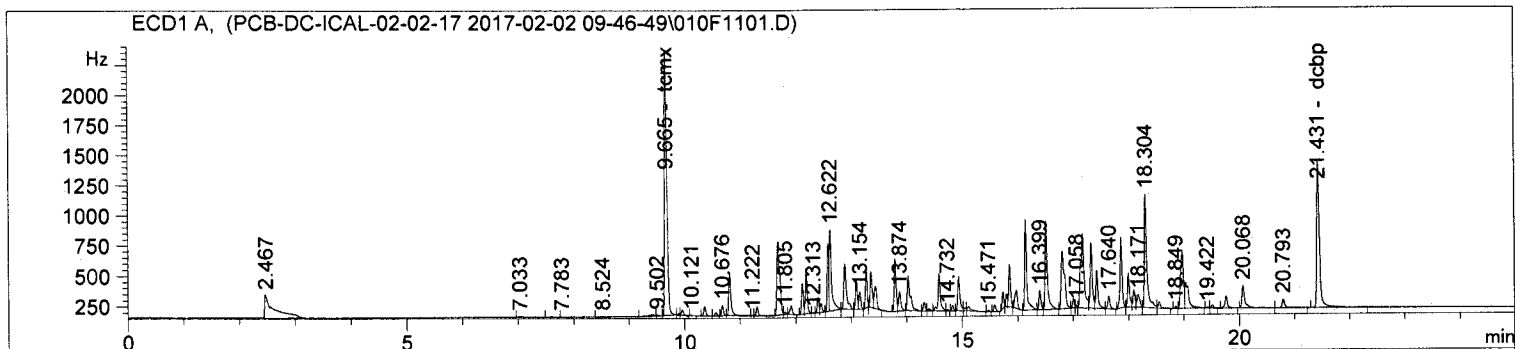
```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\008F0901.D
Sample Name: ARO1660 L-7  1.0 ug/ml
========================================================================
Acq. Operator   :                        Seq. Line :   9
Acq. Instrument : Instrument 1            Location : Vial 8
Injection Date  : 2/2/2017 1:34:54 PM          Inj :   1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:

Name                           |Value
-------------------------------|--------------------------------------
========================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,
========================================================================
                       Final Summed Peaks Report
========================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                      *** End of Report ***
```

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\010F1101.D
Sample Name: ARO1660 L-9 1.6 ug/ml

```
==================================================================
Acq. Operator   :                        Seq. Line :   11
Acq. Instrument : Instrument 1            Location : Vial 10
Injection Date  : 2/2/2017 2:31:40 PM          Inj :    1
                                        Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)
```
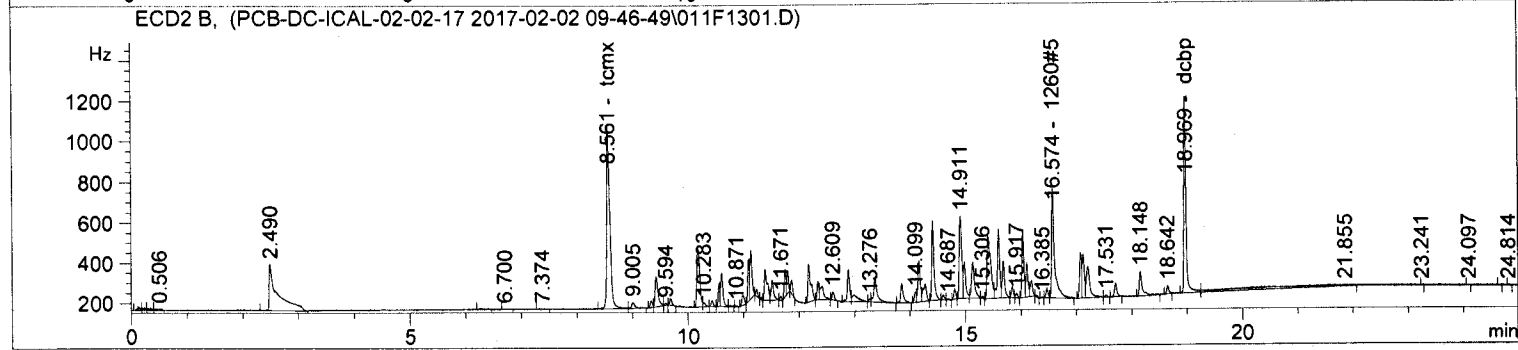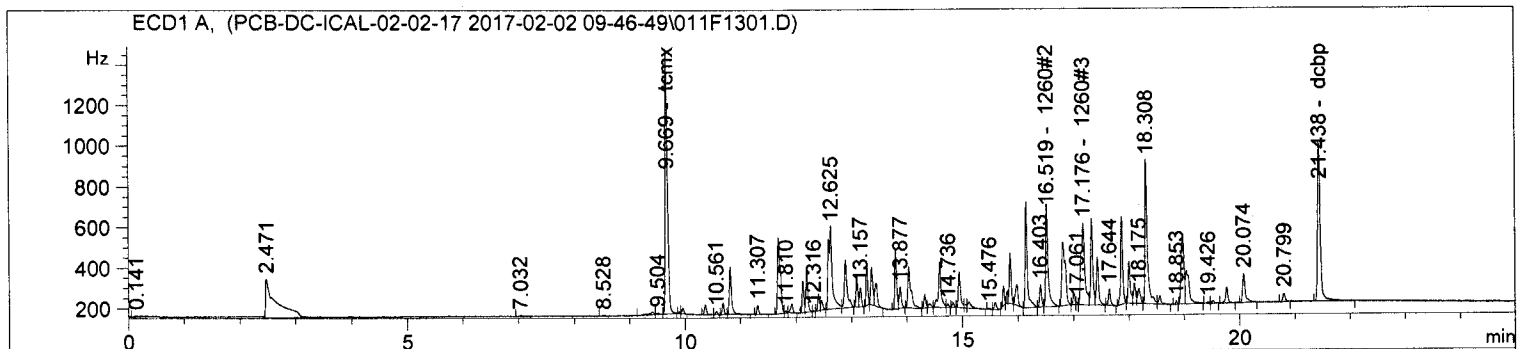
Sample-related custom fields:

```
Name                          |Value
------------------------------|-------------------------------------
==================================================================
```



```
==================================================================
                  External Standard Report
==================================================================
```

```
Sorted By             :       Signal
Calib. Data Modified  :       2/4/2017 12:01:07 PM
Multiplier:                   :       1.0000
Dilution:                     :       1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.665	BB	6572.57764	2.94177e-5	1.93350e-1		tcmx
10.810	BV	1038.98389	1.39008e-3	1.44427		1016#1
12.189	VB	806.11359	1.77862e-3	1.43377		1016#2
12.886	BB	1266.08301	1.04090e-3	1.31787		1016#3
13.437	VB	593.09564	2.39049e-3	1.41779		1016#4

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\010F1101.D
Sample Name: ARO1660 L-9 1.6 ug/ml
===

Acq. Operator	:		Seq. Line : 11
Acq. Instrument	: Instrument 1		Location : Vial 10
Injection Date	: 2/2/2017 2:31:40 PM		Inj : 1
			Inj Volume : 1 µl

Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/4/2017 12:01:27 PM
                 (modified after loading)

Sample-related custom fields:

Name	Value
----------------------------	-------------------------------------

===

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.793	BV	1038.96777	1.37247e-3	1.42595		1016#5
16.143	BB	2064.54590	6.76268e-4	1.39619		1260#1
16.515	VB	2132.71899	6.57541e-4	1.40235		1260#2
17.172	BV	2752.11230	5.18342e-4	1.42653		1260#3
17.326	VV	1407.14417	9.95505e-4	1.40082		1260#4
17.864	BB	1493.32056	9.61720e-4	1.43616		1260#5
21.431	BB	4334.11621	8.83990e-5	3.83131e-1		dcbp

Totals :   14.67818

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.559	BV	6113.37256	3.14977e-5	1.92557e-1		tcmx
10.176	BV	1851.14429	7.90440e-4	1.46322		1016#1
11.513	VB	475.18155	3.09188e-3	1.46920		1016#2
11.747	BV	449.65909	3.20977e-3	1.44330		1016#3
11.793	VB	373.87631	3.87050e-3	1.44709		1016#4
12.886	BV	642.66827	1.57001e-3	1.00900		1016#5
14.409	BB	1572.59192	8.97304e-4	1.41109		1260#1
15.404	BV	2190.16748	6.44075e-4	1.41063		1260#2
15.594	VV	1276.50427	1.16342e-3	1.48511		1260#3
16.031	BV	1109.14648	1.32468e-3	1.46927		1260#4
16.571	VB	2730.64697	5.33636e-4	1.45717		1260#5
18.966	BB	3934.55151	9.68086e-5	3.80898e-1		dcbp

Totals :   14.63854

1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

===
                        Summed Peaks Report
===

```
========================================================================
Acq. Operator   :                        Seq. Line :  11
Acq. Instrument : Instrument 1            Location : Vial 10
Injection Date  : 2/2/2017 2:31:40 PM         Inj :   1
                                       Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:

Name                          |Value
------------------------------|---------------------------------------
------------------------------|---------------------------------------
========================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,
========================================================================
                     Final Summed Peaks Report
========================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                    *** End of Report ***
```
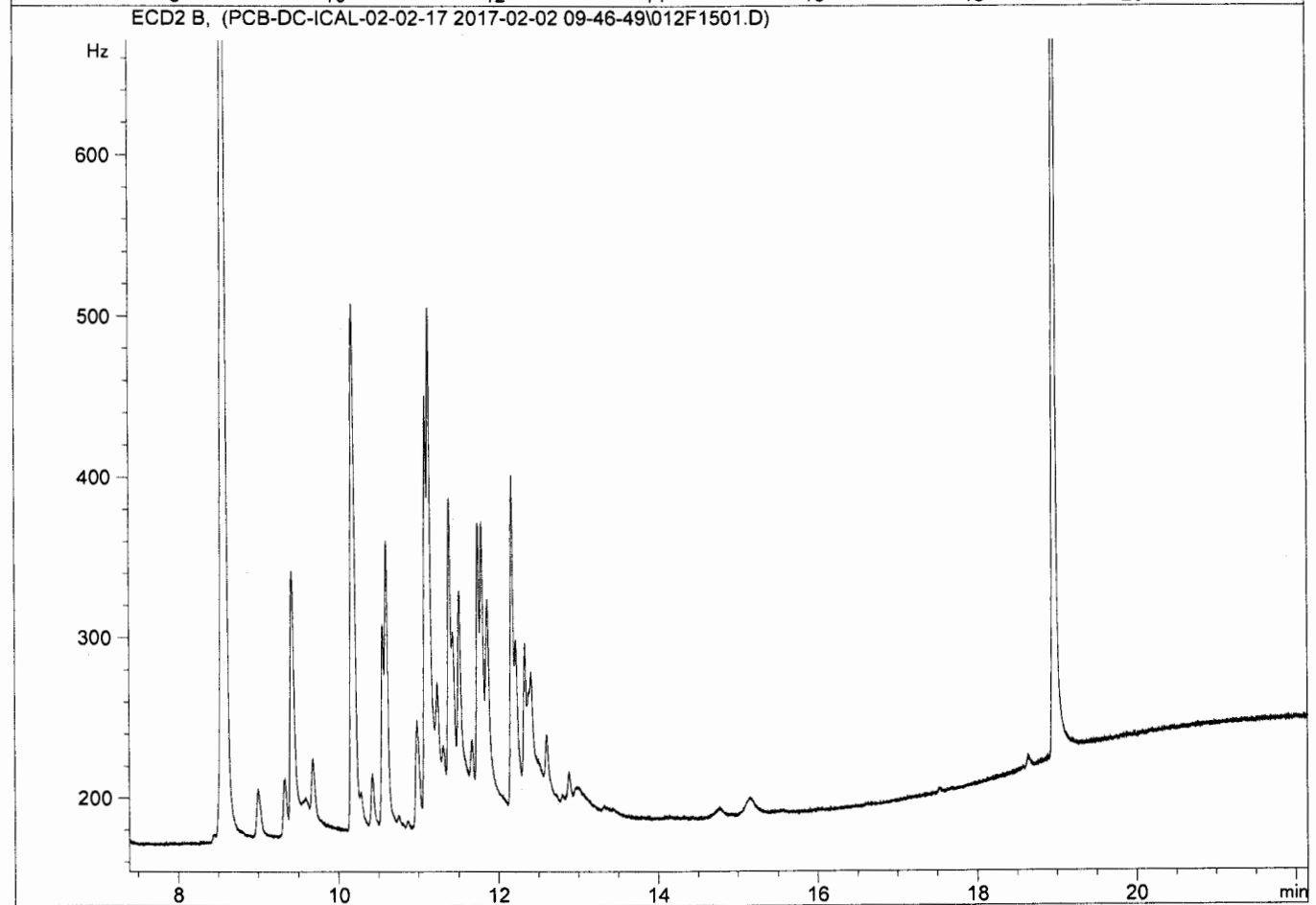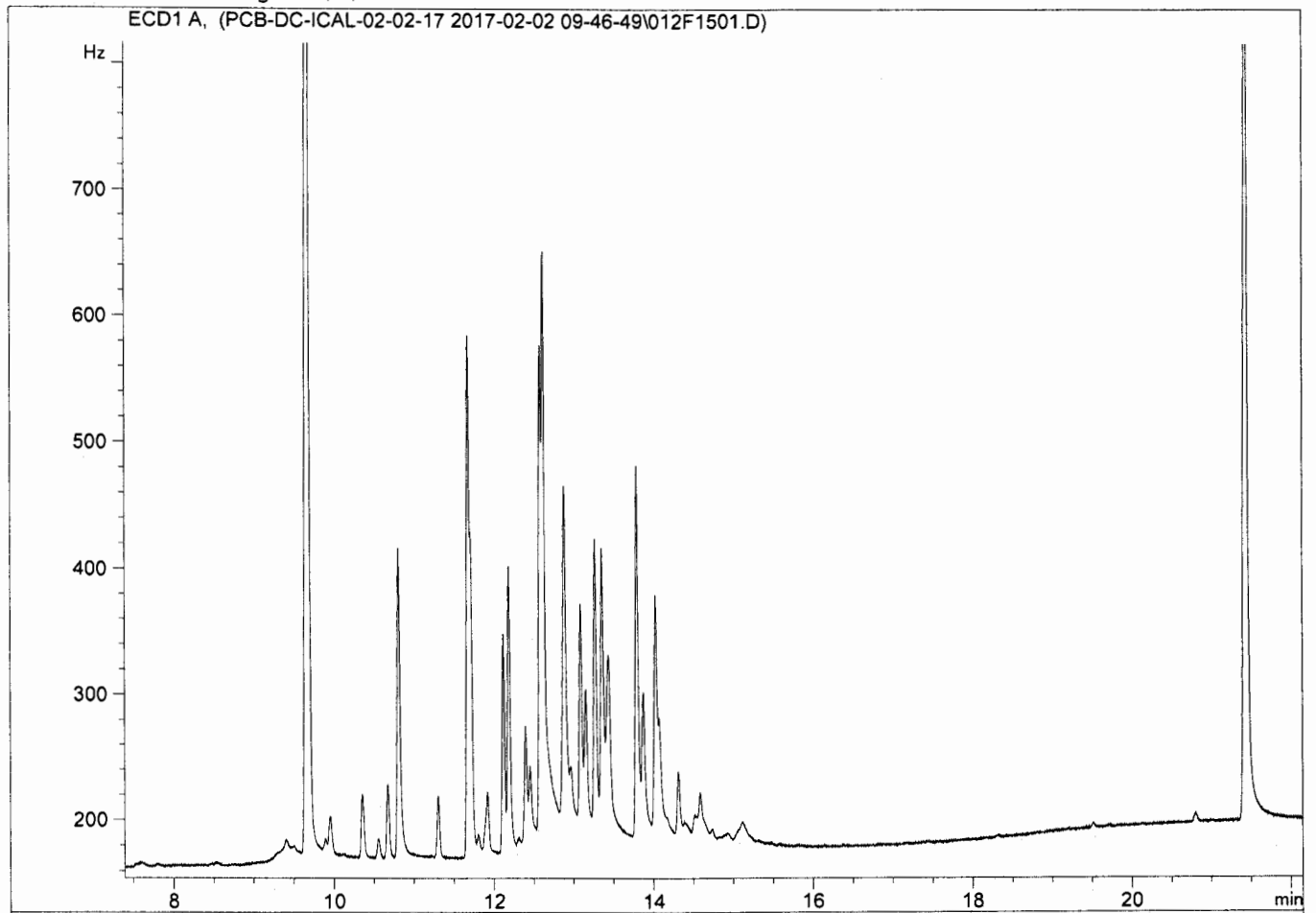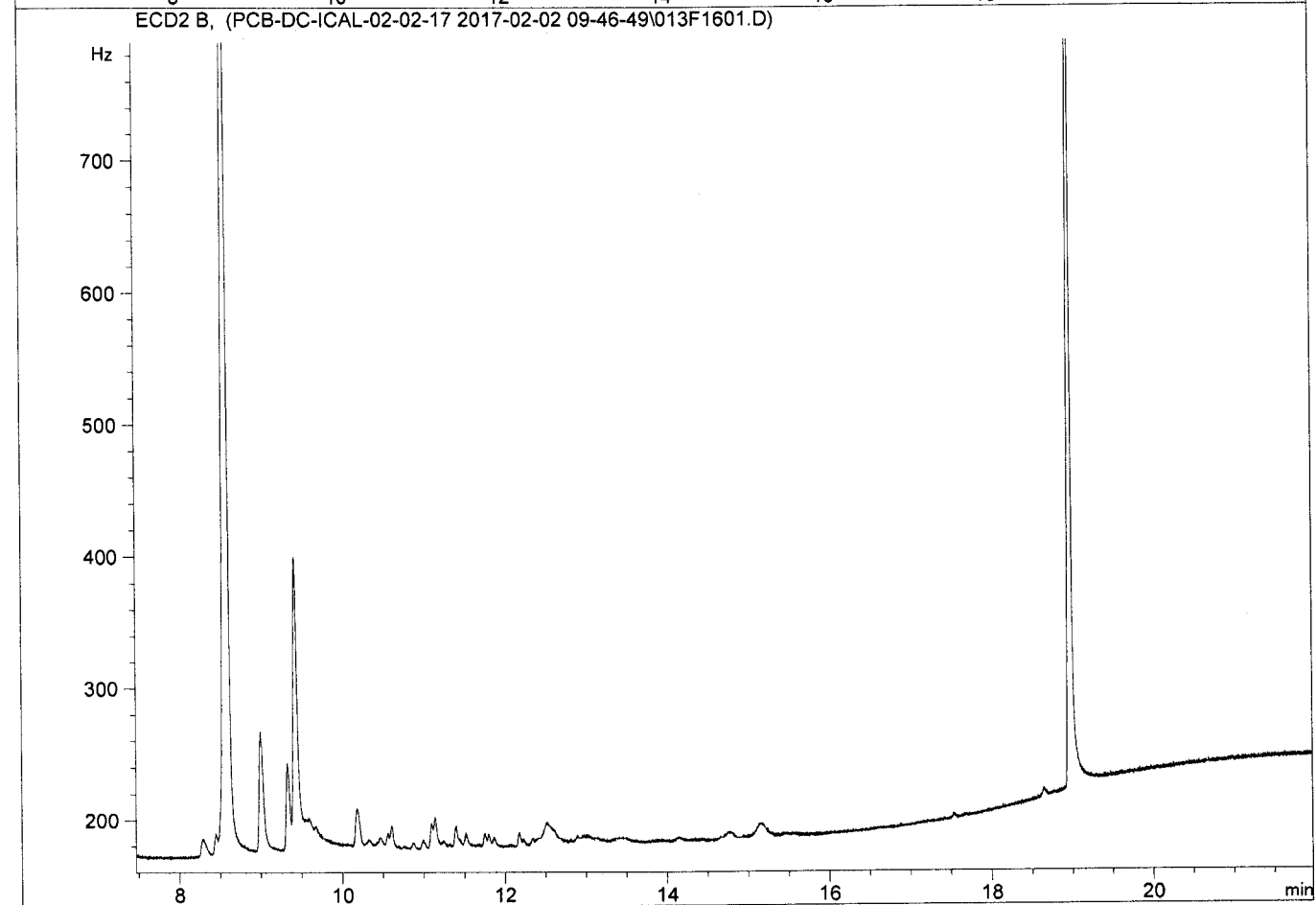
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\011F1301.D
Sample Name: aro1660 2nd source 1.0 ug/ml

==
Acq. Operator   :   Seq. Line : 13
Acq. Instrument : Instrument 1   Location : Vial 11
Injection Date : 2/2/2017 3:28:27 PM   Inj :   1
                                       Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/4/2017 12:01:27 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
==

==
                    External Standard Report
==

Sorted By   :   Signal
Calib. Data Modified :   2/4/2017 12:01:07 PM
Multiplier: :   1.0000
Dilution: :   1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.669	BB	3911.39722	2.89152e-5	1.13099e-1		tcmx
10.814	BB	658.34851	1.38021e-3	9.08656e-1		1016#1
12.192	VB	508.63663	1.76847e-3	8.99509e-1		1016#2
12.889	VB	833.19055	1.06847e-3	8.90237e-1		1016#3
13.440	VB	385.41025	2.35568e-3	9.07904e-1		1016#4

```
Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\011F1301.D
Sample Name: aro1660 2nd source 1.0 ug/ml
==============================================================================
Acq. Operator   :                              Seq. Line :  13
Acq. Instrument : Instrument 1                  Location : Vial 11
Injection Date  : 2/2/2017 3:28:27 PM               Inj :   1
                                              Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 12:01:27 PM
                  (modified after loading)


Sample-related custom fields:


Name                         |Value
-----------------------------|---------------------------------------
==============================================================================


RetTime  Type    Area      Amt/Area    Amount   Grp    Name
 [min]          [Hz*s]                 [ng/ul]
-------|------|----------|----------|----------|--|------------------
 13.797 BV      681.89221 1.36949e-3 9.33845e-1        1016#5
 16.146 BB     1469.14258 6.72166e-4 9.87508e-1        1260#1
 16.519 VB     1530.17944 6.53725e-4   1.00032         1260#2
 17.176 BV     1877.39685 5.16588e-4 9.69841e-1        1260#3
 17.330 VV     1101.95691 9.91051e-4   1.09210         1260#4
 17.868 BB     1114.52246 9.58646e-4   1.06843         1260#5
 21.438 BB     2763.13965 8.65954e-5 2.39275e-1        dcbp

Totals :                              10.01072




Signal 2: ECD2 B,

RetTime  Type    Area      Amt/Area    Amount   Grp    Name
 [min]          [Hz*s]                 [ng/ul]
-------|------|----------|----------|----------|--|------------------
  8.561 BV     3638.59888 3.11882e-5 1.13481e-1        tcmx
 10.179 BV     1090.96118 7.85598e-4 8.57057e-1        1016#1
 11.516 VB      301.25955 3.10202e-3 9.34513e-1        1016#2
 11.749 BV      294.46246 3.19095e-3 9.39616e-1        1016#3
 11.796 VB      238.40269 3.84905e-3 9.17624e-1        1016#4
 12.888 BV      476.12430 1.52908e-3 7.28033e-1        1016#5
 14.412 BB     1113.35889 8.94695e-4 9.96117e-1        1260#1
 15.408 BV     1484.64771 6.46225e-4 9.59416e-1        1260#2
 15.597 VV      998.01868 1.16498e-3   1.16267         1260#3
 16.033 BV      847.64221 1.32843e-3   1.12603         1260#4
 16.574 VB     2005.80200 5.33659e-4   1.07042         1260#5
 18.969 BV     2575.28711 9.54515e-5 2.45815e-1        dcbp

Totals :                              10.05080




2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Elution order of calibrated compounds may have changed


==============================================================================
                        Summed Peaks Report
```

Data File C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\011F1301.D
Sample Name: aro1660 2nd source 1.0 ug/ml

```
==================================================================
Acq. Operator    :                         Seq. Line :  13
Acq. Instrument  : Instrument 1            Location : Vial 11
Injection Date   : 2/2/2017 3:28:27 PM         Inj :   1
                                         Inj Volume : 1 µl
Acq. Method      : C:\CHEM32\1\DATA\PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\DC-8082-MASTER.M
Last changed     : 2/2/2017 9:17:18 AM
Analysis Method  : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed     : 2/4/2017 12:01:27 PM
                   (modified after loading)
```

Sample-related custom fields:

```
Name                          |Value
------------------------------|-------------------------------------
------------------------------|-------------------------------------
==================================================================


==================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,
```
==================================================================
                   Final Summed Peaks Report
==================================================================
```

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                   *** End of Report ***

Print of window 38: Current Chromatogram(s)

Current Chromatogram(s)

ECD1 A, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\012F1501.D)

ECD2 B, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\012F1501.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\013F1601.D)

ECD2 B, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\013F1601.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\014F1701.D)

ECD2 B, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\014F1701.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\015F1801.D)

ECD2 B, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\015F1801.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\016F1901.D)

ECD2 B, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\016F1901.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\017F2001.D)

ECD2 B, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\017F2001.D)

Current Chromatogram(s)

ECD1 A, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\018F2101.D)

ECD2 B, (PCB-DC-ICAL-02-02-17 2017-02-02 09-46-49\018F2101.D)

Method C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M

```
=====================================================================
                          Calibration Table
=====================================================================
```

Calib. Data Modified :   2/15/2017 1:50:53 PM

Rel. Reference Window :   5.000 %
Abs. Reference Window :   0.000 min
Rel. Non-ref. Window :   5.000 %
Abs. Non-ref. Window :   0.000 min
Uncalibrated Peaks   :   not reported
Partial Calibration   :   Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type   :   Linear
Origin   :   Ignored
Weight   :   Linear (Amnt)

Recalibration Settings:
Average Response   :   Average all calibrations
Average Retention Time: Average all calibrations

Calibration Report Options :
     Printout of recalibrations within a sequence:
          Calibration Table after Recalibration
          Normal Report after Recalibration
     If the sequence is done with bracketing:
          Results of first cycle (ending previous bracket)

Signal 1: ECD1 A,
Signal 2: ECD2 B,

RetTime Lvl   Amount   Area   Amt/Area Ref Grp Name
 [min] Sig   [ng/ul]
-------|--|--|----------|----------|----------|---|--|----------------
  8.546 2   1 5.00000e-3 300.18878 1.66562e-5   TCMX
            2 1.00000e-2 651.31531 1.53535e-5
            3 2.00000e-2 967.38239 2.06743e-5
            4 4.00000e-2 2226.20654 1.79678e-5
            6 8.00000e-2 5367.72070 1.49039e-5
            7 1.00000e-1 7083.89990 1.41165e-5
            8 1.20000e-1 7090.01611 1.69252e-5
            9 1.60000e-1 9663.43164 1.65573e-5
  9.659 1   1 5.00000e-3 378.00626 1.32273e-5   TCMX
            2 1.00000e-2 758.30237 1.31874e-5
            3 2.00000e-2 1158.98267 1.72565e-5
            4 4.00000e-2 2528.88843 1.58172e-5
            6 8.00000e-2 5937.22510 1.34743e-5
            7 1.00000e-1 7794.66650 1.28293e-5
            8 1.20000e-1 7826.12842 1.53333e-5
            9 1.60000e-1 1.05401e4 1.51801e-5
 10.166 2   1 5.00000e-2 114.71913 4.35847e-4   1016#1
            2 1.00000e-1 248.40646 4.02566e-4
            3 2.00000e-1 364.65576 5.48462e-4
            4 4.00000e-1 747.52820 5.35097e-4
            6 8.00000e-1 1657.94458 4.82525e-4
            7   1.00000 2089.17480 4.78658e-4
```

Method C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M

```
RetTime  Lvl    Amount      Area     Amt/Area  Ref Grp Name
 [min] Sig     [ng/ul]
-------|--|--|----------|----------|----------|---|--|---------------
          8    1.20000  2143.38696 5.59862e-4
          9    1.60000  2825.16260 5.66339e-4
10.804  1  1 5.00000e-2   68.12133 7.33984e-4          1016#1
          2 1.00000e-1  138.73372 7.20805e-4
          3 2.00000e-1  254.16116 7.86902e-4
          4 4.00000e-1  448.42169 8.92018e-4
          6 8.00000e-1  970.38544 8.24415e-4
          7    1.00000 1229.06018 8.13630e-4
          8    1.20000 1240.82373 9.67099e-4
          9    1.60000 1642.56287 9.74088e-4
11.079  2  1 5.00000e-2   57.05913 8.76284e-4          1016#2
          2 1.00000e-1  121.12975 8.25561e-4
          3 2.00000e-1  172.21825 1.16132e-3
          4 4.00000e-1  353.52765 1.13145e-3
          6 8.00000e-1  843.84094 9.48046e-4
          7    1.00000 1078.39124 9.27307e-4
          8    1.20000 1116.84521 1.07446e-3
          9    1.60000 1542.66296 1.03717e-3
11.120  2  1 5.00000e-2   72.58194 6.88877e-4          1016#3
          2 1.00000e-1  164.00909 6.09722e-4
          3 2.00000e-1  251.22812 7.96089e-4
          4 4.00000e-1  551.82941 7.24862e-4
          6 8.00000e-1 1356.26050 5.89857e-4
          7    1.00000 1762.29907 5.67441e-4
          8    1.20000 1836.37122 6.53463e-4
          9    1.60000 2526.03271 6.33404e-4
11.376  2  1 5.00000e-2   39.81900 1.25568e-3          1016#4
          2 1.00000e-1   83.78606 1.19352e-3
          3 2.00000e-1  121.62669 1.64438e-3
          4 4.00000e-1  261.65378 1.52874e-3
          6 8.00000e-1  638.43622 1.25306e-3
          7    1.00000  835.59857 1.19675e-3
          8    1.20000  873.43463 1.37389e-3
          9    1.60000 1158.27649 1.38136e-3
12.161  2  1 5.00000e-2   40.60505 1.23137e-3          1016#5
          2 1.00000e-1   84.52531 1.18308e-3
          3 2.00000e-1  128.62825 1.55487e-3
          4 4.00000e-1  294.69821 1.35732e-3
          6 8.00000e-1  696.65466 1.14835e-3
          7    1.00000  890.77008 1.12262e-3
          8    1.20000  915.26190 1.31110e-3
          9    1.60000 1261.07056 1.26876e-3
12.184  1  1 5.00000e-2   55.24522 9.05056e-4          1016#2
          2 1.00000e-1  108.70388 9.19930e-4
          3 2.00000e-1  167.67911 1.19275e-3
          4 4.00000e-1  346.63461 1.15395e-3
          6 8.00000e-1  765.05865 1.04567e-3
          7    1.00000  960.17743 1.04147e-3
          8    1.20000  991.88745 1.20981e-3
          9    1.60000 1300.52954 1.23027e-3
12.880  1  1 5.00000e-2   66.67388 7.49919e-4          1016#3
          2 1.00000e-1  147.66995 6.77186e-4
          3 2.00000e-1  231.85435 8.62610e-4
          4 4.00000e-1  481.47147 8.30787e-4
          6 8.00000e-1 1193.56824 6.70259e-4
          7    1.00000 1508.83105 6.62765e-4
          8    1.20000 1509.25513 7.95094e-4
```

Method C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M

```
  RetTime  Lvl    Amount      Area    Amt/Area  Ref Grp Name
   [min] Sig     [ng/ul]
 -------|--|--|----------|----------|----------|---|--|---------------
             9    1.60000 2030.51184 7.87979e-4
  13.352  1  1 5.00000e-2   45.35458 1.10242e-3          1016#4
             2 1.00000e-1   97.48624 1.02579e-3
             3 2.00000e-1  146.19235 1.36806e-3
             4 4.00000e-1  302.09076 1.32411e-3
             6 8.00000e-1  678.75031 1.17864e-3
             7    1.00000  860.46552 1.16216e-3
             8    1.20000  893.69763 1.34274e-3
             9    1.60000 1200.82397 1.33242e-3
  13.789  1  1 5.00000e-2   65.65133 7.61599e-4          1016#5
             2 1.00000e-1  137.81898 7.25589e-4
             3 2.00000e-1  203.77571 9.81471e-4
             4 4.00000e-1  416.59262 9.60171e-4
             6 8.00000e-1  946.14325 8.45538e-4
             7    1.00000 1201.25500 8.32463e-4
             8    1.20000 1238.02075 9.69289e-4
             9    1.60000 1654.30457 9.67174e-4
  14.413  2  1 5.00000e-2   85.74789 5.83105e-4          1260#1
             2 1.00000e-1  180.88387 5.52841e-4
             3 2.00000e-1  258.14603 7.74755e-4
             4 4.00000e-1  526.33722 7.59969e-4
             6 8.00000e-1 1159.09436 6.90194e-4
             7    1.00000 1495.03625 6.68880e-4
             8    1.20000 1530.48645 7.84064e-4
             9    1.60000 2063.51147 7.75377e-4
  14.942  1  1 5.00000e-2   82.94392 6.02817e-4          1260#1
             2 1.00000e-1  133.14914 7.51038e-4
             3 2.00000e-1  198.80913 1.00599e-3
             4 4.00000e-1  339.50085 1.17820e-3
             6 8.00000e-1  641.80212 1.24649e-3
             7    1.00000  806.90851 1.23930e-3
             8    1.20000  840.73193 1.42733e-3
             9    1.60000 1109.06628 1.44265e-3
  15.132  2  1 5.00000e-2   46.17986 1.08272e-3          1260#2
             2 1.00000e-1   87.90114 1.13764e-3
             3 2.00000e-1  147.52350 1.35572e-3
             4 4.00000e-1  313.17520 1.27724e-3
             6 8.00000e-1  659.92108 1.21227e-3
             7    1.00000  832.26465 1.20154e-3
             8    1.20000  852.11554 1.40826e-3
             9    1.60000 1146.42969 1.39564e-3
  15.595  2  1 5.00000e-2   53.16164 9.40528e-4          1260#3
             2 1.00000e-1  116.99038 8.54771e-4
             3 2.00000e-1  162.10866 1.23374e-3
             4 4.00000e-1  336.59540 1.18837e-3
             6 8.00000e-1  724.83252 1.10370e-3
             7    1.00000  953.57147 1.04869e-3
             8    1.20000  966.42651 1.24169e-3
             9    1.60000 1317.32751 1.21458e-3
  16.032  2  1 5.00000e-2   45.69059 1.09432e-3          1260#4
             2 1.00000e-1   98.32481 1.01704e-3
             3 2.00000e-1  141.71486 1.41128e-3
             4 4.00000e-1  268.90594 1.48751e-3
             6 8.00000e-1  654.13898 1.22298e-3
             7    1.00000  872.81256 1.14572e-3
             8    1.20000  877.06683 1.36820e-3
             9    1.60000 1218.72827 1.31284e-3
```

Method C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M

```
RetTime  Lvl    Amount      Area     Amt/Area  Ref Grp Name
[min] Sig       [ng/ul]
-------|--|--|----------|----------|----------|---|--|---------------
16.146  1   1 5.00000e-2  115.36158 4.33420e-4         1260#2
            2 1.00000e-1  241.64920 4.13823e-4
            3 2.00000e-1  345.16608 5.79431e-4
            4 4.00000e-1  627.71405 6.37233e-4
            6 8.00000e-1 1408.35657 5.68038e-4
            7    1.00000 1803.34827 5.54524e-4
            8    1.20000 1847.44373 6.49546e-4
            9    1.60000 2448.84204 6.53370e-4
16.520  1   1 5.00000e-2  118.17410 4.23105e-4         1260#3
            2 1.00000e-1  249.30994 4.01107e-4
            3 2.00000e-1  353.97952 5.65004e-4
            4 4.00000e-1  685.25769 5.83722e-4
            6 8.00000e-1 1441.67871 5.54909e-4
            7    1.00000 1870.40527 5.34643e-4
            8    1.20000 1968.98511 6.09451e-4
            9    1.60000 2600.43359 6.15282e-4
16.580  2   1 5.00000e-2   96.66483 5.17251e-4         1260#5
            2 1.00000e-1  213.81819 4.67687e-4
            3 2.00000e-1  286.38934 6.98350e-4
            4 4.00000e-1  666.58661 6.00072e-4
            6 8.00000e-1 1500.12317 5.33290e-4
            7    1.00000 2050.66675 4.87646e-4
            8    1.20000 1998.79541 6.00362e-4
            9    1.60000 2831.97070 5.64978e-4
17.327  1   1 5.00000e-2   72.22842 6.92248e-4         1260#4
            2 1.00000e-1  144.09505 6.93986e-4
            3 2.00000e-1  208.24243 9.60419e-4
            4 4.00000e-1  416.45065 9.60498e-4
            6 8.00000e-1  875.54248 9.13719e-4
            7    1.00000 1144.49072 8.73751e-4
            8    1.20000 1176.59229 1.01989e-3
            9    1.60000 1577.61670 1.01419e-3
18.308  1   1 5.00000e-2  124.68354 4.01015e-4         1260#5
            2 1.00000e-1  258.10562 3.87438e-4
            3 2.00000e-1  335.02197 5.96976e-4
            4 4.00000e-1  706.41956 5.66236e-4
            6 8.00000e-1 1554.50366 5.14634e-4
            7    1.00000 2094.50562 4.77440e-4
            8    1.20000 2041.40076 5.87832e-4
            9    1.60000 2838.75171 5.63628e-4
18.963  2   1 1.00000e-2  105.94125 9.43919e-5         DCBP
            2 2.00000e-2  293.63858 6.81109e-5
            3 4.00000e-2  354.32748 1.12890e-4
            4 8.00000e-2  842.33331 9.49743e-5
            6 1.60000e-1 1880.05383 8.51039e-5
            7 2.00000e-1 2780.13770 7.19389e-5
            8 2.40000e-1 2492.84009 9.62757e-5
            9 3.20000e-1 3724.18823 8.59248e-5
21.429  1   1 1.00000e-2  147.62543 6.77390e-5         DCBP
            2 2.00000e-2  349.45694 5.72317e-5
            3 4.00000e-2  454.35388 8.80371e-5
            4 8.00000e-2  987.82172 8.09863e-5
            6 1.60000e-1 2152.60181 7.43287e-5
            7 2.00000e-1 3040.79321 6.57723e-5
            8 2.40000e-1 2716.35522 8.83537e-5
            9 3.20000e-1 3995.09839 8.00982e-5
```

10 Warnings or Errors :

Warning : Overlapping peak time windows at 12.88 min, signal 1
Warning : Overlapping peak time windows at 13.352 min, signal 1
Warning : Overlapping peak time windows at 16.146 min, signal 1
Warning : Overlapping peak time windows at 16.52 min, signal 1
Warning : Overlapping peak time windows at 11.079 min, signal 2
Warning : Overlapping peak time windows at 11.12 min, signal 2
Warning : Overlapping peak time windows at 14.413 min, signal 2
Warning : Overlapping peak time windows at 15.132 min, signal 2
Warning : Overlapping peak time windows at 15.595 min, signal 2
Warning : Overlapping peak time windows at 16.032 min, signal 2

===
                            Peak Sum Table
===

No Entries in table
===

Calibration Curve

TCMX, ECD2 B
Area = 62954.6541*Amt -41.322321

Rel. Res%(1): 9.778

Correlation: 0.99466

Calibration Curve

TCMX, ECD1 A
Area = 68821.9864*Amt +12.818665

Rel. Res%(1): 5.905

Area

12000

10000

8000

6000

4000

2000

0

0   0.025   0.05   0.075   0.1   0.125   0.15   Amount[ng/ul]

Correlation: 0.99507

Calibration Curve

1016#1, ECD2 B
Area = 1856.52853*Amt +32.318858

Rel. Res%(1): -8.331

Correlation: 0.99557

Calibration Curve

1016#1, ECD1 A
Area = 1085.08368*Amt +23.384056

Area

Rel. Res%(1): -12.258

Correlation: 0.99553

Calibration Curve

1016#2, ECD2 B
Area = 976.644344*Amt +7.5784866

Rel. Res%(1): 1.149

Correlation: 0.99607

Calibration Curve

1016#3, ECD2 B
Area = 1615.49042*Amt -15.28271

Rel. Res%(1): 10.826

Correlation: 0.99612

Calibration Curve

1016#4, ECD2 B
Area = 750.958161*Amt -0.6243406

Area

Rel. Res%(1): 7.842

Correlation: 0.99550

Calibration Curve

1016#5, ECD2 B
Area = 811.055237*Amt -3.3664364

Rel. Res%(1): 9.193

Correlation: 0.99595

Calibration Curve

1016#2, ECD1 A
Area = 855.709486*Amt +14.733769

Rel. Res%(1): -3.953

Correlation: 0.99596

Calibration Curve

1016#3, ECD1 A
Area = 1341.20689*Amt -0.7026162

Rel. Res%(1): 4.7644e-1

Correlation: 0.99427

Calibration Curve

1016#4, ECD1 A
Area = 776.667925*Amt +8.7109943

Rel. Res%(1): -4.606

Correlation: 0.99659

Calibration Curve

1016#5, ECD1 A
Area = 1073.84396*Amt +14.812132

Rel. Res%(1): -4.165

Correlation: 0.99608

Calibration Curve

1260#1, ECD2 B
Area = 1327.29507*Amt +24.776864

Rel. Res%(1): -5.918

Correlation: 0.99620

Calibration Curve

1260#1, ECD1 A
Area = 693.100859*Amt +55.602786

Rel. Res%(1): -8.103

Correlation: 0.99718

Calibration Curve

1260#2, ECD2 B
Area = 748.421929*Amt +10.181667

Rel. Res%(1): -2.989

Correlation: 0.99659

Calibration Curve

1260#3, ECD2 B
Area = 842.674074*Amt +15.338474

Rel. Res%(1): -7.500

Correlation: 0.99605

Calibration Curve

1260#4, ECD2 B
Area = 755.440743*Amt +5.7879227

Rel. Res%(1): 4.891

Correlation: 0.99133

Calibration Curve

1260#4, ECD2 B
Area = 769.85568*Amt +7.3318697

Rel. Res%(6): 4.962

Correlation: 0.99508

Calibration Curve

1260#2, ECD1 A
Area = 1578.45818*Amt +49.141284

Rel. Res%(1): -9.919

Correlation: 0.99558

Calibration Curve

1260#3, ECD1 A
Area = 1665.08275*Amt +47.503904

Rel. Res%(1): -9.624

Correlation: 0.99700

Calibration Curve

1260#5, ECD2 B
Area = 1797.23827*Amt +3.7237832

Rel. Res%(1): 3.290

Correlation: 0.99448

Calibration Curve

1260#4, ECD1 A
Area = 1009.87205*Amt +26.55541

Rel. Res%(1): -6.257

Correlation: 0.99674

Calibration Curve

1260#5, ECD1 A
Area = 1801.88668*Amt +39.162337

Rel. Res%(1): -3.538

Correlation: 0.99436

Calibration Curve

DCBP, ECD2 B
Area = 11704.4874*Amt -6.2926333

Rel. Res%(1): -4.344

Correlation: 0.99053

Calibration Curve

DCBP, ECD1 A
Area = 12688.1256*Amt +33.476531

Rel. Res%(1): -7.940

Correlation: 0.99123

```
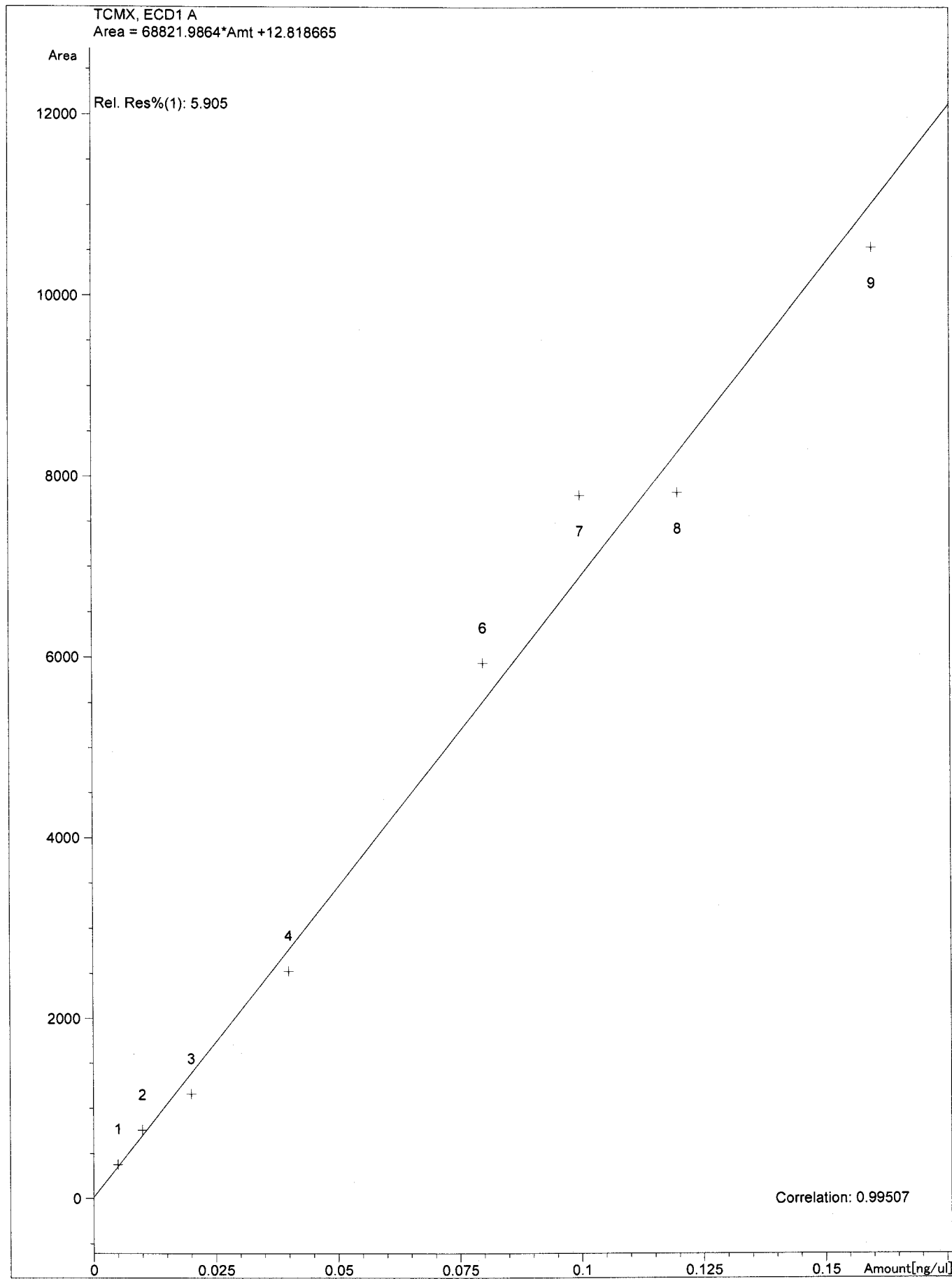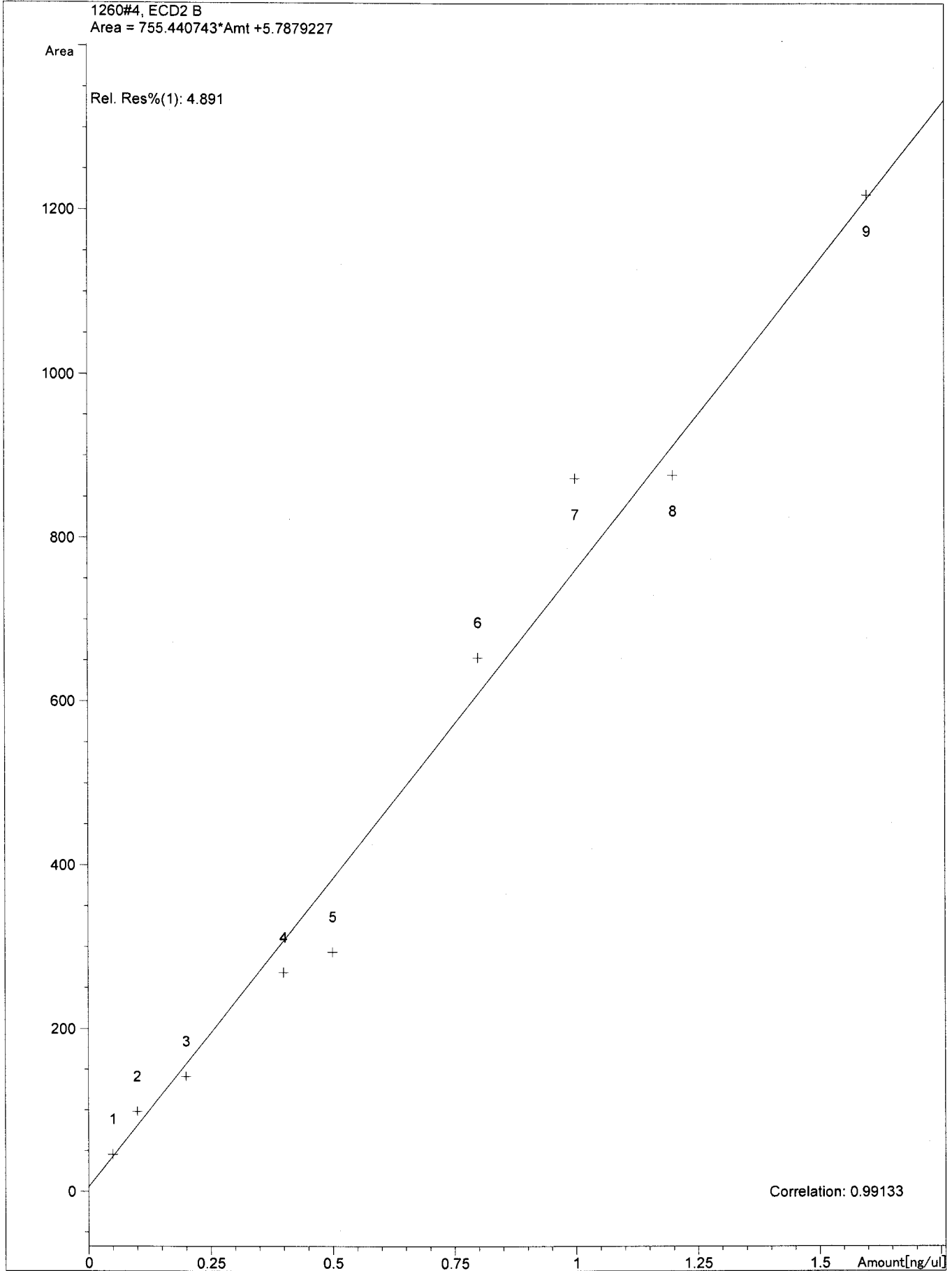Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F0101.D
Sample Name: aro 1660 ccv 1.0 ppm
================================================================
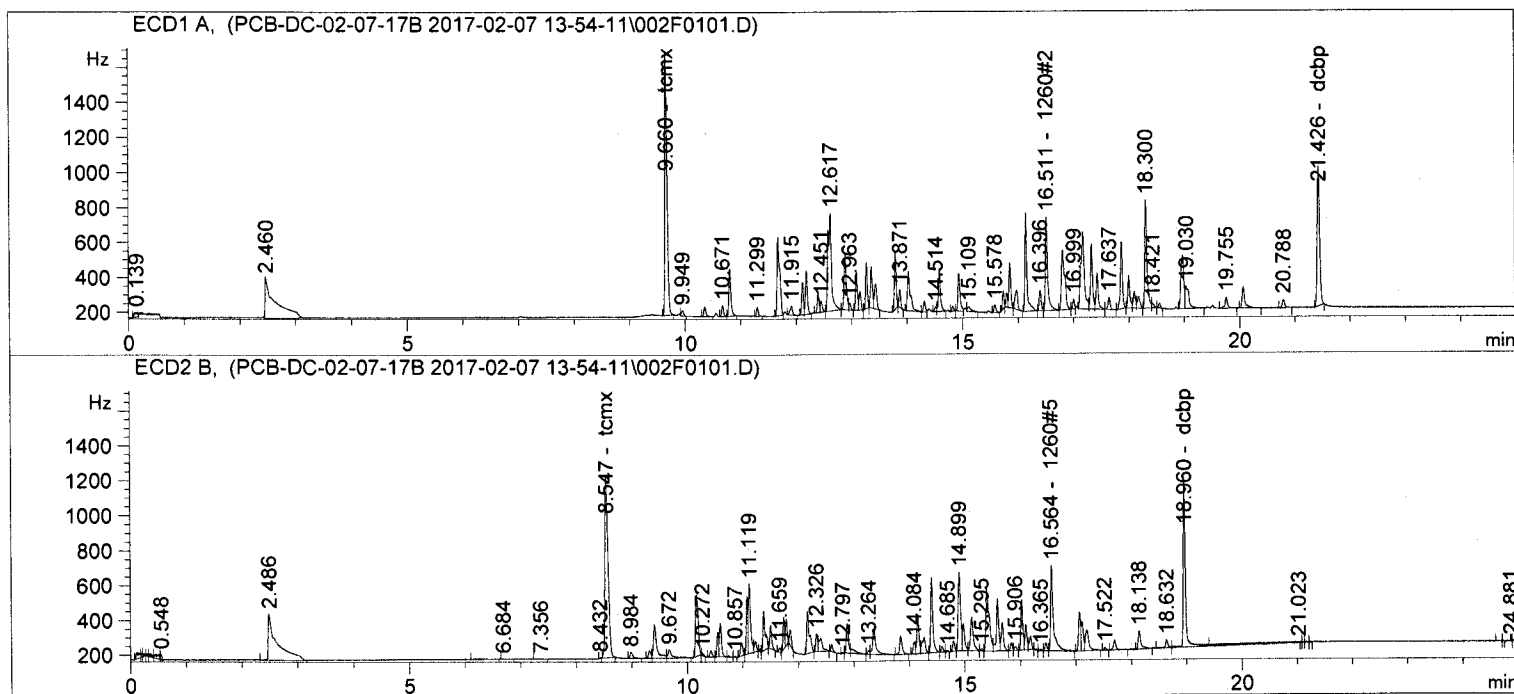Acq. Operator   :                         Seq. Line :   1
Acq. Instrument : Instrument 1            Location : Vial 2
Injection Date  : 2/7/2017 1:55:29 PM          Inj :   1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 9:04:51 AM
                  (modified after loading)


Sample-related custom fields:


Name                          |Value
------------------------------|----------------------------------------
Additional Info : Peak(s) manually integrated
================================================================
```



```
================================================================
                    External Standard Report
================================================================


Sorted By           :      Signal
Calib. Data Modified :      2/4/2017 11:22:32 AM
Multiplier:                 :       1.0000
Dilution:                   :       1.0000
Do not use Multiplier & Dilution Factor with ISTDs


Signal 1: ECD1 A,


RetTime  Type     Area     Amt/Area    Amount   Grp    Name
 [min]           [Hz*s]                [ng/ul]
-------|------|----------|----------|----------|--|-------------------
  9.660 BBA   4320.65576 2.90327e-5 1.25440e-1      tcmx
 10.805 BBA    712.96954 1.38227e-3 9.85517e-1      1016#1
 12.184 VB     602.37396 1.77275e-3  1.06786        1016#2
 12.882 BV     935.58862 1.15383e-3  1.07951        1016#3
```

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F0101.D
Sample Name: aro 1660 ccv 1.0 ppm
==================================================================
Acq. Operator   :                         Seq. Line :   1
Acq. Instrument : Instrument 1            Location : Vial 2
Injection Date  : 2/7/2017 1:55:29 PM          Inj :   1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/8/2017 9:04:51 AM
                  (modified after loading)


Sample-related custom fields:


Name                          |Value
------------------------------|-------------------------------------
Additional Info : Peak(s) manually integrated
==================================================================
```

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.433	VBA	457.32785	2.37131e-3	1.08447		1016#4
13.789	BBA	725.77637	1.37002e-3	9.94325e-1		1016#5
16.140	BB	1528.76526	6.72721e-4	1.02843		1260#1
16.511	VB	1546.82397	6.53871e-4	1.01142		1260#2
17.168	BV	1932.12756	5.16745e-4	9.98417e-1		1260#3
17.323	VV	953.59296	9.87856e-4	9.42012e-1		1260#4
17.862	BB	999.27094	9.57249e-4	9.56551e-1		1260#5
21.426	BBA	2537.15503	8.61522e-5	2.18581e-1		dcbp

```
Totals :                                  10.49254



Signal 2: ECD2 B,
```

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.547	BBA	3846.33325	3.12295e-5	1.20119e-1		tcmx
10.166	BBA	1218.12830	7.86829e-4	9.58459e-1		1016#1
11.500	BBA	312.86493	3.10099e-3	9.70192e-1		1016#2
11.737	BV	376.13965	3.20279e-3	1.20470		1016#3
11.783	VBA	306.85605	3.86226e-3	1.18516		1016#4
12.877	BV	449.69937	1.51980e-3	6.83453e-1		1016#5
14.402	BB	1153.55396	8.95007e-4	1.03244		1260#1
15.395	BV	1548.02209	6.45952e-4	9.99947e-1		1260#2
15.588	VV	869.04297	1.16604e-3	1.01334		1260#3
16.024	BV	732.51770	1.33093e-3	9.74929e-1		1260#4
16.564	VB	1732.42883	5.33673e-4	9.24551e-1		1260#5
18.960	VV R	3034.88354	9.60464e-5	2.91490e-1		dcbp

```
Totals :                                  10.35877



2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Elution order of calibrated compounds may have changed
```

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F0101.D
Sample Name: aro 1660 ccv 1.0 ppm
==
Acq. Operator   :   Seq. Line :   1
Acq. Instrument : Instrument 1   Location : Vial 2
Injection Date : 2/7/2017 1:55:29 PM   Inj :   1
                                          Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 9:04:51 AM
                  (modified after loading)

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated
==

==
                        Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,
==
                     Final Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                    *** End of Report ***

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F0601.D
Sample Name: aro 1660 ccv 1.0 ppm
==================================================================
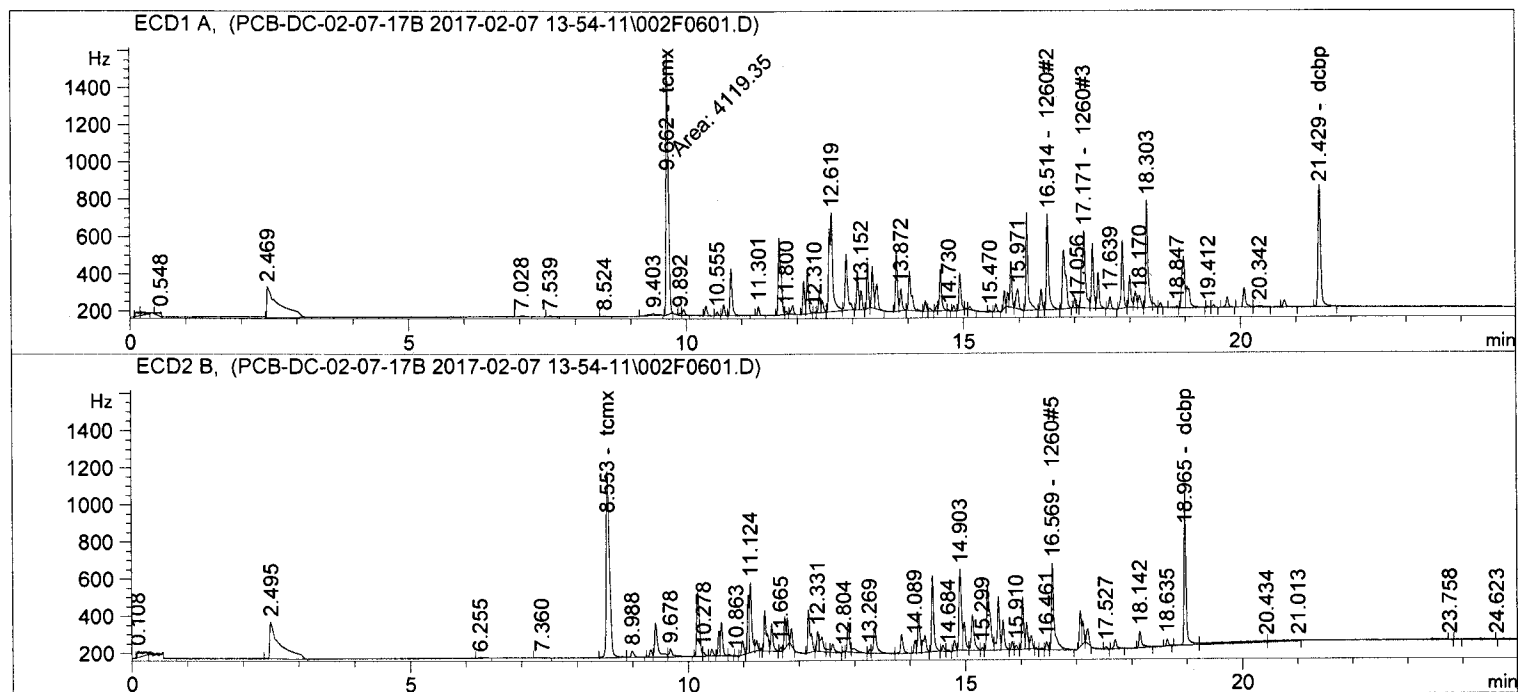  Acq. Operator   :                          Seq. Line :   6
  Acq. Instrument : Instrument 1              Location : Vial 2
  Injection Date  : 2/7/2017 4:25:51 PM           Inj :   1
                                          Inj Volume : 1 µl
  Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
  Last changed    : 2/2/2017 9:17:18 AM
  Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
  Last changed    : 2/4/2017 11:24:16 AM

  Sample-related custom fields:

  Name                          |Value
  ------------------------------|----------------------------------------
  Additional Info : Peak(s) manually integrated
==================================================================
```



```
==================================================================
                    External Standard Report
==================================================================

  Sorted By          :      Signal
  Calib. Data Modified :     2/4/2017 11:22:32 AM
  Multiplier:              :      1.0000
  Dilution:                :      1.0000
  Do not use Multiplier & Dilution Factor with ISTDs

  Signal 1: ECD1 A,

  RetTime Type    Area      Amt/Area     Amount   Grp    Name
   [min]         [Hz*s]                  [ng/ul]
  -------|------|----------|----------|----------|--|-------------------
   9.662 MM    4119.35400 2.89778e-5 1.19370e-1       tcmx
  10.807 VB     714.48108 1.38232e-3 9.87644e-1       1016#1
  12.187 VB     556.55109 1.77084e-3 9.85562e-1       1016#2
  12.883 VB    1007.28284 1.15131e-3  1.15969         1016#3
  13.435 VB     445.70493 2.36913e-3  1.05593         1016#4
  .
```

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F0601.D
Sample Name: aro 1660 ccv 1.0 ppm

```
=============================================================================
Acq. Operator   :                          Seq. Line :   6
Acq. Instrument : Instrument 1             Location : Vial 2
Injection Date  : 2/7/2017 4:25:51 PM           Inj :   1
                                         Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed    : 2/4/2017 11:24:16 AM
```

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated	

```
=============================================================================
```

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.792	BV	754.60913	1.37033e-3	1.03406		1016#5
16.142	BB	1441.23071	6.71890e-4	9.68349e-1		1260#1
16.514	VB	1475.64282	6.53226e-4	9.63929e-1		1260#2
17.171	BV	1817.68152	5.16407e-4	9.38664e-1		1260#3
17.325	VV	893.84308	9.86269e-4	8.81570e-1		1260#4
17.864	BB	934.05682	9.56306e-4	8.93244e-1		1260#5
21.429	BB	2214.85718	8.53636e-5	1.89068e-1		dcbp

Totals :   10.17709

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.553	BV	3848.64111	3.12299e-5	1.20193e-1		tcmx
10.172	BV	1211.14258	7.86768e-4	9.52889e-1		1016#1
11.505	VB	406.80905	3.09483e-3	1.25901		1016#2
11.742	BV	357.42456	3.20056e-3	1.14396		1016#3
11.789	VB	298.94312	3.86104e-3	1.15423		1016#4
12.882	BV	411.16302	1.50412e-3	6.18441e-1		1016#5
14.407	BB	1095.12915	8.94547e-4	9.79644e-1		1260#1
15.400	BV	1487.19641	6.46213e-4	9.61046e-1		1260#2
15.592	VV	824.27826	1.16649e-3	9.61513e-1		1260#3
16.028	BV	696.12994	1.33189e-3	9.27169e-1		1260#4
16.569	VB	1610.42395	5.33681e-4	8.59452e-1		1260#5
18.965	BV	2104.70264	9.45731e-5	1.99048e-1		dcbp

Totals :   10.13659

2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Elution order of calibrated compounds may have changed

```
=============================================================================
                         Summed Peaks Report
```

Sample Name: aro 1660 ccv 1.0 ppm

==

Acq. Operator   :   Seq. Line :   6
Acq. Instrument : Instrument 1   Location : Vial 2
Injection Date : 2/7/2017 4:25:51 PM   Inj :   1
                                          Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/4/2017 11:24:16 AM

Sample-related custom fields:

Name	Value
Additional Info : Peak(s) manually integrated
==

==

Signal 1: ECD1 A,
Signal 2: ECD2 B,
==
                       Final Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                       *** End of Report ***

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F0701.D
Sample Name: aro 1660 ccv 1.0 ppm
==
Acq. Operator   :   Seq. Line :   7
Acq. Instrument : Instrument 1   Location : Vial 2
Injection Date : 2/7/2017 4:54:15 PM   Inj :   1
                                          Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 8:53:42 AM
                  (modified after loading)

Sample-related custom fields:

Name	Value
==

==
                    External Standard Report
==

Sorted By   :   Signal
Calib. Data Modified :   2/4/2017 11:22:32 AM
Multiplier: :   1.0000
Dilution: :   1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.664	BBA	4750.84424	2.91345e-5	1.38413e-1		tcmx
10.810	BBA	777.26465	1.38433e-3	1.07599		1016#1
12.190	VB	654.45471	1.77460e-3	1.16139		1016#2
12.887	BV	1033.51807	1.15047e-3	1.18903		1016#3
13.438	VBA	502.90582	2.37891e-3	1.19637		1016#4

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F0701.D
Sample Name: aro 1660 ccv 1.0 ppm
===

Acq. Operator	:	Seq. Line : 7
Acq. Instrument	: Instrument 1	Location : Vial 2
Injection Date	: 2/7/2017 4:54:15 PM	Inj : 1
		Inj Volume : 1 µl
Acq. Method	: C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed	: 2/2/2017 9:17:18 AM
Analysis Method	: C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed	: 2/8/2017 8:53:42 AM
	(modified after loading)

Sample-related custom fields:

Name	Value

===

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.794	BBA	784.95123	1.37063e-3	1.07588		1016#5
16.145	BB	1642.53064	6.73668e-4	1.10652		1260#1
16.516	VB	1650.70496	6.54711e-4	1.08074		1260#2
17.173	BV	2038.60437	5.17025e-4	1.05401		1260#3
17.328	VV	997.14526	9.88892e-4	9.86069e-1		1260#4
17.866	BB	1035.39172	9.57720e-4	9.91616e-1		1260#5
21.432	BB	2354.08716	8.57307e-5	2.01818e-1		dcbp

Totals :   11.25784

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.554	BBA	4224.41846	3.12942e-5	1.32200e-1		tcmx
10.173	BBA	1333.78625	7.87745e-4	1.05068		1016#1
11.508	BBA	365.00998	3.09718e-3	1.13050		1016#2
11.745	BV	426.62643	3.20784e-3	1.36855		1016#3
11.791	VBA	350.81308	3.86802e-3	1.35695		1016#4
12.885	BV	478.92389	1.53000e-3	7.32756e-1		1016#5
14.409	BB	1244.92322	8.95639e-4	1.11500		1260#1
15.402	BV	1653.52283	6.45543e-4	1.06742		1260#2
15.594	VV	915.60999	1.16563e-3	1.06726		1260#3
16.030	BV	767.22424	1.33010e-3	1.02048		1260#4
16.571	VB	1756.83301	5.33672e-4	9.37572e-1		1260#5
18.965	BB	2146.69580	9.46672e-5	2.03222e-1		dcbp

Totals :   11.18260

2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Elution order of calibrated compounds may have changed

===
Summed Peaks Report

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F0701.D
Sample Name: aro 1660 ccv 1.0 ppm
==
Acq. Operator   :   Seq. Line :   7
Acq. Instrument : Instrument 1   Location : Vial 2
Injection Date : 2/7/2017 4:54:15 PM   Inj :   1
                                                 Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 8:53:42 AM
                  (modified after loading)

Sample-related custom fields:

Name	Value
==

==

Signal 1: ECD1 A,
Signal 2: ECD2 B,
==
                        Final Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                        *** End of Report ***

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F1701.D
Sample Name: aro 1660 ccv 1.0 ppm ending

```
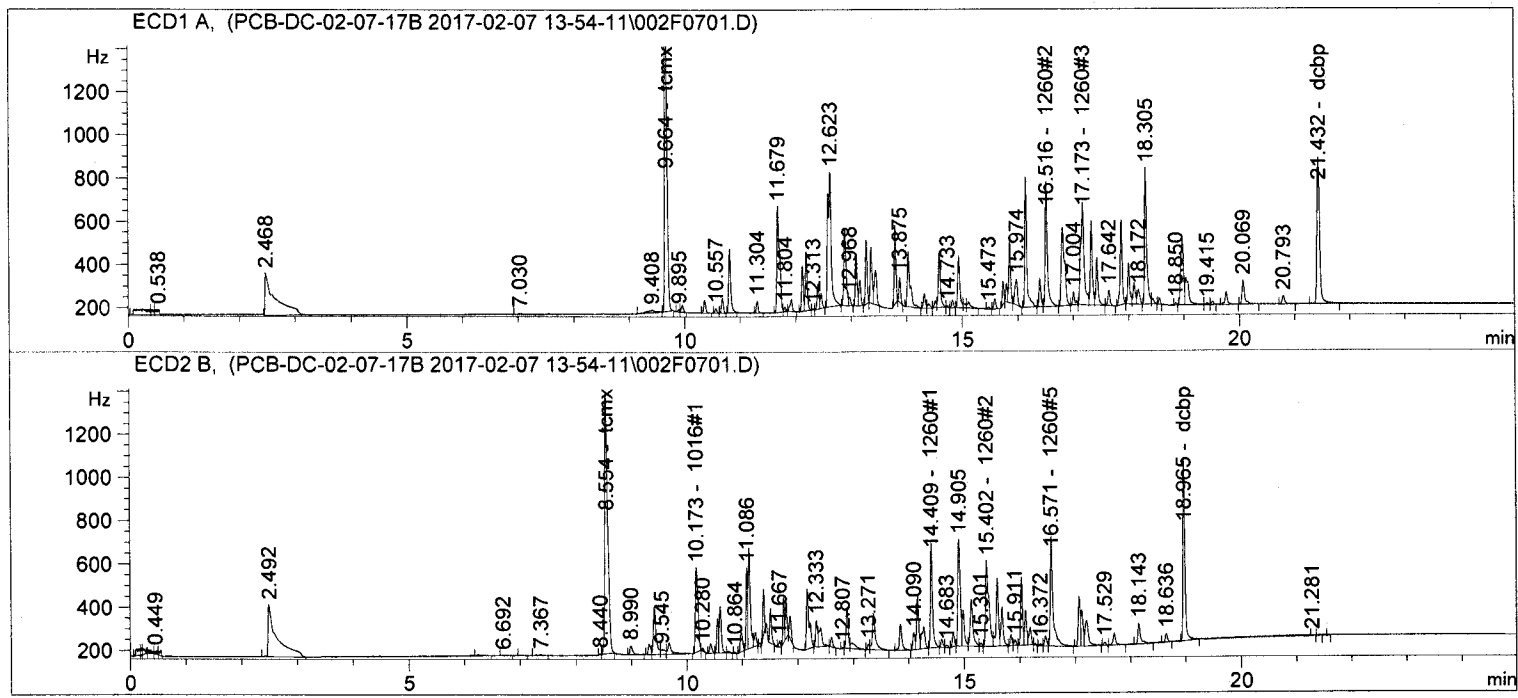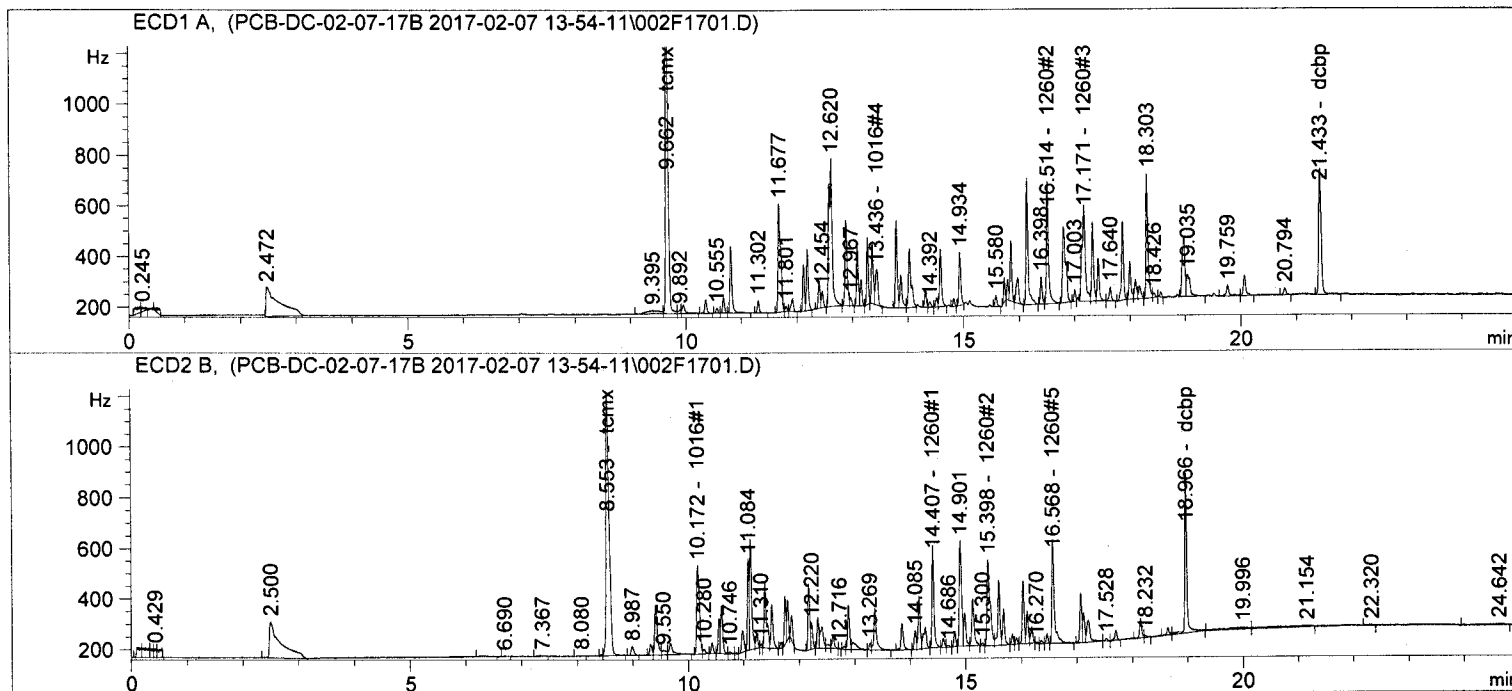========================================================================
Acq. Operator    :                          Seq. Line :  17
Acq. Instrument : Instrument 1              Location : Vial 2
Injection Date  : 2/7/2017 9:38:22 PM           Inj :   1
                                          Inj Volume : 1 µl
Acq. Method      : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed     : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed     : 2/8/2017 9:38:38 AM
                   (modified after loading) (Current integration events modified)
```

Sample-related custom fields:

```
Name                      |Value
--------------------------|------------------------------------
==========================|==========================================
```



```
========================================================================
                    External Standard Report
========================================================================
```

```
Sorted By          :       Signal
Calib. Data Modified :     2/4/2017 11:22:32 AM
Multiplier:              :       1.0000
Dilution:                :       1.0000
Do not use Multiplier & Dilution Factor with ISTDs
```

Signal 1: ECD1 A,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
9.662	VV	4281.12305	2.90224e-5	1.24248e-1		tcmx
10.808	BB	724.39874	1.38266e-3	1.00160		1016#1
12.187	VB	567.64374	1.77133e-3	1.00548		1016#2
12.885	BV	945.71405	1.15345e-3	1.09084		1016#3
13.436	VB	452.08127	2.37034e-3	1.07159		1016#4

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F1701.D
Sample Name: aro 1660 ccv 1.0 ppm ending
==
Acq. Operator   :   Seq. Line : 17
Acq. Instrument : Instrument 1   Location : Vial 2
Injection Date : 2/7/2017 9:38:22 PM   Inj :   1
                                         Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 9:38:38 AM
                    (modified after loading) (Current integration events modified)

Sample-related custom fields:

Name	Value
==

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.792	BV	785.24408	1.37063e-3	1.07628		1016#5
16.143	BB	1297.03833	6.70278e-4	8.69377e-1		1260#1
16.514	VB	1289.86829	6.51209e-4	8.39974e-1		1260#2
17.171	BV	1573.05713	5.15521e-4	8.10944e-1		1260#3
17.326	VV	747.68457	9.81320e-4	7.33718e-1		1260#4
17.865	BB	781.63293	9.53486e-4	7.45276e-1		1260#5
21.433	BB	1623.18958	8.31009e-5	1.34888e-1		dcbp

Totals :   9.50421

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.553	VB	3768.82227	3.12146e-5	1.17642e-1		tcmx
10.172	BV	1224.45618	7.86884e-4	9.63505e-1		1016#1
11.505	VB	455.26990	3.09265e-3	1.40799		1016#2
11.743	BV	391.38177	3.20445e-3	1.25416		1016#3
11.790	VB	325.70566	3.86492e-3	1.25883		1016#4
12.883	VV	436.81613	1.51487e-3	6.61718e-1		1016#5
14.407	BB	1001.63843	8.93699e-4	8.95163e-1		1260#1
15.398	BV	1312.82312	6.47098e-4	8.49526e-1		1260#2
15.593	VV	698.79822	1.16805e-3	8.16229e-1		1260#3
16.029	BV	589.52930	1.33539e-3	7.87252e-1		1260#4
16.568	BB	1252.35352	5.33712e-4	6.68396e-1		1260#5
18.966	VB	1671.55273	9.33276e-5	1.56002e-1		dcbp

Totals :   9.83641

2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Elution order of calibrated compounds may have changed

==
                    Summed Peaks Report

Data File C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\002F1701.D
Sample Name: aro 1660 ccv 1.0 ppm ending
==
Acq. Operator   :   Seq. Line : 17
Acq. Instrument : Instrument 1   Location : Vial 2
Injection Date : 2/7/2017 9:38:22 PM   Inj :   1
                                             Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-07-17B 2017-02-07 13-54-11\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-02-17.M
Last changed   : 2/8/2017 9:38:38 AM
                  (modified after loading) (Current integration events modified)

Sample-related custom fields:

Name	Value
==

==

Signal 1: ECD1 A,
Signal 2: ECD2 B,
==
                      Final Summed Peaks Report
==

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                      *** End of Report ***

```
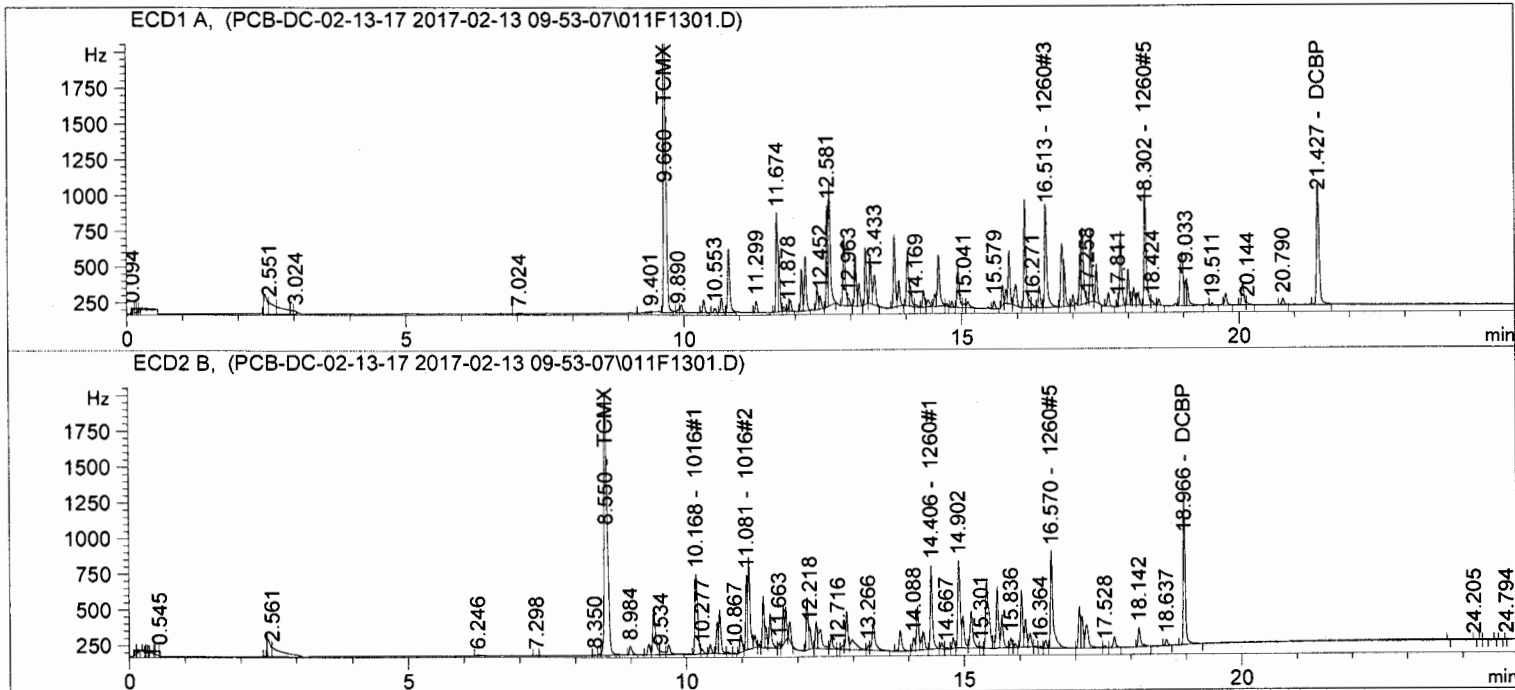Data File C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\011F1301.D
Sample Name: PCB 2ND SS 1.0 UG/ML
================================================================
 Acq. Operator   :                        Seq. Line :  13
 Acq. Instrument : Instrument 1            Location : Vial 11
 Injection Date  : 2/13/2017 3:34:49 PM        Inj :   1
                                      Inj Volume : 1 µl
 Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
 Last changed    : 2/2/2017 9:17:18 AM
 Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
 Last changed    : 2/15/2017 1:54:25 PM


 Sample-related custom fields:


 Name                          |Value
 ------------------------------|--------------------------------------
 ================================================================
```


ECD1 A, (PCB-DC-02-13-17 2017-02-13 09-53-07\011F1301.D)

ECD2 B, (PCB-DC-02-13-17 2017-02-13 09-53-07\011F1301.D)

```
================================================================
                    External Standard Report
================================================================


 Sorted By             :      Signal
 Calib. Data Modified  :      2/15/2017 1:50:53 PM
 Multiplier:                  :      1.0000
 Dilution:                    :      1.0000
 Do not use Multiplier & Dilution Factor with ISTDs


 Signal 1: ECD1 A,


 RetTime Type     Area      Amt/Area    Amount   Grp    Name
  [min]          [Hz*s]                 [ng/ul]
 -------|------|----------|----------|----------|--|-------------------
  9.660 BV   7340.47021 1.45049e-5 1.06473e-1       TCMX
 10.805 BV   1227.59937 9.04033e-4   1.10979        1016#1
 12.185 VB    921.15533 1.14993e-3   1.05926        1016#2
 12.882 BV   1433.08398 7.45963e-4   1.06903        1016#3
 13.354 BV    839.58740 1.27419e-3   1.06980        1016#4
 13.790 BV   1177.64197 9.19521e-4   1.08287        1016#5
```

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\011F1301.D
Sample Name: PCB 2ND SS 1.0 UG/ML
================================================================================
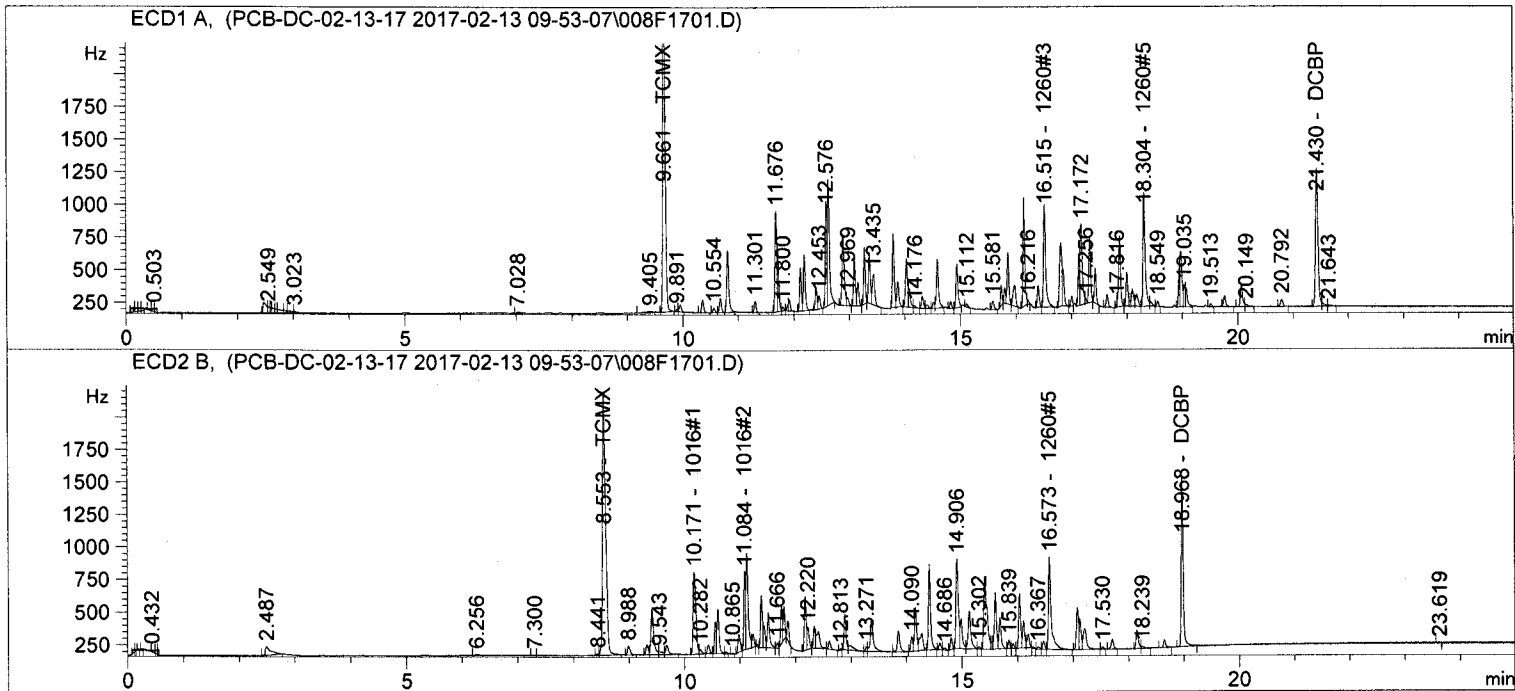Acq. Operator   :                              Seq. Line :  13
Acq. Instrument : Instrument 1                  Location : Vial 11
Injection Date  : 2/13/2017 3:34:49 PM               Inj :   1
                                              Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed    : 2/15/2017 1:54:25 PM


Sample-related custom fields:

Name                         |Value
-----------------------------|------------------------------------------
-----------------------------|------------------------------------------
================================================================================

RetTime  Type     Area      Amt/Area     Amount    Grp    Name
 [min]            [Hz*s]                  [ng/ul]
-------|------|----------|----------|----------|--|--------------------
 14.933 BV      768.68634 1.33843e-3    1.02883         1260#1
 16.141 BV     1841.12854 6.16620e-4    1.13528         1260#2
 16.513 VB     2048.17261 5.86642e-4    1.20154         1260#3
 17.324 VB     1145.68823 9.67272e-4    1.10819         1260#4
 18.302 BV     2285.07471 5.45463e-4    1.24642         1260#5
 21.427 BV     2813.50781 7.78761e-5  2.19105e-1        DCBP

Totals :                                11.43659




Signal 2: ECD2 B,

RetTime  Type     Area      Amt/Area     Amount    Grp    Name
 [min]            [Hz*s]                  [ng/ul]
-------|------|----------|----------|----------|--|--------------------
  8.550 VV     6679.44336 1.59827e-5 1.06756e-1        TCMX
 10.168 BV     2002.97742 5.29949e-4    1.06147         1016#1
 11.081 BV     1056.84814 1.01657e-3    1.07436         1016#2
 11.122 VV     1758.63013 6.24386e-4    1.09806         1016#3
 11.381 BV      853.31403 1.33261e-3    1.13713         1016#4
 12.168 BV      905.21765 1.23755e-3    1.12025         1016#5
 14.406 BB     1554.02539 7.41400e-4    1.15215         1260#1
 15.125 VB      877.52997 1.32064e-3    1.15890         1260#2
 15.592 VV     1110.03345 1.17030e-3    1.29907         1260#3
 16.029 BV      996.72687 1.28939e-3    1.28517         1260#4
 16.570 VB     2276.12695 5.55499e-4    1.26439         1260#5
 18.966 BB     2611.26831 8.56432e-5  2.23637e-1        DCBP

Totals :                                11.98136



1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)


================================================================================
                         Summed Peaks Report
================================================================================

 Signal 1: ECD1 A,
```

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\011F1301.D
Sample Name: PCB 2ND SS 1.0 UG/ML
================================================================================
Acq. Operator   :                              Seq. Line :  13
Acq. Instrument : Instrument 1                  Location : Vial 11
Injection Date  : 2/13/2017 3:34:49 PM               Inj :   1
                                                Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed    : 2/15/2017 1:54:25 PM


Sample-related custom fields:


Name                          |Value
------------------------------|----------------------------------------
================================================================================

Signal 2: ECD2 B,
================================================================================
                        Final Summed Peaks Report
================================================================================

Signal 1: ECD1 A,
Signal 2: ECD2 B,


Compound-related custom fields:
                        *** End of Report ***
```

```
Data File C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\008F1701.D
Sample Name: aro 1660 ccv 1.0 ppm
==================================================================
Acq. Operator   :                        Seq. Line :   17
Acq. Instrument : Instrument 1            Location : Vial 8
Injection Date  : 2/13/2017 5:28:18 PM        Inj :    1
                                        Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed    : 2/15/2017 2:13:56 PM
                  (modified after loading)

Sample-related custom fields:

Name                        |Value
----------------------------|------------------------------------
============================|======================================
```



```
==================================================================
                    External Standard Report
==================================================================

Sorted By          :      Signal
Calib. Data Modified :     2/15/2017 1:50:53 PM
Multiplier:                :      1.0000
Dilution:                  :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A,

RetTime Type    Area      Amt/Area    Amount  Grp   Name
 [min]          [Hz*s]                [ng/ul]
-------|------|----------|----------|----------|--|------------------
  9.661 BB   8156.06299 1.45074e-5 1.18323e-1      TCMX
 10.806 BV   1284.45325 9.04810e-4   1.16219        1016#1
 12.186 VB   1034.76746 1.15198e-3   1.19203        1016#2
 12.884 BV   1604.08264 7.45924e-4   1.19652        1016#3
 13.355 BV    945.39813 1.27569e-3   1.20603        1016#4
```

Data File C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\008F1701.D
Sample Name: aro 1660 ccv 1.0 ppm
===
Acq. Operator   :   Seq. Line : 17
Acq. Instrument : Instrument 1   Location : Vial 8
Injection Date : 2/13/2017 5:28:18 PM   Inj :   1
                                            Inj Volume : 1 µl
Acq. Method   : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed   : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed   : 2/15/2017 2:13:56 PM
                  (modified after loading)

Sample-related custom fields:

Name	Value
===

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
13.791	BV	1302.51892	9.20644e-4	1.19916		1016#5
14.935	BV	871.68787	1.35076e-3	1.17744		1260#1
16.143	BV	1939.26978	6.17476e-4	1.19745		1260#2
16.515	BV	2183.97192	5.87508e-4	1.28310		1260#3
17.326	VB	1127.21118	9.66896e-4	1.08990		1260#4
18.304	BV	2420.63965	5.45995e-4	1.32166		1260#5
21.430	BV	3387.45313	7.80350e-5	2.64340e-1		DCBP

Totals :   12.40814

Signal 2: ECD2 B,

RetTime [min]	Type	Area [Hz*s]	Amt/Area	Amount [ng/ul]	Grp	Name
8.553	VV	7461.86865	1.59724e-5	1.19184e-1		TCMX
10.171	BV	2251.58057	5.30908e-4	1.19538		1016#1
11.084	BV	1196.37952	1.01743e-3	1.21723		1016#2
11.124	VV	1981.14160	6.23782e-4	1.23580		1016#3
11.382	BV	937.82031	1.33252e-3	1.24966		1016#4
12.170	BV	1005.13995	1.23709e-3	1.24345		1016#5
14.409	BB	1730.35693	7.42624e-4	1.28500		1260#1
15.127	VB	968.27643	1.32209e-3	1.28015		1260#2
15.595	VV	1121.78174	1.17047e-3	1.31301		1260#3
16.032	BV	1032.85950	1.28972e-3	1.33210		1260#4
16.573	VB	2423.38354	5.55554e-4	1.34632		1260#5
18.968	BB	3240.05103	8.56032e-5	2.77359e-1		DCBP

Totals :   13.09467

1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

===
                      Summed Peaks Report
===

Sample Name: aro 1660 ccv 1.0 ppm

===
```
Acq. Operator   :                        Seq. Line :  17
Acq. Instrument : Instrument 1            Location : Vial 8
Injection Date  : 2/13/2017 5:28:18 PM        Inj :   1
                                        Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\PCB-DC-02-13-17 2017-02-13 09-53-07\DC-8082-MASTER.M
Last changed    : 2/2/2017 9:17:18 AM
Analysis Method : C:\CHEM32\1\METHODS\PCB DC ICAL 02-02-17.M\PCB DC ICAL 02-13-17.M
Last changed    : 2/15/2017 2:13:56 PM
                  (modified after loading)
```

Sample-related custom fields:

```
Name                           |Value
-------------------------------|-------------------------------------
```
===

Signal 1: ECD1 A,
Signal 2: ECD2 B,
===
                    Final Summed Peaks Report
===

Signal 1: ECD1 A,
Signal 2: ECD2 B,

Compound-related custom fields:
                    *** End of Report ***

Prep Batch Report

Prep Batch ID **ARS1-P17-00147**

Matrix **SO**

Prep Group **SOLID**

PBatch Sample ID	Gamma	Wet	Rad	Basis	SDG	FR	Storage	Client ID	Lab Deadline
ARS1-P17-00147-01	X	X	X	DGAM, DINO, DPCB, DRAD, DSVO	ARS1-17-00216	003	D4	OS-2	02/11/17
ARS1-P17-00147-02	X	X	X	DGAM, DINO, DPCB, DRAD, DSVO	ARS1-17-00216	005	D4	BB-16B	02/11/17
ARS1-P17-00147-03	X	X	X	DGAM, DINO, DPCB, DRAD, DSVO	ARS1-17-00216	006	D4	BB-16A	02/11/17
ARS1-P17-00147-04	X	X	X	DGAM, DINO, DPCB, DRAD, DSVO	ARS1-17-00216	007	D4	BB-17	02/11/17
ARS1-P17-00147-05	X	X	X	DGAM, DINO, DPCB, DRAD, DSVO	ARS1-17-00216	008	D4	BB-17 Mud/Sludge	02/11/17

Prep Batch Report – Gamma Spec Aliquot

Prep Batch ID	SDG	FR	ICOC ID	Parent ID	Type	Geometry	Tare g	Cont+Sample g	Net Sample g
ARS1-P17-00147-01	ARS1-17-00216	003			DGAM, DINO, DPCB, DRAD, DSVO				
ARS1-P17-00147-02	ARS1-17-00216	005			DGAM, DINO, DPCB, DRAD, DSVO				
ARS1-P17-00147-03	ARS1-17-00216	006			DGAM, DINO, DPCB, DRAD, DSVO				
ARS1-P17-00147-04	ARS1-17-00216	007			DGAM, DINO, DPCB, DRAD, DSVO				
ARS1-P17-00147-05	ARS1-17-00216	008			DGAM, DINO, DPCB, DRAD, DSVO				

Prep Batch Report - Percent Moisture

Prep Batch ID	SDG	FR	ICOC ID	Parent ID	Tare g	Cont+Sample g	Net Sample g	Oven ID	Oven Temp C	Start Time	Stop Time	Cont+Sample g	Net Sample g	% Solid	% Moisture
ARS1-P17-00147-01	ARS1-17-00216	003	256338	255893	6.63	25.24	18.61	3	120	2/2/2017 3:49 PM	2/3/2017 8:00 AM	21.09	14.46	77.70%	22.30%
ARS1-P17-00147-02	ARS1-17-00216	005	256339	255887	6.64	24.15	17.51	3	120	2/2/2017 3:49 PM	2/3/2017 8:01 AM	22.20	15.56	88.86%	11.14%
ARS1-P17-00147-03	ARS1-17-00216	006	256340	255888	6.64	28.33	21.69	3	120	2/2/2017 3:49 PM	2/3/2017 8:00 AM	25.44	18.80	86.68%	13.32%
ARS1-P17-00147-04	ARS1-17-00216	007	256341	255889	6.62	20.98	14.36	3	120	2/2/2017 3:49 PM	2/3/2017 8:00 AM	18.47	11.85	82.52%	17.48%
ARS1-P17-00147-05	ARS1-17-00216	008	256342	255890	6.59	291.47	284.88	3	120	1/27/2017 5:08 PM	1/28/2017 9:31 AM	65.39	58.80	20.64%	79.36%

SDG ARS1-17-00216

Fraction	Container	Client ID	Aliquot	Units	Geometry	Prep Type	Origin	Origin2	ICOC ID
001	1	BB-16L	211.0000	g		ORIG	SCI		255884
001	2	BB-16L	1195.0000	g		ORIG	SCI		255894
001	2	BB-16L	549.6800	g		DRYF	PRP		256078
001	2	BB-16L	292.7500	g	250 mL Jar	DGAM	PRP		256081
001	2	BB-16L	37.2600	g		DRAD	ALI	Manual	256085
001	2	BB-16L	2.5078	g		DRAD	PRO	ARS-032	256122
002	1	BB-18	218.0000	g		ORIG	SCI		255883
002	2	BB-18	237.0000	g		ORIG	SCI		255895
002	3	BB-18	234.0000	g		ORIG	SCI		255896
002	4	BB-18	1366.0000	g		ORIG	SCI		255899
002	4	BB-18	683.3300	g		DRYF	PRP		256079
002	4	BB-18	381.3300	g	250 mL Jar	DGAM	PRP		256082
002	4	BB-18	52.0400	g		DRAD	ALI	Manual	256086
002	4	BB-18	2.5164	g		DRAD	PRO	ARS-032	256123
003	1	OS-2	226.0000	g		ORIG	SCI		255885
003	2	OS-2	206.0000	g		ORIG	SCI		255893
003	2	OS-2	18.6100	g		DRYF	PRP		256338
004	1	BB-19M	1266.0000	g		ORIG	SCI		255886
004	2	BB-19M	238.0000	g		ORIG	SCI		255892
004	3	BB-19M	211.0000	g		ORIG	SCI		255897
004	4	BB-19M	216.0000	g		ORIG	SCI		255898
004	4	BB-19M	742.2500	g		DRYF	PRP		256080
004	4	BB-19M	284.5300	g	250 mL Jar	DGAM	PRP		256083
004	4	BB-19M	34.3700	g		DRAD	ALI	Manual	256087
004	4	BB-19M	2.5041	g		DRAD	PRO	ARS-032	256245
005	1	BB-16B	214.0000	g		ORIG	SCI		255887
005	1	BB-16B	17.5100	g		DRYF	PRP		256339
006	1	BB-16A	228.0000	g		ORIG	SCI		255888
006	1	BB-16A	21.6900	g		DRYF	PRP		256340
007	1	BB-17	206.0000	g		ORIG	SCI		255889
007	1	BB-17	14.3600	g		DRYF	PRP		256341
007	2	BB-17	215.0000	g		ORIG	SCI		255891
008	1	BB-17 Mud/Sludge	352.0000	g		ORIG	SCI		255890
008	1	BB-17 Mud/Sludge	22.0400	g		DRAD	ALI	Manual	256084
008	1	BB-17 Mud/Sludge	2.5081	g		DRAD	PRO	ARS-032	256124
008	1	BB-17 Mud/Sludge	284.8800	g		DRYF	PRP		256342

2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277   FAX (225) 381-2996

Standard Information

SDG# ARS1-17-00216
COC SOLID SAMPLES

ARS INTERNATIONAL	**Add/Edit Secondary Stds**	**Parent Standard Data**	
Planning		Parent Solution Reference #	75186-526
Planning Comments	**Create a Sr-90 LCS Standard**	Parent Solution #	S-0160
Target dpm/g (on dil, date)	**46.66**	Parent Principal Radionuclide	Sr-90 / Half Life (Days) / 10409.6250000
Target Final volume mL	**1000**	Parent Reference Date	06/01/2007 12:00
Appx mass g of Parent Sol'n	**12.82144356**	Parent Certified Act	4521.643783 / Certi Act/Vol Units / dpm / 0
Appx vol ml of Parent Sol'n		Parent Cert Act Uncert 1 Sigma	0.017
Expected Addition for Analysis g	**1**	Parent Sp. Gravity G/Ml	
Standards Preparation / Dilution		Parent Supplier	Analytics
Secondary Solution #	**S-0313**	Parent Date Recvd	05/21/07
Dilution Date (New Ref Date)	**05/05/2016 00:00**	Parent Received By	AGuerrero
Ampoule, Empty (g)		Parent Cert Exp Date	
Ampoule /Solution Gross (g)		Parent Matrix	.1M HCL with 30 ug/g Sr carrier
Net Wt Removed (g)		Certified dpm/g At Ref Date	4521.643783
Transfer Container, empty (g)	**17.2513**	Certified dpm/g on 05/05/2016 00:00	3639.215602
Container Plus Solution (g)	**29.2848**		Intermediate standard for creating LCS standards. Dilution performed as stated above by BSteffens. -BJS 6/1/2007
Net Wt Transferred (g)	**12.0335**	Parent Comments	
DPM Xferred on 05/05/2016 00:00	**43792.50335**		
Diluent/matrix	**.1M HCL**	Parent Tech	BSteffens
Diluent Density Cont, empty (g)		Is_Primary	FALSE
Test Mass of 5 ml of Diluent (g)		Is_LCS	FALSE
Diluent Density Test - (g/mL)		Is_Tracer	FALSE
Dilution Empty Container Mass (g)	**258.23**	Is_Calib	FALSE
Dilution Full Cont g (if measured)	**1256.98**		
Dilution Final Volume ml (if measured)	**1000**		
Final Dilution Density (g/mL)	**0.99875**		
Final Dilution Measured Mass g	**998.75**		
Comments	**1L of standard to be used as Sr-90 LCS diluted as stated above by Jacob Byrd - JPB 5/5/2016**		
Final Dilution dpm/g	**43.84731249**		
Final Dil New Ref Date/Time	**05/05/2016 00:00**		

S-0313				
Sr-90		Verified	5/9/16
S		**Expires**	**5/9/17**
Manufactuer	Analytics		
Sol Matrix	.1M HCL with 30 ug/g		
Ref No	75186-526		
Tech	BSteffens		**ARS**
Parent ID	S-0160		INTERNATIONAL
RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY			

ARS
INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS
ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE | 5/9/2016 16:52 | *date counted*

STANDARD REFERENCE # | S-0313

Principal Radionuclide			**Half Life, Years**		**Half Life, Days**
Sr-90	*ENTER -->*		2.880E+01	*OR -->*	1.0520E+04
			2.880E+01		1.0520E+04

Radionuclide | Sr-90 | | **Dilution Reference Date** | 5/5/2016 0:00

| **Dilution Activity** | 19.75 | pCi per gram ===> dpm/g | 43.85 |
| **Verif. Date Decay Corrected** | 19.74 | pCi per gram ===> dpm/g | 43.83 |

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0313-V1	2347.00	120	A2	0.4153	1.26	1.005	43.82	19.74
S-0313-V2	2336.00	120	A3	0.4145	0.99	1.009	44.17	19.90
S-0313-V3	2335.00	120	A4	0.4147	1.05	1.008	44.01	19.82
S-0313-V4	2329.50	120	B1	0.4033	0.83	1.011	45.58	20.53
S-0313-V5	2363.00	120	B2	0.4193	0.80	1.009	44.65	20.11

			Average	44.44	20.02
			Two Sigma Uncertainty	1.38	0.62
10% Max	*PASS*	Standard Deviation percent of known concentration		1.60%	1.60%
			Target Activity	43.83	19.74
	5% Max	*PASS*	% Diff	1.39%	1.40%

Verification Expiration Date: | May 9, 2017

Prepared & Counted By _Jacob Byrd_   Date: _5/9/2016 16:52_

Verified & Approved By _____   Date: _____

QC Approval _ꓫꓴꓴ_   Date: _5-12-16_

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

INTERNATIONAL

	Detector	**A2**
Instrument	LB4100-A	

Current Wt.

	Eff	0.4153
Slope	Eff	Δ2
Intercept		Δ3
Eff Poly 2nd		
Eff Poly 3rd		

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur	BKG Dur	Measured CPM	Count Date	Decay Corr DPM	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	13	110	50208	1130	4.00	900	6275.37	5/24/2013	15112.16	0.4153
2	J590	23574.00	9/1/1999	19.90	21	110	59771	1130	4.00	900	7470.75	5/24/2013	16882.48	0.4425
3	J591	22242.00	9/1/1999	39.00	11	110	55300	1130	4.00	900	6911.87	5/24/2013	15928.57	0.4339
4	J592	21480.00	9/1/1999	61.40	12	110	50445	1130	4.00	900	6305.00	5/24/2013	15382.87	0.4099
5	J593	23886.00	9/1/1999	78.20	20	110	53376	1130	4.00	900	6671.37	5/24/2013	17105.92	0.3900
6	J594	23130.00	9/1/1999	103.60	9	110	51422	1130	4.00	900	6427.12	5/24/2013	16564.51	0.3880
7	J595	22446.00	9/1/1999	269.00	7	110	44050	1130	4.00	900	5505.62	5/24/2013	16074.67	0.3425
8														
9														
10														
11														
12														

$y = 3.9365E\text{-}07x^2 - 4.5300E\text{-}04x + 4.3478E\text{-}01$
$R^2 = 8.4105E\text{-}01$

American Radiation Services
Baton Rouge Laboratory

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

INTERNATIONAL

		Instrument	LB4100-A	Detector	A3
		Slope		Current Wt.	
		Intercept		Eff	0.4145
		Eff Poly 2nd		Δ 2	
		Eff Poly 3rd		Δ 3	

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur	BKG Dur	Measured CPM	Count Date	Decay Corr DPM	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	41	97	50116	915	4.00	900	6263.99	5/24/2013	15112.16	0.4145
2	J590	23574.00	9/1/1999	19.90	37	97	59844	915	4.00	900	7479.99	5/24/2013	16882.48	0.4431
3	J591	22242.00	9/1/1999	39.00	39	97	56115	915	4.00	900	7013.87	5/24/2013	15928.57	0.4403
4	J592	21480.00	9/1/1999	61.40	29	97	50564	915	4.00	900	6319.99	5/24/2013	15382.87	0.4108
5	J593	23886.00	9/1/1999	78.20	43	97	54201	915	4.00	900	6774.62	5/24/2013	17105.92	0.3960
6	J594	23130.00	9/1/1999	103.60	46	97	51625	915	4.00	900	6452.62	5/24/2013	16564.51	0.3895
7	J595	22446.00	9/1/1999	269.00	29	97	44746	915	4.00	900	5592.74	5/24/2013	16074.67	0.3479
8														
9														
10														
11														
12														

$y = 2.8911E\text{-}07x^2 - 4.0771E\text{-}04x + 4.3538E\text{-}01$
$R^2 = 8.0771E\text{-}01$

0.00, 0.4145

Eff — Delta — Linear? Poly2 Poly3

0.414

LB Eff Calculation Report

SR-90

Detector	A4
Current Wt.	
Eff	0.4147
Δ 2	
Δ 3	

Instrument	LB4100-A
Slope	
Intercept	
Eff Poly 2nd	
Eff Poly 3rd	

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur	BKG Dur	Measured CPM	Decay Corr DPM	Count Date	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	10	118	50140	814	4.00	900	6267.05	15112.16	5/24/2013	0.4147
2	J590	23574.00	9/1/1999	19.90	9	118	59951	814	4.00	900	7493.42	16882.48	5/24/2013	0.4439
3	J591	22242.00	9/1/1999	39.00	8	118	56448	814	4.00	900	7055.55	15928.57	5/24/2013	0.4429
4	J592	21480.00	9/1/1999	61.40	6	118	50626	814	4.00	900	6327.80	15382.87	5/24/2013	0.4114
5	J593	23886.00	9/1/1999	78.20	13	118	53603	814	4.00	900	6699.92	17105.92	5/24/2013	0.3917
6	J594	23130.00	9/1/1999	103.60	8	118	52248	814	4.00	900	6530.55	16564.51	5/24/2013	0.3942
7	J595	22446.00	9/1/1999	269.00	7	118	45031	814	4.00	900	5628.42	16074.67	5/24/2013	0.3501
8														
9														
10														
11														
12														

$$y = 2.9707E\text{-}07x^2 - 4.0276E\text{-}04x + 4.3583E\text{-}01$$
$$R^2 = 7.7672E\text{-}01$$

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

INTERNATIONAL

		Instrument	LB4100-A	Detector	**B1**
				Current Wt.	
		Slope		Eff	0.4033
		Intercept		Δ2	
		Eff Poly 2nd		Δ3	
		Eff Poly 3rd			

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur	BKG Dur	Measured CPM	Decay Corr DPM	Count Date	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	11	73	48756	708	4.00	900	6094.11	15112.16	5/24/2013	0.4033
2	J590	23574.00	9/1/1999	19.90	4	73	58777	708	4.00	900	7346.73	16882.48	5/24/2013	0.4352
3	J591	22242.00	9/1/1999	39.00	2	73	55335	708	4.00	900	6916.48	15928.57	5/24/2013	0.4342
4	J592	21480.00	9/1/1999	61.40	7	73	48912	708	4.00	900	6113.61	15382.87	5/24/2013	0.3974
5	J593	23886.00	9/1/1999	78.20	8	73	54816	708	4.00	900	6851.61	17105.92	5/24/2013	0.4005
6	J594	23130.00	9/1/1999	103.60	3	73	51545	708	4.00	900	6442.73	16564.51	5/24/2013	0.3889
7	J595	22446.00	9/1/1999	269.00	4	73	43723	708	4.00	900	5464.98	16074.67	5/24/2013	0.3400
8														
9														
10														
11														
12														

$$y = -2.6119E-07x^2 - 2.4396E-04x + 4.2338E-01$$
$$R^2 = 7.9497E-01$$

0.00, 0.4033

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

	Instrument	LB4100-A	Detector	B2
	Slope		Current Wt. Eff	0.4193
	Intercept		Δ 2	
	Eff Poly 2nd		Δ 3	
	Eff Poly 3rd			

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur	BKG Dur	Measured CPM	Count Date	Decay Corr DPM	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	34	102	50695	804	4.00	900	6336.43	5/24/2013	15112.16	0.4193
2	J590	23574.00	9/1/1999	19.90	34	102	60840	804	4.00	900	7604.55	5/24/2013	16882.48	0.4504
3	J591	22242.00	9/1/1999	39.00	37	102	57052	804	4.00	900	7131.05	5/24/2013	15928.57	0.4477
4	J592	21480.00	9/1/1999	61.40	28	102	50868	804	4.00	900	6358.05	5/24/2013	15382.87	0.4133
5	J593	23886.00	9/1/1999	78.20	30	102	54390	804	4.00	900	6798.30	5/24/2013	17105.92	0.3974
6	J594	23130.00	9/1/1999	103.60	34	102	52636	804	4.00	900	6579.05	5/24/2013	16564.51	0.3972
7	J595	22446.00	9/1/1999	269.00	27	102	45484	804	4.00	900	5685.05	5/24/2013	16074.67	0.3537
8														
9														
10														
11														
12														

$y = 3.6876E\text{-}07x^2 - 4.2953E\text{-}04x + 4.4134E\text{-}01$
$R^2 = 7.7695E\text{-}01$

Tech: J Byrd
Pipet #
Scale ID   12332539
Standard # S-0313

Sample ID	Std weight g.
S-0313-V1	1.0053
S-0313-V2	1.0091
S-0313-V3	1.0084
S-0313-V4	1.0109
S-0313-V5	1.0091

Performed By: J Byrd

GEN 239
A 35723
Sr
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A2	S-0313-V1	12	4694	120	1402.5	5/9/16 16:52
A3	S-0313-V2	5	4672	120	1402.5	5/9/16 16:52
A4	S-0313-V3	14	4670	120	1402.5	5/9/16 16:52
B1	S-0313-V4	5	4659	120	1402.5	5/9/16 16:52
B2	S-0313-V5	18	4726	120	1402.5	5/9/16 16:52

Page 1

GEN 233
A 35723
LONG BKG
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	A1-01	61	1641	900	1402.5	5/7/16 5:59
A2	A2-01	86	1137	900	1402.5	5/7/16 5:59
A3	A3-01	86	893	900	1402.5	5/7/16 5:59
A4	A4-01	77	949	900	1402.5	5/7/16 5:59
C1	C1-01	46	763	900	1402.5	5/7/16 5:59
C2	C2-01	88	767	900	1402.5	5/7/16 5:59
C3	C3-01	32	1701	900	1402.5	5/7/16 5:59
C4	C4-01	59	727	900	1402.5	5/7/16 5:59
B1	B1-01	43	748	900	1402.5	5/7/16 6:00
B2	B2-01	46	720	900	1402.5	5/7/16 6:00
B3	B3-01	55	736	900	1402.5	5/7/16 6:00
B4	B4-01	105	884	900	1402.5	5/7/16 6:00
D1	D1-01	41	792	900	1402.5	5/7/16 6:00
D2	D2-01	65	1429	900	1402.5	5/7/16 6:00
D3	D3-01	30	688	900	1402.5	5/7/16 6:00
D4	D4-01	54	1254	900	1402.5	5/7/16 6:00

Page 1

Tech: J Byrd
Pipet #
Scale ID   12332539
Standard #   S-0313

Sample ID	Std weight g.
S-0313-V1	1.0053
S-0313-V2	1.0091
S-0313-V3	1.0084
S-0313-V4	1.0109
S-0313-V5	1.0091

Performed By: J Byrd

ARS INTERNATIONAL	**Add/Edit Secondary Stds**	**Parent Standard Data**		
Planning		Parent Solution Reference #	75186-526	
Planning Comments	Create a Sr90 LCS standard	Parent Solution #	S-0160	
Target dpm/g (on dil. date)	46.66	Parent Principal Radionuclide	Sr-90	Half Life (Days) 10409.6250000
Target Final volume mL	1000	Parent Reference Date	06/01/2007 12:00	
Appx mass g of Parent Sol'n	12.80817542	Parent Certified Act	4521.643783	Certi Act/Vol. Units dpm g
Appx vol ml of Parent Sol'n		Parent Cert Act Uncert 1 Sigma	0.017	
Expected Addition for Analysis g	1	Parent Sp. Gravity G/Ml		
Standards Preparation / Dilution		Parent Supplier	Analytics	
Secondary Solution #	S-0313	Parent Date Recvd	05/21/07	
Dilution Date (New Ref Date)	5-5-16	Parent Received By	AGuerraro	
~~Ampoule, Empty (g)~~		Parent Cert Exp Date		
~~Ampoule /Solution Gross (g)~~		Parent Matrix	.1M HCL with 30 ug/g Sr carrier	
Net Wt Removed (g)		Certified dpm/g At Ref Date	4521.643783	
Transfer Container, empty (g)	17.2513	Certified dpm/g on 04/19/2016 10:49	3642.985708	
Container Plus Solution (g)	29.2848		Intermediate standard for creating LCS standards. Dilution performed as stated above by BSteffens. -BJS 6/1/2007	
Net Wt Transferred (g)		Parent Comments		
DPM Xferred on 04/19/2016 10:49				
~~Diluent/matrix~~		Parent Tech	BSteffens	
~~Diluent Density Cont, empty (g)~~		Is_Primary	FALSE	
~~Test Mass of 5 ml of Diluent (g)~~		Is_LCS	FALSE	
Diluent Density Test - (g/mL)		Is_Tracer	FALSE	
Dilution Empty Container Mass (g)	258.23	Is_Calib	FALSE	
Dilution Full Cont g (if measured)	1256.98			
Dilution Final Volume ml (if measured)	1000 mL			
Final Dilution Density (g/mL)				
Final Dilution Measured Mass g				
Comments				
Final Dilution dpm/g				
Final Dil New Ref Date/Time	04/19/2016 10:49			

Eckert & Ziegler

Isotope Products

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661·309·1010
Fax 661·257·8303

COPY

CERTIFICATE OF CALIBRATION
MULTINUCLIDE STANDARD SOURCE

Customer:	AMERICAN RADIATION SERVICE	**Source No.:**	1559-72-6
P.O. No.:	11-0530	**Reference Date:**	1-Feb-12 12:00 PST
Catalog No.:	EG-ML	**Contained Radioactivity:**	2.549 µCi 94.31 kBq

Physical Description:

A. Capsule type: Customer supplied tuna can
B. Nature of active deposit: Multinuclide distributed in 1.5 g/cc epoxy matrix
C. Active diameter/volume: Approximately 250mL (375.2 grams)
D. Backing: Steel
E. Cover: Steel

Gamma-Ray Energy (keV)	Nuclide	Half-life	Branching Ratio (%)	Activity (µCi)	Gammas per second	Total Uncert.
47	Pb-210	22.3 ± 0.2 years	4.18	0.5834	902.3	7.0 %
60	Am-241	432.17 ± 0.66 years	36.0	0.05866	781.4	3.0 %
88	Cd-109	462.6 ± 0.7 days	3.63	0.5345	717.9	3.1 %
122	Co-57	271.79 ± 0.09 days	85.6	0.02013	637.6	3.1 %
159	Te-123m	119.7 ± 0.1 days	84.0	0.02758	857.2	3.0 %
320	Cr-51	27.706 ± 0.007 days	9.86	0.6881	2510	3.0 %
392	Sn-113	115.09 ± 0.04 days	64.9	0.1048	2517	3.0 %
514	Sr-85	64.849 ± 0.004 days	98.4	0.1282	4668	3.0 %
662	Cs-137	30.17 ± 0.16 years	85.1	0.08881	2796	3.0 %
898	Y-88	106.630 ± 0.025 days	94.0	0.2068	7193	3.0 %
1173	Co-60	5.272 ± 0.001 years	99.86	0.1077	3979	3.0 %
1333	Co-60	5.272 ± 0.001 years	99.98	0.1077	3984	3.0 %
1836	Y-88	106.630 ± 0.025 days	99.4	0.2068	7606	3.0 %

Method of Calibration:

This source was prepared from weighed aliquots of solutions whose concentrations in µCi/g were determined by gamma spectrometry.

Notes:

- See reverse side for leak test(s) performed on this source.
- EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA-TECDOC-619, 1991.
- Overall uncertainty is calculated at the 99% confidence level.
- This source has a working life of 1 year.

_____
Quality Control

5-Jan-12
Date

EZIP Ref. No.:   1559-72

───── ISO 9001 CERTIFIED ─────

Medical Imaging Laboratory
24937 Avenue Tibbitts   Valencia, California 91355

Industrial Gauging Laboratory
1800 North Keystone Street   Burbank, California 91504

√| Standard Wipe Test

The source was wiped over its entire surface with a moistened filter paper disk. After drying, the disk was checked for activity using a scintillation detector.

| Special Wipe Test

The source was wiped over its entire surface with moistened polystyrene. The polystyrene was then dissolved in a liquid scintillation cocktail and counted in a liquid scintillation counter.

| Distilled Water Soak Test

The source was immersed in distilled water and maintained at (50 ± 5)°C for a minimum of four hours or room temperature (20 ± 5)°C for 24 hours. After removal of the source, the liquid was a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue checked for activity using a windowless proportional counter or end-window G.M. tube.

| Liquid Scintillation Soak Test

The source was immersed for a minimum of 3 hours at room temperature(20 ± 5)°C in a liquid scintillation cocktail, which does not attack the source's outer surface material. The source was stored away from light to avoid photoluminescence. The sealed source was then removed and the activity of the liquid scintillation cocktail was measured.

| Gas Source Test

The source was placed in a vacuum desiccator and maintained at a pressure of <10 mm Hg for not less than 12 hours. The activity was checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube.

| Ampoule Leak Test

The ampoule was kept in an inverted position on a filter paper disk or polystyrene wipe for a minimum of 16 hours. The wipe was then checked for activity using a scintillation detector or liquid scintillation counter.

| Bubble Leak Test

The container was pressurized to its fill pressure; then soapy water was applied over its valve and neck or, the valve and neck of the vessel were immersed in water. If no growing bubbles were observed, the container was considered leak free.

| Wipe Test for Industrial Ni-63 Sources

The sources were wipe tested by an approved sampling plan, which called for either 100% of the batch to be individually wipe tested, or, a subset thereof. The wipe test(s) used to test for removable contamination and the results of those tests are recorded on the front of this form.

| Pressure Test for Triotech Kr-85 Sources

Prior to filling the vessel with Kr-85 gas, the vessel was evacuated to <5 mm Hg, the gas manifold system shut off and the system allowed to stand for a minimum of 30 minutes. A vacuum difference not greater than the known vacuum loss of the manifold system itself signified the vessel did not leak.

| Leak Test Not Applicable

The active area of the source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test or special wipe test depending on the nuclide.

| Other Leak Test

Eckert & Ziegler

Isotope Products

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661·309·1010
Fax 661·257·8303

CERTIFICATE OF CALIBRATION
MULTINUCLIDE STANDARD SOURCE

Customer:	AMERICAN RADIATION SERVICE	**Source No.:**	1748-90-1
P.O. No.:	14-0236	**Reference Date:**	1-Oct-14 12:00 PST
Catalog No.:	EG-ML	**Contained Radioactivity:**	0.9342 µCi 34.57 kBq

Physical Description:

    A. Capsule type: Customer supplied tuna can
    B. Nature of active deposit: Multinuclide distributed in 1.5 g/cc epoxy matrix
    C. Active diameter/volume: Approximately 250mL (377.6 grams)
    D. Backing: Steel
    E. Cover: Steel

Gamma-Ray Energy (keV)	Nuclide	Half-life	Branching Ratio (%)	Activity (µCi)	Gammas per second	Total Uncert.
47	Pb-210	22.3 ± 0.2 years	4.18	0.2133	329.9	4.1 %
60	Am-241	432.17 ± 0.66 years	36.0	0.02113	281.5	3.1 %
88	Cd-109	462.6 ± 0.7 days	3.63	0.2039	273.9	3.1 %
122	Co-57	271.79 ± 0.09 days	85.6	0.007394	234.2	3.1 %
159	Te-123m	119.7 ± 0.1 days	84.0	0.01066	331.3	3.1 %
320	Cr-51	27.706 ± 0.007 days	9.86	0.2517	918.3	3.0 %
392	Sn-113	115.09 ± 0.04 days	64.9	0.03574	858.2	3.0 %
514	Sr-85	64.849 ± 0.004 days	98.4	0.04568	1663	3.0 %
662	Cs-137	30.17 ± 0.16 years	85.1	0.03171	998.5	3.1 %
898	Y-88	106.630 ± 0.025 days	94.0	0.07337	2552	3.0 %
1173	Co-60	5.272 ± 0.001 years	99.86	0.03965	1465	3.0 %
1333	Co-60	5.272 ± 0.001 years	99.98	0.03965	1467	3.0 %
1836	Y-88	106.630 ± 0.025 days	99.4	0.07337	2698	3.0 %

Method of Calibration:

    This source was prepared from weighed aliquots of solutions whose concentrations in µCi/g were determined by gamma spectrometry.

Notes:

    - See reverse side for leak test(s) performed on this source.
    - EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
    - Nuclear data was taken from IAEA-TECDOC-619, 1991.
    - Overall uncertainty is calculated at the 99% confidence level.
    - This source has a working life of 1 year.

Daniel James Van Dalsem
   Quality Control   _18-Sep-14_
                                Date   EZIP Ref. No.:   1748-90

✓ Standard Wipe Test

The source was wiped over its entire surface with a moistened filter paper disk. After drying, the disk was checked for activity using a scintillation detector.

Special Wipe Test

The source was wiped over its entire surface with moistened polystyrene. The polystyrene was then dissolved in a liquid scintillation cocktail and counted in a liquid scintillation counter.

Distilled Water Soak Test

The source was immersed in distilled water and maintained at $(50 \pm 5)°C$ for a minimum of four hours or room temperature $(20 \pm 5)°C$ for 24 hours. After removal of the source, the liquid was a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue checked for activity using a windowless proportional counter or end-window G.M. tube.

Liquid Scintillation Soak Test

The source was immersed for a minimum of 3 hours at room temperature$(20 \pm 5)°C$ in a liquid scintillation cocktail, which does not attack the source's outer surface material. The source was stored away from light to avoid photolumi-nescence. The sealed source was then removed and the activity of the liquid scintillation cocktail was measured.

Gas Source Test

The source was placed in a vacuum desiccator and maintained at a pressure of <10 mm Hg for not less than 12 hours. The activity was checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube.

Ampoule Leak Test

The ampoule was kept in an inverted position on a filter paper disk or polystyrene wipe for a minimum of 16 hours. The wipe was then checked for activity using a scintillation detector or liquid scintillation counter.

Bubble Leak Test

The container was pressurized to its fill pressure; then soapy water was applied over its valve and neck or, the valve and neck of the vessel were immersed in water. If no growing bubbles were observed, the container was considered leak free.

Wipe Test for Industrial Ni-63 Sources

The sources were wipe tested by an approved sampling plan, which called for either 100% of the batch to be individually wipe tested, or, a subset thereof. The wipe test(s) used to test for removable contamination and the results of those tests are recorded on the front of this form.

Pressure Test for Triotech Kr-85 Sources

Prior to filling the vessel with Kr-85 gas, the vessel was evacuated to <5 mm Hg, the gas manifold system shut off and the system allowed to stand for a minimum of 30 minutes. A vacuum difference not greater than the known vacuum loss of the manifold system itself signified the vessel did not leak.

Leak Test Not Applicable

The active area of the source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test or special wipe test depending on the nuclide.

Other Leak Test

E&Z 1748-90-1 250ml Tuna Can 1.5g/cc

Nuclide	Energy	GPS	BRatio	Bq	DPM	pCi
PB-210	47	329.9	0.0418	7892.344	473540.7	213306.4
AM-241	60	281.5	0.36	781.9444	46916.67	21133.61
CD-109	88	273.9	0.0363	7545.455	452727.3	203931
CO-57	122	234.2	0.856	273.5981	16415.89	7394.537
TE-123m	159	331.3	0.84	394.4048	23664.29	10659.58
CR-51	320	918.3	0.0986	9313.387	558803.2	251712.9
SN-113	392	858.2	0.649	1322.342	79340.52	35738.94
SR-85	514	1663	0.984	1690.041	101402.4	45676.73
CS-137	662	998.5	0.851	1173.325	70399.53	31711.47
Y-88	898	2552	0.94	2714.894	162893.6	73375.43
CO-60	1173	1465	0.9986	1467.054	88023.23	39650.07
CO-60	1333	1467	0.9998	1467.293	88037.61	39656.54
Y-88	1836	2698	0.994	2714.286	162857.1	73359

Eckert & Ziegler
Isotope Products

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661·309·1010
Fax 661·257·8303

CERTIFICATE OF CALIBRATION
MULTINUCLIDE STANDARD SOURCE

Customer:	AMERICAN RADIATION SERVICE	**Source No.:**	1595-98-4
P.O. No.:	12-0210 / R5197	**Reference Date:**	1-Jul-12 12:00 PST
Catalog No.:	EG-ML	**Contained Radioactivity:**	1.024 µCi 37.89 kBq

Physical Description:

A. Capsule type: Customer supplied tuna can
B. Nature of active deposit: Multinuclide distributed in 1.5 g/cc epoxy matrix
C. Active diameter/volume: Approximately 250mL (376.2 grams)
D. Backing: Plastic
E. Cover: Plastic

Gamma-Ray Energy (keV)	Nuclide	Half-life	Branching Ratio (%)	Activity (µCi)	Gammas per second	Total Uncert.
47	Pb-210	22.3 ± 0.2 years	4.18	0.2320	358.8	7.0 %
60	Am-241	432.17 ± 0.66 years	36.0	0.02273	302.8	3.0 %
88	Cd-109	462.6 ± 0.7 days	3.63	0.2223	298.6	3.2 %
122	Co-57	271.79 ± 0.09 days	85.6	0.008038	254.6	3.1 %
159	Te-123m	119.7 ± 0.1 days	84.0	0.01098	341.3	3.1 %
320	Cr-51	27.706 ± 0.007 days	9.86	0.2766	1009	3.0 %
392	Sn-113	115.09 ± 0.04 days	64.9	0.04358	1046	3.0 %
514	Sr-85	64.849 ± 0.004 days	98.4	0.05122	1865	3.0 %
662	Cs-137	30.17 ± 0.16 years	85.1	0.03546	1117	3.0 %
898	Y-88	106.630 ± 0.025 days	94.0	0.07866	2736	3.0 %
1173	Co-60	5.272 ± 0.001 years	99.86	0.04279	1581	3.0 %
1333	Co-60	5.272 ± 0.001 years	99.98	0.04279	1583	3.0 %
1836	Y-88	106.630 ± 0.025 days	99.4	0.07866	2893	3.0 %

Method of Calibration:

This source was prepared from weighed aliquots of solutions whose concentrations in µCi/g were determined by gamma spectrometry.

Notes:

- See reverse side for leak test(s) performed on this source.
- EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA-TECDOC-619, 1991.
- Overall uncertainty is calculated at the 99% confidence level.
- This source has a working life of 1 year.

Daniel James Van Dalsen
Quality Control

5-Jul-12
Date

EZIP Ref. No.:   1595-98

== ISO 9001 CERTIFIED ==

Medical Imaging Laboratory
24937 Avenue Tibbitts   Valencia, California 91355

Industrial Gauging Laboratory
1800 North Keystone Street   Burbank, California 91504

1595-98-4 - Tuna Can 1.5g/cc - 7-1-12

Nuclide	Energy	GPS	BRatio	Bq	DPM	pCi
PB-210	47	358.8	0.0418	8583.73	515023.92	231992.53
AM-241	60	302.8	0.36	841.11	50466.67	22732.71
CD-109	88	298.6	0.0363	8225.90	493553.72	222321.27
CO-57	122	254.6	0.856	297.43	17845.79	8038.64
TE-123M	159	341.3	0.84	406.31	24378.57	10981.33
CR-51	320	1009	0.0986	10233.27	613995.94	276574.47
SN-113	392	1046	0.649	1611.71	96702.62	43559.69
SR-85	514	1865	0.984	1895.33	113719.51	51224.95
CS-137	662	1117	0.851	1312.57	78754.41	35474.92
Y-88	898	2736	0.94	2910.64	174638.30	78665.82
CO-60	1173	1581	0.9986	1583.22	94992.99	42789.59
CO-60	1333	1583	0.9998	1583.32	94999.00	42792.30
Y-88	1836	2893	0.994	2910.46	174627.77	78661.08

△ ANALYTICS
An Isotope Products Laboratories Company

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73518-526

Th-230 47 mm Diameter x 0.9 mm Thick Stainless Steel Disk in Stainless Steel Planchet

This standard radionuclide source was prepared by electro-deposition of Th-230 onto a stainless steel disk. Th-230 activity was determined with a ZnS scintillation detector. The calibration was checked by alpha spectroscopy after source preparation.

Analytics maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Regulatory Guide 4.15, Rev. 1.

ISOTOPE:	Th-230
ACTIVITY (dps):	1.888 E2
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	September 11, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.0%

Diameter of Active Area: 33 mm. Low Ringed Bottom Planchet.

CAUTION: Active material deposited on the unmarked surface. Handle carefully to prevent scratching or damaging the active surface of this source (i.e., use Teflon coated forceps). Store in the container provided when not in use.

P O NUMBER   06-0431, Item 1

SOURCE CALIBRATED BY: _Daniel M. Montgomery, Radiochemist_

Q A APPROVED: 09-12-2006

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Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
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CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73519-526

Th-230 47 mm Diameter x 0.9 mm Thick Stainless Steel Disk in Stainless Steel Planchet

This standard radionuclide source was prepared by electro-deposition of Th-230 onto a stainless steel disk. Th-230 activity was determined with a ZnS scintillation detector. The calibration was checked by alpha spectroscopy after source preparation.

Analytics maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Regulatory Guide 4.15, Rev. 1.

ISOTOPE:	Th-230
ACTIVITY (dps):	1.851 E2
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	September 11, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.0%

Diameter of Active Area: 33 mm. Low Ringed Bottom Planchet.

CAUTION: Active material deposited on the unmarked surface. Handle carefully to prevent scratching or damaging the active surface of this source (i.e., use Teflon coated forceps). Store in the container provided when not in use.

P O NUMBER   06-0431, Item 1

SOURCE CALIBRATED BY: _Daniel M. Montgomery, Radiochemist_

Q A APPROVED: 09-11-2006

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Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
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CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73520-526

Th-230 47 mm Diameter x 0.9 mm Thick Stainless Steel Disk in Stainless Steel Planchet

This standard radionuclide source was prepared by electro-deposition of Th-230 onto a stainless steel disk. Th-230 activity was determined with a ZnS scintillation detector. The calibration was checked by alpha spectroscopy after source preparation.

Analytics maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Regulatory Guide 4.15, Rev. 1.

ISOTOPE:	Th-230
ACTIVITY (dps):	1.907 E2
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	September 11, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.0%

Diameter of Active Area: 33 mm. Low Ringed Bottom Planchet.

CAUTION: Active material deposited on the unmarked surface. Handle carefully to prevent scratching or damaging the active surface of this source (i.e., use Teflon coated forceps). Store in the container provided when not in use.

P O NUMBER   06-0431, Item 1

SOURCE CALIBRATED BY: _____
Daniel M. Montgomery, Radiochemist

Q A APPROVED: _____ 09-11-2006

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73521-526

Th-230 47 mm Diameter x 0.9 mm Thick Stainless Steel Disk in Stainless Steel Planchet

This standard radionuclide source was prepared by electro-deposition of Th-230 onto a stainless steel disk. Th-230 activity was determined with a ZnS scintillation detector. The calibration was checked by alpha spectroscopy after source preparation.

Analytics maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Regulatory Guide 4.15, Rev. 1.

ISOTOPE:	Th-230
ACTIVITY (dps):	1.916 E2
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	September 11, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.0%

Diameter of Active Area: 33 mm. Low Ringed Bottom Planchet.

CAUTION: Active material deposited on the unmarked surface. Handle carefully to prevent scratching or damaging the active surface of this source (i.e., use Teflon coated forceps). Store in the container provided when not in use.

P O NUMBER   06-0431, Item 1

SOURCE CALIBRATED BY: _Daniel M. Montgomery, Radiochemist_

Q A APPROVED: 09-11-2006

Corporate Office   Laboratory

ANALYTICS
An Isotope Products Laboratories Company

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
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CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73522-526

Sr-90 in Aluminized Mylar on 47 mm Diameter Aluminum Ring

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. The calibration was checked by beta counting after source preparation.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Sr-90
ACTIVITY (dps):	1.826 E2
HALF-LIFE:	28.79 years
CALIBRATION DATE:	October 9, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ-impurities <0.1%

Diameter of active area: 33 mm. 0.8 mg/cm^2 aluminized mylar.

No expiration date has been given for this source due to the fragile nature of the mylar covering. This source should be carefully tested for leakage at least every six months. If leakage is detected this source should be disposed of by approved radioactive waste disposal procedures.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

P O NUMBER   06-0422, Item 1

SOURCE PREPARED BY: _M. Dimitrova_
M. Dimitrova, Radiochemist

Q A APPROVED: _M. M_____ 10-10-06_

Corporate Office

Laboratory

500 of 1081

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Atlanta, Georgia 30318
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CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73523-526

Sr-90 in Aluminized Mylar on 47 mm Diameter Aluminum Ring

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. The calibration was checked by beta counting after source preparation.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Sr-90
ACTIVITY (dps):	1.837 E2
HALF-LIFE:	28.79 years
CALIBRATION DATE:	October 9, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ-impurities <0.1%

Diameter of active area: 33 mm. 0.8 mg/cm^2 aluminized mylar.

No expiration date has been given for this source due to the fragile nature of the mylar covering. This source should be carefully tested for leakage at least every six months. If leakage is detected this source should be disposed of by approved radioactive waste disposal procedures.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

P O NUMBER   06-0422, Item 1

SOURCE PREPARED BY: _____
                    M. Dimitrova, Radiochemist

Q A APPROVED: _____ 10-10-06

Corporate Office

Laboratory

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Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
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CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73524-526

Sr-90 in Aluminized Mylar on 47 mm Diameter Aluminum Ring

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. The calibration was checked by beta counting after source preparation.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Sr-90
ACTIVITY (dps):	1.833 E2
HALF-LIFE:	28.79 years
CALIBRATION DATE:	October 9, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ-impurities <0.1%

Diameter of active area: 33 mm. 0.8 mg/cm^2 aluminized mylar.

No expiration date has been given for this source due to the fragile nature of the mylar covering. This source should be carefully tested for leakage at least every six months. If leakage is detected this source should be disposed of by approved radioactive waste disposal procedures.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

P O NUMBER   06-0422, Item 1

SOURCE PREPARED BY: _____
M. Dimitrova, Radiochemist

Q A APPROVED: _____ 10-10-06

Corporate Office

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1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
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CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73525-526

Sr-90 in Aluminized Mylar on 47 mm Diameter Aluminum Ring

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. The calibration was checked by beta counting after source preparation.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Sr-90
ACTIVITY (dps):	1.811 E2
HALF-LIFE:	28.79 years
CALIBRATION DATE:	October 9, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ-impurities <0.1%

Diameter of active area: 33 mm. 0.8 mg/cm^2 aluminized mylar.

No expiration date has been given for this source due to the fragile nature of the mylar covering. This source should be carefully tested for leakage at least every six months. If leakage is detected this source should be disposed of by approved radioactive waste disposal procedures.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

P O NUMBER   06-0422, Item 1

SOURCE PREPARED BY: _M. Dimitrova_
M. Dimitrova, Radiochemist

Q A APPROVED: _____ 10-10-06

RESTEK®

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

calibration std

ACCREDITED
ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ilac-MRA

ACCREDITED
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. : 31850   Lot No.: A0120345

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL   Pkg Amt: > 1 mL

Expiration Date : January 31, 2018   Storage: 0°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	Pyridine			1,004.3 µg/mL	+/-	6.3298	µg/mL	Gravimetric
	CAS #	110-86-1	(Lot SHBC7174V)		+/-	30.4764	µg/mL	Unstressed
	Purity	99%			+/-	30.4764	µg/mL	Stressed
2	N-Nitrosodimethylamine			1,000.0 µg/mL	+/-	6.3027	µg/mL	Gravimetric
	CAS #	62-75-9	(Lot 3846000)		+/-	30.3459	µg/mL	Unstressed
	Purity	99%			+/-	30.3459	µg/mL	Stressed
3	Aniline			1,001.0 µg/mL	+/-	6.3090	µg/mL	Gravimetric
	CAS #	62-53-3	(Lot K22Z462)		+/-	30.3762	µg/mL	Unstressed
	Purity	99%			+/-	30.3762	µg/mL	Stressed
4	Phenol			1,000.5 µg/mL	+/-	6.3055	µg/mL	Gravimetric
	CAS #	108-95-2	(Lot SHBF1351V)		+/-	30.3595	µg/mL	Unstressed
	Purity	99%			+/-	30.3595	µg/mL	Stressed
5	Bis(2-chloroethyl)ether			1,000.7 µg/mL	+/-	6.3068	µg/mL	Gravimetric
	CAS #	111-44-4	(Lot 45296HKV)		+/-	30.3656	µg/mL	Unstressed
	Purity	99%			+/-	30.3656	µg/mL	Stressed
6	2-Chlorophenol			1,003.3 µg/mL	+/-	6.3235	µg/mL	Gravimetric
	CAS #	95-57-8	(Lot STBF2690V)		+/-	30.4460	µg/mL	Unstressed
	Purity	99%			+/-	30.4460	µg/mL	Stressed
7	1,3-Dichlorobenzene			1,001.0 µg/mL	+/-	6.3087	µg/mL	Gravimetric
	CAS #	541-73-1	(Lot BCBM5751V)		+/-	30.3747	µg/mL	Unstressed
	Purity	99%			+/-	30.3747	µg/mL	Stressed

8	1,4-Dichlorobenzene			1,004.9	µg/mL	+/-	6.3335	µg/mL	Gravimetric

No.	Compound / CAS # / Purity	Lot	Concentration			Tolerance		Type
8	1,4-Dichlorobenzene CAS # 106-46-7 Purity 99%	(Lot MKBS1350V)	1,004.9	µg/mL	+/- +/- +/-	6.3335 30.4946 30.4946	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	1,2-Dichlorobenzene CAS # 95-50-1 Purity 99%	(Lot SHBD7331V)	1,004.0	µg/mL	+/- +/- +/-	6.3279 30.4673 30.4673	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Benzyl alcohol CAS # 100-51-6 Purity 99%	(Lot SHBC1850V)	1,007.4	µg/mL	+/- +/- +/-	6.3490 30.5689 30.5689	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	2,2'-oxybis(1-chloropropane) CAS # 108-60-1 Purity 99%	(Lot 2-KMW-57-8)	1,002.5	µg/mL	+/- +/- +/-	6.3184 30.4218 30.4218	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	2-Methylphenol (o-cresol) CAS # 95-48-7 Purity 99%	(Lot SHBC1479V)	1,002.0	µg/mL	+/- +/- +/-	6.3150 30.4051 30.4051	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	Hexachloroethane CAS # 67-72-1 Purity 99%	(Lot 4H3SF)	1,003.9	µg/mL	+/- +/- +/-	6.3269 30.4627 30.4627	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	N-Nitroso-di-n-propylamine CAS # 621-64-7 Purity 99%	(Lot OPAGF)	1,001.5	µg/mL	+/- +/- +/-	6.3121 30.3914 30.3914	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	4-Methylphenol (p-cresol) CAS # 106-44-5 Purity 99%	(Lot 49396APV)	504.3	µg/mL	+/- +/- +/-	3.1784 15.3034 15.3034	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	3-Methylphenol (m-cresol) CAS # 108-39-4 Purity 99%	(Lot SHBD0627V)	500.5	µg/mL	+/- +/- +/-	3.1542 15.1866 15.1866	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Nitrobenzene CAS # 98-95-3 Purity 99%	(Lot SHBB0246V)	1,002.2	µg/mL	+/- +/- +/-	6.3165 30.4127 30.4127	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Isophorone CAS # 78-59-1 Purity 99%	(Lot MKBG2442V)	1,004.3	µg/mL	+/- +/- +/-	6.3298 30.4764 30.4764	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	2-Nitrophenol CAS # 88-75-5 Purity 99%	(Lot BCBH7602V)	1,000.3	µg/mL	+/- +/- +/-	6.3046 30.3550 30.3550	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	2,4-Dimethylphenol CAS # 105-67-9 Purity 99%	(Lot 10165155)	1,001.4	µg/mL	+/- +/- +/-	6.3112 30.3869 30.3869	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	Bis(2-chloroethoxy)methane CAS # 111-91-1 Purity 99%	(Lot 3299900)	1,000.1	µg/mL	+/- +/- +/-	6.3033 30.3489 30.3489	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	2,4-Dichlorophenol CAS # 120-83-2 Purity 99%	(Lot BCBH1617V)	1,004.1	µg/mL	+/- +/- +/-	6.3282 30.4688 30.4688	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,2,4-Trichlorobenzene CAS # 120-82-1 Purity 99%	(Lot 26896BM)	1,003.0	µg/mL	+/- +/- +/-	6.3216 30.4369 30.4369	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Naphthalene		1,002.0	µg/mL	+/-	6.3153	µg/mL	Gravimetric
	CAS # 91-20-3	(Lot MKBH4351V)			+/-	30.4066	µg/mL	Unstressed
	Purity 99%				+/-	30.4066	µg/mL	Stressed
25	4-Chloroaniline		1,002.7	µg/mL	+/-	6.3197	µg/mL	Gravimetric
	CAS # 106-47-8	(Lot BCBJ1580V)			+/-	30.4278	µg/mL	Unstressed
	Purity 99%				+/-	30.4278	µg/mL	Stressed
26	Hexachlorobutadiene		1,000.5	µg/mL	+/-	6.3057	µg/mL	Gravimetric
	CAS # 87-68-3	(Lot J31X013)			+/-	30.3605	µg/mL	Unstressed
	Purity 98%				+/-	30.3605	µg/mL	Stressed
27	2-Methylnaphthalene		993.5	µg/mL	+/-	6.2618	µg/mL	Gravimetric
	CAS # 91-57-6	(Lot STBF0201V)			+/-	30.1489	µg/mL	Unstressed
	Purity 95%				+/-	30.1489	µg/mL	Stressed
28	4-Chloro-3-methylphenol		1,002.2	µg/mL	+/-	6.3162	µg/mL	Gravimetric
	CAS # 59-50-7	(Lot STBC0769V)			+/-	30.4111	µg/mL	Unstressed
	Purity 99%				+/-	30.4111	µg/mL	Stressed
29	1-Methylnaphthalene		1,005.3	µg/mL	+/-	6.3358	µg/mL	Gravimetric
	CAS # 90-12-0	(Lot 525000-10)			+/-	30.5052	µg/mL	Unstressed
	Purity 99%				+/-	30.5052	µg/mL	Stressed
30	Hexachlorocyclopentadiene		1,004.4	µg/mL	+/-	6.3301	µg/mL	Gravimetric
	CAS # 77-47-4	(Lot 4306600)			+/-	30.4779	µg/mL	Unstressed
	Purity 99%				+/-	30.4779	µg/mL	Stressed
31	2,4,6-Trichlorophenol		1,008.3	µg/mL	+/-	6.3548	µg/mL	Gravimetric
	CAS # 88-06-2	(Lot MKBL4698V)			+/-	30.5969	µg/mL	Unstressed
	Purity 98%				+/-	30.5969	µg/mL	Stressed
32	2,4,5-Trichlorophenol		1,000.3	µg/mL	+/-	6.3042	µg/mL	Gravimetric
	CAS # 95-95-4	(Lot FHM01)			+/-	30.3535	µg/mL	Unstressed
	Purity 99%				+/-	30.3535	µg/mL	Stressed
33	2-Chloronaphthalene		1,007.8	µg/mL	+/-	6.3518	µg/mL	Gravimetric
	CAS # 91-58-7	(Lot AJ2U1-TE)			+/-	30.5826	µg/mL	Unstressed
	Purity 99%				+/-	30.5826	µg/mL	Stressed
34	2-Nitroaniline		1,000.4	µg/mL	+/-	5.8164	µg/mL	Gravimetric
	CAS # 88-74-4	(Lot MKBK7597V)			+/-	30.2603	µg/mL	Unstressed
	Purity 99%				+/-	30.2603	µg/mL	Stressed
35	1,4-Dinitrobenzene		1,000.7	µg/mL	+/-	6.3068	µg/mL	Gravimetric
	CAS # 100-25-4	(Lot S58502V)			+/-	30.3656	µg/mL	Unstressed
	Purity 99%				+/-	30.3656	µg/mL	Stressed
36	Acenaphthylene		1,001.1	µg/mL	+/-	6.3098	µg/mL	Gravimetric
	CAS # 208-96-8	(Lot Q03P)			+/-	30.3804	µg/mL	Unstressed
	Purity 96%				+/-	30.3804	µg/mL	Stressed
37	1,3-Dinitrobenzene		1,000.5	µg/mL	+/-	6.3058	µg/mL	Gravimetric
	CAS # 99-65-0	(Lot BCBN4329V)			+/-	30.3611	µg/mL	Unstressed
	Purity 99%				+/-	30.3611	µg/mL	Stressed
38	Dimethylphthalate		1,005.1	µg/mL	+/-	6.3348	µg/mL	Gravimetric
	CAS # 131-11-3	(Lot 10117699)			+/-	30.5007	µg/mL	Unstressed
	Purity 99%				+/-	30.5007	µg/mL	Stressed
39	2,6-Dinitrotoluene		1,000.4	µg/mL	+/-	6.3052	µg/mL	Gravimetric
	CAS # 606-20-2	(Lot 1437483V)			+/-	30.3580	µg/mL	Unstressed
	Purity 99%				+/-	30.3580	µg/mL	Stressed

#	Compound	Lot	Conc.	Unit		Uncertainty	Unit	Type
40	1,2-Dinitrobenzene CAS # 528-29-0 Purity 99%	(Lot MKBK2313V)	1,000.9	µg/mL	+/- +/- +/-	6.3080 30.3717 30.3717	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	Acenaphthene CAS # 83-32-9 Purity 99%	(Lot MKBP0384V)	1,000.0	µg/mL	+/- +/- +/-	6.3027 30.3459 30.3459	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	3-Nitroaniline CAS # 99-09-2 Purity 99%	(Lot MKBQ6338V)	1,001.3	µg/mL	+/- +/- +/-	5.8216 30.2875 30.2875	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	2,4-Dinitrophenol CAS # 51-28-5 Purity 99%	(Lot MKBP5833V)	1,000.5	µg/mL	+/- +/- +/-	6.3058 30.3611 30.3611	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	Dibenzofuran CAS # 132-64-9 Purity 99%	(Lot MKBW2691V)	1,007.5	µg/mL	+/- +/- +/-	6.3496 30.5720 30.5720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	2,4-Dinitrotoluene CAS # 121-14-2 Purity 99%	(Lot MKAA0690V)	1,004.4	µg/mL	+/- +/- +/-	6.3304 30.4794 30.4794	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	4-Nitrophenol CAS # 100-02-7 Purity 99%	(Lot MKBP6945V)	1,001.0	µg/mL	+/- +/- +/-	6.3087 30.3747 30.3747	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	2,3,4,6-Tetrachlorophenol CAS # 58-90-2 Purity 99%	(Lot B16W0112)	1,003.2	µg/mL	+/- +/- +/-	5.8327 30.3450 30.3450	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	2,3,5,6-Tetrachlorophenol CAS # 935-95-5 Purity 99%	(Lot 012016)	1,001.8	µg/mL	+/- +/- +/-	5.8246 30.3026 30.3026	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Fluorene CAS # 86-73-7 Purity 98%	(Lot 10174662)	1,001.9	µg/mL	+/- +/- +/-	6.3147 30.4036 30.4036	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	4-Chlorophenyl phenyl ether CAS # 7005-72-3 Purity 99%	(Lot MKBM4925V)	1,004.9	µg/mL	+/- +/- +/-	6.3335 30.4946 30.4946	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	Diethylphthalate CAS # 84-66-2 Purity 99%	(Lot MKBJ3578V)	1,001.7	µg/mL	+/- +/- +/-	6.3134 30.3975 30.3975	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	4-Nitroaniline CAS # 100-01-6 Purity 98%	(Lot BCBG4702V)	1,003.4	µg/mL	+/- +/- +/-	5.8340 30.3517 30.3517	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol) CAS # 534-52-1 Purity 99%	(Lot LC18040V)	1,005.8	µg/mL	+/- +/- +/-	6.3392 30.5219 30.5219	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	Diphenylamine CAS # 122-39-4 Purity 99%	(Lot MKBN8295V)	1,003.4	µg/mL	+/- +/- +/-	6.3238 30.4476 30.4476	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	Azobenzene CAS # 103-33-3 Purity 99%	(Lot MKBS2559V)	1,004.2	µg/mL	+/- +/- +/-	6.3288 30.4718 30.4718	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	4-Bromophenyl phenyl ether		1,001.2	µg/mL	+/-	6.3100	µg/mL	Gravimetric
	CAS # 101-55-3	(Lot STBB9729V)			+/-	30.3813	µg/mL	Unstressed
	Purity 98%				+/-	30.3813	µg/mL	Stressed
57	Hexachlorobenzene		1,000.7	µg/mL	+/-	6.3071	µg/mL	Gravimetric
	CAS # 118-74-1	(Lot LC19614V)			+/-	30.3671	µg/mL	Unstressed
	Purity 99%				+/-	30.3671	µg/mL	Stressed
58	Pentachlorophenol		1,000.6	µg/mL	+/-	6.3061	µg/mL	Gravimetric
	CAS # 87-86-5	(Lot 160412JLM)			+/-	30.3626	µg/mL	Unstressed
	Purity 99%				+/-	30.3626	µg/mL	Stressed
59	Phenanthrene		1,003.8	µg/mL	+/-	6.3263	µg/mL	Gravimetric
	CAS # 85-01-8	(Lot MKBT8628V)			+/-	30.4597	µg/mL	Unstressed
	Purity 99%				+/-	30.4597	µg/mL	Stressed
60	Anthracene		1,001.1	µg/mL	+/-	6.3096	µg/mL	Gravimetric
	CAS # 120-12-7	(Lot MKBR2268V)			+/-	30.3793	µg/mL	Unstressed
	Purity 99%				+/-	30.3793	µg/mL	Stressed
61	Carbazole		995.8	µg/mL	+/-	6.2764	µg/mL	Gravimetric
	CAS # 86-74-8	(Lot 3715800)			+/-	30.2193	µg/mL	Unstressed
	Purity 98%				+/-	30.2193	µg/mL	Stressed
62	Di-n-butylphthalate		1,001.3	µg/mL	+/-	6.3109	µg/mL	Gravimetric
	CAS # 84-74-2	(Lot MKBL8501V)			+/-	30.3853	µg/mL	Unstressed
	Purity 99%				+/-	30.3853	µg/mL	Stressed
63	Fluoranthene		1,001.4	µg/mL	+/-	6.3116	µg/mL	Gravimetric
	CAS # 206-44-0	(Lot MKBQ6360V)			+/-	30.3888	µg/mL	Unstressed
	Purity 98%				+/-	30.3888	µg/mL	Stressed
64	Pyrene		1,001.0	µg/mL	+/-	6.3090	µg/mL	Gravimetric
	CAS # 129-00-0	(Lot BCBL6786V)			+/-	30.3762	µg/mL	Unstressed
	Purity 99%				+/-	30.3762	µg/mL	Stressed
65	Benzyl butyl phthalate		1,003.0	µg/mL	+/-	6.3216	µg/mL	Gravimetric
	CAS # 85-68-7	(Lot 03027HV)			+/-	30.4369	µg/mL	Unstressed
	Purity 99%				+/-	30.4369	µg/mL	Stressed
66	Bis(2-ethylhexyl)adipate		1,002.4	µg/mL	+/-	6.3178	µg/mL	Gravimetric
	CAS # 103-23-1	(Lot MKBT7307V)			+/-	30.4187	µg/mL	Unstressed
	Purity 99%				+/-	30.4187	µg/mL	Stressed
67	Benz(a)anthracene		1,003.0	µg/mL	+/-	6.3213	µg/mL	Gravimetric
	CAS # 56-55-3	(Lot ER031412-01)			+/-	30.4354	µg/mL	Unstressed
	Purity 99%				+/-	30.4354	µg/mL	Stressed
68	Chrysene		1,000.5	µg/mL	+/-	6.3055	µg/mL	Gravimetric
	CAS # 218-01-9	(Lot ER120810-02)			+/-	30.3595	µg/mL	Unstressed
	Purity 99%				+/-	30.3595	µg/mL	Stressed
69	Bis(2-ethylhexyl)phthalate		1,001.8	µg/mL	+/-	6.3137	µg/mL	Gravimetric
	CAS # 117-81-7	(Lot MKBK2695V)			+/-	30.3990	µg/mL	Unstressed
	Purity 99%				+/-	30.3990	µg/mL	Stressed
70	Di-n-octyl phthalate		1,001.9	µg/mL	+/-	6.3143	µg/mL	Gravimetric
	CAS # 117-84-0	(Lot 3998900)			+/-	30.4020	µg/mL	Unstressed
	Purity 99%				+/-	30.4020	µg/mL	Stressed
71	Benzo(b)fluoranthene		1,002.6	µg/mL	+/-	6.3191	µg/mL	Gravimetric
	CAS # 205-99-2	(Lot ER03101401)			+/-	30.4248	µg/mL	Unstressed
	Purity 99%				+/-	30.4248	µg/mL	Stressed

72	Benzo(k)fluoranthene		1,002.5	µg/mL	+/-	6.3181	µg/mL	Gravimetric
	CAS # 207-08-9	(Lot 012012K)			+/-	30.4202	µg/mL	Unstressed
	Purity 99%				+/-	30.4202	µg/mL	Stressed
73	Benzo(a)pyrene		1,001.3	µg/mL	+/-	6.3105	µg/mL	Gravimetric
	CAS # 50-32-8	(Lot ER071309-02)			+/-	30.3838	µg/mL	Unstressed
	Purity 99%				+/-	30.3838	µg/mL	Stressed
74	Indeno(1,2,3-cd)pyrene		1,001.2	µg/mL	+/-	6.3099	µg/mL	Gravimetric
	CAS # 193-39-5	(Lot ER082107-02)			+/-	30.3808	µg/mL	Unstressed
	Purity 99%				+/-	30.3808	µg/mL	Stressed
75	Dibenz(a,h)anthracene		1,002.8	µg/mL	+/-	6.3203	µg/mL	Gravimetric
	CAS # 53-70-3	(Lot ER032211-01)			+/-	30.4309	µg/mL	Unstressed
	Purity 99%				+/-	30.4309	µg/mL	Stressed
76	Benzo(g,h,i)perylene		1,000.2	µg/mL	+/-	6.3036	µg/mL	Gravimetric
	CAS # 191-24-2	(Lot ER05121401)			+/-	30.3504	µg/mL	Unstressed
	Purity 99%				+/-	30.3504	µg/mL	Stressed

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:
35°C (hold 3 min.) to 330°C
@ 3°C/min. (hold 3 min.)

Inj. Temp:
250°C

Det. Temp:
300°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.

Date Mixed: 12-Jul-2016   Balance: 1128360905

Date Passed: 18-Jul-2016

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:

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

  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.

RESTEK

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

Second Source

ACCREDITED
ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ilac-MRA

ACCREDITED
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. : 31850

Lot No.: A0119125

Description : 8270 MegaMix®

8270 MegaMix® 500-1,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL

Pkg Amt: > 1 mL

Expiration Date : November 30, 2017

Storage: 0°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	Pyridine		1,004.3 µg/mL	+/-	6.3298	µg/mL	Gravimetric
	CAS # 110-86-1	(Lot SHBC7174V)		+/-	30.4764	µg/mL	Unstressed
	Purity 99%			+/-	30.4764	µg/mL	Stressed
2	N-Nitrosodimethylamine		1,000.0 µg/mL	+/-	6.3027	µg/mL	Gravimetric
	CAS # 62-75-9	(Lot 3846000)		+/-	30.3459	µg/mL	Unstressed
	Purity 99%			+/-	30.3459	µg/mL	Stressed
3	Aniline		1,001.0 µg/mL	+/-	6.3090	µg/mL	Gravimetric
	CAS # 62-53-3	(Lot K22Z462)		+/-	30.3762	µg/mL	Unstressed
	Purity 99%			+/-	30.3762	µg/mL	Stressed
4	Phenol		1,000.5 µg/mL	+/-	6.3058	µg/mL	Gravimetric
	CAS # 108-95-2	(Lot SHBF1351V)		+/-	30.3611	µg/mL	Unstressed
	Purity 99%			+/-	30.3611	µg/mL	Stressed
5	Bis(2-chloroethyl)ether		1,000.7 µg/mL	+/-	6.3068	µg/mL	Gravimetric
	CAS # 111-44-4	(Lot 45296HKV)		+/-	30.3656	µg/mL	Unstressed
	Purity 99%			+/-	30.3656	µg/mL	Stressed
6	2-Chlorophenol		1,000.0 µg/mL	+/-	6.3027	µg/mL	Gravimetric
	CAS # 95-57-8	(Lot MKBD3900V)		+/-	30.3459	µg/mL	Unstressed
	Purity 99%			+/-	30.3459	µg/mL	Stressed
7	1,3-Dichlorobenzene		1,001.0 µg/mL	+/-	6.3087	µg/mL	Gravimetric
	CAS # 541-73-1	(Lot BCBM5751V)		+/-	30.3747	µg/mL	Unstressed
	Purity 99%			+/-	30.3747	µg/mL	Stressed

#	Compound	Lot	Concentration	Unit		Uncertainty	Unit	Type
8	1,4-Dichlorobenzene CAS # 106-46-7 Purity 99%	(Lot MKBS1350V)	1,004.9	µg/mL	+/- +/- +/-	6.3335 30.4946 30.4946	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	1,2-Dichlorobenzene CAS # 95-50-1 Purity 99%	(Lot SHBD7331V)	1,004.0	µg/mL	+/- +/- +/-	6.3279 30.4673 30.4673	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Benzyl alcohol CAS # 100-51-6 Purity 99%	(Lot SHBC1850V)	1,007.4	µg/mL	+/- +/- +/-	6.3490 30.5689 30.5689	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	2,2'-oxybis(1-chloropropane) CAS # 108-60-1 Purity 99%	(Lot 2-KMW-57-8)	1,002.5	µg/mL	+/- +/- +/-	6.3184 30.4218 30.4218	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	2-Methylphenol (o-cresol) CAS # 95-48-7 Purity 99%	(Lot SHBC1479V)	1,000.1	µg/mL	+/- +/- +/-	6.3030 30.3474 30.3474	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	Hexachloroethane CAS # 67-72-1 Purity 99%	(Lot 4H3SF)	1,003.9	µg/mL	+/- +/- +/-	6.3269 30.4627 30.4627	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	N-Nitroso-di-n-propylamine CAS # 621-64-7 Purity 99%	(Lot OPAGF)	1,001.5	µg/mL	+/- +/- +/-	6.3121 30.3914 30.3914	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	4-Methylphenol (p-cresol) CAS # 106-44-5 Purity 99%	(Lot 49396APV)	500.5	µg/mL	+/- +/- +/-	3.1542 15.1866 15.1866	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	3-Methylphenol (m-cresol) CAS # 108-39-4 Purity 99%	(Lot SHBD0627V)	501.6	µg/mL	+/- +/- +/-	3.1614 15.2215 15.2215	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Nitrobenzene CAS # 98-95-3 Purity 99%	(Lot SHBB0246V)	1,002.2	µg/mL	+/- +/- +/-	6.3165 30.4127 30.4127	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Isophorone CAS # 78-59-1 Purity 99%	(Lot MKBG2442V)	1,004.3	µg/mL	+/- +/- +/-	6.3298 30.4764 30.4764	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	2-Nitrophenol CAS # 88-75-5 Purity 99%	(Lot BCBH7602V)	1,000.2	µg/mL	+/- +/- +/-	6.3036 30.3504 30.3504	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	2,4-Dimethylphenol CAS # 105-67-9 Purity 99%	(Lot 10165155)	1,000.1	µg/mL	+/- +/- +/-	6.3033 30.3489 30.3489	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	Bis(2-chloroethoxy)methane CAS # 111-91-1 Purity 99%	(Lot 3299900)	1,000.1	µg/mL	+/- +/- +/-	6.3033 30.3489 30.3489	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	2,4-Dichlorophenol CAS # 120-83-2 Purity 99%	(Lot BCBH1617V)	1,000.5	µg/mL	+/- +/- +/-	6.3055 30.3595 30.3595	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,2,4-Trichlorobenzene CAS # 120-82-1 Purity 99%	(Lot 26896BM)	1,003.0	µg/mL	+/- +/- +/-	6.3216 30.4369 30.4369	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Naphthalene		1,002.0	µg/mL	+/-	6.3153	µg/mL	Gravimetric
	CAS # 91-20-3	(Lot MKBH4351V)			+/-	30.4066	µg/mL	Unstressed
	Purity 99%				+/-	30.4066	µg/mL	Stressed
25	4-Chloroaniline		1,002.7	µg/mL	+/-	6.3197	µg/mL	Gravimetric
	CAS # 106-47-8	(Lot BCBJ1580V)			+/-	30.4278	µg/mL	Unstressed
	Purity 99%				+/-	30.4278	µg/mL	Stressed
26	Hexachlorobutadiene		1,000.5	µg/mL	+/-	6.3057	µg/mL	Gravimetric
	CAS # 87-68-3	(Lot J31X013)			+/-	30.3605	µg/mL	Unstressed
	Purity 98%				+/-	30.3605	µg/mL	Stressed
27	2-Methylnaphthalene		993.5	µg/mL	+/-	6.2618	µg/mL	Gravimetric
	CAS # 91-57-6	(Lot STBF0201V)			+/-	30.1489	µg/mL	Unstressed
	Purity 95%				+/-	30.1489	µg/mL	Stressed
28	4-Chloro-3-methylphenol		1,000.2	µg/mL	+/-	6.3039	µg/mL	Gravimetric
	CAS # 59-50-7	(Lot STBC0769V)			+/-	30.3520	µg/mL	Unstressed
	Purity 99%				+/-	30.3520	µg/mL	Stressed
29	1-Methylnaphthalene		1,005.3	µg/mL	+/-	6.3358	µg/mL	Gravimetric
	CAS # 90-12-0	(Lot 525000-10)			+/-	30.5052	µg/mL	Unstressed
	Purity 99%				+/-	30.5052	µg/mL	Stressed
30	Hexachlorocyclopentadiene		1,004.4	µg/mL	+/-	6.3301	µg/mL	Gravimetric
	CAS # 77-47-4	(Lot 4306600)			+/-	30.4779	µg/mL	Unstressed
	Purity 99%				+/-	30.4779	µg/mL	Stressed
31	2,4,6-Trichlorophenol		1,000.1	µg/mL	+/-	6.3032	µg/mL	Gravimetric
	CAS # 88-06-2	(Lot MKBL4698V)			+/-	30.3486	µg/mL	Unstressed
	Purity 98%				+/-	30.3486	µg/mL	Stressed
32	2,4,5-Trichlorophenol		1,000.3	µg/mL	+/-	6.3042	µg/mL	Gravimetric
	CAS # 95-95-4	(Lot 150724JLM)			+/-	30.3535	µg/mL	Unstressed
	Purity 99%				+/-	30.3535	µg/mL	Stressed
33	2-Chloronaphthalene		1,007.8	µg/mL	+/-	6.3518	µg/mL	Gravimetric
	CAS # 91-58-7	(Lot AJ2UI-TE)			+/-	30.5826	µg/mL	Unstressed
	Purity 99%				+/-	30.5826	µg/mL	Stressed
34	2-Nitroaniline		1,008.6	µg/mL	+/-	5.8778	µg/mL	Gravimetric
	CAS # 88-74-4	(Lot MKBK7597V)			+/-	30.5117	µg/mL	Unstressed
	Purity 99%				+/-	30.5117	µg/mL	Stressed
35	1,4-Dinitrobenzene		1,000.7	µg/mL	+/-	6.3068	µg/mL	Gravimetric
	CAS # 100-25-4	(Lot S58502V)			+/-	30.3656	µg/mL	Unstressed
	Purity 99%				+/-	30.3656	µg/mL	Stressed
36	Acenaphthylene		1,001.1	µg/mL	+/-	6.3098	µg/mL	Gravimetric
	CAS # 208-96-8	(Lot Q03P)			+/-	30.3804	µg/mL	Unstressed
	Purity 96%				+/-	30.3804	µg/mL	Stressed
37	1,3-Dinitrobenzene		1,000.5	µg/mL	+/-	6.3058	µg/mL	Gravimetric
	CAS # 99-65-0	(Lot BCBN4329V)			+/-	30.3611	µg/mL	Unstressed
	Purity 99%				+/-	30.3611	µg/mL	Stressed
38	Dimethylphthalate		1,005.1	µg/mL	+/-	6.3348	µg/mL	Gravimetric
	CAS # 131-11-3	(Lot 10117699)			+/-	30.5007	µg/mL	Unstressed
	Purity 99%				+/-	30.5007	µg/mL	Stressed
39	2,6-Dinitrotoluene		1,000.4	µg/mL	+/-	6.3052	µg/mL	Gravimetric
	CAS # 606-20-2	(Lot 1437483V)			+/-	30.3580	µg/mL	Unstressed
	Purity 99%				+/-	30.3580	µg/mL	Stressed

40	1,2-Dinitrobenzene		1,000.9	µg/mL	+/-	6.3080	µg/mL	Gravimetric
	CAS # 528-29-0	(Lot MKBK2313V)			+/-	30.3717	µg/mL	Unstressed
	Purity 99%				+/-	30.3717	µg/mL	Stressed

41	Acenaphthene		1,000.0	µg/mL	+/-	6.3027	µg/mL	Gravimetric
	CAS # 83-32-9	(Lot MKBP0384V)			+/-	30.3459	µg/mL	Unstressed
	Purity 99%				+/-	30.3459	µg/mL	Stressed

42	3-Nitroaniline		1,008.5	µg/mL	+/-	5.8771	µg/mL	Gravimetric
	CAS # 99-09-2	(Lot MKBQ6338V)			+/-	30.5079	µg/mL	Unstressed
	Purity 99%				+/-	30.5079	µg/mL	Stressed

43	2,4-Dinitrophenol		1,000.2	µg/mL	+/-	6.3036	µg/mL	Gravimetric
	CAS # 51-28-5	(Lot STBD8351V)			+/-	30.3504	µg/mL	Unstressed
	Purity 99%				+/-	30.3504	µg/mL	Stressed

44	Dibenzofuran		1,007.5	µg/mL	+/-	6.3496	µg/mL	Gravimetric
	CAS # 132-64-9	(Lot MKBW2691V)			+/-	30.5720	µg/mL	Unstressed
	Purity 99%				+/-	30.5720	µg/mL	Stressed

45	2,4-Dinitrotoluene		1,004.4	µg/mL	+/-	6.3304	µg/mL	Gravimetric
	CAS # 121-14-2	(Lot MKAA0690V)			+/-	30.4794	µg/mL	Unstressed
	Purity 99%				+/-	30.4794	µg/mL	Stressed

46	4-Nitrophenol		1,000.3	µg/mL	+/-	6.3046	µg/mL	Gravimetric
	CAS # 100-02-7	(Lot MKBP6945V)			+/-	30.3550	µg/mL	Unstressed
	Purity 99%				+/-	30.3550	µg/mL	Stressed

47	2,3,4,6-Tetrachlorophenol		1,008.0	µg/mL	+/-	5.8741	µg/mL	Gravimetric
	CAS # 58-90-2	(Lot B16W0112)			+/-	30.4928	µg/mL	Unstressed
	Purity 99%				+/-	30.4928	µg/mL	Stressed

48	2,3,5,6-Tetrachlorophenol		1,008.6	µg/mL	+/-	5.8778	µg/mL	Gravimetric
	CAS # 935-95-5	(Lot 012016)			+/-	30.5117	µg/mL	Unstressed
	Purity 99%				+/-	30.5117	µg/mL	Stressed

49	Fluorene		1,001.9	µg/mL	+/-	6.3147	µg/mL	Gravimetric
	CAS # 86-73-7	(Lot 10174662)			+/-	30.4036	µg/mL	Unstressed
	Purity 98%				+/-	30.4036	µg/mL	Stressed

50	4-Chlorophenyl phenyl ether		1,004.9	µg/mL	+/-	6.3335	µg/mL	Gravimetric
	CAS # 7005-72-3	(Lot MKBM4925V)			+/-	30.4946	µg/mL	Unstressed
	Purity 99%				+/-	30.4946	µg/mL	Stressed

51	Diethylphthalate		1,001.7	µg/mL	+/-	6.3134	µg/mL	Gravimetric
	CAS # 84-66-2	(Lot MKBJ3578V)			+/-	30.3975	µg/mL	Unstressed
	Purity 99%				+/-	30.3975	µg/mL	Stressed

52	4-Nitroaniline		1,002.4	µg/mL	+/-	5.8416	µg/mL	Gravimetric
	CAS # 100-01-6	(Lot BCBG4702V)			+/-	30.3239	µg/mL	Unstressed
	Purity 98%				+/-	30.3239	µg/mL	Stressed

53	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol)		1,000.5	µg/mL	+/-	6.3058	µg/mL	Gravimetric
	CAS # 534-52-1	(Lot LC12394V)			+/-	30.3611	µg/mL	Unstressed
	Purity 99%				+/-	30.3611	µg/mL	Stressed

54	Diphenylamine		1,003.4	µg/mL	+/-	6.3238	µg/mL	Gravimetric
	CAS # 122-39-4	(Lot MKBN8295V)			+/-	30.4476	µg/mL	Unstressed
	Purity 99%				+/-	30.4476	µg/mL	Stressed

55	Azobenzene		1,004.2	µg/mL	+/-	6.3288	µg/mL	Gravimetric
	CAS # 103-33-3	(Lot MKBS2559V)			+/-	30.4718	µg/mL	Unstressed
	Purity 99%				+/-	30.4718	µg/mL	Stressed

56	4-Bromophenyl phenyl ether		1,001.2	μg/mL	+/-	6.3100	μg/mL	Gravimetric
	CAS # 101-55-3				+/-	30.3813	μg/mL	Unstressed
	Purity 98%	(Lot STBB9729V)			+/-	30.3813	μg/mL	Stressed
57	Hexachlorobenzene		1,000.7	μg/mL	+/-	6.3071	μg/mL	Gravimetric
	CAS # 118-74-1				+/-	30.3671	μg/mL	Unstressed
	Purity 99%	(Lot LC19614V)			+/-	30.3671	μg/mL	Stressed
58	Pentachlorophenol		1,000.3	μg/mL	+/-	6.3042	μg/mL	Gravimetric
	CAS # 87-86-5				+/-	30.3535	μg/mL	Unstressed
	Purity 99%	(Lot 140626JLM)			+/-	30.3535	μg/mL	Stressed
59	Phenanthrene		1,003.8	μg/mL	+/-	6.3263	μg/mL	Gravimetric
	CAS # 85-01-8				+/-	30.4597	μg/mL	Unstressed
	Purity 99%	(Lot MKBT8628V)			+/-	30.4597	μg/mL	Stressed
60	Anthracene		1,001.1	μg/mL	+/-	6.3096	μg/mL	Gravimetric
	CAS # 120-12-7				+/-	30.3793	μg/mL	Unstressed
	Purity 99%	(Lot MKBR2268V)			+/-	30.3793	μg/mL	Stressed
61	Carbazole		995.8	μg/mL	+/-	6.2764	μg/mL	Gravimetric
	CAS # 86-74-8				+/-	30.2193	μg/mL	Unstressed
	Purity 98%	(Lot 3715800)			+/-	30.2193	μg/mL	Stressed
62	Di-n-butylphthalate		1,001.3	μg/mL	+/-	6.3109	μg/mL	Gravimetric
	CAS # 84-74-2				+/-	30.3853	μg/mL	Unstressed
	Purity 99%	(Lot MKBL8501V)			+/-	30.3853	μg/mL	Stressed
63	Fluoranthene		1,001.4	μg/mL	+/-	6.3116	μg/mL	Gravimetric
	CAS # 206-44-0				+/-	30.3888	μg/mL	Unstressed
	Purity 98%	(Lot MKBQ6360V)			+/-	30.3888	μg/mL	Stressed
64	Pyrene		1,001.0	μg/mL	+/-	6.3090	μg/mL	Gravimetric
	CAS # 129-00-0				+/-	30.3762	μg/mL	Unstressed
	Purity 99%	(Lot BCBL6786V)			+/-	30.3762	μg/mL	Stressed
65	Benzyl butyl phthalate		1,003.0	μg/mL	+/-	6.3216	μg/mL	Gravimetric
	CAS # 85-68-7				+/-	30.4369	μg/mL	Unstressed
	Purity 99%	(Lot 03027HV)			+/-	30.4369	μg/mL	Stressed
66	Bis(2-ethylhexyl)adipate		1,002.4	μg/mL	+/-	6.3178	μg/mL	Gravimetric
	CAS # 103-23-1				+/-	30.4187	μg/mL	Unstressed
	Purity 99%	(Lot MKBT7307V)			+/-	30.4187	μg/mL	Stressed
67	Benz(a)anthracene		1,003.0	μg/mL	+/-	6.3213	μg/mL	Gravimetric
	CAS # 56-55-3				+/-	30.4354	μg/mL	Unstressed
	Purity 99%	(Lot ER031412-01)			+/-	30.4354	μg/mL	Stressed
68	Chrysene		1,000.5	μg/mL	+/-	6.3055	μg/mL	Gravimetric
	CAS # 218-01-9				+/-	30.3595	μg/mL	Unstressed
	Purity 99%	(Lot ER120810-02)			+/-	30.3595	μg/mL	Stressed
69	Bis(2-ethylhexyl)phthalate		1,001.8	μg/mL	+/-	6.3137	μg/mL	Gravimetric
	CAS # 117-81-7				+/-	30.3990	μg/mL	Unstressed
	Purity 99%	(Lot MKBK2695V)			+/-	30.3990	μg/mL	Stressed
70	Di-n-octyl phthalate		1,001.9	μg/mL	+/-	6.3143	μg/mL	Gravimetric
	CAS # 117-84-0				+/-	30.4020	μg/mL	Unstressed
	Purity 99%	(Lot 3998900)			+/-	30.4020	μg/mL	Stressed
71	Benzo(b)fluoranthene		1,002.6	μg/mL	+/-	6.3191	μg/mL	Gravimetric
	CAS # 205-99-2				+/-	30.4248	μg/mL	Unstressed
	Purity 99%	(Lot ER03101401)			+/-	30.4248	μg/mL	Stressed

72	Benzo(k)fluoranthene		1,002.5	μg/mL	+/-	6.3181	μg/mL	Gravimetric
	CAS # 207-08-9	(Lot 012012K)			+/-	30.4202	μg/mL	Unstressed
	Purity 99%				+/-	30.4202	μg/mL	Stressed
73	Benzo(a)pyrene		1,001.3	μg/mL	+/-	6.3105	μg/mL	Gravimetric
	CAS # 50-32-8	(Lot ER071309-02)			+/-	30.3838	μg/mL	Unstressed
	Purity 99%				+/-	30.3838	μg/mL	Stressed
74	Indeno(1,2,3-cd)pyrene		1,001.2	μg/mL	+/-	6.3099	μg/mL	Gravimetric
	CAS # 193-39-5	(Lot ER082107-02)			+/-	30.3808	μg/mL	Unstressed
	Purity 99%				+/-	30.3808	μg/mL	Stressed
75	Dibenz(a,h)anthracene		1,002.8	μg/mL	+/-	6.3203	μg/mL	Gravimetric
	CAS # 53-70-3	(Lot ER032211-01)			+/-	30.4309	μg/mL	Unstressed
	Purity 99%				+/-	30.4309	μg/mL	Stressed
76	Benzo(g,h,i)perylene		1,000.2	μg/mL	+/-	6.3036	μg/mL	Gravimetric
	CAS # 191-24-2	(Lot ER05121401)			+/-	30.3504	μg/mL	Unstressed
	Purity 99%				+/-	30.3504	μg/mL	Stressed

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:
35°C (hold 3 min.) to 330°C
@ 3°C/min. (hold 3 min.)

Inj. Temp:
250°C

Det. Temp:
300°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.

Cheryl Graham - Mix Technician

Justine Albertson - QC Analyst

Date Mixed: 05-May-2016   Balance: B442140311

Date Passed: 09-May-2016

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:

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

  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.

125 Market Street
New Haven, CT 06513
USA

AccuStandard, Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: C-216S-H-10X *Initial Calibration*
Description: Aroclor 1016
Lot: 216011018
Solvent: Hexane
Hazards: HIGHLY FLAMMABLE - *Refer to SDS for safety info*

Date Certified: Jan 4, 2016
Expiration: Jan 4, 2026
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 % (GC/FID)	Prepared Concentration[1] (µg/mL)	Certified Analyte Concentration[2] (µg/mL)
Aroclor 1016	12674-11-2	Tech Mix	1005	1005

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

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

OR-ORG/INO-001
Rev. 7/11

CERTIFICATION REPORT

1. **Quality Documentation:** This certificate is designed in accordance with ISO Guide 31 (Reference Materials - Contents of Certificates and Labels) and ISO Guide 35 (Reference Materials – General and Statistical Principles for Certification).

2. **Quality Standards:**

   ISO Guide 34 - General Requirements for the Competence of
   Reference Material Producers ACLASS Certificate Number AR-1463

   AR-1463

   ISO/IEC 17025:2005 - General Requirements for the Competence of
   Testing and Calibration Laboratories ACLASS Certificate Number AT-1339

   AT-1339

   ISO 9001:2008 Quality Management System - Requirements
   Eagle Registrations Certificate Number 3774

3. **Intended Use:** The product covered by this certificate is designed for calibration or for use in quality control procedures for the specified chemical compounds listed on the reverse side. This product can be used for quantification and/or identification. This product can also be used as a reference material to validate analytical procedures, subject to the conditions under Section 11. If dilution is required, use only Class A glassware and diluent compatible with all certified analytes in this preparation. All solutions should be thoroughly mixed prior to use.

4. **Raw Materials:** Reference standards are prepared from the highest quality starting materials with defined purities. All analytes and solvents are obtained from pre-qualified vendors and then analyzed or evaluated prior to use.

5. **Manufacturing:** All balances are calibrated daily using an in-house procedure with weights that are compared annually to master weights and traceable to NIST. The balances are also calibrated annually by an ISO/IEC 17025 accredited calibration laboratory. Please refer to the NIST test number listed on the front of this certificate. Class A glassware is used in the manufacture and quality control of all standards and calibrated using an in-house procedure. Good Laboratory Practices have been used throughout the preparation of this CRM.

6. **Homogeneity Assessment:** Homogeneity of the finished product is assessed by analyzing sample batches or by other methods consistent with the intended use of the product and by procedures that comply with the appropriate Quality System requirements, and ISO Guide 35.

7. **Stability Assessment:** The manufacturer guarantees the stability of this solution through the expiration date stated on the label, when handled and stored according to the conditions stated on the label. To ensure a uniform solution, mix the contents of the sealed container thoroughly prior to use. Care should be taken not to contaminate the contents of the original container.

8. **Analytical Quality Control:** Products are tested by validated analytical methods specified in the manufacturer's quality system.

9. **Uncertainty Statistics and Confidence Limits:** The uncertainty values as stated on the face of this certificate have been determined using the EURACHEM/CITAC Guide (Quantifying Uncertainty in Analytical Measurement). We have evaluated both Type A (based on a series of observations) and Type B (manufacturers specifications and calibration data) factors and report a combined expanded uncertainty equal to the positive square root of the total variance of the uncertainty of the components using the following formula: $u_m = \sqrt{(u(P))^2 + (u(m))^2 + (u(V))^2}$. The expanded uncertainty, U, assumes a normal distribution and a coverage factor of k=2 is chosen using approximately a 95% confidence level. Laboratories accredited to ISO/IEC 17025 and ISO Guide 34 are required to estimate uncertainty budgets associated with the measurements they make. However, for analysis, the certified value should be used as the actual value.

10. **Warranties:** The manufacturer warrants that its products shall conform to the description of such products as provided in its catalog or on the specific product label. This warranty is exclusive, and the manufacturer makes no other warranty, express or implied, including any implied warranty of merchantability or fitness for any particular purpose.

11. **Legal Notice and Limit of Liability:** This product is for routine laboratory analysis and research purposes only. Due to the hazardous nature, only trained personnel should handle this product. The company's liability will be limited to replacement of product or refund of purchase price. Notice of claims must be made within thirty (30) days from date of delivery.

INTERNATIONAL

ADDENDUM

Subcontract Work

SDG# ARS1-17-00216
COC SOLID SAMPLES

Type I Data Package

Prepared for:

ARS International, LLC
2609 North River Road
Port Allen LA 70769

Project: 161115 SL
Soil Samples
Collected on 01/17/17-01/18/17

SDG# AIL01

GROUP	SAMPLE NUMBERS
1759120	8807304-8807306

```
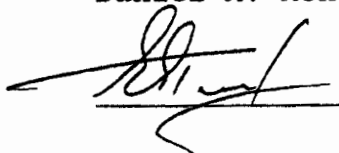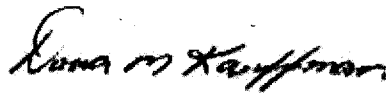PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-13-10
AZ Cert. # AZ0780
```

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by: *Dana M Kauffman*   Date: 03/03/2017

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Stacy Hess at (717) 556-7236.

Table of Contents for SDG# AIL01

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Reference List for SDG Number AIL01
with a Data Package Type of I

37646 - ARS International, LLC
Project: 161115 SL

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8807304	ARS1-17-00216-007	01/17/2017 12:00	01/26/2017 09:30
8807305	ARS1-17-00216-004	01/18/2017 12:00	01/26/2017 09:30
8807306	ARS1-17-00216-002	01/17/2017 12:00	01/26/2017 09:30

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Environmental

**Method Summary/Reference
for SDG# AIL01_I**

Page 1 of 1

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 · 717-656-2300 Fax: 717-656-2681 · www.lancasterlabs.com

12937   Dioxins/Furans in Solids-8290

The method provides procedures for the detection and quantitative measurement of polychlorinated dibenzo-p-dioxins (tetra- through octachlorinated homologues; PCDDs), and polychlorinated dibenzofurans (tetra- through octachlorinated homologues; PCDFs) in a variety of environmental matrices and at part-per-trillion (ppt) to part-per-quadrillion. The method requires the use of high-resolution gas chromatography and high-resolution mass spectrometry (HRGC/HRMS) on purified sample extracts.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8290A, Polychlorinated Dibenzo-p-Dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS)

11030   Dioxins/Furans in Solids - Sox

The samples are extracted with toluene in a Soxhlet - Dean Stark extractor. The extract is concentrated for clean-up or instrumental analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8290A, Polychlorinated Dibenzo-p-Dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS)

00111   Moisture

A well-mixed sample is placed in a tared container and dried to a constant weight in an oven at 103-105C. The increase in weight is the total solids.

Reference: Standard Methods for the Examination of Water and Wastewater, 22nd Edition, 2012, Method 2540 G-1997

Analysis Reports / Field Chain of Custody

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Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ARS International, LLC
2609 North River Road
Port Allen LA 70769

Report Date: February 09, 2017

Project: 161115 SL

Submittal Date: 01/26/2017
Group Number: 1759120
SDG: AIL01
PO Number: 17-0043

Client Sample Description	Lancaster Labs (LL) #
ARS1-17-00216-007 Soil	8807304
ARS1-17-00216-004 Soil	8807305
ARS1-17-00216-002 Soil	8807306

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To   ARS International, LLC   Attn: Susan Leese

Respectfully Submitted,

Stacy L. Hess
Project Manager

(717) 556-7236

Sample Description: ARS1-17-00216-007 Soil
      161115 SL

LL Sample # SW 8807304
LL Group # 1759120
Account   # 37646

Project Name: 161115 SL

Collected: 01/17/2017 12:00

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

ARS International, LLC
2609 North River Road
Port Allen LA 70769

-007- SDG#: AIL01-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry		SM 2540 G-1997	%	%	%	
00111	Moisture	n.a.	11.7	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

*=This limit was used in the evaluation of the final result

Sample Description: ARS1-17-00216-007 Soil
161115 SL

LL Sample # SW 8807304
LL Group # 1759120
Account # 37646

Project Name: 161115 SL

Collected: 01/17/2017 12:00

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

ARS International, LLC
2609 North River Road
Port Allen LA 70769

-007- SDG#: AIL01-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry EDL*	Dry MRL	Dilution Factor
Dioxins/Furans	**SW-846 8290A Feb 2007 Rev 1**		ng/kg		ng/kg	ng/kg	
12937	2378-TCDD	1746-01-6	0.0698	JQ	0.0154	1.10	1
12937	12378-PeCDD	40321-76-4	0.420	JBQ	0.0267	5.50	1
12937	123478-HxCDD	39227-28-6	0.324	JBQ	0.0260	5.50	1
12937	123678-HxCDD	57653-85-7	0.931	JB	0.0252	5.50	1
12937	123789-HxCDD	19408-74-3	0.450	JB	0.0247	5.50	1
12937	1234678-HpCDD	35822-46-9	13.6	B	0.0422	5.50	1
12937	OCDD	3268-87-9	195	B	0.0422	11.0	1
12937	2378-TCDF	51207-31-9	0.360	JQ	0.0424	1.10	1
12937	12378-PeCDF	57117-41-6	0.576	JB	0.0226	5.50	1
12937	23478-PeCDF	57117-31-4	0.947	JBQ	0.0202	5.50	1
12937	123478-HxCDF	70648-26-9	0.500	JB	0.0252	5.50	1
12937	123678-HxCDF	57117-44-9	0.486	JB	0.0220	5.50	1
12937	123789-HxCDF	72918-21-9	0.402	JB	0.0299	5.50	1
12937	234678-HxCDF	60851-34-5	0.475	JB	0.0237	5.50	1
12937	1234678-HpCDF	67562-39-4	2.32	JB	0.0134	5.50	1
12937	1234789-HpCDF	55673-89-7	0.340	JB	0.0208	5.50	1
12937	OCDF	39001-02-0	5.55	JB	0.0198	11.0	1
D/F Toxic Equivalents	**SW-846 8290A Feb 2007 Rev 1**		ng/kg		ng/kg	ng/kg	
12937	TEQ WHO 2005 - EDLx0.0	n.a.	0.564				1

Labeled Compounds	%Rec	Windows
13C12-2378-TCDD	74	40 - 135
13C12-12378-PeCDD	86	40 - 135
13C12-123478-HxCDD	87	40 - 135
13C12-123678-HxCDD	85	40 - 135
13C12-123789-HxCDD	87	40 - 135
13C12-1234678-HpCDD	92	40 - 135
13C12-OCDD	92	40 - 135
13C12-2378-TCDF	73	40 - 135
13C12-12378-PeCDF	89	40 - 135
13C12-23478-PeCDF	84	40 - 135
13C12-123478-HxCDF	80	40 - 135
13C12-123678-HxCDF	89	40 - 135
13C12-234678-HxCDF	80	40 - 135
13C12-123789-HxCDF	74	40 - 135
13C12-1234678-HpCDF	103	40 - 135
13C12-1234789-HpCDF	77	40 - 135
13C12-OCDF	75	40 - 135

Dioxins/Furans Data Qualifiers:
B   Detected in Method Blank
U   Undetected

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

Analysis Report

Sample Description: ARS1-17-00216-007 Soil   LL Sample # SW 8807304
                  161115 SL   LL Group # 1759120
                                                   Account   # 37646

Project Name: 161115 SL

Collected: 01/17/2017 12:00   ARS International, LLC
                                               2609 North River Road
Submitted: 01/26/2017 09:30   Port Allen LA 70769
Reported: 02/09/2017 12:58

-007-   SDG#: AIL01-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry EDL*	Dry MRL	Dilution Factor
J	*Estimated concentration between Estimated Detection Limit and Minimum Reporting Level*					
E	*Exceeds calibration range*					
C	*Confirmed quantitation on secondary GC column*					
Q	*EMPC - Estimated Maximum Possible Concentration*					
F	*Interference is present*					
S	*Saturation of detection signal*					

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: ARS1-17-00216-007 Soil
                    161115 SL

LL Sample # SW 8807304
LL Group # 1759120
Account   # 37646

Project Name: 161115 SL

Collected: 01/17/2017 12:00

ARS International, LLC
2609 North River Road
Port Allen LA 70769

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

-007-   SDG#: AIL01-01

Sample Comments

The temperature of the sample bottle(s) upon receipt at the lab was
6.6-16.2 C using an IR thermometer.

All QC is compliant unless otherwise noted. Please refer to the Quality
Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12937	Dioxins/Furans in Solids-8290	SW-846 8290A Feb 2007 Rev 1	1	17031003	02/08/2017 01:20	Joseph D Anderson	1
11030	Dioxins/Furans in Solids – Sox	SW-846 8290A Feb 2007 Rev 1	1	17031003	01/31/2017 10:45	Deborah M Zimmerman	1
00111	Moisture	SM 2540 G-1997	1	17033820006A	02/02/2017 19:39	Scott W Freisher	1

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

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Sample Description: ARS1-17-00216-004 Soil   LL Sample # SW 8807305
161115 SL   LL Group # 1759120
    Account   # 37646

Project Name: 161115 SL

Collected: 01/18/2017 12:00

    ARS International, LLC
    2609 North River Road
Submitted: 01/26/2017 09:30   Port Allen LA 70769
Reported: 02/09/2017 12:58

-004-   SDG#: AIL01-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry		SM 2540 G-1997	%	%	%	
00111	Moisture	n.a.	41.7	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at
103 - 105 degrees Celsius. The moisture result reported is on an
as-received basis.

*=This limit was used in the evaluation of the final result

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Sample Description: ARS1-17-00216-004 Soil
161115 SL

LL Sample # SW 8807305
LL Group # 1759120
Account # 37646

Project Name: 161115 SL

Collected: 01/18/2017 12:00

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

ARS International, LLC
2609 North River Road
Port Allen LA 70769

-004- SDG#: AIL01-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry EDL*	Dry MRL	Dilution Factor
Dioxins/Furans	**SW-846 8290A Feb 2007 Rev 1**		ng/kg		ng/kg	ng/kg	
12937	2378-TCDD	1746-01-6	0.0300	JQ	0.0256	1.69	1
12937	12378-PeCDD	40321-76-4	0.303	JBQ	0.0517	8.44	1
12937	123478-HxCDD	39227-28-6	0.479	JB	0.0365	8.44	1
12937	123678-HxCDD	57653-85-7	2.21	JB	0.0356	8.44	1
12937	123789-HxCDD	19408-74-3	0.791	JB	0.0354	8.44	1
12937	1234678-HpCDD	35822-46-9	41.5	B	0.0622	8.44	1
12937	OCDD	3268-87-9	297	B	0.0567	16.9	1
12937	2378-TCDF	51207-31-9	0.0731	J	0.0286	1.69	1
12937	12378-PeCDF	57117-41-6	0.247	JB	0.0190	8.44	1
12937	23478-PeCDF	57117-31-4	0.241	JB	0.0169	8.44	1
12937	123478-HxCDF	70648-26-9	0.352	JB	0.0350	8.44	1
12937	123678-HxCDF	57117-44-9	0.487	JB	0.0319	8.44	1
12937	123789-HxCDF	72918-21-9	0.261	JB	0.0388	8.44	1
12937	234678-HxCDF	60851-34-5	0.666	JBQ	0.0350	8.44	1
12937	1234678-HpCDF	67562-39-4	8.62	B	0.0340	8.44	1
12937	1234789-HpCDF	55673-89-7	0.891	JBQ	0.0427	8.44	1
12937	OCDF	39001-02-0	18.2	B	0.0255	16.9	1
D/F Toxic Equivalents	**SW-846 8290A Feb 2007 Rev 1**		ng/kg		ng/kg	ng/kg	
12937	TEQ WHO 2005 - EDLx0.0	n.a.	1.14				1

Labeled Compounds	%Rec	Windows
13C12-2378-TCDD	85	40 - 135
13C12-12378-PeCDD	99	40 - 135
13C12-123478-HxCDD	92	40 - 135
13C12-123678-HxCDD	89	40 - 135
13C12-123789-HxCDD	89	40 - 135
13C12-1234678-HpCDD	95	40 - 135
13C12-OCDD	98	40 - 135
13C12-2378-TCDF	86	40 - 135
13C12-12378-PeCDF	99	40 - 135
13C12-23478-PeCDF	97	40 - 135
13C12-123478-HxCDF	88	40 - 135
13C12-123678-HxCDF	94	40 - 135
13C12-234678-HxCDF	88	40 - 135
13C12-123789-HxCDF	89	40 - 135
13C12-1234678-HpCDF	101	40 - 135
13C12-1234789-HpCDF	87	40 - 135
13C12-OCDF	85	40 - 135

Dioxins/Furans Data Qualifiers:
B   Detected in Method Blank
U   Undetected

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

Analysis Report

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Sample Description: ARS1-17-00216-004 Soil
                  161115 SL

LL Sample # SW 8807305
LL Group # 1759120
Account   # 37646

Project Name: 161115 SL

Collected: 01/18/2017 12:00

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

ARS International, LLC
2609 North River Road
Port Allen LA 70769

-004-   SDG#: AIL01-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry EDL*	Dry MRL	Dilution Factor
J	*Estimated concentration between Estimated Detection Limit and Minimum Reporting Level*					
E	*Exceeds calibration range*					
C	*Confirmed quantitation on secondary GC column*					
Q	*EMPC - Estimated Maximum Possible Concentration*					
F	*Interference is present*					
S	*Saturation of detection signal*					

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

Analysis Report

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Sample Description: ARS1-17-00216-004 Soil
                    161115 SL

LL Sample # SW 8807305
LL Group # 1759120
Account   # 37646

Project Name: 161115 SL

Collected: 01/18/2017 12:00

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

ARS International, LLC
2609 North River Road
Port Allen LA 70769

-004-   SDG#: AIL01-02

Sample Comments

The temperature of the sample bottle(s) upon receipt at the lab was
6.6-16.2 C using an IR thermometer.

All QC is compliant unless otherwise noted. Please refer to the Quality
Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12937	Dioxins/Furans in Solids-8290	SW-846 8290A Feb 2007 Rev 1	1	17031003	02/08/2017 02:16	Joseph D Anderson	1
11030	Dioxins/Furans in Solids – Sox	SW-846 8290A Feb 2007 Rev 1	1	17031003	01/31/2017 10:45	Deborah M Zimmerman	1
00111	Moisture	SM 2540 G-1997	1	17033820006A	02/02/2017 19:39	Scott W Freisher	1

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: ARS1-17-00216-002 Soil 161115 SL	**LL Sample #** SW 8807306 **LL Group #** 1759120 **Account #** 37646

Project Name: 161115 SL

Collected: 01/17/2017 12:00

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

ARS International, LLC
2609 North River Road
Port Allen LA 70769

-002- SDG#: AIL01-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry		SM 2540 G-1997	%	%	%	
00111	Moisture	n.a.	11.2	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

*=This limit was used in the evaluation of the final result

Sample Description: ARS1-17-00216-002 Soil
161115 SL

LL Sample # SW 8807306
LL Group # 1759120
Account # 37646

Project Name: 161115 SL

Collected: 01/17/2017 12:00

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

ARS International, LLC
2609 North River Road
Port Allen LA 70769

-002- SDG#: AIL01-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry EDL*	Dry MRL	Dilution Factor
Dioxins/Furans		**SW-846 8290A Feb 2007 Rev 1**	ng/kg		ng/kg	ng/kg	
12937	2378-TCDD	1746-01-6	0.0277	JQ	0.0185	1.12	1
12937	12378-PeCDD	40321-76-4	0.179	JBQ	0.0427	5.60	1
12937	123478-HxCDD	39227-28-6	0.240	JB	0.0263	5.60	1
12937	123678-HxCDD	57653-85-7	0.502	JBQ	0.0245	5.60	1
12937	123789-HxCDD	19408-74-3	0.448	JB	0.0243	5.60	1
12937	1234678-HpCDD	35822-46-9	10.3	B	0.0368	5.60	1
12937	OCDD	3268-87-9	91.5	B	0.0281	11.2	1
12937	2378-TCDF	51207-31-9	0.617	J	0.0418	1.12	1
12937	12378-PeCDF	57117-41-6	1.08	JB	0.0199	5.60	1
12937	23478-PeCDF	57117-31-4	0.408	JB	0.0177	5.60	1
12937	123478-HxCDF	70648-26-9	0.336	JBQ	0.0204	5.60	1
12937	123678-HxCDF	57117-44-9	0.224	JB	0.0198	5.60	1
12937	123789-HxCDF	72918-21-9	0.155	JB	0.0215	5.60	1
12937	234678-HxCDF	60851-34-5	0.264	JB	0.0211	5.60	1
12937	1234678-HpCDF	67562-39-4	2.19	JB	0.0321	5.60	1
12937	1234789-HpCDF	55673-89-7	0.225	JB	0.0402	5.60	1
12937	OCDF	39001-02-0	3.88	JB	0.0186	11.2	1
D/F Toxic Equivalents		**SW-846 8290A Feb 2007 Rev 1**	ng/kg		ng/kg	ng/kg	
12937	TEQ WHO 2005 - EDLx0.0	n.a.	0.505				1

Labeled Compounds	%Rec	Windows
13C12-2378-TCDD	92	40 - 135
13C12-12378-PeCDD	97	40 - 135
13C12-123478-HxCDD	94	40 - 135
13C12-123678-HxCDD	92	40 - 135
13C12-123789-HxCDD	94	40 - 135
13C12-1234678-HpCDD	99	40 - 135
13C12-OCDD	100	40 - 135
13C12-2378-TCDF	91	40 - 135
13C12-12378-PeCDF	100	40 - 135
13C12-23478-PeCDF	97	40 - 135
13C12-123478-HxCDF	91	40 - 135
13C12-123678-HxCDF	93	40 - 135
13C12-234678-HxCDF	91	40 - 135
13C12-123789-HxCDF	96	40 - 135
13C12-1234678-HpCDF	105	40 - 135
13C12-1234789-HpCDF	91	40 - 135
13C12-OCDF	91	40 - 135

Dioxins/Furans Data Qualifiers:

B   Detected in Method Blank
U   Undetected

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

Analysis Report

Sample Description: ARS1-17-00216-002 Soil
                         161115 SL

Project Name: 161115 SL

Collected: 01/17/2017 12:00

Submitted: 01/26/2017 09:30
Reported: 02/09/2017 12:58

LL Sample # SW 8807306
LL Group # 1759120
Account   # 37646

ARS International, LLC
2609 North River Road
Port Allen LA 70769

-002-   SDG#: AIL01-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry EDL*	Dry MRL	Dilution Factor
J	*Estimated concentration between Estimated Detection Limit and Minimum Reporting Level*					
E	*Exceeds calibration range*					
C	*Confirmed quantitation on secondary GC column*					
Q	*EMPC - Estimated Maximum Possible Concentration*					
F	*Interference is present*					
S	*Saturation of detection signal*					

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

Sample Description: ARS1-17-00216-002 Soil   LL Sample # SW 8807306
                           161115 SL   LL Group # 1759120
                                             Account # 37646

Project Name: 161115 SL

Collected: 01/17/2017 12:00   ARS International, LLC
                                       2609 North River Road
Submitted: 01/26/2017 09:30   Port Allen LA 70769
Reported: 02/09/2017 12:58

-002-   SDG#: AIL01-03

Sample Comments

The temperature of the sample bottle(s) upon receipt at the lab was
6.6-16.2 C using an IR thermometer.

All QC is compliant unless otherwise noted. Please refer to the Quality
Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12937	Dioxins/Furans in Solids-8290	SW-846 8290A Feb 2007 Rev 1	1	17031003	02/08/2017 03:13	Joseph D Anderson	1
11030	Dioxins/Furans in Solids - Sox	SW-846 8290A Feb 2007 Rev 1	1	17031003	01/31/2017 10:45	Deborah M Zimmerman	1
00111	Moisture	SM 2540 G-1997	1	17033820006A	02/02/2017 19:39	Scott W Freisher	1

EDL = Estimated Detection Limit
*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: ARS International, LLC   Group Number: 1759120
Reported: 02/09/2017 12:58

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/kg	EDL** ng/kg	MRL ng/kg
Batch number: 17031003	Sample number(s): 8807304-8807306		
2378-TCDD	N.D.	0.0117	1.00
12378-PeCDD	0.0463 J	0.0185	5.00
123478-HxCDD	0.0288 J	0.0116	5.00
123678-HxCDD	0.0516 J	0.0115	5.00
123789-HxCDD	0.0485 J	0.0110	5.00
1234678-HpCDD	0.0716 J	0.00895	5.00
OCDD	0.129 J	0.0197	10.0
2378-TCDF	N.D.	0.0108	1.00
12378-PeCDF	0.0902 J	0.00866	5.00
23478-PeCDF	0.0589 J	0.00813	5.00
123478-HxCDF	0.0341 J	0.00763	5.00
123678-HxCDF	0.0406 J	0.00685	5.00
123789-HxCDF	0.112 J	0.00803	5.00
234678-HxCDF	0.0489 J	0.00749	5.00
1234678-HpCDF	0.0605 J	0.00652	5.00
1234789-HpCDF	0.0578 J	0.00983	5.00
OCDF	0.0854 J	0.0135	10.0
TEQ WHO 2005 - EDLx0.0	0.0622		

LCS/LCSD

Analysis Name	LCS Spike Added %	LCS Conc %	LCSD Spike Added %	LCSD Conc %	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17033820006A	Sample number(s): 8807304-8807306								
Moisture	89.5	89.47			100		99-101		

Analysis Name	OPR Spike Added ng/kg	OPR Conc ng/kg	OPRD Spike Added ng/kg	OPRD Conc ng/kg	OPR %REC	OPRD %REC	OPR/OPRD Limits	RPD	RPD Max
Batch number: 17031003	Sample number(s): 8807304-8807306								
2378-TCDD	20	19.14			96		67-158		
12378-PeCDD	100	95.31			95		70-142		
123478-HxCDD	100	96.71			97		70-164		
123678-HxCDD	100	91.49			91		76-134		
123789-HxCDD	100	94.51			95		64-162		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ / MRL.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: ARS International, LLC
Reported: 02/09/2017 12:58

Group Number: 1759120

OPR/OPRD (continued)

Analysis Name	OPR Spike Added ng/kg	OPR Conc ng/kg	OPRD Spike Added ng/kg	OPRD Conc ng/kg	OPR %REC	OPRD %REC	OPR/OPRD Limits	RPD	RPD Max
1234678-HpCDD	100	92.27			92		70-140		
OCDD	200	188.31			94		78-144		
2378-TCDF	20	19.43			97		75-158		
12378-PeCDF	100	98.17			98		80-134		
23478-PeCDF	100	90.71			91		68-160		
123478-HxCDF	100	91.17			91		72-134		
123678-HxCDF	100	90.94			91		84-130		
123789-HxCDF	100	91.33			91		78-130		
234678-HxCDF	100	93.89			94		70-156		
1234678-HpCDF	100	96.13			96		82-122		
1234789-HpCDF	100	95.43			95		78-138		
OCDF	200	181.35			91		63-170		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 17033820006A	Sample number(s): 8807304-8807306 BKG: P807415			
Moisture	11.02	11.07	0	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Dioxins/Furans in Solids-8290
Batch number: 17031003

	13C12-2378-TCDD	13C12-12378-PeCDD	13C12-123478-HxCDD	13C12-123678-HxCDD	13C12-123789-HxCDD	13C12-1234678-HpCDD
8807304	74	86	87	85	87	92
8807305	85	99	92	89	89	95
8807306	92	97	94	92	94	99
Blank	82	95	85	85	86	93
OPR	64	84	85	83	84	90
Limits:	40-135	40-135	40-135	40-135	40-135	40-135

	13C12-OCDD	13C12-2378-TCDF	13C12-12378-PeCDF	13C12-23478-PeCDF	13C12-123478-HxCDF	13C12-123678-HxCDF
8807304	92	73	89	84	80	89
8807305	98	86	99	97	88	94
8807306	100	91	100	97	91	93

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ / MRL.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: ARS International, LLC   Group Number: 1759120
Reported: 02/09/2017 12:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Dioxins/Furans in Solids-8290
Batch number: 17031003

	13C12-OCDD	13C12-2378-TCDF	13C12-12378-PeCDF	13C12-23478-PeCDF	13C12-123478-HxCDF	13C12-123678-HxCDF
Blank	94	69	96	87	78	88
OPR	93	62	84	78	74	84
Limits:	40-135	40-135	40-135	40-135	40-135	40-135

	13C12-234678-HxCDF	13C12-123789-HxCDF	13C12-1234678-HpCDF	13C12-1234789-HpCDF	13C12-OCDF
8807304	80	74	103	77	75
8807305	88	89	101	87	85
8807306	91	96	105	91	91
Blank	79	83	101	77	74
OPR	76	72	98	73	73
Limits:	40-135	40-135	40-135	40-135	40-135

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ / MRL.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

ARS INTERNATIONAL

A-37646
G-1759120
S-8807304-06

Sent To: Eurofins Lancaster Labs
Contact: Jane Hober / Stacy Hess
Address: 2425 New Holland Pike
Lancaster PA 17601
Phone: 717-656-2308
Fax:

Company Name: ARS International
Address: 2609 N River Rd
Port Allen LA 70767
Phone #: 225-344-2991
Fax #: 225-344-2996
E-mail: rvarnell@amrad.com

Client Contact:
Purchase Order
Job #:

Turn around time in bussiness days (please circle one)
___ Day ___ Day ___ Day ___ Days   Other: 15 D

Analysis Requested

Dioxins SW846 8290A

	Date	Time	Sample ID	Matrix Type+	# of Cont.	Dioxins SW846 8290A														
1	1-17-17	1200	ARS1-17-0026-002	SO	1	✓														
2	1-19-17	1200	ARS1-17-0026-004	SO	1	✓														
3	1-17-17	1200	ARS1-17-0026-007	SO	1	✓														
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11			Need 15 day																	
12			TAT.																	
13																				
14																				
15			Level 4 pkg																	
16																				
17																				
18																				
19																				
20																				
21																				

Additional notes: Does Not Need Totals

Relinquished by (signature)	Date	Time		Received by (signature)	Date	Time
	1-25-17	1422		C. Sadoe	2-2.-17	730

+ **Types of sample:**
S: solids, L: liquid, DW: Drinking Water, Sm: Smear, LT: Leak Test, AF: Air Filter, Si: Silica Gel, VG: vegetation, Bio: Bioassay

Sample Administration
Receipt Documentation Log

Doc Log ID: 174066

Group Number(s): *1759120*

Client: ARS

Delivery and Receipt Information

Delivery Method:	UPS	Arrival Timestamp:	01/26/2017 9:30
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	No	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Melvin Sanchez (8943) at 16:46 on 01/26/2017

Elevated Temperature Details

All Temperatures in °C

Cooler #	Thermometer ID	Top Left Temp	Top Right Temp	Bottom Left Temp	Bottom Right Temp	Center Temp	Factors Contributing to Elevated Temp	Comments
1	32170023	10.9	16.2			6.6		

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
ARS1-17-00216-002 or -007	BB17 or BB18	both coll. 01/17/17 per the bottles
ARS1-17-00216-004	BB19M	both coll. 01/18/17 per the bottle

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All 01 Page 23 of 560
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F 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	none detected
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…
W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Dioxins/Furans by HRMS Data

Case Narrative/Conformance Summary

Dioxins/Furans by HRMS

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Case Narrative/Conformance Summary

CLIENT: ARS International, LLC
SDG: AIL01

Specialty Services Group
Fraction: Dioxins/Furans by HRMS

		Matrix			
Sample #	**Client ID**	**Liquid**	**Solid**	**DF**	**Comments**
8807304	ARS1-17-00216-007		X	1	
8807305	ARS1-17-00216-004		X	1	
8807306	ARS1-17-00216-002		X	1	

LABORATORY SUBMITTED QC:

	Matrix	
Sample #	**Liquid**	**Solid**
BLK031003		X
OPR031003		X

SAMPLE PREPARATION:

No problems were encountered with the extraction of these samples.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specifications.

SAMPLE ANALYSIS:

All samples were analyzed by SW846 Method 8290A.

No problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

Data was processed and interpreted using standard operating procedures.

Quality Control and Calibration Summary Forms

Dioxins/Furans by HRMS

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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471   Lab Sample ID: OPR031003
Sample (wt):   10.0 (g)   Lab File ID: 17FEB07-15
Water Sample Prep: N/A   Date Received: N/A
Concentration Extract Volume: 20.0 (uL)   Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)   % Solid/Lipids: 0.0   Date Analyzed: 02/07/2017 22:30
GC Column: DB5MS   ID: 0.25 (mm)   Dilution Factor: 1.0

Concentration Units: ng/kg

Analyte	Selected Ions	Peak RT	Ion Ratio	Concentration	Qual.	EDL
2378-TCDF	304/306	30.98	0.76	19.4		0.0187
2378-TCDD	320/322	32.02	0.81	19.1		0.0170
12378-PeCDF	340/342	36.54	1.57	98.2	B	0.0133
23478-PeCDF	340/342	37.76	1.57	90.7	B	0.0121
12378-PeCDD	356/358	38.14	1.63	95.3	B	0.0298
123478-HxCDF	374/376	41.33	1.26	91.2	B	0.0331
123678-HxCDF	374/376	41.48	1.23	90.9	B	0.0280
234678-HxCDF	374/376	42.17	1.27	93.9	B	0.0312
123478-HxCDD	390/392	42.36	1.27	96.7	B	0.0262
123678-HxCDD	390/392	42.47	1.25	91.5	B	0.0253
123789-HxCDD	390/392	42.78	1.24	94.5	B	0.0244
123789-HxCDF	374/376	43.17	1.25	91.3	B	0.0371
1234678-HpCDF	408/410	44.86	1.04	96.1	B	0.0292
1234678-HpCDD	424/426	46.04	1.04	92.3	B	0.0365
1234789-HpCDF	408/410	46.61	1.03	95.4	B	0.0465
OCDD	458/460	49.05	0.89	188	B	0.0375
OCDF	442/444	49.25	0.91	181	B	0.0253

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-1278-TCDD (CRS)	332/334	32.38	0.83	0.65 - 0.90	37	31 - 191
13C12-2378-TCDF	316/318	30.94	0.79	0.65 - 0.90	62	40 - 135
13C12-2378-TCDD	332/334	31.99	0.79	0.65 - 0.90	64	40 - 135
13C12-12378-PeCDF	352/354	36.52	1.60	1.32 - 1.79	84	40 - 135
13C12-23478-PeCDF	352/354	37.74	1.61	1.32 - 1.79	78	40 - 135
13C12-12378-PeCDD	368/370	38.13	1.62	1.32 - 1.79	84	40 - 135
13C12-123478-HxCDF	384/386	41.32	0.53	0.43 - 0.60	74	40 - 135
13C12-123678-HxCDF	384/386	41.47	0.53	0.43 - 0.60	84	40 - 135
13C12-234678-HxCDF	384/386	42.16	0.52	0.43 - 0.60	76	40 - 135
13C12-123478-HxCDD	402/404	42.33	1.26	1.05 - 1.44	85	40 - 135
13C12-123678-HxCDD	402/404	42.45	1.27	1.05 - 1.44	83	40 - 135
13C12-123789-HxCDD	402/404	42.76	1.26	1.05 - 1.44	84	40 - 135
13C12-123789-HxCDF	384/386	43.15	0.52	0.43 - 0.60	72	40 - 135
13C12-1234678-HpCDF	418/420	44.85	0.45	0.37 - 0.52	98	40 - 135
13C12-1234678-HpCDD	436/438	46.03	1.07	0.88 - 1.21	90	40 - 135
13C12-1234789-HpCDF	418/420	46.59	0.44	0.37 - 0.52	73	40 - 135
13C12-OCDD	470/472	49.03	0.91	0.76 - 1.03	93	40 - 135

```
Abbreviations:
   B = Detected in Method Blank            E = Exceeds calibration range
   U = Undetected                          F = Interference is present
   J = Estimated concentration between EDL and LOQ  N = See comment in Case Narrative
   C = Concentration confirmed on second column     S = The detector is saturated
   Q = Estimated Maximum Possible Concentration     * = Outside QC Limits
```

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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471   Lab Sample ID: OPR031003
Sample (wt):   10.0 (g)   Lab File ID: 17FEB07-15
Water Sample Prep: N/A   Date Received: N/A
Concentration Extract Volume: 20.0 (uL)   Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)   % Solid/Lipids: 0.0   Date Analyzed: 02/07/2017 22:30
GC Column: DB5MS   ID: 0.25 (mm)   Dilution Factor: 1.0

Concentration Units: ng/kg

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-OCDF	454/456	49.23	0.89	0.76 - 1.03	73	40 - 135

Abbreviations:	
B = Detected in Method Blank	E = Exceeds calibration range
U = Undetected	F = Interference is present
J = Estimated concentration between EDL and LOQ	N = See comment in Case Narrative
C = Concentration confirmed on second column	S = The detector is saturated
Q = Estimated Maximum Possible Concentration	* = Outside QC Limits

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Lancaster Laboratories
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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471   Lab Sample ID: BLK031003
Sample (wt):   10.0 (g)   Lab File ID: 17FEB07-17
Water Sample Prep: N/A   Date Received: N/A
Concentration Extract Volume: 20.0 (uL)   Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)   % Solid/Lipids: 0.0 Date Analyzed: 02/08/2017 00:23
GC Column: DB5MS   ID: 0.25 (mm)   Dilution Factor: 1.0

Concentration Units: ng/kg

Analyte	Selected Ions	Peak RT	Ion Ratio	Concentration	Qual.	EDL
2378-TCDF	304/306	31.02	0.05 *		U	0.0108
2378-TCDD	320/322	32.03	48.60 *		U	0.0117
12378-PeCDF	340/342	36.55	2.16 *	0.0902	JQ	0.00866
23478-PeCDF	340/342	37.76	1.97 *	0.0589	JQ	0.00813
12378-PeCDD	356/358	38.16	1.40	0.0463	J	0.0185
123478-HxCDF	374/376	41.36	1.16	0.0341	J	0.00763
123678-HxCDF	374/376	41.49	2.05 *	0.0406	JQ	0.00685
234678-HxCDF	374/376	42.18	5.94 *	0.0489	JQ	0.00749
123478-HxCDD	390/392	42.35	3.61 *	0.0288	JQ	0.0116
123678-HxCDD	390/392	42.47	4.10 *	0.0516	JQ	0.0115
123789-HxCDD	390/392	42.78	0.90 *	0.0485	JQ	0.0110
123789-HxCDF	374/376	43.16	1.07	0.112	J	0.00803
1234678-HpCDF	408/410	44.86	0.90	0.0605	J	0.00652
1234678-HpCDD	424/426	46.04	1.37 *	0.0716	JQ	0.00895
1234789-HpCDF	408/410	46.60	0.98	0.0578	J	0.00983
OCDD	458/460	49.04	0.99	0.129	J	0.0197
OCDF	442/444	49.26	3.03 *	0.0854	JQ	0.0135

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-1278-TCDD (CRS)	332/334	32.39	0.78	0.65 - 0.90	44	35 - 197
13C12-2378-TCDF	316/318	30.95	0.79	0.65 - 0.90	69	40 - 135
13C12-2378-TCDD	332/334	32.00	0.82	0.65 - 0.90	82	40 - 135
13C12-12378-PeCDF	352/354	36.53	1.58	1.32 - 1.79	96	40 - 135
13C12-23478-PeCDF	352/354	37.75	1.58	1.32 - 1.79	87	40 - 135
13C12-12378-PeCDD	368/370	38.13	1.59	1.32 - 1.79	95	40 - 135
13C12-123478-HxCDF	384/386	41.33	0.51	0.43 - 0.60	78	40 - 135
13C12-123678-HxCDF	384/386	41.48	0.52	0.43 - 0.60	88	40 - 135
13C12-234678-HxCDF	384/386	42.15	0.53	0.43 - 0.60	79	40 - 135
13C12-123478-HxCDD	402/404	42.34	1.25	1.05 - 1.44	85	40 - 135
13C12-123678-HxCDD	402/404	42.46	1.25	1.05 - 1.44	85	40 - 135
13C12-123789-HxCDD	402/404	42.77	1.26	1.05 - 1.44	86	40 - 135
13C12-123789-HxCDF	384/386	43.16	0.54	0.43 - 0.60	83	40 - 135
13C12-1234678-HpCDF	418/420	44.85	0.45	0.37 - 0.52	101	40 - 135
13C12-1234678-HpCDD	436/438	46.04	1.05	0.88 - 1.21	93	40 - 135
13C12-1234789-HpCDF	418/420	46.60	0.45	0.37 - 0.52	77	40 - 135
13C12-OCDD	470/472	49.04	0.92	0.76 - 1.03	94	40 - 135

Abbreviations:
    B = Detected in Method Blank   E = Exceeds calibration range
    U = Undetected   F = Interference is present
    J = Estimated concentration between EDL and LOQ N = See comment in Case Narrative
    C = Concentration confirmed on second column   S = The detector is saturated
    Q = Estimated Maximum Possible Concentration   * = Outside QC Limits

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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL	Instrument ID: DF18471	Lab Sample ID: BLK031003
Sample (wt): 10.0 (g)		Lab File ID: 17FEB07-17
Water Sample Prep: N/A		Date Received: N/A
Concentration Extract Volume: 20.0 (uL)		Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)	% Solid/Lipids: 0.0	Date Analyzed: 02/08/2017 00:23
GC Column: DB5MS	ID: 0.25 (mm)	Dilution Factor: 1.0

Concentration Units: ng/kg

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-OCDF	454/456	49.23	0.92	0.76 - 1.03	74	40 - 135

Abbreviations:	
B = Detected in Method Blank	E = Exceeds calibration range
U = Undetected	F = Interference is present
J = Estimated concentration between EDL and LOQ	N = See comment in Case Narrative
C = Concentration confirmed on second column	S = The detector is saturated
Q = Estimated Maximum Possible Concentration	* = Outside QC Limits

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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471   Lab Sample ID: 8807304
Sample (wt):   10.3 (g)   Lab File ID: 17FEB07-18
Water Sample Prep: N/A   Date Received: 01/26/2017 09:30
Concentration Extract Volume: 20.0 (uL)   Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)   % Solid/Lipids: 88.3   Date Analyzed: 02/08/2017 01:20
GC Column: DB5MS   ID: 0.25 (mm)   Dilution Factor: 1.0

Concentration Units: ng/kg

Analyte	Selected Ions	Peak RT	Ion Ratio	Concentration	Qual.	EDL
2378-TCDF	304/306	30.98	0.99 *	0.360	JQ	0.0424
2378-TCDD	320/322	32.03	0.49 *	0.0698	JQ	0.0154
12378-PeCDF	340/342	36.54	1.44	0.576	BJ	0.0226
23478-PeCDF	340/342	37.76	1.90 *	0.947	BJQ	0.0202
12378-PeCDD	356/358	38.15	2.23 *	0.420	BJQ	0.0267
123478-HxCDF	374/376	41.34	1.25	0.500	BJ	0.0252
123678-HxCDF	374/376	41.50	1.42	0.486	BJ	0.0220
234678-HxCDF	374/376	42.17	1.38	0.475	BJ	0.0237
123478-HxCDD	390/392	42.35	1.69 *	0.324	BJQ	0.0260
123678-HxCDD	390/392	42.47	1.08	0.931	BJ	0.0252
123789-HxCDD	390/392	42.79	1.30	0.450	BJ	0.0247
123789-HxCDF	374/376	43.17	1.35	0.402	BJ	0.0299
1234678-HpCDF	408/410	44.87	1.09	2.32	BJ	0.0134
1234678-HpCDD	424/426	46.04	1.07	13.6	B	0.0422
1234789-HpCDF	408/410	46.61	1.17	0.340	BJ	0.0208
OCDD	458/460	49.05	0.90	195	B	0.0422
OCDF	442/444	49.25	0.79	5.55	BJ	0.0198

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-1278-TCDD (CRS)	332/334	32.39	0.82	0.65 - 0.90	38	35 - 197
13C12-2378-TCDF	316/318	30.97	0.80	0.65 - 0.90	73	40 - 135
13C12-2378-TCDD	332/334	31.99	0.81	0.65 - 0.90	74	40 - 135
13C12-12378-PeCDF	352/354	36.53	1.62	1.32 - 1.79	89	40 - 135
13C12-23478-PeCDF	352/354	37.75	1.57	1.32 - 1.79	84	40 - 135
13C12-12378-PeCDD	368/370	38.13	1.62	1.32 - 1.79	86	40 - 135
13C12-123478-HxCDF	384/386	41.32	0.53	0.43 - 0.60	80	40 - 135
13C12-123678-HxCDF	384/386	41.47	0.53	0.43 - 0.60	89	40 - 135
13C12-234678-HxCDF	384/386	42.16	0.54	0.43 - 0.60	80	40 - 135
13C12-123478-HxCDD	402/404	42.35	1.27	1.05 - 1.44	87	40 - 135
13C12-123678-HxCDD	402/404	42.45	1.25	1.05 - 1.44	85	40 - 135
13C12-123789-HxCDD	402/404	42.76	1.24	1.05 - 1.44	87	40 - 135
13C12-123789-HxCDF	384/386	43.16	0.54	0.43 - 0.60	74	40 - 135
13C12-1234678-HpCDF	418/420	44.85	0.46	0.37 - 0.52	103	40 - 135
13C12-1234678-HpCDD	436/438	46.03	1.05	0.88 - 1.21	92	40 - 135
13C12-1234789-HpCDF	418/420	46.60	0.47	0.37 - 0.52	77	40 - 135
13C12-OCDD	470/472	49.05	0.89	0.76 - 1.03	92	40 - 135

Abbreviations:
    B = Detected in Method Blank   E = Exceeds calibration range
    U = Undetected   F = Interference is present
    J = Estimated concentration between EDL and LOQ   N = See comment in Case Narrative
    C = Concentration confirmed on second column   S = The detector is saturated
    Q = Estimated Maximum Possible Concentration   * = Outside QC Limits

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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471   Lab Sample ID: 8807304
Sample (wt):   10.3 (g)   Lab File ID: 17FEB07-18
Water Sample Prep: N/A   Date Received: 01/26/2017 09:30
Concentration Extract Volume: 20.0 (uL)   Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)   % Solid/Lipids: 88.3   Date Analyzed: 02/08/2017 01:20
GC Column: DB5MS   ID: 0.25 (mm)   Dilution Factor: 1.0

Concentration Units: ng/kg

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-OCDF	454/456	49.23	0.90	0.76 - 1.03	75	40 - 135

Abbreviations:	
B = Detected in Method Blank	E = Exceeds calibration range
U = Undetected	F = Interference is present
J = Estimated concentration between EDL and LOQ	N = See comment in Case Narrative
C = Concentration confirmed on second column	S = The detector is saturated
Q = Estimated Maximum Possible Concentration	* = Outside QC Limits

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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL	Instrument ID: DF18471	Lab Sample ID: 8807305
Sample (wt): 10.2 (g)		Lab File ID: 17FEB07-19
Water Sample Prep: N/A		Date Received: 01/26/2017 09:30
Concentration Extract Volume: 20.0 (uL)		Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)	% Solid/Lipids: 58.3	Date Analyzed: 02/08/2017 02:16
GC Column: DB5MS	ID: 0.25 (mm)	Dilution Factor: 1.0

Concentration Units: ng/kg

Analyte	Selected Ions	Peak RT	Ion Ratio	Concentration	Qual.	EDL
2378-TCDF	304/306	30.99	0.83	0.0731	J	0.0286
2378-TCDD	320/322	32.03	0.33 *	0.0300	JQ	0.0256
12378-PeCDF	340/342	36.53	1.68	0.247	BJ	0.0190
23478-PeCDF	340/342	37.76	1.53	0.241	BJ	0.0169
12378-PeCDD	356/358	38.15	1.29 *	0.303	BJQ	0.0517
123478-HxCDF	374/376	41.34	1.17	0.352	BJ	0.0350
123678-HxCDF	374/376	41.49	1.32	0.487	BJ	0.0319
234678-HxCDF	374/376	42.18	1.45 *	0.666	BJQ	0.0350
123478-HxCDD	390/392	42.37	1.29	0.479	BJ	0.0365
123678-HxCDD	390/392	42.47	1.16	2.21	BJ	0.0356
123789-HxCDD	390/392	42.78	1.16	0.791	BJ	0.0354
123789-HxCDF	374/376	43.17	1.43	0.261	BJ	0.0388
1234678-HpCDF	408/410	44.86	1.10	8.62	B	0.0340
1234678-HpCDD	424/426	46.05	0.99	41.5	B	0.0622
1234789-HpCDF	408/410	46.62	1.27 *	0.891	BJQ	0.0427
OCDD	458/460	49.05	0.88	297	B	0.0567
OCDF	442/444	49.24	0.85	18.2	B	0.0255

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-1278-TCDD (CRS)	332/334	32.39	0.77	0.65 - 0.90	40	35 - 197
13C12-2378-TCDF	316/318	30.97	0.80	0.65 - 0.90	86	40 - 135
13C12-2378-TCDD	332/334	32.00	0.81	0.65 - 0.90	85	40 - 135
13C12-12378-PeCDF	352/354	36.53	1.64	1.32 - 1.79	99	40 - 135
13C12-23478-PeCDF	352/354	37.75	1.59	1.32 - 1.79	97	40 - 135
13C12-12378-PeCDD	368/370	38.13	1.60	1.32 - 1.79	99	40 - 135
13C12-123478-HxCDF	384/386	41.33	0.52	0.43 - 0.60	88	40 - 135
13C12-123678-HxCDF	384/386	41.48	0.52	0.43 - 0.60	94	40 - 135
13C12-234678-HxCDF	384/386	42.16	0.54	0.43 - 0.60	88	40 - 135
13C12-123478-HxCDD	402/404	42.34	1.29	1.05 - 1.44	92	40 - 135
13C12-123678-HxCDD	402/404	42.46	1.25	1.05 - 1.44	89	40 - 135
13C12-123789-HxCDD	402/404	42.77	1.24	1.05 - 1.44	89	40 - 135
13C12-123789-HxCDF	384/386	43.16	0.53	0.43 - 0.60	88	40 - 135
13C12-1234678-HpCDF	418/420	44.85	0.45	0.37 - 0.52	101	40 - 135
13C12-1234678-HpCDD	436/438	46.04	1.05	0.88 - 1.21	95	40 - 135
13C12-1234789-HpCDF	418/420	46.60	0.45	0.37 - 0.52	87	40 - 135
13C12-OCDD	470/472	49.04	0.89	0.76 - 1.03	98	40 - 135

Abbreviations:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between EDL and LOQ
C = Concentration confirmed on second column
Q = Estimated Maximum Possible Concentration

E = Exceeds calibration range
F = Interference is present
N = See comment in Case Narrative
S = The detector is saturated
* = Outside QC Limits

FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471   Lab Sample ID: 8807305
Sample (wt):   10.2 (g)   Lab File ID: 17FEB07-19
Water Sample Prep: N/A   Date Received: 01/26/2017 09:30
Concentration Extract Volume: 20.0 (uL)   Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)   % Solid/Lipids: 58.3 Date Analyzed: 02/08/2017 02:16
GC Column: DB5MS   ID: 0.25 (mm)   Dilution Factor: 1.0

Concentration Units: ng/kg

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-OCDF	454/456	49.23	0.90	0.76 - 1.03	85	40 - 135

Abbreviations:	
B = Detected in Method Blank	E = Exceeds calibration range
U = Undetected	F = Interference is present
J = Estimated concentration between EDL and LOQ	N = See comment in Case Narrative
C = Concentration confirmed on second column	S = The detector is saturated
Q = Estimated Maximum Possible Concentration	* = Outside QC Limits

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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471   Lab Sample ID: 8807306
Sample (wt):   10.1 (g)   Lab File ID: 17FEB07-20
Water Sample Prep: N/A   Date Received: 01/26/2017 09:30
Concentration Extract Volume: 20.0 (uL)   Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)   % Solid/Lipids: 88.8   Date Analyzed: 02/08/2017 03:13
GC Column: DB5MS   ID: 0.25 (mm)   Dilution Factor: 1.0

Concentration Units: ng/kg

Analyte	Selected Ions	Peak RT	Ion Ratio	Concentration	Qual.	EDL
2378-TCDF	304/306	31.00	0.69	0.617	J	0.0418
2378-TCDD	320/322	32.01	1.88 *	0.0277	JQ	0.0185
12378-PeCDF	340/342	36.55	1.42	1.08	BJ	0.0199
23478-PeCDF	340/342	37.79	1.61	0.408	BJ	0.0177
12378-PeCDD	356/358	38.16	1.83 *	0.179	BJQ	0.0427
123478-HxCDF	374/376	41.35	1.51 *	0.336	BJQ	0.0204
123678-HxCDF	374/376	41.48	1.20	0.224	BJ	0.0198
234678-HxCDF	374/376	42.18	1.14	0.264	BJ	0.0211
123478-HxCDD	390/392	42.36	1.37	0.240	BJ	0.0263
123678-HxCDD	390/392	42.48	1.01 *	0.502	BJQ	0.0245
123789-HxCDD	390/392	42.79	1.35	0.448	BJ	0.0243
123789-HxCDF	374/376	43.18	1.36	0.155	BJ	0.0215
1234678-HpCDF	408/410	44.87	1.03	2.19	BJ	0.0321
1234678-HpCDD	424/426	46.05	1.09	10.3	B	0.0368
1234789-HpCDF	408/410	46.61	1.17	0.225	BJ	0.0402
OCDD	458/460	49.06	0.90	91.5	B	0.0281
OCDF	442/444	49.25	0.89	3.88	BJ	0.0186

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-1278-TCDD (CRS)	332/334	32.40	0.83	0.65 - 0.90	45	35 - 197
13C12-2378-TCDF	316/318	30.96	0.79	0.65 - 0.90	91	40 - 135
13C12-2378-TCDD	332/334	32.01	0.80	0.65 - 0.90	92	40 - 135
13C12-12378-PeCDF	352/354	36.54	1.57	1.32 - 1.79	100	40 - 135
13C12-23478-PeCDF	352/354	37.76	1.58	1.32 - 1.79	97	40 - 135
13C12-12378-PeCDD	368/370	38.14	1.59	1.32 - 1.79	97	40 - 135
13C12-123478-HxCDF	384/386	41.33	0.52	0.43 - 0.60	91	40 - 135
13C12-123678-HxCDF	384/386	41.48	0.53	0.43 - 0.60	93	40 - 135
13C12-234678-HxCDF	384/386	42.17	0.53	0.43 - 0.60	91	40 - 135
13C12-123478-HxCDD	402/404	42.35	1.25	1.05 - 1.44	94	40 - 135
13C12-123678-HxCDD	402/404	42.47	1.26	1.05 - 1.44	92	40 - 135
13C12-123789-HxCDD	402/404	42.78	1.23	1.05 - 1.44	94	40 - 135
13C12-123789-HxCDF	384/386	43.17	0.53	0.43 - 0.60	96	40 - 135
13C12-1234678-HpCDF	418/420	44.85	0.46	0.37 - 0.52	105	40 - 135
13C12-1234678-HpCDD	436/438	46.04	1.04	0.88 - 1.21	99	40 - 135
13C12-1234789-HpCDF	418/420	46.61	0.45	0.37 - 0.52	91	40 - 135
13C12-OCDD	470/472	49.05	0.91	0.76 - 1.03	100	40 - 135

Abbreviations:
    B = Detected in Method Blank   E = Exceeds calibration range
    U = Undetected   F = Interference is present
    J = Estimated concentration between EDL and LOQ   N = See comment in Case Narrative
    C = Concentration confirmed on second column   S = The detector is saturated
    Q = Estimated Maximum Possible Concentration   * = Outside QC Limits

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FORM 01A
CDD/CDF SAMPLE DATA SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471   Lab Sample ID: 8807306
Sample (wt): 10.1 (g)   Lab File ID: 17FEB07-20
Water Sample Prep: N/A   Date Received: 01/26/2017 09:30
Concentration Extract Volume: 20.0 (uL)   Date Extracted: 01/31/2017 10:45
Injection Volume: 1.00 (uL)   % Solid/Lipids: 88.8   Date Analyzed: 02/08/2017 03:13
GC Column: DB5MS   ID: 0.25 (mm)   Dilution Factor: 1.0

Concentration Units: ng/kg

Labeled Compounds	Selected Ions	Peak RT	Ion Ratio	Ion Ratio Limits	% REC	Recovery Limits
13C12-OCDF	454/456	49.25	0.90	0.76 - 1.03	91	40 - 135

Abbreviations:	
B = Detected in Method Blank	E = Exceeds calibration range
U = Undetected	F = Interference is present
J = Estimated concentration between EDL and LOQ	N = See comment in Case Narrative
C = Concentration confirmed on second column	S = The detector is saturated
Q = Estimated Maximum Possible Concentration	* = Outside QC Limits

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FORM 01B
CDD/CDF TOXICITY EQUIVALENCE SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL

Sample (wt): 10.0 (g)

Water Sample Prep: N/A

Concentrated Extract Volume: 20.0 (uL)

Injection Volume 1.00 (uL)   % Solid/Lipids: N/A

GC Column: DB5MS   ID: 0.25 (mm)

Instrument ID: DF18471

Lab Sample ID: BLK031003

Lab File ID: 17FEB07-17

Date Received: N/A

Date Extracted: 01/31/2017 10:45

Date Analyzed: 02/08/2017 00:23

Dilution Factor: 1.0

Concentration Units: ng/kg

Target Analyte	Concentration	Qual.	TEF*	EDL	DLF**	TEF-Adjusted Concentration
2378-TCDF		U	0.1	0.0108	0	0
2378-TCDD		U	1	0.0117	0	0
12378-PeCDF	0.0902	JQ	0.03	0.00866	0	0
23478-PeCDF	0.0589	JQ	0.3	0.00813	0	0
12378-PeCDD	0.0463	J	1	0.0185		0.0463
123478-HxCDF	0.0341	J	0.1	0.00763		0.00341
123678-HxCDF	0.0406	JQ	0.1	0.00685	0	0
234678-HxCDF	0.0489	JQ	0.1	0.00749	0	0
123478-HxCDD	0.0288	JQ	0.1	0.0116	0	0
123678-HxCDD	0.0516	JQ	0.1	0.0115	0	0
123789-HxCDD	0.0485	JQ	0.1	0.0110	0	0
123789-HxCDF	0.112	J	0.1	0.00803		0.0112
1234678-HpCDF	0.0605	J	0.01	0.00652		0.000605
1234678-HpCDD	0.0716	JQ	0.01	0.00895	0	0
1234789-HpCDF	0.0578	J	0.01	0.00983		0.000578
OCDD	0.129	J	0.0003	0.0197		0.0000390

Total TEQ (excluding EMPC):   0.0622

* TEF - Toxicity Equivalent Factors from World Health Organization (WHO), 2005

** DLF - Detection Limit Factors applied to the EDL.

```
Abbreviations:
   B = Detected in Method Blank              E = Exceeds calibration range
   U = Undetected                            F = Interference is present
   J = Estimated concentration between EDL and LOQ   N = See comment in Case Narrative
   C = Concentration confirmed on second column      S = The detector is saturated
   Q = Estimated Maximum Possible Concentration
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FORM 01B
CDD/CDF TOXICITY EQUIVALENCE SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL

Sample (wt):   10.0 (g)

Water Sample Prep: N/A

Concentrated Extract Volume: 20.0 (uL)

Injection Volume 1.00 (uL)   % Solid/Lipids: N/A

GC Column: DB5MS   ID: 0.25 (mm)

Instrument ID: DF18471

Lab Sample ID: BLK031003

Lab File ID: 17FEB07-17

Date Received: N/A

Date Extracted: 01/31/2017 10:45

Date Analyzed: 02/08/2017 00:23

Dilution Factor: 1.0

Concentration Units: ng/kg

Target Analyte	Concentration	Qual.	TEF*	EDL	DLF**	TEF-Adjusted Concentration
OCDF	0.0854	JQ	0.0003	0.0135	0	0

Total TEQ (excluding EMPC):   0.0622

* TEF - Toxicity Equivalent Factors from World Health Organization (WHO), 2005

** DLF - Detection Limit Factors applied to the EDL.

Abbreviations:	
B = Detected in Method Blank	E = Exceeds calibration range
U = Undetected	F = Interference is present
J = Estimated concentration between EDL and LOQ	N = See comment in Case Narrative
C = Concentration confirmed on second column	S = The detector is saturated
Q = Estimated Maximum Possible Concentration	

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SDG No.: AIL01

Matrix: SOIL	Instrument ID: DF18471
Sample (wt): 10.3 (g)	Lab Sample ID: 8807304
Water Sample Prep: N/A	Lab File ID: 17FEB07-18
Concentrated Extract Volume: 20.0 (uL)	Date Received: 01/26/2017 09:30
Injection Volume 1.00 (uL) % Solid/Lipids: 88.3	Date Extracted: 01/31/2017 10:45
GC Column: DB5MS ID: 0.25 (mm)	Date Analyzed: 02/08/2017 01:20
	Dilution Factor: 1.0

Concentration Units: ng/kg

Target Analyte	Concentration	Qual.	TEF*	EDL	DLF**	TEF-Adjusted Concentration
2378-TCDF	0.360	JQ	0.1	0.0424	0	0
2378-TCDD	0.0698	JQ	1	0.0154	0	0
12378-PeCDF	0.576	BJ	0.03	0.0226		0.0173
23478-PeCDF	0.947	BJQ	0.3	0.0202	0	0
12378-PeCDD	0.420	BJQ	1	0.0267	0	0
123478-HxCDF	0.500	BJ	0.1	0.0252		0.0500
123678-HxCDF	0.486	BJ	0.1	0.0220		0.0486
234678-HxCDF	0.475	BJ	0.1	0.0237		0.0475
123478-HxCDD	0.324	BJQ	0.1	0.0260	0	0
123678-HxCDD	0.931	BJ	0.1	0.0252		0.0931
123789-HxCDD	0.450	BJ	0.1	0.0247		0.0450
123789-HxCDF	0.402	BJ	0.1	0.0299		0.0402
1234678-HpCDF	2.32	BJ	0.01	0.0134		0.0232
1234678-HpCDD	13.6	B	0.01	0.0422		0.136
1234789-HpCDF	0.340	BJ	0.01	0.0208		0.00340
OCDD	195	B	0.0003	0.0422		0.0586

Total TEQ (excluding EMPC):   0.564

* TEF - Toxicity Equivalent Factors from World Health Organization (WHO), 2005

** DLF - Detection Limit Factors applied to the EDL.

```
Abbreviations:
   B = Detected in Method Blank           E = Exceeds calibration range
   U = Undetected                         F = Interference is present
   J = Estimated concentration between EDL and LOQ   N = See comment in Case Narrative
   C = Concentration confirmed on second column      S = The detector is saturated
   Q = Estimated Maximum Possible Concentration
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FORM 01B
CDD/CDF TOXICITY EQUIVALENCE SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL

Sample (wt):   10.3 (g)

Water Sample Prep: N/A

Concentrated Extract Volume: 20.0 (uL)

Injection Volume 1.00 (uL)   % Solid/Lipids: 88.3

GC Column: DB5MS   ID: 0.25 (mm)

Instrument ID: DF18471

Lab Sample ID: 8807304

Lab File ID: 17FEB07-18

Date Received: 01/26/2017 09:30

Date Extracted: 01/31/2017 10:45

Date Analyzed: 02/08/2017 01:20

Dilution Factor: 1.0

Concentration Units: ng/kg

Target Analyte	Concentration	Qual.	TEF*	EDL	DLF**	TEF-Adjusted Concentration
OCDF	5.55	BJ	0.0003	0.0198		0.00166

Total TEQ (excluding EMPC):   0.564

* TEF - Toxicity Equivalent Factors from World Health Organization (WHO), 2005

** DLF - Detection Limit Factors applied to the EDL.

Abbreviations:
    B = Detected in Method Blank   E = Exceeds calibration range
    U = Undetected   F = Interference is present
    J = Estimated concentration between EDL and LOQ   N = See comment in Case Narrative
    C = Concentration confirmed on second column   S = The detector is saturated
    Q = Estimated Maximum Possible Concentration

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FORM 01B
CDD/CDF TOXICITY EQUIVALENCE SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL

Sample (wt):   10.2 (g)

Water Sample Prep: N/A

Concentrated Extract Volume: 20.0 (uL)

Injection Volume 1.00 (uL)   % Solid/Lipids: 58.3

GC Column: DB5MS   ID: 0.25 (mm)

Instrument ID: DF18471

Lab Sample ID: 8807305

Lab File ID: 17FEB07-19

Date Received: 01/26/2017 09:30

Date Extracted: 01/31/2017 10:45

Date Analyzed: 02/08/2017 02:16

Dilution Factor: 1.0

Concentration Units: ng/kg

Target Analyte	Concentration	Qual.	TEF*	EDL	DLF**	TEF-Adjusted Concentration
2378-TCDF	0.0731	J	0.1	0.0286		0.00731
2378-TCDD	0.0300	JQ	1	0.0256	0	0
12378-PeCDF	0.247	BJ	0.03	0.0190		0.00743
23478-PeCDF	0.241	BJ	0.3	0.0169		0.0724
12378-PeCDD	0.303	BJQ	1	0.0517	0	0
123478-HxCDF	0.352	BJ	0.1	0.0350		0.0352
123678-HxCDF	0.487	BJ	0.1	0.0319		0.0487
234678-HxCDF	0.666	BJQ	0.1	0.0350	0	0
123478-HxCDD	0.479	BJ	0.1	0.0365		0.0479
123678-HxCDD	2.21	BJ	0.1	0.0356		0.221
123789-HxCDD	0.791	BJ	0.1	0.0354		0.0791
123789-HxCDF	0.261	BJ	0.1	0.0388		0.0261
1234678-HpCDF	8.62	B	0.01	0.0340		0.0862
1234678-HpCDD	41.5	B	0.01	0.0622		0.415
1234789-HpCDF	0.891	BJQ	0.01	0.0427	0	0
OCDD	297	B	0.0003	0.0567		0.0892

Total TEQ (excluding EMPC):   1.14

* TEF - Toxicity Equivalent Factors from World Health Organization (WHO), 2005

** DLF - Detection Limit Factors applied to the EDL.

Abbreviations:	
B = Detected in Method Blank	E = Exceeds calibration range
U = Undetected	F = Interference is present
J = Estimated concentration between EDL and LOQ	N = See comment in Case Narrative
C = Concentration confirmed on second column	S = The detector is saturated
Q = Estimated Maximum Possible Concentration	

FORM 01B
CDD/CDF TOXICITY EQUIVALENCE SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL

Sample (wt):   10.2 (g)

Water Sample Prep: N/A

Concentrated Extract Volume: 20.0 (uL)

Injection Volume 1.00 (uL)   % Solid/Lipids: 58.3

GC Column: DB5MS   ID: 0.25 (mm)

Instrument ID: DF18471

Lab Sample ID: 8807305

Lab File ID: 17FEB07-19

Date Received: 01/26/2017 09:30

Date Extracted: 01/31/2017 10:45

Date Analyzed: 02/08/2017 02:16

Dilution Factor: 1.0

Concentration Units: ng/kg

Target Analyte	Concentration	Qual.	TEF*	EDL	DLF**	TEF-Adjusted Concentration
OCDF	18.2	B	0.0003	0.0255		0.00545

Total TEQ (excluding EMPC):   1.14

* TEF - Toxicity Equivalent Factors from World Health Organization (WHO), 2005

** DLF - Detection Limit Factors applied to the EDL.

```
Abbreviations:
    B = Detected in Method Blank          E = Exceeds calibration range
    U = Undetected                        F = Interference is present
    J = Estimated concentration between EDL and LOQ   N = See comment in Case Narrative
    C = Concentration confirmed on second column      S = The detector is saturated
    Q = Estimated Maximum Possible Concentration
```

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Matrix: SOIL

Sample (wt): 10.1 (g)

Water Sample Prep: N/A

Concentrated Extract Volume: 20.0 (uL)

Injection Volume 1.00 (uL)   % Solid/Lipids: 88.8

GC Column: DB5MS   ID: 0.25 (mm)

Instrument ID: DF18471

Lab Sample ID: 8807306

Lab File ID: 17FEB07-20

Date Received: 01/26/2017 09:30

Date Extracted: 01/31/2017 10:45

Date Analyzed: 02/08/2017 03:13

Dilution Factor: 1.0

Concentration Units: ng/kg

Target Analyte	Concentration	Qual.	TEF*	EDL	DLF**	TEF-Adjusted Concentration
2378-TCDF	0.617	J	0.1	0.0418		0.0617
2378-TCDD	0.0277	JQ	1	0.0185	0	0
12378-PeCDF	1.08	BJ	0.03	0.0199		0.0324
23478-PeCDF	0.408	BJ	0.3	0.0177		0.122
12378-PeCDD	0.179	BJQ	1	0.0427	0	0
123478-HxCDF	0.336	BJQ	0.1	0.0204	0	0
123678-HxCDF	0.224	BJ	0.1	0.0198		0.0224
234678-HxCDF	0.264	BJ	0.1	0.0211		0.0264
123478-HxCDD	0.240	BJ	0.1	0.0263		0.0240
123678-HxCDD	0.502	BJQ	0.1	0.0245	0	0
123789-HxCDD	0.448	BJ	0.1	0.0243		0.0448
123789-HxCDF	0.155	BJ	0.1	0.0215		0.0155
1234678-HpCDF	2.19	BJ	0.01	0.0321		0.0219
1234678-HpCDD	10.3	B	0.01	0.0368		0.103
1234789-HpCDF	0.225	BJ	0.01	0.0402		0.00225
OCDD	91.5	B	0.0003	0.0281		0.0274

Total TEQ (excluding EMPC):   0.505

* TEF - Toxicity Equivalent Factors from World Health Organization (WHO), 2005

** DLF - Detection Limit Factors applied to the EDL.

```
Abbreviations:
   B = Detected in Method Blank              E = Exceeds calibration range
   U = Undetected                            F = Interference is present
   J = Estimated concentration between EDL and LOQ   N = See comment in Case Narrative
   C = Concentration confirmed on second column      S = The detector is saturated
   Q = Estimated Maximum Possible Concentration
```

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FORM 01B
CDD/CDF TOXICITY EQUIVALENCE SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL

Sample (wt):   10.1 (g)

Water Sample Prep: N/A

Concentrated Extract Volume: 20.0 (uL)

Injection Volume 1.00 (uL)   % Solid/Lipids: 88.8

GC Column: DB5MS   ID: 0.25 (mm)

Instrument ID: DF18471

Lab Sample ID: 8807306

Lab File ID: 17FEB07-20

Date Received: 01/26/2017 09:30

Date Extracted: 01/31/2017 10:45

Date Analyzed: 02/08/2017 03:13

Dilution Factor: 1.0

Concentration Units: ng/kg

Target Analyte	Concentration	Qual.	TEF*	EDL	DLF**	TEF-Adjusted Concentration
OCDF	3.88	BJ	0.0003	0.0186		0.00116

Total TEQ (excluding EMPC):   0.505

* TEF - Toxicity Equivalent Factors from World Health Organization (WHO), 2005

** DLF - Detection Limit Factors applied to the EDL.

Abbreviations:	
B = Detected in Method Blank	E = Exceeds calibration range
U = Undetected	F = Interference is present
J = Estimated concentration between EDL and LOQ	N = See comment in Case Narrative
C = Concentration confirmed on second column	S = The detector is saturated
Q = Estimated Maximum Possible Concentration	

FORM 03A
CDD/CDF OPR SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Instrument ID: DF18471

Sample wt: 10.0 (g)   Lab Sample ID: OPR031003

Water Sample PREP: N/A   Lab File ID: 17FEB07-15

Concentrated Extract Volume: 20.0 (uL)   Date Received: N/A

Injection Volume: 1.00 (uL)   %SOLID/LIPIDS: 0.0   Date Extracted: 01/31/2017 10:45

GC Column: DB5MS   ID: 0.25 (mm)   Date Analyzed: 02/07/2017 22:30

Method Reference: SW-846 8290A Feb 2007 Rev 1   Dilution Factor: 1.0

Concentration Units: ng/kg

Spike Analyte	Spike Added	Amount Recovered	Percent Recovery	QC Limits
2378-TCDF	20.0	19.4	97	75 - 158
2378-TCDD	20.0	19.1	96	67 - 158
12378-PeCDF	100	98.2	98	80 - 134
23478-PeCDF	100	90.7	91	68 - 160
12378-PeCDD	100	95.3	95	70 - 142
123478-HxCDF	100	91.2	91	72 - 134
123678-HxCDF	100	90.9	91	84 - 130
234678-HxCDF	100	93.9	94	70 - 156
123478-HxCDD	100	96.7	97	70 - 164
123678-HxCDD	100	91.5	91	76 - 134
123789-HxCDD	100	94.5	95	64 - 162
123789-HxCDF	100	91.3	91	78 - 130
1234678-HpCDF	100	96.1	96	82 - 122
1234678-HpCDD	100	92.3	92	70 - 140
1234789-HpCDF	100	95.4	95	78 - 138
OCDD	200	188	94	78 - 144
OCDF	200	181	91	63 - 170

* Outside Quality Control (QC) limits.

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FORM 04
CDD/CDF METHOD BLANK SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

Matrix: SOIL   Lab Sample ID: BLK031003

Water Sample Prep: N/A   Lab File ID: 17FEB07-17

Sample wt: 10.0 (g)

GC Column: DB5MS   ID: 0.25 (mm)   Date Analyzed: 02/08/2017 00:23

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
OPR031003	17FEB07-15	02/07/2017 22:30
8807304	17FEB07-18	02/08/2017 01:20
8807305	17FEB07-19	02/08/2017 02:16
8807306	17FEB07-20	02/08/2017 03:13

FORM 05B
CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

GC Column: DB5MS   ID: 0.25 (mm)

Instrument ID	Lab File ID	Sample ID	Analysis Date/Time	Compound Name	% Valley	QC Limits (%)
DF18471	17JAN31-02	CPS01	01/31/2017 21:06	2378-TCDD	10.821	25
DF18471	17FEB07-13	CPS03	02/07/2017 20:39	2378-TCDD	11.049	25

FORM 05C
CDD/CDF ANALYTICAL SEQUENCE SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

GC Column: DB5MS   ID: 0.25 (mm)   Instrument ID: DF18471

Init. Calib. Date/Times: 01/31/2017 22:57   02/01/2017 06:29

Lab Sample ID	Lab File ID	Date/Time Analyzed
CPS01	17JAN31-02	01/31/2017 21:06
CSL01	17JAN31-04	01/31/2017 22:57
CS101	17JAN31-08	02/01/2017 02:43
CS201	17JAN31-09	02/01/2017 03:39
CS301	17JAN31-10	02/01/2017 04:36
CS401	17JAN31-11	02/01/2017 05:32
CS501	17JAN31-12	02/01/2017 06:29
CPS03	17FEB07-13	02/07/2017 20:39
CS3CC03	17FEB07-14	02/07/2017 21:33
OPR031003	17FEB07-15	02/07/2017 22:30
BLK031003	17FEB07-17	02/08/2017 00:23
8807304	17FEB07-18	02/08/2017 01:20
8807305	17FEB07-19	02/08/2017 02:16
8807306	17FEB07-20	02/08/2017 03:13
CS3CC04	17FEB07-28	02/08/2017 10:03

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GC Column: DB5MS   ID: 0.25 (mm)   Instrument ID: DF18471

Init. Calib. Date/Times: 01/31/2017 22:57   02/01/2017 06:29

Lab File Names: CSL = 17JAN31-04; CS1 = 17JAN31-08; CS2 = 17JAN31-09;
                CS3 = 17JAN31-10; CS4 = 17JAN31-11; CS5 = 17JAN31-12;

Analyte	Type	RF						Mean RF	%RSD	QC Limits (%)
		CSL	CS1	CS2	CS3	CS4	CS5			
2378-TCDF	TARGET	1.269	0.943	0.985	0.992	1.021	1.000	1.035	11.33	± 20
2378-TCDD	TARGET	1.096	1.279	1.322	1.255	1.234	1.216	1.234	6.23	± 20
12378-PeCDF	TARGET	1.011	0.995	0.948	0.959	0.979	0.928	0.970	3.17	± 20
23478-PeCDF	TARGET	1.109	1.047	1.099	1.095	1.089	1.033	1.079	2.86	± 20
12378-PeCDD	TARGET	1.118	1.049	1.040	1.044	1.071	1.033	1.059	3.01	± 20
123478-HxCDF	TARGET	1.174	1.133	1.179	1.187	1.228	1.149	1.175	2.81	± 20
123678-HxCDF	TARGET	1.227	1.140	1.149	1.134	1.161	1.093	1.151	3.80	± 20
234678-HxCDF	TARGET	1.167	1.256	1.205	1.223	1.246	1.167	1.211	3.17	± 20
123478-HxCDD	TARGET	0.959	1.048	1.026	1.067	1.044	1.001	1.024	3.80	± 20
123678-HxCDD	TARGET	1.093	1.026	0.995	1.001	1.043	0.969	1.021	4.26	± 20
123789-HxCDD	TARGET	1.146	1.013	1.102	1.088	1.106	1.048	1.084	4.34	± 20
123789-HxCDF	TARGET	1.241	1.142	1.143	1.120	1.173	1.101	1.153	4.29	± 20
1234678-HpCDF	TARGET	1.217	1.304	1.292	1.292	1.352	1.236	1.282	3.81	± 20
1234678-HpCDD	TARGET	1.044	1.116	1.054	1.054	1.072	1.013	1.059	3.24	± 20
1234789-HpCDF	TARGET	1.358	1.274	1.366	1.352	1.329	1.260	1.323	3.44	± 20
OCDD	TARGET	1.018	1.014	1.040	1.026	1.041	0.990	1.021	1.87	± 20
OCDF	TARGET	0.961	0.939	0.925	0.921	0.955	0.897	0.933	2.51	± 20
13C12-1278-TCDD (CRS)	LABELED		1.371	1.300	1.247	1.230	1.274	1.284	4.31	± 20
13C12-2378-TCDF	LABELED	1.854	1.810	1.909	1.867	1.842	1.927	1.868	2.31	± 20
13C12-2378-TCDD	LABELED	0.970	0.956	1.002	0.963	1.003	1.016	0.985	2.52	± 20
13C12-12378-PeCDF	LABELED	1.687	1.596	1.724	1.764	1.782	1.810	1.727	4.50	± 20
13C12-23478-PeCDF	LABELED	1.648	1.585	1.705	1.753	1.810	1.849	1.725	5.75	± 20
13C12-12378-PeCDD	LABELED	0.951	0.889	0.956	1.011	1.015	1.028	0.975	5.41	± 20
13C12-123478-HxCDF	LABELED	1.264	1.262	1.275	1.266	1.265	1.379	1.285	3.60	± 20
13C12-123678-HxCDF	LABELED	1.309	1.304	1.334	1.345	1.323	1.498	1.352	5.40	± 20
13C12-234678-HxCDF	LABELED	1.215	1.214	1.239	1.235	1.257	1.367	1.254	4.59	± 20
13C12-123478-HxCDD	LABELED	0.916	0.899	0.949	0.910	0.953	1.051	0.946	5.87	± 20
13C12-123678-HxCDD	LABELED	0.940	0.924	0.939	0.971	0.983	1.099	0.976	6.55	± 20
13C12-123789-HxCDD	LABELED	0.922	0.886	0.921	0.928	0.925	1.024	0.934	4.98	± 20
13C12-123789-HxCDF	LABELED	1.165	1.123	1.156	1.166	1.188	1.307	1.184	5.40	± 20
13C12-1234678-HpCDF	LABELED	1.080	1.036	1.075	1.114	1.111	1.215	1.105	5.51	± 20
13C12-1234678-HpCDD	LABELED	0.836	0.793	0.828	0.874	0.901	0.958	0.865	6.79	± 20
13C12-1234789-HpCDF	LABELED	0.917	0.851	0.891	0.939	1.001	1.063	0.944	8.15	± 20
13C12-OCDD	LABELED	0.773	0.691	0.738	0.785	0.808	0.881	0.779	8.25	± 20
13C12-OCDF	LABELED	1.144	0.996	1.071	1.152	1.211	1.316	1.149	9.65	± 20

* Outside QC Limits.

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FORM 06B
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

SDG No.:   AIL01

GC Column: DB5MS   ID: 0.25 (mm)   Instrument ID: DF18471

Init. Calib. Date/Times: 01/31/2017 22:57   02/01/2017 06:29

Lab File Names: CSL = 17JAN31-04; CS1 = 17JAN31-08; CS2 = 17JAN31-09;
                CS3 = 17JAN31-10; CS4 = 17JAN31-11; CS5 = 17JAN31-12;

Analytes	Type	Selected Ion	Ion Abundance Ratio						Ion Ratio QC Limits
			CSL	CS1	CS2	CS3	CS4	CS5	
2378-TCDF	TARGET	304/306	0.65	0.75	0.75	0.80	0.78	0.78	0.65 - 0.90
2378-TCDD	TARGET	320/322	0.68	0.65	0.78	0.77	0.79	0.78	0.65 - 0.90
12378-PeCDF	TARGET	340/342	1.61	1.53	1.59	1.58	1.57	1.55	1.32 - 1.79
23478-PeCDF	TARGET	340/342	1.63	1.52	1.63	1.58	1.56	1.56	1.32 - 1.79
12378-PeCDD	TARGET	356/358	1.78	1.49	1.63	1.56	1.59	1.53	1.32 - 1.79
123478-HxCDF	TARGET	374/376	1.34	1.29	1.28	1.24	1.27	1.24	1.05 - 1.44
123678-HxCDF	TARGET	374/376	1.25	1.21	1.24	1.24	1.24	1.26	1.05 - 1.44
234678-HxCDF	TARGET	374/376	1.31	1.12	1.21	1.25	1.26	1.25	1.05 - 1.44
123478-HxCDD	TARGET	390/392	1.09	1.29	1.29	1.25	1.27	1.24	1.05 - 1.44
123678-HxCDD	TARGET	390/392	1.06	1.25	1.25	1.28	1.26	1.24	1.05 - 1.44
123789-HxCDD	TARGET	390/392	1.22	1.18	1.20	1.27	1.24	1.23	1.05 - 1.44
123789-HxCDF	TARGET	374/376	1.42	1.30	1.23	1.25	1.25	1.25	1.05 - 1.44
1234678-HpCDF	TARGET	408/410	1.05	0.96	1.03	1.05	1.04	1.04	0.88 - 1.21
1234678-HpCDD	TARGET	424/426	0.92	1.06	1.02	1.05	1.04	1.04	0.88 - 1.21
1234789-HpCDF	TARGET	408/410	0.91	1.00	1.01	1.08	1.05	1.04	0.88 - 1.21
OCDD	TARGET	458/460	0.85	1.01	0.86	0.89	0.90	0.89	0.76 - 1.03
OCDF	TARGET	442/444	0.94	0.98	0.90	0.91	0.91	0.90	0.76 - 1.03
13C12-1278-TCDD (CRS)	LABELED	332/334		0.84	0.67	0.88	0.80	0.81	0.65 - 0.90
13C12-2378-TCDF	LABELED	316/318	0.78	0.79	0.82	0.79	0.80	0.81	0.65 - 0.90
13C12-2378-TCDD	LABELED	332/334	0.78	0.78	0.82	0.81	0.80	0.77	0.65 - 0.90
13C12-12378-PeCDF	LABELED	352/354	1.57	1.61	1.59	1.60	1.56	1.60	1.32 - 1.79
13C12-23478-PeCDF	LABELED	352/354	1.56	1.58	1.55	1.60	1.55	1.58	1.32 - 1.79
13C12-12378-PeCDD	LABELED	368/370	1.59	1.62	1.60	1.62	1.59	1.60	1.32 - 1.79
13C12-123478-HxCDF	LABELED	384/386	0.51	0.52	0.52	0.52	0.51	0.53	0.43 - 0.60
13C12-123678-HxCDF	LABELED	384/386	0.54	0.53	0.54	0.54	0.54	0.52	0.43 - 0.60
13C12-234678-HxCDF	LABELED	384/386	0.53	0.53	0.53	0.54	0.54	0.52	0.43 - 0.60
13C12-123478-HxCDD	LABELED	402/404	1.24	1.26	1.30	1.28	1.26	1.30	1.05 - 1.44
13C12-123678-HxCDD	LABELED	402/404	1.24	1.25	1.25	1.27	1.28	1.25	1.05 - 1.44
13C12-123789-HxCDD	LABELED	402/404	1.22	1.31	1.24	1.23	1.29	1.21	1.05 - 1.44
13C12-123789-HxCDF	LABELED	384/386	0.53	0.54	0.52	0.51	0.53	0.53	0.43 - 0.60
13C12-1234678-HpCDF	LABELED	418/420	0.46	0.45	0.46	0.46	0.45	0.45	0.37 - 0.52
13C12-1234678-HpCDD	LABELED	436/438	1.08	1.06	1.06	1.09	1.05	1.07	0.88 - 1.21
13C12-1234789-HpCDF	LABELED	418/420	0.45	0.45	0.46	0.46	0.45	0.45	0.37 - 0.52
13C12-OCDD	LABELED	470/472	0.90	0.89	0.90	0.88	0.90	0.90	0.76 - 1.03
13C12-OCDF	LABELED	454/456	0.91	0.90	0.91	0.90	0.90	0.91	0.76 - 1.03

* Outside QC Limits.

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CDD/CDF CONTINUING CALIBRATION SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

GC Column: DB5MS   ID: 0.25 (mm)   Instrument ID: DF18471

Lab File ID: 17FEB07-14 Lab Sample ID: CS3CC03   Date/Time Analyzed: 02/07/2017 21:33

Init. Calib. Date/Times: 01/31/2017 22:57   02/01/2017 06:29

Analytes	Type	Selected Ions	RF	Mean RF	%D	%D Limit	Ion Ratio	Ion Ratio QC Limits
2378-TCDF	TARGET	304/306	1.066	1.035	2.97	20	0.82	0.65 – 0.90
2378-TCDD	TARGET	320/322	1.270	1.234	2.96	20	0.75	0.65 – 0.90
12378-PeCDF	TARGET	340/342	0.979	0.970	0.97	20	1.58	1.32 – 1.79
23478-PeCDF	TARGET	340/342	1.091	1.079	1.19	20	1.58	1.32 – 1.79
12378-PeCDD	TARGET	356/358	1.053	1.059	0.62	20	1.58	1.32 – 1.79
123478-HxCDF	TARGET	374/376	1.172	1.175	0.28	20	1.25	1.05 – 1.44
123678-HxCDF	TARGET	374/376	1.139	1.151	1.01	20	1.25	1.05 – 1.44
234678-HxCDF	TARGET	374/376	1.242	1.211	2.55	20	1.26	1.05 – 1.44
123478-HxCDD	TARGET	390/392	1.040	1.024	1.50	20	1.26	1.05 – 1.44
123678-HxCDD	TARGET	390/392	1.046	1.021	2.39	20	1.25	1.05 – 1.44
123789-HxCDD	TARGET	390/392	1.102	1.084	1.72	20	1.29	1.05 – 1.44
123789-HxCDF	TARGET	374/376	1.088	1.153	5.69	20	1.25	1.05 – 1.44
1234678-HpCDF	TARGET	408/410	1.296	1.282	1.06	20	1.03	0.88 – 1.21
1234678-HpCDD	TARGET	424/426	1.057	1.059	0.20	20	1.05	0.88 – 1.21
1234789-HpCDF	TARGET	408/410	1.300	1.323	1.73	20	1.04	0.88 – 1.21
OCDD	TARGET	458/460	1.035	1.021	1.35	20	0.89	0.76 – 1.03
OCDF	TARGET	442/444	0.917	0.933	1.73	20	0.90	0.76 – 1.03
13C12-1278-TCDD (CRS)	LABELED	332/334	1.217	1.284	5.24	20	0.72	0.65 – 0.90
13C12-2378-TCDF	LABELED	316/318	1.888	1.868	1.08	30	0.81	0.65 – 0.90
13C12-2378-TCDD	LABELED	332/334	0.997	0.985	1.19	30	0.81	0.65 – 0.90
13C12-12378-PeCDF	LABELED	352/354	1.814	1.727	5.01	30	1.58	1.32 – 1.79
13C12-23478-PeCDF	LABELED	352/354	1.878	1.725	8.88	30	1.57	1.32 – 1.79
13C12-12378-PeCDD	LABELED	368/370	1.019	0.975	4.50	30	1.58	1.32 – 1.79
13C12-123478-HxCDF	LABELED	384/386	1.258	1.285	2.14	30	0.52	0.43 – 0.60
13C12-123678-HxCDF	LABELED	384/386	1.315	1.352	2.75	30	0.54	0.43 – 0.60
13C12-234678-HxCDF	LABELED	384/386	1.214	1.254	3.21	30	0.52	0.43 – 0.60
13C12-123478-HxCDD	LABELED	402/404	0.951	0.946	0.55	30	1.27	1.05 – 1.44
13C12-123678-HxCDD	LABELED	402/404	0.964	0.976	1.26	30	1.25	1.05 – 1.44
13C12-123789-HxCDD	LABELED	402/404	0.920	0.934	1.49	30	1.24	1.05 – 1.44
13C12-123789-HxCDF	LABELED	384/386	1.188	1.184	0.33	30	0.53	0.43 – 0.60
13C12-1234678-HpCDF	LABELED	418/420	1.173	1.105	6.13	30	0.47	0.37 – 0.52
13C12-1234678-HpCDD	LABELED	436/438	0.929	0.865	7.37	30	1.08	0.88 – 1.21
13C12-1234789-HpCDF	LABELED	418/420	0.972	0.944	2.99	30	0.46	0.37 – 0.52
13C12-OCDD	LABELED	470/472	0.862	0.779	10.55	30	0.90	0.76 – 1.03
13C12-OCDF	LABELED	454/456	1.185	1.149	3.16	30	0.90	0.76 – 1.03

* Outside QC Limits.

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SDG No.: AIL01

GC Column: DB5MS   ID: 0.25 (mm)   Instrument ID: DF18471

Lab File ID: 17FEB07-28 Lab Sample ID: CS3CC04 Date/Time Analyzed: 02/08/2017 10:03

Init. Calib. Date/Times: 01/31/2017 22:57   02/01/2017 06:29

Analytes	Type	Selected Ions	RF	Mean RF	%D	%D Limit	Ion Ratio	Ion Ratio QC Limits
2378-TCDF	TARGET	304/306	1.038	1.035	0.26	20	0.77	0.65 - 0.90
2378-TCDD	TARGET	320/322	1.268	1.234	2.74	20	0.77	0.65 - 0.90
12378-PeCDF	TARGET	340/342	0.992	0.970	2.33	20	1.59	1.32 - 1.79
23478-PeCDF	TARGET	340/342	1.088	1.079	0.86	20	1.56	1.32 - 1.79
12378-PeCDD	TARGET	356/358	1.070	1.059	0.99	20	1.57	1.32 - 1.79
123478-HxCDF	TARGET	374/376	1.188	1.175	1.13	20	1.24	1.05 - 1.44
123678-HxCDF	TARGET	374/376	1.134	1.151	1.41	20	1.24	1.05 - 1.44
234678-HxCDF	TARGET	374/376	1.222	1.211	0.92	20	1.26	1.05 - 1.44
123478-HxCDD	TARGET	390/392	1.039	1.024	1.46	20	1.26	1.05 - 1.44
123678-HxCDD	TARGET	390/392	1.043	1.021	2.18	20	1.26	1.05 - 1.44
123789-HxCDD	TARGET	390/392	1.107	1.084	2.16	20	1.27	1.05 - 1.44
123789-HxCDF	TARGET	374/376	1.136	1.153	1.51	20	1.28	1.05 - 1.44
1234678-HpCDF	TARGET	408/410	1.265	1.282	1.31	20	1.03	0.88 - 1.21
1234678-HpCDD	TARGET	424/426	1.073	1.059	1.36	20	1.05	0.88 - 1.21
1234789-HpCDF	TARGET	408/410	1.322	1.323	0.12	20	1.04	0.88 - 1.21
OCDD	TARGET	458/460	1.043	1.021	2.15	20	0.89	0.76 - 1.03
OCDF	TARGET	442/444	0.918	0.933	1.64	20	0.89	0.76 - 1.03
13C12-1278-TCDD (CRS)	LABELED	332/334	1.225	1.284	4.65	20	0.82	0.65 - 0.90
13C12-2378-TCDF	LABELED	316/318	1.845	1.868	1.21	30	0.79	0.65 - 0.90
13C12-2378-TCDD	LABELED	332/334	0.952	0.985	3.31	30	0.79	0.65 - 0.90
13C12-12378-PeCDF	LABELED	352/354	1.791	1.727	3.68	30	1.61	1.32 - 1.79
13C12-23478-PeCDF	LABELED	352/354	1.829	1.725	6.01	30	1.59	1.32 - 1.79
13C12-12378-PeCDD	LABELED	368/370	1.020	0.975	4.63	30	1.61	1.32 - 1.79
13C12-123478-HxCDF	LABELED	384/386	1.200	1.285	6.62	30	0.53	0.43 - 0.60
13C12-123678-HxCDF	LABELED	384/386	1.252	1.352	7.37	30	0.52	0.43 - 0.60
13C12-234678-HxCDF	LABELED	384/386	1.134	1.254	9.57	30	0.54	0.43 - 0.60
13C12-123478-HxCDD	LABELED	402/404	0.873	0.946	7.73	30	1.29	1.05 - 1.44
13C12-123678-HxCDD	LABELED	402/404	0.869	0.976	10.97	30	1.29	1.05 - 1.44
13C12-123789-HxCDD	LABELED	402/404	0.843	0.934	9.81	30	1.24	1.05 - 1.44
13C12-123789-HxCDF	LABELED	384/386	1.059	1.184	10.58	30	0.53	0.43 - 0.60
13C12-1234678-HpCDF	LABELED	418/420	0.995	1.105	9.91	30	0.45	0.37 - 0.52
13C12-1234678-HpCDD	LABELED	436/438	0.763	0.865	11.81	30	1.05	0.88 - 1.21
13C12-1234789-HpCDF	LABELED	418/420	0.790	0.944	16.24	30	0.44	0.37 - 0.52
13C12-OCDD	LABELED	470/472	0.659	0.779	15.40	30	0.91	0.76 - 1.03
13C12-OCDF	LABELED	454/456	0.921	1.149	19.84	30	0.89	0.76 - 1.03

 * Outside QC Limits.

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FORM 07B
CDD/CDF CONTINUING CALIBRATION RETENTION TIME SUMMARY
HIGH RESOLUTION

SDG No.: AIL01

GC Column: DB5MS   ID: 0.25 (mm)   Instrument ID: DF18471
Lab File ID: 17FEB07-14 Lab Sample ID: CS3CC03 Date/Time Analyzed: 02/07/2017 21:33
Init. Calib. Date/Times: 01/31/2017 22:57   02/01/2017 06:29

Analytes	Type	RT	RRT	RRT QC Limits
2378-TCDF	TARGET	30.98	1.001	0.999 - 1.003
2378-TCDD	TARGET	32.01	1.001	0.999 - 1.002
12378-PeCDF	TARGET	36.54	1.001	0.999 - 1.002
23478-PeCDF	TARGET	37.76	1.000	0.999 - 1.002
12378-PeCDD	TARGET	38.15	1.001	0.999 - 1.002
123478-HxCDF	TARGET	41.34	1.000	0.999 - 1.001
123678-HxCDF	TARGET	41.49	1.000	0.997 - 1.005
234678-HxCDF	TARGET	42.16	1.000	0.999 - 1.001
123478-HxCDD	TARGET	42.35	1.000	0.999 - 1.001
123678-HxCDD	TARGET	42.47	1.000	0.998 - 1.004
123789-HxCDD	TARGET	42.78	1.000	1.000 - 1.019
123789-HxCDF	TARGET	43.17	1.000	0.999 - 1.001
1234678-HpCDF	TARGET	44.86	1.000	0.999 - 1.001
1234678-HpCDD	TARGET	46.05	1.000	0.999 - 1.001
1234789-HpCDF	TARGET	46.61	1.000	0.999 - 1.001
OCDD	TARGET	49.05	1.000	0.999 - 1.001
OCDF	TARGET	49.24	1.000	0.999 - 1.008
13C12-1278-TCDD (CRS)	LABELED	32.37	1.036	0.988 - 1.056
13C12-2378-TCDF	LABELED	30.95	0.991	0.923 - 1.103
13C12-2378-TCDD	LABELED	31.99	1.024	0.976 - 1.043
13C12-12378-PeCDF	LABELED	36.51	1.169	1.000 - 1.425
13C12-23478-PeCDF	LABELED	37.75	1.208	1.011 - 1.526
13C12-12378-PeCDD	LABELED	38.12	1.220	1.000 - 1.567
13C12-123478-HxCDF	LABELED	41.32	1.002	0.989 - 1.015
13C12-123678-HxCDF	LABELED	41.47	1.006	0.993 - 1.019
13C12-234678-HxCDF	LABELED	42.15	1.022	0.992 - 1.053
13C12-123478-HxCDD	LABELED	42.33	1.027	1.016 - 1.039
13C12-123678-HxCDD	LABELED	42.46	1.030	1.019 - 1.041
13C12-123789-HxCDD	LABELED	42.77	1.037	1.027 - 1.049
13C12-123789-HxCDF	LABELED	43.16	1.047	1.012 - 1.082
13C12-1234678-HpCDF	LABELED	44.84	1.088	1.067 - 1.109
13C12-1234678-HpCDD	LABELED	46.03	1.116	1.105 - 1.129
13C12-1234789-HpCDF	LABELED	46.60	1.130	1.084 - 1.178
13C12-OCDD	LABELED	49.04	1.189	1.051 - 1.330
13C12-OCDF	LABELED	49.22	1.194	1.056 - 1.335

RRT = (RT of analyte) / (RT of appropriate labeled compound).
* RRT exceeds the acceptable range

FORM 07B
CDD/CDF CONTINUING CALIBRATION RETENTION TIME SUMMARY
HIGH RESOLUTION

SDG No.:   AIL01

GC Column: DB5MS   ID: 0.25 (mm)   Instrument ID: DF18471

Lab File ID: 17FEB07-28 Lab Sample ID: CS3CC04 Date/Time Analyzed: 02/08/2017 10:03

Init. Calib. Date/Times: 01/31/2017 22:57   02/01/2017 06:29

Analytes	Type	RT	RRT	RRT QC Limits
2378-TCDF	TARGET	31.00	1.001	0.999 - 1.003
2378-TCDD	TARGET	32.05	1.001	0.999 - 1.002
12378-PeCDF	TARGET	36.56	1.000	0.999 - 1.002
23478-PeCDF	TARGET	37.78	1.001	0.999 - 1.002
12378-PeCDD	TARGET	38.16	1.001	0.999 - 1.002
123478-HxCDF	TARGET	41.35	1.000	0.999 - 1.001
123678-HxCDF	TARGET	41.50	1.000	0.997 - 1.005
234678-HxCDF	TARGET	42.18	1.000	0.999 - 1.001
123478-HxCDD	TARGET	42.37	1.000	0.999 - 1.001
123678-HxCDD	TARGET	42.49	1.000	0.998 - 1.004
123789-HxCDD	TARGET	42.80	1.000	1.000 - 1.019
123789-HxCDF	TARGET	43.19	1.000	0.999 - 1.001
1234678-HpCDF	TARGET	44.87	1.000	0.999 - 1.001
1234678-HpCDD	TARGET	46.06	1.000	0.999 - 1.001
1234789-HpCDF	TARGET	46.63	1.000	0.999 - 1.001
OCDD	TARGET	49.06	1.000	0.999 - 1.001
OCDF	TARGET	49.26	1.000	0.999 - 1.008
13C12-1278-TCDD (CRS)	LABELED	32.41	1.037	0.988 - 1.056
13C12-2378-TCDF	LABELED	30.97	0.991	0.923 - 1.103
13C12-2378-TCDD	LABELED	32.01	1.024	0.976 - 1.043
13C12-12378-PeCDF	LABELED	36.55	1.169	1.000 - 1.425
13C12-23478-PeCDF	LABELED	37.76	1.208	1.011 - 1.526
13C12-12378-PeCDD	LABELED	38.13	1.220	1.000 - 1.567
13C12-123478-HxCDF	LABELED	41.34	1.002	0.989 - 1.015
13C12-123678-HxCDF	LABELED	41.49	1.006	0.993 - 1.019
13C12-234678-HxCDF	LABELED	42.16	1.022	0.992 - 1.053
13C12-123478-HxCDD	LABELED	42.35	1.027	1.016 - 1.039
13C12-123678-HxCDD	LABELED	42.47	1.030	1.019 - 1.041
13C12-123789-HxCDD	LABELED	42.78	1.037	1.027 - 1.049
13C12-123789-HxCDF	LABELED	43.17	1.047	1.012 - 1.082
13C12-1234678-HpCDF	LABELED	44.86	1.088	1.067 - 1.109
13C12-1234678-HpCDD	LABELED	46.05	1.116	1.105 - 1.129
13C12-1234789-HpCDF	LABELED	46.62	1.130	1.084 - 1.178
13C12-OCDD	LABELED	49.06	1.189	1.051 - 1.330
13C12-OCDF	LABELED	49.24	1.194	1.056 - 1.335

RRT = (RT of analyte) / (RT of appropriate labeled compound).
* RRT exceeds the acceptable range

Sample Data

Dioxins/Furans by HRMS

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 01:20
Number of Entries	269
Comment	S:11030:12937:15831
Vial	103
Sample Name	SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil
Sample ID	8807304
Inst ID	DF18471-17FEB07
Client	ARS International LLC
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-18.quan
Data	y:\17feb07\17feb07-18.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.3
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/17

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scientific
1081

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	Native vs Labeled Time Status	Status Info
1	2378-TCDF	30.98	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
2	2378-TCDD	32.03	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
3	12378-PeCDF	36.54	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.76	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
5	12378-PeCDD	38.15	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
6	123478-HxCDF	41.34	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.50	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.17	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.35	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
10	123678-HxCDD	42.47	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.79	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.17	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.87	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.04	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.61	passed	passed	passed	passed	passed	passed	
16	OCDD	49.05	passed	passed	passed	passed	passed	passed	
17	OCDF	49.25	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.39	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.24	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.23	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	30.97	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	31.99	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.53	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.75	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.13	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.32	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.47	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.16	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.35	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.45	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.76	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.16	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.85	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.03	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.60	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.05	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.23	passed	passed	passed	passed	passed	passed	

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher
scientific

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 01:20
Number of Entries	269
Comment	S:11030:12937:15831
Vial	103
Sample Name	SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil
Sample ID	8807304
Inst ID	DF18471-17FEB07
Client	ARS International LLC
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-18.quan
Data	y:\17feb07\17feb07-18.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.3
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

17FEB07-18 printed 2/9/2017 11:51
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 30.00 - 32.00   SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	30.98
QM Area	1911
QM Integration Mode	A
RM1 Area	1891
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0375
Unqualified Amount (A)	0.318014
Adjusted Amount (A)	n.d.
Signal-to-Noise	21
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

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Chromatogram

RT: 31.01 - 33.01 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.03
QM Area	318
QM Integration Mode	A
RM1 Area	154
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0136
Unqualified Amount (A)	0.061598
Adjusted Amount (A)	n.d.
Signal-to-Noise	14
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

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Chromatogram

RT: 35.56 - 37.56 SM: 3G

NL:
6.39E2
m/z=
341.85-
341.86 MS
17FEB07-18

NL:
9.12E2
m/z=
339.86-
339.86 MS
17FEB07-18

NL:
2.33E5
m/z=
353.90-
353.90 MS
17FEB07-18

NL:
3.83E5
m/z=
351.90-
351.90 MS
17FEB07-18

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.54
QM Area	2633
QM Integration Mode	A
RM1 Area	3784
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0199
Unqualified Amount (A)	0.508956
Adjusted Amount (A)	0.5090
Signal-to-Noise	61
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 36.76 - 38.76 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.76
QM Area	3832
QM Integration Mode	A
RM1 Area	7279
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0179
Unqualified Amount (A)	0.835875
Adjusted Amount (A)	n.d.
Signal-to-Noise	80
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

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Chromatogram

RT: 37.16 - 39.16 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.15
QM Area	863
QM Integration Mode	A
RM1 Area	1922
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0236
Unqualified Amount (A)	0.370481
Adjusted Amount (A)	n.d.
Signal-to-Noise	45
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

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17FEB07-18 printed 2/9/2017 11:51

Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 40.34 - 42.34   SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.34
QM Area	2494
QM Integration Mode	A
RM1 Area	3111
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0222
Unqualified Amount (A)	0.441547
Adjusted Amount (A)	0.4415
Signal-to-Noise	49
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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17FEB07-18 printed 2/9/2017 11:51

Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil / 880730
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Chromatogram

RT: 40.48 - 42.48 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.50
QM Area	2589
QM Integration Mode	A
RM1 Area	3674
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0194
Unqualified Amount (A)	0.429490
Adjusted Amount (A)	0.4295
Signal-to-Noise	59
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

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Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 41.17 - 43.17 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.17
QM Area	2244
QM Integration Mode	A
RM1 Area	3108
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0209
Unqualified Amount (A)	0.419003
Adjusted Amount (A)	0.4190
Signal-to-Noise	50
Client Flags	
Status Overview	passed
Status Info	

17FEB07-18 printed 2/9/2017 11:51
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 41.36 - 43.36 SM: 3G

NL:
1.05E3
m/z=
391.81-
391.81 MS
17FEB07-18

NL:
1.49E3
m/z=
389.81-
389.82 MS
17FEB07-18

NL:
2.27E5
m/z=
403.85-
403.85 MS
17FEB07-18

NL:
2.84E5
m/z=
401.85-
401.86 MS
17FEB07-18

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.35
QM Area	946
QM Integration Mode	A
RM1 Area	1596
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0230
Unqualified Amount (A)	0.285766
Adjusted Amount (A)	n.d.
Signal-to-Noise	37
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

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Chromatogram

RT: 41.47 - 43.47 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.47
QM Area	3528
QM Integration Mode	A
RM1 Area	3813
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0222
Unqualified Amount (A)	0.822382
Adjusted Amount (A)	0.8224
Signal-to-Noise	92
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 41.78 - 43.78 SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.79
QM Area	1608
QM Integration Mode	A
RM1 Area	2082
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0218
Unqualified Amount (A)	0.397732
Adjusted Amount (A)	0.3977
Signal-to-Noise	46
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 42.17 - 44.17   SM: 3G

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.17
QM Area	1614
QM Integration Mode	A
RM1 Area	2176
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0264
Unqualified Amount (A)	0.355167
Adjusted Amount (A)	0.3552
Signal-to-Noise	30
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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By UMJS at 12:42 pm, 2/9/17

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Chromatogram

RT: 43.87 - 45.87 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.87
QM Area	15095
QM Integration Mode	A
RM1 Area	16492
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0118
Unqualified Amount (A)	2.046364
Adjusted Amount (A)	2.0464
Signal-to-Noise	429
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 45.04 - 47.04 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.04
QM Area	51328
QM Integration Mode	A
RM1 Area	54906
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0373
Unqualified Amount (A)	11.992395
Adjusted Amount (A)	11.9924
Signal-to-Noise	809
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 45.61 - 47.61   SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.61
QM Area	1389
QM Integration Mode	A
RM1 Area	1630
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0184
Unqualified Amount (A)	0.299853
Adjusted Amount (A)	0.2999
Signal-to-Noise	40
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 48.06 - 50.06 SM: 3G

NL:
2.26E5
m/z=
459.73-
459.74 MS
17FEB07-18

NL:
1.99E5
m/z=
457.74-
457.74 MS
17FEB07-18

NL:
4.90E5
m/z=
471.77-
471.78 MS
17FEB07-18

NL:
4.34E5
m/z=
469.78-
469.78 MS
17FEB07-18

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.05
QM Area	698744
QM Integration Mode	A
RM1 Area	628080
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0373
Unqualified Amount (A)	172.521839
Adjusted Amount (A)	172.5218
Signal-to-Noise	11744
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.25 - 50.25 SM: 3G

Relative Abundance vs Time (min)

Traces (top to bottom):
- QM — RT: 49.25 — NL: 7.30E3, m/z= 443.74-443.74 MS 17FEB07-18
- RM1 — RT: 49.25 — NL: 6.08E3, m/z= 441.74-441.75 MS 17FEB07-18
- IS QM — RT: 49.23 — NL: 5.95E5, m/z= 455.78-455.78 MS 17FEB07-18
- IS RM1 — RT: 49.23 — NL: 5.40E5, m/z= 453.78-453.79 MS 17FEB07-18

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.25
QM Area	23261
QM Integration Mode	A
RM1 Area	18339
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0175
Unqualified Amount (A)	4.896454
Adjusted Amount (A)	4.8965
Signal-to-Noise	699
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 31.37 - 33.37 SM: 5G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.39
QM Area	175833
QM Integration Mode	A
RM1 Area	144071
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0202
Unqualified Amount (A)	29.375921
Adjusted Amount (A)	29.3759
Signal-to-Noise	3740
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	Specified RT [min]	QM Retention Time	RM1 Retention Time	Labeled RT	RM1 Time Status	Native vs Labeled Time Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	30.98	30.98	31.00	30.97	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	32.01	32.03	32.03	31.99	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.54	36.54	36.54	36.53	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.76	37.76	37.76	37.75	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.15	38.15	38.15	38.13	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.34	41.34	41.34	41.32	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.49	41.50	41.50	41.47	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.16	42.17	42.17	42.16	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.35	42.35	42.36	42.35	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.47	42.47	42.48	42.45	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.78	42.79	42.79	42.76	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.17	43.17	43.17	43.16	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.86	44.87	44.87	44.85	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	46.05	46.04	46.04	46.03	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.61	46.61	46.62	46.60	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	49.05	49.05	49.05	49.05	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	49.24	49.25	49.25	49.23	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	32.37	32.39	32.39	32.39	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.24	31.24	31.24	31.24	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	41.23	41.23	41.23	41.23	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	30.95	30.97	30.97	30.97	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.99	31.99	31.99	31.99	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	36.51	36.53	36.53	36.51	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	37.75	37.75	37.75	37.78	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	38.12	38.13	38.13	38.13	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.32	41.32	41.32	41.24	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.47	41.47	41.47	41.46	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	42.15	42.16	42.16	42.20	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.33	42.35	42.35	42.35	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.46	42.45	42.45	42.45	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.77	42.76	42.76	42.76	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	43.16	43.16	43.16	43.10	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	44.84	44.85	44.85	44.85	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	46.03	46.03	46.03	46.03	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	46.60	46.60	46.60	46.42	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	49.04	49.05	49.05	49.05	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	49.22	49.23	49.23	49.22	passed	passed

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	30.98	0.9896	0.6450 -	0.8950	failed	---	0 -	0	passed
2	2378-TCDD	32.03	0.4851	0.6450 -	0.8950	failed	---	0 -	0	passed
3	12378-PeCDF	36.54	1.4369	1.3150 -	1.7850	passed	---	0 -	0	passed
4	23478-PeCDF	37.76	1.8997	1.3150 -	1.7850	failed	---	0 -	0	passed
5	12378-PeCDD	38.15	2.2288	1.3150 -	1.7850	failed	---	0 -	0	passed
6	123478-HxCDF	41.34	1.2472	1.0450 -	1.4350	passed	---	0 -	0	passed
7	123678-HxCDF	41.50	1.4191	1.0450 -	1.4350	passed	---	0 -	0	passed
8	234678-HxCDF	42.17	1.3847	1.0450 -	1.4350	passed	---	0 -	0	passed
9	123478-HxCDD	42.35	1.6879	1.0450 -	1.4350	failed	---	0 -	0	passed
10	123678-HxCDD	42.47	1.0809	1.0450 -	1.4350	passed	---	0 -	0	passed
11	123789-HxCDD	42.79	1.2952	1.0450 -	1.4350	passed	---	0 -	0	passed
12	123789-HxCDF	43.17	1.3484	1.0450 -	1.4350	passed	---	0 -	0	passed
13	1234678-HpCDF	44.87	1.0926	0.8750 -	1.2050	passed	---	0 -	0	passed
14	1234678-HpCDD	46.04	1.0697	0.8750 -	1.2050	passed	---	0 -	0	passed
15	1234789-HpCDF	46.61	1.1736	0.8750 -	1.2050	passed	---	0 -	0	passed
16	OCDD	49.05	0.8989	0.7550 -	1.0250	passed	---	0 -	0	passed
17	OCDF	49.25	0.7884	0.7550 -	1.0250	passed	---	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.39	0.8194	0.6450 -	0.8950	passed	37.82	35 -	197	passed
19	13C12-1234-TCDD	31.24	0.8334	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.23	1.2421	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	30.97	0.8022	0.6450 -	0.8950	passed	72.93	40 -	135	passed
22	13C12-2378-TCDD	31.99	0.8082	0.6450 -	0.8950	passed	74.28	40 -	135	passed
23	13C12-12378-PeCDF	36.53	1.6221	1.3150 -	1.7850	passed	88.77	40 -	135	passed
24	13C12-23478-PeCDF	37.75	1.5747	1.3150 -	1.7850	passed	84.26	40 -	135	passed
25	13C12-12378-PeCDD	38.13	1.6192	1.3150 -	1.7850	passed	85.85	40 -	135	passed
26	13C12-123478-HxCDF	41.32	0.5300	0.4250 -	0.5950	passed	79.78	40 -	135	passed
27	13C12-123678-HxCDF	41.47	0.5252	0.4250 -	0.5950	passed	88.97	40 -	135	passed
28	13C12-234678-HxCDF	42.16	0.5372	0.4250 -	0.5950	passed	79.83	40 -	135	passed
29	13C12-123478-HxCDD	42.35	1.2695	1.0450 -	1.4350	passed	87.13	40 -	135	passed
30	13C12-123678-HxCDD	42.45	1.2516	1.0450 -	1.4350	passed	85.00	40 -	135	passed
31	13C12-123789-HxCDD	42.76	1.2417	1.0450 -	1.4350	passed	86.96	40 -	135	passed
32	13C12-123789-HxCDF	43.16	0.5374	0.4250 -	0.5950	passed	74.15	40 -	135	passed
33	13C12-1234678-HpCDF	44.85	0.4568	0.3650 -	0.5150	passed	103.41	40 -	135	passed
34	13C12-1234678-HpCDD	46.03	1.0498	0.8750 -	1.2050	passed	91.77	40 -	135	passed
35	13C12-1234789-HpCDF	46.60	0.4658	0.3650 -	0.5150	passed	76.52	40 -	135	passed
36	13C12-OCDD	49.05	0.8875	0.7550 -	1.0250	passed	91.69	40 -	135	passed
37	13C12-OCDF	49.23	0.8978	0.7550 -	1.0250	passed	75.26	40 -	135	passed

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Noise	Client Flags
1	2378-TCDF	failed	30.98	1911	A	1891	A	0.0375	0.318014	n.d.	0.000000	21	
2	2378-TCDD	failed	32.03	318	A	154	A	0.0136	0.061598	n.d.	0.000000	14	
3	12378-PeCDF	passed	36.54	2633	A	3784	A	0.0199	0.508956	0.5090	0.000000	61	
4	23478-PeCDF	failed	37.76	3832	A	7279	A	0.0179	0.835875	n.d.	0.000000	80	
5	12378-PeCDD	failed	38.15	863	A	1922	A	0.0236	0.370481	n.d.	0.000000	45	
6	123478-HxCDF	passed	41.34	2494	A	3111	A	0.0222	0.441547	0.4415	0.000000	49	
7	123678-HxCDF	passed	41.50	2589	A	3674	A	0.0194	0.429490	0.4295	0.000000	59	
8	234678-HxCDF	passed	42.17	2244	A	3108	A	0.0209	0.419003	0.4190	0.000000	50	
9	123478-HxCDD	failed	42.35	946	A	1596	A	0.0230	0.285766	n.d.	0.000000	37	
10	123678-HxCDD	passed	42.47	3528	A	3813	A	0.0222	0.822382	0.8224	0.000000	92	
11	123789-HxCDD	passed	42.79	1608	A	2082	A	0.0218	0.397732	0.3977	0.000000	46	
12	123789-HxCDF	passed	43.17	1614	A	2176	A	0.0264	0.355167	0.3552	0.000000	30	
13	1234678-HpCDF	passed	44.87	15095	A	16492	A	0.0118	2.046364	2.0464	0.000000	429	
14	1234678-HpCDD	passed	46.04	51328	A	54906	A	0.0373	11.992395	11.9924	0.000000	809	
15	1234789-HpCDF	passed	46.61	1389	A	1630	A	0.0184	0.299853	0.2999	0.000000	40	
16	OCDD	passed	49.05	698744	A	628080	A	0.0373	172.521839	172.5218	0.000000	11744	
17	OCDF	passed	49.25	23261	A	18339	A	0.0175	4.896454	4.8965	0.000000	699	
18	13C12-1278-TCDD (CRS)	passed	32.39	175833	A	144071	A	0.0202	29.375921	29.3759	77.669903	3740	
19	13C12-1234-TCDD	passed	31.24	898129	A	748500	A	0.0256	194.174757	194.1748	194.174757	18991	
20	13C12-123468-HxCDD	passed	41.23	912501	A	1133419	A	0.0383	194.174757	194.1748	194.174757	12663	
21	13C12-2378-TCDF	passed	30.97	1244788	A	998586	A	0.0197	141.614743	141.6147	194.174757	17815	
22	13C12-2378-TCDD	passed	31.99	666288	A	538503	A	0.0260	144.238386	144.2384	194.174757	14841	
23	13C12-12378-PeCDF	passed	36.53	962754	A	1561686	A	0.0778	172.367305	172.3673	194.174757	7305	
24	13C12-23478-PeCDF	passed	37.75	929443	A	1463624	A	0.0779	163.604359	163.6044	194.174757	7328	
25	13C12-12378-PeCDD	passed	38.13	526197	A	851996	A	0.0475	166.708205	166.7082	194.174757	12427	
26	13C12-123478-HxCDF	passed	41.32	1371134	A	726641	A	0.0439	154.921064	154.9211	194.174757	8745	
27	13C12-123678-HxCDF	passed	41.47	1613543	A	847444	A	0.0417	172.753303	172.7533	194.174757	10215	
28	13C12-234678-HxCDF	passed	42.16	1332823	A	716010	A	0.0450	155.014976	155.0150	194.174757	9027	
29	13C12-123478-HxCDD	passed	42.35	743086	A	943336	A	0.0405	169.177051	169.1771	194.174757	10671	
30	13C12-123678-HxCDD	passed	42.45	753889	A	943559	A	0.0393	165.052496	165.0525	194.174757	11062	
31	13C12-123789-HxCDD	passed	42.76	741403	A	920614	A	0.0410	168.860284	168.8603	194.174757	10643	
32	13C12-123789-HxCDF	passed	43.16	1168394	A	627876	A	0.0477	143.982788	143.9828	194.174757	7511	
33	13C12-1234678-HpCDF	passed	44.85	1604725	A	733065	A	0.0605	200.797641	200.7976	194.174757	8871	
34	13C12-1234678-HpCDD	passed	46.03	792431	A	831895	A	0.0531	178.203065	178.2031	194.174757	9086	
35	13C12-1234789-HpCDF	passed	46.60	1007898	A	469444	A	0.0709	148.585244	148.5852	194.174757	5539	
36	13C12-OCDD	passed	49.05	1549227	A	1374974	A	0.0365	356.076054	356.0761	388.349515	26936	
37	13C12-OCDF	passed	49.23	1863533	A	1673161	A	0.0266	292.271781	292.2718	388.349515	30859	

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher
s c i e n t i f i c
1081

File Name: Y:\17FEB07\17FEB07-18
Sample ID: 8807304

Acq. Data: 2/8/2017 1:20:07 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17FEB07

RT: 22.50 - 51.00

NL:
4.04E5
m/z=
291.9825-
292.9825
MS
17FEB07-
18

NL:
5.37E5
m/z=
330.4792-
331.4792
MS
17FEB07-
18

NL:
3.42E5
m/z=
380.4760-
381.4760
MS
17FEB07-
18

NL:
8.66E4
m/z=
404.4760-
405.4760
MS
17FEB07-
18

NL:
1.10E5
m/z=
442.4728-
443.4728
MS
17FEB07-
18

APPROVED
By umas at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/17

Time (min)

File Name: Y:\17FEB07\17FEB07-18
Sample ID: 8807304

Acq. Data: 2/8/2017 1:20:07 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 20.40 - 34.90

Panel 1 — TCDF Quan Mass (NL: 1.00E3, m/z= 305.3987-306.3987 MS ICIS 17FEB07-18)
- RT: 22.08 AA: 101
- RT: 23.24 AA: 133
- RT: 25.48 AA: 207
- RT: 26.83 AA: 818
- RT: 26.98 AA: 4978
- RT: 28.23 AA: 2171
- RT: 29.24 AA: 2187
- RT: 29.92 AA: 930
- RT: 31.45 AA: 3823
- RT: 32.74 AA: 6285
- RT: 32.95 AA: 1617

Panel 2 — TCDF Ratio Mass (NL: 7.57E2, m/z= 303.4016-304.4016 MS ICIS 17FEB07-18)
- RT: 22.20 AA: 294
- RT: 23.24 AA: 294
- RT: 26.03 AA: 361
- RT: 26.85 AA: 1252
- RT: 26.97 AA: 4150
- RT: 28.23 AA: 1857
- RT: 29.24 AA: 1995
- RT: 29.72 AA: 515
- RT: 31.45 AA: 2817
- RT: 32.73 AA: 3384
- RT: 33.82 AA: 2414

Panel 3 — TCDF 13C12 Quan Mass (NL: 2.30E5, m/z= 317.4389-318.4389 MS ICIS 17FEB07-18)
- RT: 22.13 AA: 7632
- RT: 23.67 AA: 29900
- RT: 24.64 AA: 212872
- RT: 26.45 AA: 21857
- RT: 29.21 AA: 31819
- RT: 29.91 AA: 8261
- RT: 30.97 AA: 1245023
- RT: 31.09 AA: 1621
- RT: 34.08 AA: 588

Panel 4 — HxCDPE Trace (NL: 1.03E3, m/z= 375.3364-376.3364 MS ICIS 17FEB07-18)
- RT: 21.26 AA: 106
- RT: 21.99 AA: 3222
- RT: 22.18 AA: 4304
- RT: 23.20 AA: 4253
- RT: 23.29 AA: 193
- RT: 26.83 AA: 326
- RT: 28.88 AA: 138
- RT: 30.04 AA: 203
- RT: 32.28
- RT: 32.97 AA: 859
- RT: 33.79 AA: 2135

Time (min)

File Name: Y:\17FEB07\17FEB07-18
Sample ID: 8807304
Acq. Data: 2/8/2017 1:20:07 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil
Chlorodiphenylether Interference Traces
Instrument ID: DF18471-17FEB07

RT: 34.50 - 39.80

NL:
9.19E2
m/z=
341.3567-
342.3567
MS ICIS
17FEB07-
18

NL:
1.32E3
m/z=
339.3597-
340.3597
MS ICIS
17FEB07-
18

NL:
2.42E5
m/z=
353.3970-
354.3970
MS ICIS
17FEB07-
18

NL:
8.30E1
m/z=
409.2974-
410.2974
MS ICIS
17FEB07-
18

AIL01 Page 84 of 560

Time (min)

APPROVED
By umas at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

File Name: Y:\17FEB07\17FEB07-18
Sample ID: 8807304

Acq. Data: 2/8/2017 1:20:07 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 39.20 - 44.50

NL:
2.40E3
m/z=
375.3178-
376.3178
MS ICIS
17FEB07-
18

NL:
2.98E3
m/z=
373.3208-
374.3208
MS ICIS
17FEB07-
18

NL:
4.64E5
m/z=
385.3610-
386.3610
MS ICIS
17FEB07-
18

NL:
5.40E1
m/z=
445.2555-
446.2555
MS ICIS
17FEB07-
18

Panel 1 (HxCDF Quan Mass):
- RT: 40.06 AA: 8762
- RT: 40.77 AA: 7334
- RT: 41.21 AA: 384
- RT: 41.50 AA: 2599
- RT: 42.17 AA: 2246
- RT: 43.17 AA: 1614
- RT: 39.85 AA: 2367
- RT: 40.86 AA: 81.70
- RT: 39.64 AA: 43.03
- RT: 40.54 AA: 203
- RT: 42.04 AA: 456
- RT: 42.47 AA: 128
- RT: 43.55 AA: 154
- RT: 44.02 AA: 307

Panel 2 (HxCDF Ratio Mass):
- RT: 40.07 AA: 10720
- RT: 40.77 AA: 9660
- RT: 41.50 AA: 3692
- RT: 42.17 AA: 3117
- RT: 43.17 AA: 2178
- RT: 39.85 AA: 3141
- RT: 41.23 AA: 812
- RT: 42.02 AA: 643
- RT: 39.62 AA: 37.66
- RT: 40.54 AA: 169
- RT: 42.51 AA: 113
- RT: 43.25 AA: 123
- RT: 44.03 AA: 275

Panel 3 (HxCDF 13C12 Quan Mass):
- RT: 41.47 AA: 1610666
- RT: 41.32 AA: 1370212
- RT: 42.16 AA: 1330821
- RT: 43.16 AA: 1168745
- RT: 42.82 AA: 654
- RT: 39.61 AA: 96.78
- RT: 40.04 AA: 25407
- RT: 41.07 AA: 245
- RT: 41.66 AA: 7727
- RT: 42.45 AA: 1827
- RT: 43.24 AA: 5185
- RT: 44.07 AA: 1567

Panel 4 (OCDPE Trace):
- RT: 40.99 AA: 66.27
- RT: 42.48 AA: 69.55
- RT: 42.60 AA: 4.85
- RT: 42.99 AA: 18.60
- RT: 43.21 AA: 14.18
- RT: 39.60 AA: 114
- RT: 42.36 AA: 3.23
- RT: 44.23 AA: 90.76

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Time (min)

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

007 of 108

File Name: Y:\17FEB07\17FEB07-18
Sample ID: 8807304

Acq. Data: 2/8/2017 1:20:07 AM

Instrument ID: DF18471-17FEB07

Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil
Chlorodiphenylether Interference Traces

RT: 44.10 - 48.20

NL:
6.93E3
m/z=
409.2789-
410.2789
MS ICIS
17FEB07-
18

NL:
7.27E3
m/z=
407.2818-
408.2818
MS ICIS
17FEB07-
18

NL:
4.99E5
m/z=
419.3220-
420.3220
MS ICIS
17FEB07-
18

NL:
1.29E2
m/z=
479.2165-
480.2165
MS ICIS
17FEB07-
18

HpCDF Quan Mass
- RT: 45.38 AA: 21352
- RT: 44.87 AA: 15102
- RT: 44.55 AA: 8.74
- RT: 44.34 AA: 120
- RT: 45.20 AA: 375
- RT: 45.45 AA: 295
- RT: 46.03 AA: 69.68
- RT: 46.62 AA: 1389
- RT: 46.93 AA: 57.29
- RT: 47.74 AA: 4.36
- RT: 47.95 AA: 119

HpCDF Ratio Mass
- RT: 45.38 AA: 23675
- RT: 44.87 AA: 16470
- RT: 44.62 AA: 19.38
- RT: 44.38 AA: 192
- RT: 45.23 AA: 615
- RT: 45.64 AA: 380
- RT: 46.35 AA: 169
- RT: 46.62 AA: 1634
- RT: 47.29 AA: 153
- RT: 47.85 AA: 294

HpCDF 13C12 Quan Mass
- RT: 44.85 AA: 1601371
- RT: 46.60 AA: 1008276
- RT: 46.32 AA: 517
- RT: 44.41 AA: 245
- RT: 44.92 AA: 5818
- RT: 45.37 AA: 4876
- RT: 46.04 AA: 1489
- RT: 46.67 AA: 5990
- RT: 47.74 AA: 1583
- RT: 47.94 AA: 1991

NCDPE Trace
- RT: 46.32 AA: 208
- RT: 47.81 AA: 268
- RT: 47.44 AA: 111
- RT: 44.58 AA: 63.33
- RT: 44.85 AA: 7.47
- RT: 45.63 AA: 26.11

Time (min)

File Name: Y:\17FEB07\17FEB07-18
Sample ID: 8807304

Acq. Data: 2/8/2017 1:20:07 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB17 ARS1-17-00216-007 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 47.90 - 51.20

Panel 1 (OCDF Quan Mass):
NL: 7.42E3
m/z= 443.2399-444.2399 MS ICIS 17FEB07-18

- RT: 49.25 AA: 23271
- RT: 48.11 AA: 254
- RT: 48.70 AA: 57.09
- RT: 49.06 AA: 573
- RT: 49.31 AA: 148
- RT: 50.01 AA: 154
- RT: 50.17 AA: 106
- RT: 50.62 AA: 148
- RT: 50.84 AA: 42.85

Panel 2 (OCDF Ratio Mass):
NL: 6.19E3
m/z= 441.2428-442.2428 MS ICIS 17FEB07-18

- RT: 49.25 AA: 18351
- RT: 48.30 AA: 148
- RT: 49.06 AA: 548
- RT: 49.39 AA: 215
- RT: 49.70 AA: 87.72
- RT: 50.22 AA: 29.24
- RT: 50.40 AA: 4.01
- RT: 50.93 AA: 62.54

Panel 3 (OCDF 13C12 Quan Mass):
NL: 6.05E5
m/z= 455.2802-456.2802 MS ICIS 17FEB07-18

- RT: 49.23 AA: 1863731
- RT: 48.10 AA: 84.34
- RT: 48.71 AA: 18.41
- RT: 49.05 AA: 1727
- RT: 49.30 AA: 9476
- RT: 49.59 AA: 507
- RT: 49.96 AA: 292
- RT: 50.40 AA: 328
- RT: 50.65 AA: 192
- RT: 50.93 AA: 88.10

Panel 4 (DCDPE):
NL: 2.50E1
m/z= 513.1775-514.1775 MS ICIS 17FEB07-18

- RT: 48.15 AA: 33.42
- RT: 48.58 AA: 11.61
- RT: 48.75 AA: 2.80
- RT: 50.58 AA: 4.01

Time (min)

APPROVED
By umas at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

*** file opened Wed Feb 08 01:25:34 2017 ***

```
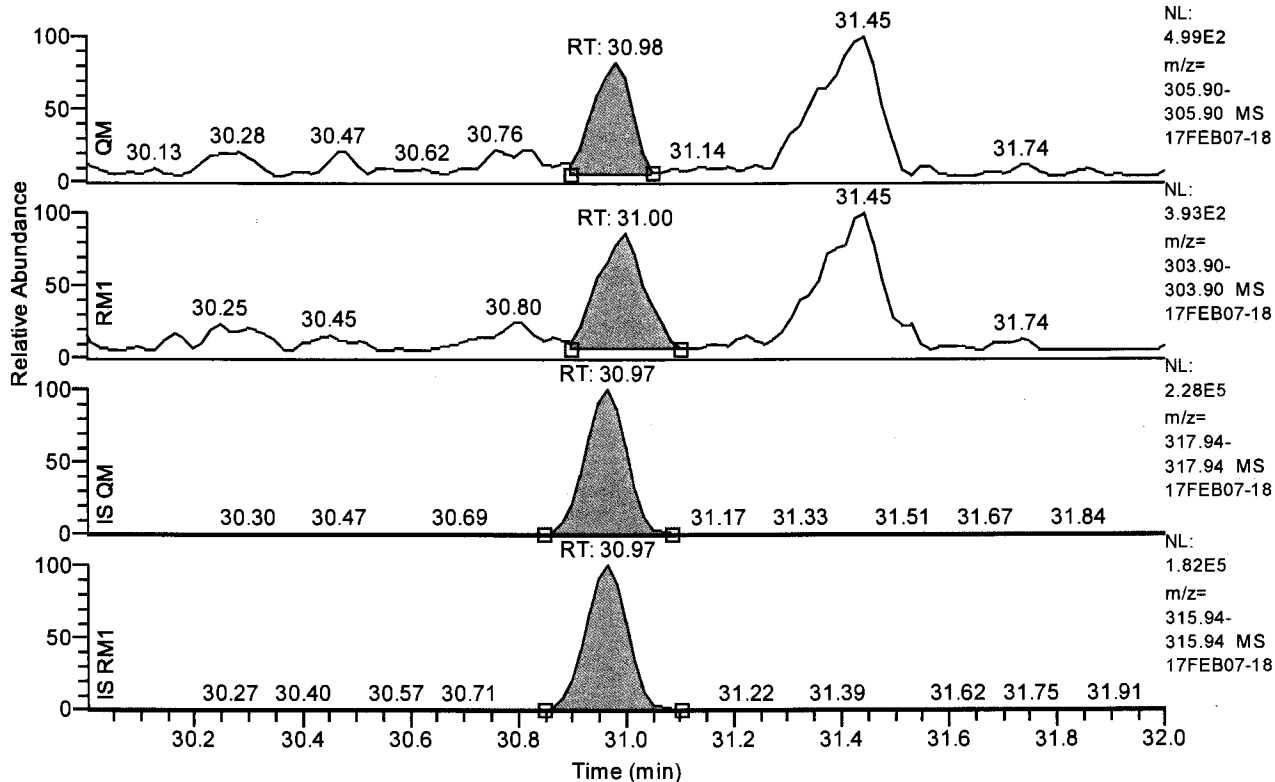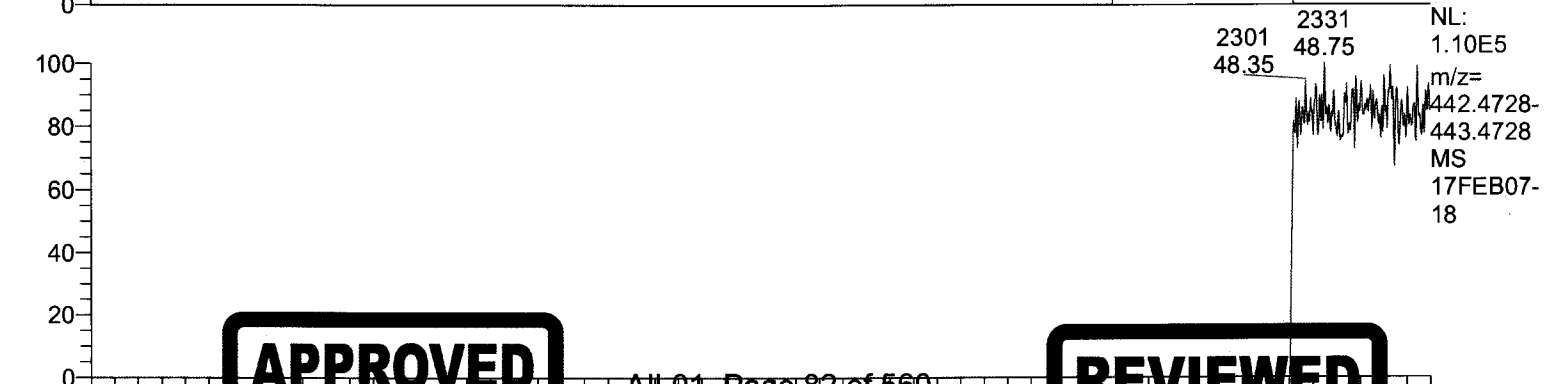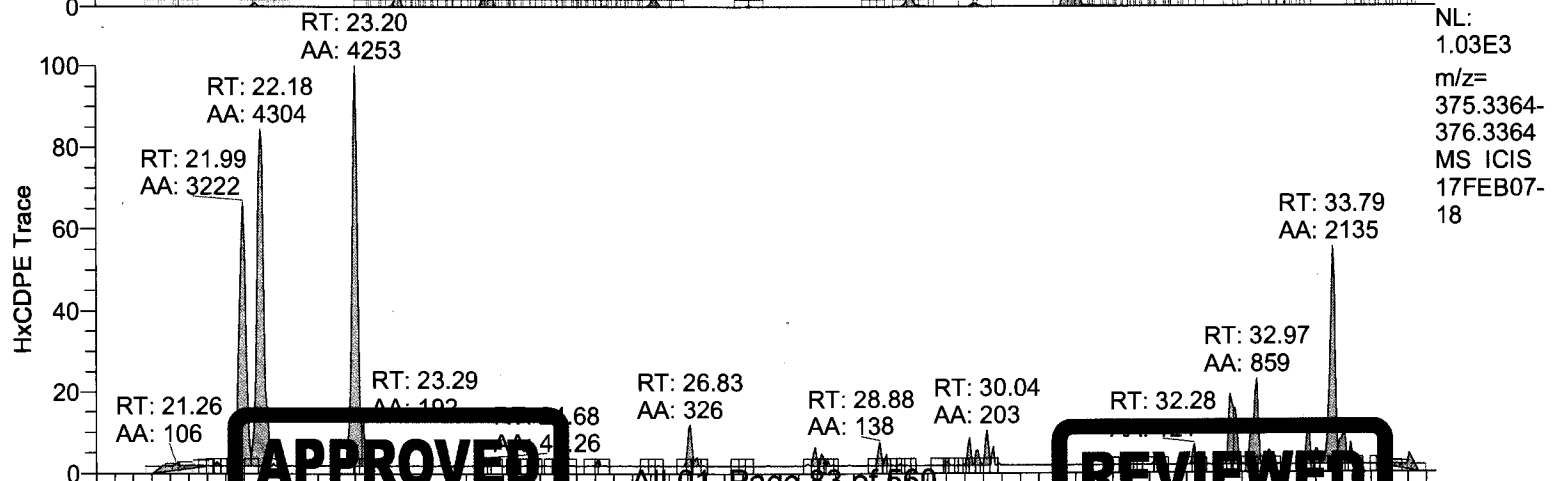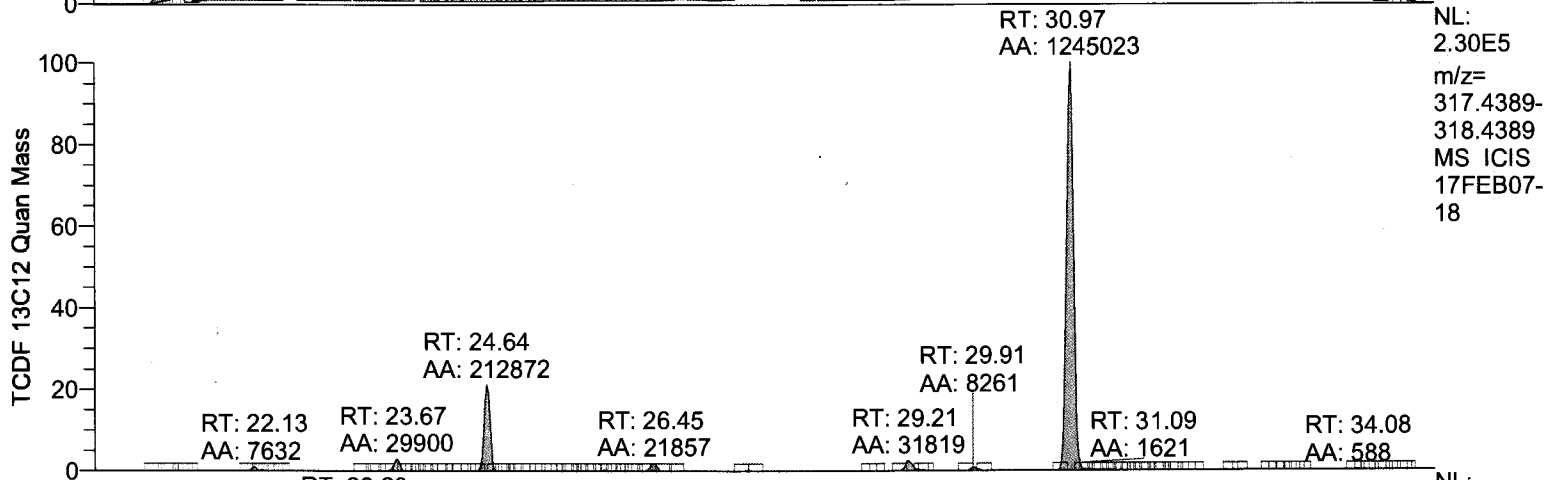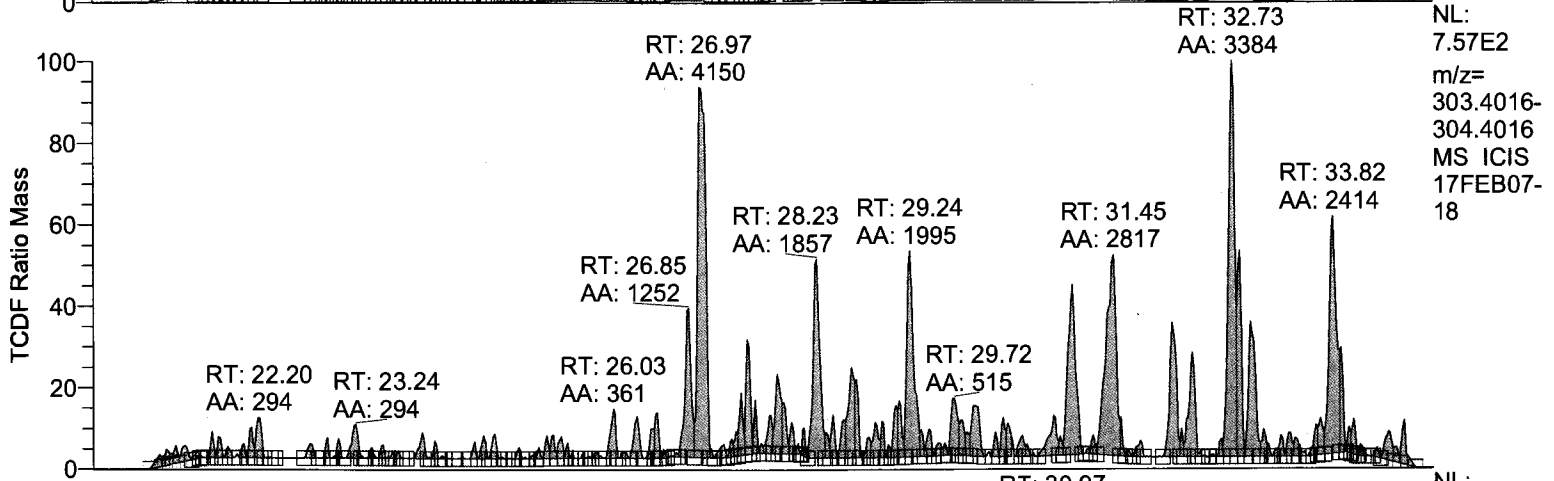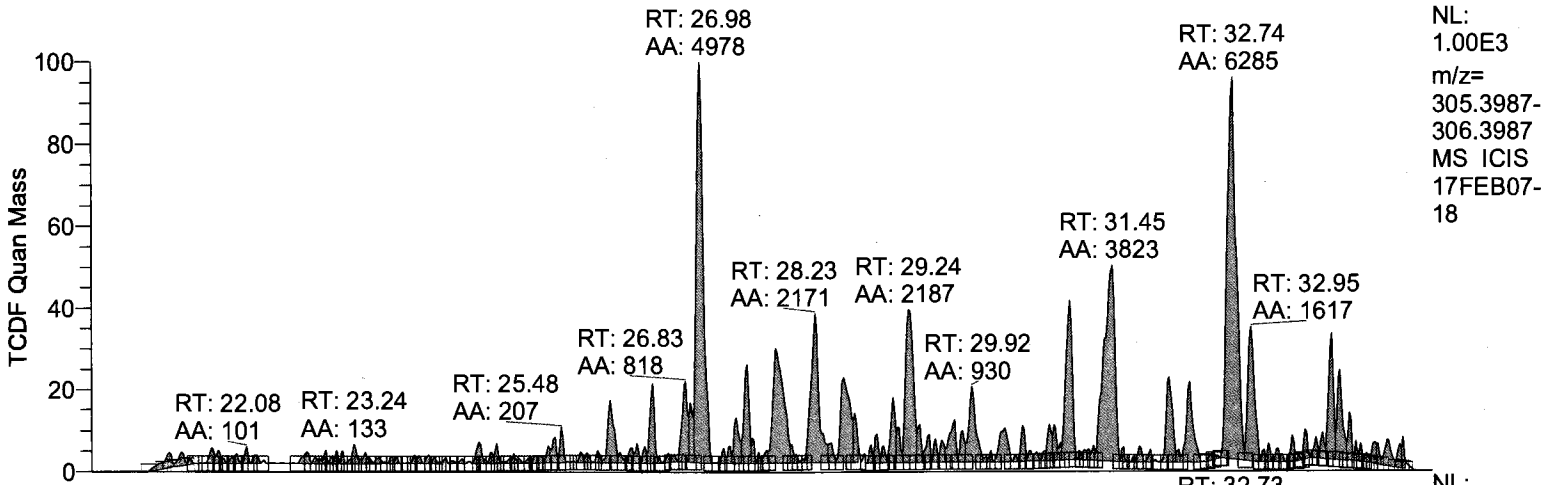Started by               - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470
```

  Analysis started at: 08-Feb-17 01:25:33

  Analysis will stop at user request

  Firmware Version: 2.02

  MCAL file name:

  Sequence : ef723472-e848-43e5-a9f2-e1bcce0ed473

  MID procedure: PFK16MAR24+MDT

Mid Time Windows:
```
         Start       Measure       End        Cycletime

# 1  11:30 min    9:30 min   21:00 min    1.00 sec
# 2  21:00 min   13:36 min   34:36 min    1.00 sec
# 3  34:36 min    4:53 min   39:30 min    0.90 sec
# 4  39:30 min    4:45 min   44:15 min    0.80 sec
# 5  44:15 min    3:45 min   48:00 min    0.80 sec
# 6  48:00 min    3:00 min   51:00 min    0.80 sec
```

Mid Masses:
 Window # 1
```
      mass F   int  gr   time (ms)
   218.0129     1   1       95
   218.9851 1  20   1        4
   220.0100     1   1       95
   230.0532     2   1       47
   232.0502     2   1       47
   251.9739     1   1       95
   253.9710     1   1       95
   264.0142     2   1       47
   266.0112     2   1       47
   285.9350     1   1       95
   287.9320     1   1       95
   292.9819 c  20   1        4
   297.9752     2   1       47
   299.9723     2   1       47
```
 Window # 2
```
      mass F   int  gr   time (ms)
   292.9819 1  20   1        5
   303.9011     1   1      118
   305.8981     1   1      118
   315.9413     5   1       23
   317.9384     5   1       23
   319.8960     1   1      118
   321.8930     1   1      118
```

```
331.9363      5   1         23
333.9333      5   1         23
339.8592      1   1        118
341.8562      1   1        118
354.9787  c  20   1          5
375.8364      2   1         59
Window # 3
    mass F  int  gr   time (ms)
330.9787  1  20   1          6
339.8592      1   1        133
341.8562      1   1        133
351.8994      3   1         44
353.8965      3   1         44
355.8541      1   1        133
357.8511      1   1        133
367.8943      3   1         44
369.8914      3   1         44
380.9755  c  20   1          6
409.7969      2   1         66
Window # 4
    mass F  int  gr   time (ms)
373.8201      1   1        117
375.8172      1   1        117
380.9755  1  20   1          5
383.8634      3   1         39
385.8604      3   1         39
389.8151      1   1        117
391.8121      1   1        117
401.8554      3   1         39
403.8524      3   1         39
430.9723  c  20   1          5
445.7550      2   1         58
Window # 5
    mass F  int  gr   time (ms)
404.9755  1  20   1          5
407.7812      1   1        117
409.7783      1   1        117
417.8244      3   1         39
419.8215      3   1         39
423.7761      1   1        117
425.7732      1   1        117
435.8164      3   1         39
437.8134      3   1         39
479.7160      2   1         58
480.9691  c  20   1          5
Window # 6
    mass F  int  gr   time (ms)
441.7422      1   1         95
442.9723  1  20   1          4
443.7393      1   1         95
453.7825      1   1         95
455.7795      1   1         95
457.7372      1   1         95
459.7342      1   1         95
469.7774      3   1         31
471.7745      3   1         31
492.9691  c  20   1          4
513.6770      2   1         47
```

```
MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.600000 minutes
MID Window end time was 34.600000 minutes
```

Page 2

MID Window terminated after 39.500000 minutes
MID Window end time was 39.500000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	96.5000
BQUAD	0.0500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	61.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	173.0000
ENSBR	0.0500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	172.0000	EXSBR	-0.4700
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	12.3500
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0176	FVINLET	0.0301	FVSRC	0.0289
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	714.0000
LENS_SYM	14.3000	LM	1050.0000	LMII	500.0000
LMASS	96.5000	LKM	442.9723	MASS	96.5000
MDAC	1441808.5140	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2525.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-9.0000	RECURR	0.8943	RELEN	0.0000
RES	12502.5077	RPUSHER	-8.6813	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	638.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0206	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	96.5000	XLENS_POT	896.0000
XLENS_SYM	-8.5000	YLENS_POT	568.0000	YLENS_SYM	0.0000

Source Gauge: 1.9e-005 mbar
Analyzer Penning: 5.1e-008 mbar
Pirani Analyse: 1.8e-002 mbar
Pirani Source: 2.9e-002 mbar
Pirani Inlet System: 3.0e-002 mbar

Scantype is magnetic

Sourcemode is EI POS

MID Time Window 1: Resolution is 11825.
MID Time Window 2: Resolution is 12886.
MID Time Window 3: Resolution is 12462.
MID Time Window 4: Resolution is 12233.

Page 3

MID Time Window 5: Resolution is 13629.
MID Time Window 6: Resolution is 12502.

Amplifier Offset: 87.

*** File closed Wed Feb 08 02:16:36 2017
  ***

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 02:16
Number of Entries	285
Comment	S:11030:12937:15831
Vial	104
Sample Name	SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil
Sample ID	8807305
Inst ID	DF18471-17FEB07
Client	ARS International LLC
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-19.quan
Data	y:\17feb07\17feb07-19.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.16
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	Native vs Labeled Time Status	Status Info
1	2378-TCDF	30.99	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.03	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
3	12378-PeCDF	36.53	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.76	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.15	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
6	123478-HxCDF	41.34	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.49	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.18	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
9	123478-HxCDD	42.37	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.47	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.78	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.17	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.86	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.05	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.62	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
16	OCDD	49.05	passed	passed	passed	passed	passed	passed	
17	OCDF	49.24	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.39	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.24	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.23	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	30.97	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.00	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.53	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.75	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.13	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.33	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.48	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.16	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.34	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.46	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.77	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.16	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.85	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.04	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.60	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.04	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.23	passed	passed	passed	passed	passed	passed	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 02:16
Number of Entries	285
Comment	S:11030:12937:15831
Vial	104
Sample Name	SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil
Sample ID	8807305
Inst ID	DF18471-17FEB07
Client	ARS International LLC
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-19.quan
Data	y:\17feb07\17feb07-19.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.16
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 30.00 - 32.00   SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	30.99
QM Area	322
QM Integration Mode	A
RM1 Area	269
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0167
Unqualified Amount (A)	0.042644
Adjusted Amount (A)	0.0426
Signal-to-Noise	11
Client Flags	
Status Overview	passed
Status Info	

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Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 31.01 - 33.01   SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.03
QM Area	113
QM Integration Mode	A
RM1 Area	37
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0149
Unqualified Amount (A)	0.017500
Adjusted Amount (A)	n.d.
Signal-to-Noise	5
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

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Chromatogram

RT: 35.56 - 37.56 SM: 3G

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.53
QM Area	746
QM Integration Mode	A
RM1 Area	1257
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0111
Unqualified Amount (A)	0.144290
Adjusted Amount (A)	0.1443
Signal-to-Noise	31
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 36.76 - 38.76 SM: 3G

NL:
1.81E2
m/z=
341.85-
341.86 MS
17FEB07-19

NL:
2.66E2
m/z=
339.86-
339.86 MS
17FEB07-19

NL:
2.74E5
m/z=
353.90-
353.90 MS
17FEB07-19

NL:
4.33E5
m/z=
351.90-
351.90 MS
17FEB07-19

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.76
QM Area	839
QM Integration Mode	A
RM1 Area	1281
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0098
Unqualified Amount (A)	0.140690
Adjusted Amount (A)	0.1407
Signal-to-Noise	26
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 37.16 - 39.16 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.15
QM Area	658
QM Integration Mode	A
RM1 Area	847
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0301
Unqualified Amount (A)	0.176842
Adjusted Amount (A)	n.d.
Signal-to-Noise	14
Client Flags	·
Status Overview	failed
Status Info	Failed on: Ratio1A

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Chromatogram

RT: 40.34 - 42.34 SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.34
QM Area	1335
QM Integration Mode	A
RM1 Area	1568
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0204
Unqualified Amount (A)	0.205179
Adjusted Amount (A)	0.2052
Signal-to-Noise	25
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.49 - 42.49 SM: 3G

NL: 6.45E3
m/z= 375.82-375.82 MS 17FEB07-19

NL: 8.43E3
m/z= 373.82-373.82 MS 17FEB07-19

NL: 5.18E5
m/z= 385.86-385.86 MS 17FEB07-19

NL: 2.71E5
m/z= 383.86-383.87 MS 17FEB07-19

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.49
QM Area	1912
QM Integration Mode	A
RM1 Area	2527
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0186
Unqualified Amount (A)	0.284068
Adjusted Amount (A)	0.2841
Signal-to-Noise	37
Client Flags	
Status Overview	passed
Status Info	

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Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 41.18 - 43.18 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.18
QM Area	2250
QM Integration Mode	A
RM1 Area	3266
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0204
Unqualified Amount (A)	0.388415
Adjusted Amount (A)	n.d.
Signal-to-Noise	48
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

Chromatogram

RT: 41.35 - 43.35 SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.37
QM Area	1151
QM Integration Mode	A
RM1 Area	1486
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0213
Unqualified Amount (A)	0.279522
Adjusted Amount (A)	0.2795
Signal-to-Noise	37
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.47 - 43.47   SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.47
QM Area	5649
QM Integration Mode	A
RM1 Area	6536
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0208
Unqualified Amount (A)	1.290683
Adjusted Amount (A)	1.2907
Signal-to-Noise	160
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.78 - 43.78   SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.78
QM Area	2051
QM Integration Mode	A
RM1 Area	2377
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0207
Unqualified Amount (A)	0.461169
Adjusted Amount (A)	0.4612
Signal-to-Noise	56
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 42.17 - 44.17 SM: 3G

| NL: |
| 7.52E2 |
| m/z= |
| 375.82- |
| 375.82 MS |
| 17FEB07-19 |

| NL: |
| 9.20E2 |
| m/z= |
| 373.82- |
| 373.82 MS |
| 17FEB07-19 |

| NL: |
| 4.24E5 |
| m/z= |
| 385.86- |
| 385.86 MS |
| 17FEB07-19 |

| NL: |
| 2.21E5 |
| m/z= |
| 383.86- |
| 383.87 MS |
| 17FEB07-19 |

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.17
QM Area	807
QM Integration Mode	A
RM1 Area	1151
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0226
Unqualified Amount (A)	0.152294
Adjusted Amount (A)	0.1523
Signal-to-Noise	18
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 43.86 - 45.86 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.86
QM Area	36518
QM Integration Mode	A
RM1 Area	40223
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0198
Unqualified Amount (A)	5.027382
Adjusted Amount (A)	5.0274
Signal-to-Noise	628
Client Flags	
Status Overview	passed
Status Info	

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Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 45.05 - 47.05   SM: 3G

NL: 3.56E4 m/z= 425.77-425.78 MS 17FEB07-19

NL: 3.54E4 m/z= 423.77-423.78 MS 17FEB07-19

NL: 2.68E5 m/z= 437.81-437.82 MS 17FEB07-19

NL: 2.78E5 m/z= 435.81-435.82 MS 17FEB07-19

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.05
QM Area	111816
QM Integration Mode	A
RM1 Area	111137
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0363
Unqualified Amount (A)	24.181691
Adjusted Amount (A)	24.1817
Signal-to-Noise	1669
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.62 - 47.62 SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.62
QM Area	2655
QM Integration Mode	A
RM1 Area	3379
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0249
Unqualified Amount (A)	0.519432
Adjusted Amount (A)	n.d.
Signal-to-Noise	54
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

TargetQuan3

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Chromatogram

RT: 48.05 - 50.05   SM: 3G

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.05
QM Area	763085
QM Integration Mode	A
RM1 Area	668603
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0330
Unqualified Amount (A)	173.315705
Adjusted Amount (A)	173.3157
Signal-to-Noise	13125
Client Flags	
Status Overview	passed
Status Info	

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17FEB07-19 printed 2/9/2017 11:54
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 48.24 - 50.24 SM: 3G

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.24
QM Area	55561
QM Integration Mode	A
RM1 Area	47230
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0148
Unqualified Amount (A)	10.588891
Adjusted Amount (A)	10.5889
Signal-to-Noise	1807
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.37 - 33.37 SM: 5G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.39
QM Area	193180
QM Integration Mode	A
RM1 Area	148630
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0202
Unqualified Amount (A)	31.862559
Adjusted Amount (A)	31.8626
Signal-to-Noise	4014
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	Specified RT [min]	QM Retention Time	RM1 Retention Time	Labeled RT	RM1 Time Status	Native vs Labeled Time Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	30.98	30.99	30.97	30.97	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	32.01	32.03	32.00	32.00	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.54	36.53	36.56	36.53	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.76	37.76	37.79	37.75	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.15	38.15	38.15	38.13	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.34	41.34	41.34	41.33	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.49	41.49	41.49	41.48	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.16	42.18	42.18	42.16	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.35	42.37	42.37	42.34	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.47	42.47	42.49	42.46	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.78	42.78	42.78	42.77	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.17	43.17	43.19	43.16	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.86	44.86	44.87	44.85	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	46.05	46.05	46.05	46.04	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.61	46.62	46.62	46.60	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	49.05	49.05	49.05	49.04	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	49.24	49.24	49.24	49.23	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	32.37	32.39	32.39	32.39	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.24	31.24	31.24	31.24	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	41.23	41.23	41.23	41.23	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	30.95	30.97	30.97	30.97	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.99	32.00	32.00	32.00	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	36.51	36.53	36.53	36.56	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	37.75	37.75	37.75	37.84	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	38.12	38.13	38.13	38.13	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.32	41.33	41.33	41.35	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.47	41.48	41.48	41.44	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	42.15	42.16	42.16	42.10	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.33	42.34	42.35	42.35	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.46	42.46	42.46	42.46	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.77	42.77	42.77	42.77	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	43.16	43.16	43.16	43.19	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	44.84	44.85	44.85	44.83	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	46.03	46.04	46.04	46.04	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	46.60	46.60	46.60	46.56	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	49.04	49.04	49.04	49.04	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	49.22	49.23	49.23	49.22	passed	passed

17FEB07-19 printed 2/9/2017 11:54
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

:%: eurofins | **Lancaster Laboratories**

Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	30.99	0.8341	0.6450 -	0.8950	passed	---	0 -	0	passed
2	2378-TCDD	32.03	0.3288	0.6450 -	0.8950	failed	---	0 -	0	passed
3	12378-PeCDF	36.53	1.6849	1.3150 -	1.7850	passed	---	0 -	0	passed
4	23478-PeCDF	37.76	1.5280	1.3150 -	1.7850	passed	---	0 -	0	passed
5	12378-PeCDD	38.15	1.2872	1.3150 -	1.7850	failed	---	0 -	0	passed
6	123478-HxCDF	41.34	1.1749	1.0450 -	1.4350	passed	---	0 -	0	passed
7	123678-HxCDF	41.49	1.3220	1.0450 -	1.4350	passed	---	0 -	0	passed
8	234678-HxCDF	42.18	1.4515	1.0450 -	1.4350	failed	---	0 -	0	passed
9	123478-HxCDD	42.37	1.2914	1.0450 -	1.4350	passed	---	0 -	0	passed
10	123678-HxCDD	42.47	1.1570	1.0450 -	1.4350	passed	---	0 -	0	passed
11	123789-HxCDD	42.78	1.1588	1.0450 -	1.4350	passed	---	0 -	0	passed
12	123789-HxCDF	43.17	1.4271	1.0450 -	1.4350	passed	---	0 -	0	passed
13	1234678-HpCDF	44.86	1.1014	0.8750 -	1.2050	passed	---	0 -	0	passed
14	1234678-HpCDD	46.05	0.9939	0.8750 -	1.2050	passed	---	0 -	0	passed
15	1234789-HpCDF	46.62	1.2724	0.8750 -	1.2050	failed	---	0 -	0	passed
16	OCDD	49.05	0.8762	0.7550 -	1.0250	passed	---	0 -	0	passed
17	OCDF	49.24	0.8501	0.7550 -	1.0250	passed	---	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.39	0.7694	0.6450 -	0.8950	passed	40.47	35 -	197	passed
19	13C12-1234-TCDD	31.24	0.8108	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.23	1.2658	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	30.97	0.7973	0.6450 -	0.8950	passed	85.81	40 -	135	passed
22	13C12-2378-TCDD	32.00	0.8121	0.6450 -	0.8950	passed	84.80	40 -	135	passed
23	13C12-12378-PeCDF	36.53	1.6386	1.3150 -	1.7850	passed	99.24	40 -	135	passed
24	13C12-23478-PeCDF	37.75	1.5893	1.3150 -	1.7850	passed	96.95	40 -	135	passed
25	13C12-12378-PeCDD	38.13	1.6028	1.3150 -	1.7850	passed	98.62	40 -	135	passed
26	13C12-123478-HxCDF	41.33	0.5199	0.4250 -	0.5950	passed	88.08	40 -	135	passed
27	13C12-123678-HxCDF	41.48	0.5203	0.4250 -	0.5950	passed	94.40	40 -	135	passed
28	13C12-234678-HxCDF	42.16	0.5390	0.4250 -	0.5950	passed	87.90	40 -	135	passed
29	13C12-123478-HxCDD	42.34	1.2858	1.0450 -	1.4350	passed	91.50	40 -	135	passed
30	13C12-123678-HxCDD	42.46	1.2457	1.0450 -	1.4350	passed	89.03	40 -	135	passed
31	13C12-123789-HxCDD	42.77	1.2403	1.0450 -	1.4350	passed	89.14	40 -	135	passed
32	13C12-123789-HxCDF	43.16	0.5268	0.4250 -	0.5950	passed	88.50	40 -	135	passed
33	13C12-1234678-HpCDF	44.85	0.4469	0.3650 -	0.5150	passed	101.28	40 -	135	passed
34	13C12-1234678-HpCDD	46.04	1.0535	0.8750 -	1.2050	passed	94.59	40 -	135	passed
35	13C12-1234789-HpCDF	46.60	0.4519	0.3650 -	0.5150	passed	87.45	40 -	135	passed
36	13C12-OCDD	49.04	0.8861	0.7550 -	1.0250	passed	97.53	40 -	135	passed
37	13C12-OCDF	49.23	0.8973	0.7550 -	1.0250	passed	85.16	40 -	135	passed

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Noise	Client Flags
1	2378-TCDF	passed	30.99	322	A	269	A	0.0167	0.042644	0.0426	0.000000	11	
2	2378-TCDD	failed	32.03	113	A	37	A	0.0149	0.017500	n.d.	0.000000	5	
3	12378-PeCDF	passed	36.53	746	A	1257	A	0.0111	0.144290	0.1443	0.000000	31	
4	23478-PeCDF	passed	37.76	839	A	1281	A	0.0098	0.140690	0.1407	0.000000	26	
5	12378-PeCDD	failed	38.15	658	A	847	A	0.0301	0.176842	n.d.	0.000000	14	
6	123478-HxCDF	passed	41.34	1335	A	1568	A	0.0204	0.205179	0.2052	0.000000	25	
7	123678-HxCDF	passed	41.49	1912	A	2527	A	0.0186	0.284068	0.2841	0.000000	37	
8	234678-HxCDF	failed	42.18	2250	A	3266	A	0.0204	0.388415	n.d.	0.000000	48	
9	123478-HxCDD	passed	42.37	1151	A	1486	A	0.0213	0.279522	0.2795	0.000000	37	
10	123678-HxCDD	passed	42.47	5649	A	6536	A	0.0208	1.290683	1.2907	0.000000	160	
11	123789-HxCDD	passed	42.78	2051	A	2377	A	0.0207	0.461169	0.4612	0.000000	56	
12	123789-HxCDF	passed	43.17	807	A	1151	A	0.0226	0.152294	0.1523	0.000000	18	
13	1234678-HpCDF	passed	44.86	36518	A	40223	A	0.0198	5.027382	5.0274	0.000000	628	
14	1234678-HpCDD	passed	46.05	111816	A	111137	A	0.0363	24.181691	24.1817	0.000000	1669	
15	1234789-HpCDF	failed	46.62	2655	A	3379	A	0.0249	0.519432	n.d.	0.000000	54	
16	OCDD	passed	49.05	763085	A	668603	A	0.0330	173.315705	173.3157	0.000000	13125	
17	OCDF	passed	49.24	55561	A	47230	A	0.0148	10.588891	10.5889	0.000000	1807	
18	13C12-1278-TCDD (CRS)	passed	32.39	193180	A	148630	A	0.0202	31.862559	31.8626	78.740157	4014	
19	13C12-1234-TCDD	passed	31.24	908118	A	736311	A	0.0258	196.850394	196.8504	196.850394	19111	
20	13C12-123468-HxCDD	passed	41.23	924348	A	1170035	A	0.0329	196.850394	196.8504	196.850394	14952	
21	13C12-2378-TCDF	passed	30.97	1466695	A	1169439	A	0.0154	168.926842	168.9268	196.850394	26928	
22	13C12-2378-TCDD	passed	32.00	757948	A	615547	A	0.0261	166.924647	166.9246	196.850394	16704	
23	13C12-12378-PeCDF	passed	36.53	1068194	A	1750326	A	0.0559	195.359756	195.3598	196.850394	11571	
24	13C12-23478-PeCDF	passed	37.75	1062083	A	1687944	A	0.0560	190.853912	190.8539	196.850394	11732	
25	13C12-12378-PeCDD	passed	38.13	607452	A	973614	A	0.0530	194.142660	194.1427	196.850394	12806	
26	13C12-123478-HxCDF	passed	41.33	1559823	A	810999	A	0.0512	173.390937	173.3909	196.850394	8390	
27	13C12-123678-HxCDF	passed	41.48	1758288	A	914856	A	0.0486	185.829851	185.8299	196.850394	9410	
28	13C12-234678-HxCDF	passed	42.16	1500608	A	808754	A	0.0524	173.035469	173.0355	196.850394	8140	
29	13C12-123478-HxCDD	passed	42.34	793193	A	1019920	A	0.0348	180.125912	180.1259	196.850394	12683	
30	13C12-123678-HxCDD	passed	42.46	810467	A	1009606	A	0.0337	175.263057	175.2631	196.850394	13016	
31	13C12-123789-HxCDD	passed	42.77	778449	A	965491	A	0.0352	175.468666	175.4687	196.850394	12332	
32	13C12-123789-HxCDF	passed	43.16	1437443	A	757195	A	0.0555	174.211911	174.2119	196.850394	7707	
33	13C12-1234678-HpCDF	passed	44.85	1619888	A	723894	A	0.0661	199.363861	199.3639	196.850394	7570	
34	13C12-1234678-HpCDD	passed	46.04	834604	A	879293	A	0.0514	186.209786	186.2098	196.850394	9634	
35	13C12-1234789-HpCDF	passed	46.60	1190391	A	537881	A	0.0774	172.140384	172.1404	196.850394	5832	
36	13C12-OCDD	passed	49.04	1688211	A	1495928	A	0.0314	383.975471	383.9755	393.700787	33441	
37	13C12-OCDF	passed	49.23	2159254	A	1937407	A	0.0290	335.270568	335.2706	393.700787	30096	

File Name: Y:\17FEB07\17FEB07-19
Sample ID: 8807305

Acq. Data: 2/8/2017 2:16:41 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17FEB07

RT: 22.50 - 51.00

NL:
3.84E5
m/z=
291.9825-
292.9825
MS
17FEB07-
19

NL:
5.20E5
m/z=
330.4792-
331.4792
MS
17FEB07-
19

NL:
3.26E5
m/z=
380.4760-
381.4760
MS
17FEB07-
19

NL:
8.47E4
m/z=
404.4760-
405.4760
MS
17FEB07-
19

NL:
1.06E5
m/z=
442.4728-
443.4728
MS
17FEB07-
19

Time (min)

APPROVED
By umas at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/17

File Name: Y:\17FEB07\17FEB07-19
Sample ID: 8807305

Acq. Data: 2/8/2017 2:16:41 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 20.40 - 34.90

NL:
4.60E2
m/z=
305.3987-
306.3987
MS ICIS
17FEB07-
19

NL:
3.31E2
m/z=
303.4016-
304.4016
MS ICIS
17FEB07-
19

NL:
2.73E5
m/z=
317.4389-
318.4389
MS ICIS
17FEB07-
19

NL:
5.89E2
m/z=
375.3364-
376.3364
MS ICIS
17FEB07-
19

APPROVED
By umas at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

File Name: Y:\17FEB07\17FEB07-19
Sample ID: 8807305
Acq. Data: 2/8/2017 2:16:41 AM
Instrument ID: DF18471-17FEB07
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil
Chlorodiphenylether Interference Traces

RT: 34.50 - 39.80

Panel 1 — PeCDF Quan Mass

NL: 3.03E2
m/z= 341.3567-342.3567
MS ICIS 17FEB07-19

- RT: 35.31 AA: 1393
- RT: 36.04 AA: 670
- RT: 35.98 AA: 582
- RT: 36.53 AA: 756
- RT: 36.89 AA: 544
- RT: 37.76 AA: 835
- RT: 35.13 AA: 257
- RT: 35.08 AA: 260
- RT: 35.41 AA: 50.69
- RT: 37.63 AA: 188
- RT: 38.06 AA: 265
- RT: 38.95 AA: 272
- RT: 38.46 AA: 117
- RT: 39.47 AA: 133

Panel 2 — PeCDF Ratio Mass

NL: 4.51E2
m/z= 339.3597-340.3597
MS ICIS 17FEB07-19

- RT: 35.30 AA: 2560
- RT: 36.56 AA: 1261
- RT: 36.04 AA: 1370
- RT: 35.11 AA: 606
- RT: 37.79 AA: 1287
- RT: 35.64 AA: 270
- RT: 36.89 AA: 485
- RT: 37.66 AA: 269
- RT: 38.09 AA: 278
- RT: 38.97 AA: 620
- RT: 34.90 AA: 55.00
- RT: 37.46 AA: 41.60
- RT: 38.63 AA: 130
- RT: 39.37 AA: 150

Panel 3 — PeCDF 13C12 Quan Mass

NL: 2.78E5
m/z= 353.3970-354.3970
MS ICIS 17FEB07-19

- RT: 36.53 AA: 1068616
- RT: 37.75 AA: 1062434
- RT: 36.33 AA: 154
- RT: 35.07 AA: 5836
- RT: 35.99 AA: 6458
- RT: 36.81 AA: 3492
- RT: 37.63 AA: 13548
- RT: 37.83 AA: 2395
- RT: 38.95 AA: 11726
- RT: 39.23 AA: 307

Panel 4 — HpCDPE Trace

NL: 3.79E2
m/z= 409.2974-410.2974
MS ICIS 17FEB07-19

- RT: 37.18 AA: 1253
- RT: 35.61 AA: 111
- RT: 35.95 AA: 134
- RT: 36.07 AA: 334
- RT: 36.89 AA: 180
- RT: 34.71 AA: 82.63
- RT: 39.07 AA: 116
- RT: 39.37 AA: .62

APPROVED
By umas at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/17

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Time (min)

34.5   35.0   35.5   36.0   36.5   37.0   37.5   38.0   38.5   39.0   39.5

File Name: Y:\17FEB07\17FEB07-19
Sample ID: 8807305

Acq. Data: 2/8/2017 2:16:41 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 39.20 - 44.50

HxCDF Quan Mass

RT: 40.76
AA: 22788

RT: 40.86
AA: 131

RT: 40.06
AA: 15417

RT: 39.85
AA: 4785

RT: 41.22
AA: 343

RT: 41.49
AA: 1917

RT: 42.18
AA: 2252

RT: 39.72
AA: 39.24

RT: 40.53
AA: 368

RT: 42.46
AA: 280

RT: 43.17
AA: 807

RT: 43.52
AA: 251

RT: 44.04
AA: 162

NL:
6.54E3
m/z=
375.3178-
376.3178
MS ICIS
17FEB07-
19

HxCDF Ratio Mass

RT: 40.76
AA: 30223

RT: 40.84
AA: 118

RT: 40.06
AA: 18866

RT: 39.85
AA: 6844

RT: 41.25
AA: 209

RT: 41.49
AA: 2558

RT: 42.18
AA: 3274

RT: 39.60
AA: 75.68

RT: 40.52
AA: 212

RT: 42.47
AA: 555

RT: 43.19
AA: 1152

RT: 44.02
AA: 257

NL:
8.55E3
m/z=
373.3208-
374.3208
MS ICIS
17FEB07-
19

HxCDF 13C12 Quan Mass

RT: 41.48
AA: 1760580

RT: 42.16
AA: 1501034

RT: 43.16
AA: 1438069

RT: 42.82
AA: 473

RT: 39.68
AA: 174

RT: 40.05
AA: 6426

RT: 41.21
AA: 187

RT: 41.65
AA: 7632

RT: 42.35
AA: 1612

RT: 43.24
AA: 6745

RT: 44.24
AA: 892

NL:
5.26E5
m/z=
385.3610-
386.3610
MS ICIS
17FEB07-
19

OCDPE Trace

RT: 42.00
AA: 115

RT: 40.96
AA: 83.64

RT: 41.02
AA: 37.57

RT: 42.06
AA: 31.09

RT: 42.92
AA: 38.01

RT: 41.44
AA: 15.36

RT: 42.10
AA: 2.83

RT: 39.60
AA: 55.09

RT: 44.27
AA: 104

NL:
7.70E1
m/z=
445.2555-
446.2555
MS ICIS
17FEB07-
19

APPROVED
By uma9 at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/17

Time (min)

File Name: Y:\17FEB07\17FEB07-19
Sample ID: 8807305

Acq. Data: 2/8/2017 2:16:41 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 44.10 - 48.20

APPROVED *By uma9 at 12:02 pm, 2/9/17*

REVIEWED *By UMJS at 12:42 pm, 2/9/17*

File Name: Y:\17FEB07\17FEB07-19
Sample ID: 8807305

Acq. Data: 2/8/2017 2:16:41 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB19M ARS1-17-00216-004 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 47.90 - 51.20

NL:
1.82E4
m/z=
443.2399-
444.2399
MS ICIS
17FEB07-
19

OCDF Quan Mass

RT: 49.24
AA: 55582

RT: 48.11
AA: 297
RT: 48.53
AA: 102
RT: 49.07
AA: 480
RT: 49.42
AA: 162
RT: 49.70
AA: 93.45
RT: 50.28
AA: 129
RT: 50.46
AA: 74.12
RT: 50.95
AA: 347

NL:
1.48E4
m/z=
441.2428-
442.2428
MS ICIS
17FEB07-
19

OCDF Ratio Mass

RT: 49.24
AA: 47241

RT: 48.11
AA: 210
RT: 48.27
AA: 18.82
RT: 48.85
AA: 5.22
RT: 49.05
AA: 463
RT: 49.48
AA: 129
RT: 49.80
AA: 129
RT: 49.99
AA: 80.53
RT: 50.44
AA: 42.92
RT: 50.92
AA: 47.23

NL:
6.92E5
m/z=
455.2802-
456.2802
MS ICIS
17FEB07-
19

OCDF 13C12 Quan Mass

RT: 49.23
AA: 2159837

RT: 48.13
AA: 37.58
RT: 48.37
AA: 115
RT: 49.05
AA: 1608
RT: 49.30
AA: 9391
RT: 49.60
AA: 505
RT: 50.28
AA: 362
RT: 50.86
AA: 401

NL:
1.23E2
m/z=
513.1775-
514.1775
MS ICIS
17FEB07-
19

DCDPE

RT: 50.74
AA: 165

RT: 48.17
AA: 34.99

APPROVED
By uma9 at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/17

Time (min)

*** file opened Wed Feb 08 02:22:12 2017 ***

```
Started by              - Xcalibur
Instrument Internet name  - DFS MS
Instrument model        - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470
```

Analysis started at: 08-Feb-17 02:22:11

Analysis will stop at user request

Firmware Version: 2.02

MCAL file name:

Sequence : ef723472-e848-43e5-a9f2-e1bcce0ed473

MID procedure: PFK16MAR24+MDT

Mid Time Windows:

	Start	Measure	End	Cycletime
# 1	11:30 min	9:30 min	21:00 min	1.00 sec
# 2	21:00 min	13:36 min	34:36 min	1.00 sec
# 3	34:36 min	4:53 min	39:30 min	0.90 sec
# 4	39:30 min	4:45 min	44:15 min	0.80 sec
# 5	44:15 min	3:45 min	48:00 min	0.80 sec
# 6	48:00 min	3:00 min	51:00 min	0.80 sec

Mid Masses:
 Window # 1

mass	F	int	gr	time (ms)
218.0129		1	1	95
218.9851	l	20	1	4
220.0100		1	1	95
230.0532		2	1	47
232.0502		2	1	47
251.9739		1	1	95
253.9710		1	1	95
264.0142		2	1	47
266.0112		2	1	47
285.9350		1	1	95
287.9320		1	1	95
292.9819	c	20	1	4
297.9752		2	1	47
299.9723		2	1	47

 Window # 2

mass	F	int	gr	time (ms)
292.9819	l	20	1	5
303.9011		1	1	118
305.8981		1	1	118
315.9413		5	1	23
317.9384		5	1	23
319.8960		1	1	118
321.8930		1	1	118

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APPROVED
By uma9 at 12:02 pm, 2/9/17

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```
331.9363      5   1        23
333.9333      5   1        23
339.8592      1   1       118
341.8562      1   1       118
354.9787  c  20   1         5
375.8364      2   1        59
Window # 3
      mass F  int  gr  time (ms)
330.9787 l   20   1         6
339.8592      1   1       133
341.8562      1   1       133
351.8994      3   1        44
353.8965      3   1        44
355.8541      1   1       133
357.8511      1   1       133
367.8943      3   1        44
369.8914      3   1        44
380.9755  c  20   1         6
409.7969      2   1        66
Window # 4
      mass F  int  gr  time (ms)
373.8201      1   1       117
375.8172      1   1       117
380.9755 l   20   1         5
383.8634      3   1        39
385.8604      3   1        39
389.8151      1   1       117
391.8121      1   1       117
401.8554      3   1        39
403.8524      3   1        39
430.9723  c  20   1         5
445.7550      2   1        58
Window # 5
      mass F  int  gr  time (ms)
404.9755 l   20   1         5
407.7812      1   1       117
409.7783      1   1       117
417.8244      3   1        39
419.8215      3   1        39
423.7761      1   1       117
425.7732      1   1       117
435.8164      3   1        39
437.8134      3   1        39
479.7160      2   1        58
480.9691  c  20   1         5
Window # 6
      mass F  int  gr  time (ms)
441.7422      1   1        95
442.9723 l   20   1         4
443.7393      1   1        95
453.7825      1   1        95
455.7795      1   1        95
457.7372      1   1        95
459.7342      1   1        95
469.7774      3   1        31
471.7745      3   1        31
492.9691  c  20   1         4
513.6770      2   1        47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.600000 minutes
MID Window end time was 34.600000 minutes

MID Window terminated after 39.500000 minutes
MID Window end time was 39.500000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	96.0000
BQUAD	0.0500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	61.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	173.0000
ENSBR	0.0500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	172.0000	EXSBR	-0.4700
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	12.3500
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0173	FVINLET	0.0302	FVSRC	0.0291
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	714.0000
LENS_SYM	14.3000	LM	1050.0000	LMII	500.0000
LMASS	96.0000	LKM	442.9723	MASS	96.0000
MDAC	1435550.5184	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2524.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-9.0000	RECURR	0.8972	RELEN	0.0000
RES	12717.7186	RPUSHER	-8.6960	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	638.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0206	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	96.0000	XLENS_POT	896.0000
XLENS_SYM	-8.5000	YLENS_POT	568.0000	YLENS_SYM	0.0000

Source Gauge:	2.0e-005	mbar
Analyzer Penning:	5.2e-008	mbar
Pirani Analyse:	1.8e-002	mbar
Pirani Source:	2.9e-002	mbar
Pirani Inlet System:	3.0e-002	mbar

Scantype is magnetic

Sourcemode is EI POS

MID Time Window 1: Resolution is 11968.
MID Time Window 2: Resolution is 12291.
MID Time Window 3: Resolution is 12369.
MID Time Window 4: Resolution is 12691.

Page 3

MID Time Window 5: Resolution is 13942.
MID Time Window 6: Resolution is 12717.

Amplifier Offset: 88.

*** File closed Wed Feb 08 03:13:13 2017
***

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APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 03:13
Number of Entries	265
Comment	S:11030:12937:15831
Vial	105
Sample Name	SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil
Sample ID	8807306
Inst ID	DF18471-17FEB07
Client	ARS International LLC
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-20.quan
Data	y:\17feb07\17feb07-20.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.05
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

APPROVED By uma9 at 12:02 pm, 2/9/17

REVIEWED By UMJS at 12:42 pm, 2/9/18

ThermoFisher Scientific 1081

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	Native vs Labeled Time Status	Status Info
1	2378-TCDF	31.00	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.01	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
3	12378-PeCDF	36.55	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.79	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.16	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
6	123478-HxCDF	41.35	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
7	123678-HxCDF	41.48	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.18	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.36	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.48	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
11	123789-HxCDD	42.79	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.18	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.87	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.05	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.61	passed	passed	passed	passed	passed	passed	
16	OCDD	49.06	passed	passed	passed	passed	passed	passed	
17	OCDF	49.25	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.40	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.25	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.24	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	30.96	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.01	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.54	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.76	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.14	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.33	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.48	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.17	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.35	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.47	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.78	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.17	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.85	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.04	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.61	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.05	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.25	passed	passed	passed	passed	passed	passed	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 03:13
Number of Entries	265
Comment	S:11030:12937:15831
Vial	105
Sample Name	SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil
Sample ID	8807306
Inst ID	DF18471-17FEB07
Client	ARS International LLC
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-20.quan
Data	y:\17feb07\17feb07-20.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.05
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/50

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Chromatogram

RT: 30.00 - 32.00   SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.00
QM Area	4373
QM Integration Mode	A
RM1 Area	3004
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0371
Unqualified Amount (A)	0.548110
Adjusted Amount (A)	0.5481
Signal-to-Noise	38
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/17

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Chromatogram

RT: 31.02 - 33.02 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.01
QM Area	73
QM Integration Mode	A
RM1 Area	137
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0164
Unqualified Amount (A)	0.024607
Adjusted Amount (A)	n.d.
Signal-to-Noise	7
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

Chromatogram

RT: 35.57 - 37.57   SM: 3G

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.55
QM Area	5060
QM Integration Mode	A
RM1 Area	7199
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0177
Unqualified Amount (A)	0.958556
Adjusted Amount (A)	0.9586
Signal-to-Noise	140
Client Flags	
Status Overview	passed
Status Info	

17FEB07-20 printed 2/9/2017 11:55
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 36.77 - 38.77 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.79
QM Area	1916
QM Integration Mode	A
RM1 Area	3083
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0157
Unqualified Amount (A)	0.362259
Adjusted Amount (A)	0.3623
Signal-to-Noise	43
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

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By UMJS at 12:42 pm, 2/9/17

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Chromatogram

RT: 37.17 - 39.17   SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.16
QM Area	428
QM Integration Mode	A
RM1 Area	784
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0379
Unqualified Amount (A)	0.159128
Adjusted Amount (A)	n.d.
Signal-to-Noise	11
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

Chromatogram

RT: 40.35 - 42.35   SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.35
QM Area	1573
QM Integration Mode	A
RM1 Area	2378
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0182
Unqualified Amount (A)	0.298740
Adjusted Amount (A)	n.d.
Signal-to-Noise	41
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

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Chromatogram

RT: 40.50 - 42.50 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.48
QM Area	1253
QM Integration Mode	A
RM1 Area	1509
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0176
Unqualified Amount (A)	0.199335
Adjusted Amount (A)	0.1993
Signal-to-Noise	35
Client Flags	
Status Overview	passed
Status Info	

17FEB07-20 printed 2/9/2017 11:55
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil / 880730
Inst ID: DF16471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 41.18 - 43.18 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.18
QM Area	1457
QM Integration Mode	A
RM1 Area	1655
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0187
Unqualified Amount (A)	0.234141
Adjusted Amount (A)	0.2341
Signal-to-Noise	30
Client Flags	
Status Overview	passed
Status Info	

17FEB07-20 printed 2/9/2017 11:55
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 41.36 - 43.36 SM: 3G

NL:
1.07E3
m/z=
391.81-
391.81 MS
17FEB07-20

NL:
1.28E3
m/z=
389.81-
389.82 MS
17FEB07-20

NL:
2.35E5
m/z=
403.85-
403.85 MS
17FEB07-20

NL:
2.97E5
m/z=
401.85-
401.86 MS
17FEB07-20

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.36
QM Area	787
QM Integration Mode	A
RM1 Area	1080
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0234
Unqualified Amount (A)	0.213373
Adjusted Amount (A)	0.2134
Signal-to-Noise	23
Client Flags	
Status Overview	passed
Status Info	

17FEB07-20 printed 2/9/2017 11:55
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil / 880730
Inst ID: DF16471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 41.48 - 43.48   SM: 3G

NL:
1.07E3
m/z=
391.81-
391.81 MS
17FEB07-20

NL:
1.28E3
m/z=
389.81-
389.82 MS
17FEB07-20

NL:
2.35E5
m/z=
403.85-
403.85 MS
17FEB07-20

NL:
2.97E5
m/z=
401.85-
401.86 MS
17FEB07-20

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.48
QM Area	1961
QM Integration Mode	A
RM1 Area	1982
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0218
Unqualified Amount (A)	0.445575
Adjusted Amount (A)	n.d.
Signal-to-Noise	54
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/17

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Chromatogram

RT: 41.79 - 43.79 SM: 3G

NL:
6.54E2
m/z=
391.81-
391.81 MS
17FEB07-20

NL:
6.63E2
m/z=
389.81-
389.82 MS
17FEB07-20

NL:
2.35E5
m/z=
403.85-
403.85 MS
17FEB07-20

NL:
2.97E5
m/z=
401.85-
401.86 MS
17FEB07-20

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.79
QM Area	1548
QM Integration Mode	A
RM1 Area	2085
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0216
Unqualified Amount (A)	0.397414
Adjusted Amount (A)	0.3974
Signal-to-Noise	48
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

APPROVED By uma9 at 12:02 pm, 2/9/17

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REVIEWED By UMJS at 12:42 pm, 2/9/17

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17FEB07-20 printed 2/9/2017 11:55
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 42.18 - 44.18   SM: 3G

NL:
4.97E2
m/z=
375.82-
375.82 MS
17FEB07-20

NL:
3.99E2
m/z=
373.82-
373.82 MS
17FEB07-20

NL:
4.20E5
m/z=
385.86-
385.86 MS
17FEB07-20

NL:
2.19E5
m/z=
383.86-
383.87 MS
17FEB07-20

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.18
QM Area	733
QM Integration Mode	A
RM1 Area	999
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0191
Unqualified Amount (A)	0.137925
Adjusted Amount (A)	0.1379
Signal-to-Noise	16
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 43.87 - 45.87 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.87
QM Area	13746
QM Integration Mode	A
RM1 Area	14147
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0285
Unqualified Amount (A)	1.945470
Adjusted Amount (A)	1.9455
Signal-to-Noise	172
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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17FEB07-20 printed 2/9/2017 11:55
Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 45.05 - 47.05 SM: 3G

NL:
1.48E4
m/z=
425.77-
425.78 MS
17FEB07-20

NL:
1.54E4
m/z=
423.77-
423.78 MS
17FEB07-20

NL:
2.46E5
m/z=
437.81-
437.82 MS
17FEB07-20

NL:
2.58E5
m/z=
435.81-
435.82 MS
17FEB07-20

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.05
QM Area	37829
QM Integration Mode	A
RM1 Area	41298
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0327
Unqualified Amount (A)	9.103848
Adjusted Amount (A)	9.1038
Signal-to-Noise	707
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.62 - 47.62   SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.61
QM Area	1009
QM Integration Mode	A
RM1 Area	1176
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0357
Unqualified Amount (A)	0.199683
Adjusted Amount (A)	0.1997
Signal-to-Noise	14
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Sample SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil / 880730
Inst ID: DF18471-17FEB07 / Client: ARS International LLC

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Chromatogram

RT: 48.06 - 50.06 SM: 3G

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.06
QM Area	327484
QM Integration Mode	A
RM1 Area	294025
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0249
Unqualified Amount (A)	81.232333
Adjusted Amount (A)	81.2323
Signal-to-Noise	8257
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 48.26 - 50.26 SM: 3G

NL:
5.56E3
m/z=
443.74-
443.74 MS
17FEB07-20

NL:
4.76E3
m/z=
441.74-
441.75 MS
17FEB07-20

NL:
6.54E5
m/z=
455.78-
455.78 MS
17FEB07-20

NL:
5.96E5
m/z=
453.78-
453.79 MS
17FEB07-20

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.25
QM Area	17179
QM Integration Mode	A
RM1 Area	15217
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0166
Unqualified Amount (A)	3.446370
Adjusted Amount (A)	3.4464
Signal-to-Noise	530
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 31.38 - 33.38 SM: 5G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.40
QM Area	189848
QM Integration Mode	A
RM1 Area	157963
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0238
Unqualified Amount (A)	35.538421
Adjusted Amount (A)	35.5384
Signal-to-Noise	3540
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	Specified RT [min]	QM Retention Time	RM1 Retention Time	Labeled RT	RM1 Time Status	Native vs Labeled Time Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	30.98	31.00	31.00	30.96	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	32.01	32.01	32.02	32.01	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.54	36.55	36.55	36.54	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.76	37.79	37.79	37.76	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.15	38.16	38.17	38.14	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.34	41.35	41.35	41.33	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.49	41.48	41.51	41.48	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.16	42.18	42.17	42.17	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.35	42.36	42.37	42.35	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.47	42.48	42.48	42.47	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.78	42.79	42.79	42.78	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.17	43.18	43.19	43.17	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.86	44.87	44.88	44.85	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	46.05	46.05	46.05	46.04	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.61	46.61	46.62	46.61	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	49.05	49.06	49.06	49.05	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	49.24	49.25	49.26	49.25	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	32.37	32.40	32.38	32.40	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.24	31.25	31.25	31.25	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	41.23	41.24	41.24	41.24	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	30.95	30.96	30.98	30.93	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.99	32.01	32.01	32.01	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	36.51	36.54	36.54	36.54	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	37.75	37.76	37.76	37.79	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	38.12	38.14	38.14	38.14	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.32	41.33	41.33	41.35	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.47	41.48	41.48	41.52	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	42.15	42.17	42.17	42.24	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.33	42.35	42.35	42.35	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.46	42.47	42.47	42.47	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.77	42.78	42.78	42.78	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	43.16	43.17	43.17	43.19	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	44.84	44.85	44.87	44.81	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	46.03	46.04	46.04	46.04	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	46.60	46.61	46.61	46.61	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	49.04	49.05	49.05	49.05	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	49.22	49.25	49.25	49.25	passed	passed

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	31.00	0.6869	0.6450 -	0.8950	passed	---	0 -	0	passed
2	2378-TCDD	32.01	1.8847	0.6450 -	0.8950	failed	---	0 -	0	passed
3	12378-PeCDF	36.55	1.4228	1.3150 -	1.7850	passed	---	0 -	0	passed
4	23478-PeCDF	37.79	1.6095	1.3150 -	1.7850	passed	---	0 -	0	passed
5	12378-PeCDD	38.16	1.8344	1.3150 -	1.7850	failed	---	0 -	0	passed
6	123478-HxCDF	41.35	1.5119	1.0450 -	1.4350	failed	---	0 -	0	passed
7	123678-HxCDF	41.48	1.2040	1.0450 -	1.4350	passed	---	0 -	0	passed
8	234678-HxCDF	42.18	1.1359	1.0450 -	1.4350	passed	---	0 -	0	passed
9	123478-HxCDD	42.36	1.3736	1.0450 -	1.4350	passed	---	0 -	0	passed
10	123678-HxCDD	42.48	1.0107	1.0450 -	1.4350	failed	---	0 -	0	passed
11	123789-HxCDD	42.79	1.3474	1.0450 -	1.4350	passed	---	0 -	0	passed
12	123789-HxCDF	43.18	1.3625	1.0450 -	1.4350	passed	---	0 -	0	passed
13	1234678-HpCDF	44.87	1.0292	0.8750 -	1.2050	passed	---	0 -	0	passed
14	1234678-HpCDD	46.05	1.0917	0.8750 -	1.2050	passed	---	0 -	0	passed
15	1234789-HpCDF	46.61	1.1658	0.8750 -	1.2050	passed	---	0 -	0	passed
16	OCDD	49.06	0.8978	0.7550 -	1.0250	passed	---	0 -	0	passed
17	OCDF	49.25	0.8858	0.7550 -	1.0250	passed	---	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.40	0.8320	0.6450 -	0.8950	passed	44.65	35 -	197	passed
19	13C12-1234-TCDD	31.25	0.7908	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.24	1.2757	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	30.96	0.7930	0.6450 -	0.8950	passed	91.35	40 -	135	passed
22	13C12-2378-TCDD	32.01	0.7981	0.6450 -	0.8950	passed	91.98	40 -	135	passed
23	13C12-12378-PeCDF	36.54	1.5688	1.3150 -	1.7850	passed	100.19	40 -	135	passed
24	13C12-23478-PeCDF	37.76	1.5771	1.3150 -	1.7850	passed	97.33	40 -	135	passed
25	13C12-12378-PeCDD	38.14	1.5940	1.3150 -	1.7850	passed	96.79	40 -	135	passed
26	13C12-123478-HxCDF	41.33	0.5220	0.4250 -	0.5950	passed	91.11	40 -	135	passed
27	13C12-123678-HxCDF	41.48	0.5345	0.4250 -	0.5950	passed	92.65	40 -	135	passed
28	13C12-234678-HxCDF	42.17	0.5317	0.4250 -	0.5950	passed	91.04	40 -	135	passed
29	13C12-123478-HxCDD	42.35	1.2464	1.0450 -	1.4350	passed	93.95	40 -	135	passed
30	13C12-123678-HxCDD	42.47	1.2595	1.0450 -	1.4350	passed	92.37	40 -	135	passed
31	13C12-123789-HxCDD	42.78	1.2316	1.0450 -	1.4350	passed	93.93	40 -	135	passed
32	13C12-123789-HxCDF	43.17	0.5323	0.4250 -	0.5950	passed	95.70	40 -	135	passed
33	13C12-1234678-HpCDF	44.85	0.4553	0.3650 -	0.5150	passed	105.29	40 -	135	passed
34	13C12-1234678-HpCDD	46.04	1.0406	0.8750 -	1.2050	passed	98.70	40 -	135	passed
35	13C12-1234789-HpCDF	46.61	0.4519	0.3650 -	0.5150	passed	91.14	40 -	135	passed
36	13C12-OCDD	49.05	0.9097	0.7550 -	1.0250	passed	99.99	40 -	135	passed
37	13C12-OCDF	49.25	0.8982	0.7550 -	1.0250	passed	91.27	40 -	135	passed

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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By UMJS at 12:42 pm, 2/9/67

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	·	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Noise	Client Flags
1	2378-TCDF	passed	31.00	4373	A	3004	A	0.0371	0.548110		0.5481	0.000000	38	
2	2378-TCDD	failed	32.01	73	A	137	A	0.0164	0.024607		n.d.	0.000000	7	
3	12378-PeCDF	passed	36.55	5060	A	7199	A	0.0177	0.958556		0.9586	0.000000	140	
4	23478-PeCDF	passed	37.79	1916	A	3083	A	0.0157	0.362259		0.3623	0.000000	43	
5	12378-PeCDD	failed	38.16	428	A	784	A	0.0379	0.159128		n.d.	0.000000	11	
6	123478-HxCDF	failed	41.35	1573	A	2378	A	0.0182	0.298740		n.d.	0.000000	41	
7	123678-HxCDF	passed	41.48	1253	A	1509	A	0.0176	0.199335		0.1993	0.000000	35	
8	234678-HxCDF	passed	42.18	1457	A	1655	A	0.0187	0.234141		0.2341	0.000000	30	
9	123478-HxCDD	passed	42.38	787	A	1080	A	0.0234	0.213373		0.2134	0.000000	23	
10	123678-HxCDD	failed	42.48	1961	A	1982	A	0.0218	0.445575		n.d.	0.000000	54	
11	123789-HxCDD	passed	42.79	1548	A	2085	A	0.0216	0.397414		0.3974	0.000000	48	
12	123789-HxCDF	passed	43.18	733	A	999	A	0.0191	0.137925		0.1379	0.000000	16	
13	1234678-HpCDF	passed	44.87	13746	A	14147	A	0.0285	1.945470		1.9455	0.000000	172	
14	1234678-HpCDD	passed	46.05	37829	A	41298	A	0.0327	9.103848		9.1038	0.000000	707	
15	1234789-HpCDF	passed	46.61	1009	A	1176	A	0.0357	0.199683		0.1997	0.000000	14	
16	OCDD	passed	49.06	327484	A	294025	A	0.0249	81.232333		81.2323	0.000000	8257	
17	OCDF	passed	49.25	17179	A	15217	A	0.0166	3.446370		3.4464	0.000000	530	
18	13C12-1278-TCDD (CRS)	passed	32.40	189848	A	157963	A	0.0238	35.538421		35.5384	79.601990	3540	
19	13C12-1234-TCDD	passed	31.25	846894	A	669752	A	0.0304	199.004975		199.0050	199.004975	16392	
20	13C12-123468-HxCDD	passed	41.24	840577	A	1072330	A	0.0470	199.004975		199.0050	199.004975	10594	
21	13C12-2378-TCDF	passed	30.96	1443369	A	1144608	A	0.0220	181.781634		181.7816	199.004975	19740	
22	13C12-2378-TCDD	passed	32.01	764174	A	609906	A	0.0308	183.047439		183.0474	199.004975	15496	
23	13C12-12378-PeCDF	passed	36.54	1021618	A	1602686	A	0.0551	199.382270		199.3823	199.004975	11316	
24	13C12-23478-PeCDF	passed	37.76	987970	A	1558100	A	0.0551	193.683569		193.6836	199.004975	11490	
25	13C12-12378-PeCDD	passed	38.14	551676	A	879367	A	0.0362	192.611547		192.6115	199.004975	17456	
26	13C12-123478-HxCDF	passed	41.33	1471675	A	768176	A	0.0414	181.316107		181.3161	199.004975	11000	
27	13C12-123678-HxCDF	passed	41.48	1561508	A	834666	A	0.0393	184.374722		184.3747	199.004975	11584	
28	13C12-234678-HxCDF	passed	42.17	1426292	A	758305	A	0.0424	181.177525		181.1775	199.004975	10361	
29	13C12-123478-HxCDD	passed	42.35	756940	A	943418	A	0.0496	186.974126		186.9741	199.004975	9344	
30	13C12-123678-HxCDD	passed	42.47	763272	A	961314	A	0.0481	183.813113		183.8131	199.004975	10046	
31	13C12-123789-HxCDD	passed	42.78	752146	A	926315	A	0.0503	186.925628		186.9256	199.004975	9557	
32	13C12-123789-HxCDF	passed	43.17	1414626	A	752975	A	0.0449	190.451426		190.4514	199.004975	10673	
33	13C12-1234678-HpCDF	passed	44.85	1529232	A	696249	A	0.0624	209.528410		209.5284	199.004975	8642	
34	13C12-1234678-HpCDD	passed	46.04	800443	A	832933	A	0.0592	196.423692		196.4237	199.004975	8736	
35	13C12-1234789-HpCDF	passed	46.61	1133165	A	512089	A	0.0730	181.381689		181.3817	199.004975	6674	
36	13C12-OCDD	passed	49.05	1561215	A	1420237	A	0.0357	397.950619		397.9506	398.009950	30985	
37	13C12-OCDF	passed	49.25	2112681	A	1897628	A	0.0396	363.273043		363.2730	398.009950	24409	

File Name: Y:\17FEB07\17FEB07-20
Sample ID: 8807306

Acq. Data: 2/8/2017 3:13:19 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17FEB07

RT: 22.50 - 51.00

Panel 1 NL: 3.86E5 m/z= 291.9825-292.9825 MS 17FEB07-20

Peaks: 667 / 22.83, 882 / 26.50, 897 / 26.76, 1075 / 29.80, 1123 / 30.62, 1223 / 32.33, 1325 / 34.07

Panel 2 NL: 5.03E5 m/z= 330.4792-331.4792 MS 17FEB07-20

Peaks: 1359 / 34.74, 1469 / 36.43, 1524 / 37.28, 1592 / 38.33, 1664 / 39.44

Panel 3 NL: 3.15E5 m/z= 380.4760-381.4760 MS 17FEB07-20

Peaks: 1364 / 34.81, 1480 / 36.60, 1668 / 39.50, 1696 / 39.96, 1794 / 41.28, 1964 / 43.57, 2007 / 44.15

Panel 4 NL: 8.39E4 m/z= 404.4760-405.4760 MS 17FEB07-20

Peaks: 2022 / 44.44, 2036 / 44.63, 2263 / 47.77

Panel 5 NL: 1.11E5 m/z= 442.4728-443.4728 MS 17FEB07-20

Peaks: 2319 / 48.61, 2389 / 49.54

Relative Abundance

Time (min)

APPROVED
By umap at 12:02 pm, 2/9/17

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REVIEWED
By UMJS at 12:42 pm, 2/9/1103

File Name: Y:\17FEB07\17FEB07-20
Sample ID: 8807306

Acq. Data: 2/8/2017 3:13:19 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 20.40 - 34.90

File Name: Y:\17FEB07\17FEB07-20
Sample ID: 8807306

Acq. Data: 2/8/2017 3:13:19 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 34.50 - 39.80

APPROVED
By umas at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

File Name: Y:\17FEB07\17FEB07-20
Sample ID: 8807306

Acq. Data: 2/8/2017 3:13:19 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 39.20 - 44.50

HxCDF Quan Mass

NL: 1.95E3
m/z= 375.3178-376.3178
MS ICIS 17FEB07-20

RT: 40.07 AA: 7097
RT: 39.85 AA: 1754
RT: 40.77 AA: 3330
RT: 41.48 AA: 1260
RT: 42.18 AA: 1457
RT: 43.18 AA: 734
RT: 39.78 AA: 88.82
RT: 40.54 AA: 193
RT: 42.02 AA: 279
RT: 42.49 AA: 58.94
RT: 44.06 AA: 126

HxCDF Ratio Mass

NL: 2.20E3
m/z= 373.3208-374.3208
MS ICIS 17FEB07-20

RT: 40.07 AA: 8004
RT: 40.77 AA: 4642
RT: 39.87 AA: 2415
RT: 41.35 AA: 2389
RT: 41.58 AA: 182
RT: 42.17 AA: 1661
RT: 43.19 AA: 999
RT: 39.76 AA: 114
RT: 40.55 AA: 268
RT: 41.24 AA: 896
RT: 42.47 AA: 118
RT: 44.04 AA: 307

HxCDF 13C12 Quan Mass

NL: 4.62E5
m/z= 385.3610-386.3610
MS ICIS 17FEB07-20

RT: 41.48 AA: 1561990
RT: 42.17 AA: 1427088
RT: 43.17 AA: 1412860
RT: 42.78 AA: 621
RT: 39.61 AA: 77.91
RT: 40.05 AA: 3788
RT: 40.77 AA: 17.37
RT: 41.66 AA: 6210
RT: 42.24 AA: 5073
RT: 43.42 AA: 1351
RT: 44.26 AA: 1703

OCDPE Trace

NL: 7.90E1
m/z= 445.2555-446.2555
MS ICIS 17FEB07-20

RT: 43.54 AA: 110
RT: 42.90 AA: 59.85
RT: 43.73 AA: 16.96
RT: 39.61 AA: 119
RT: 40.39 AA: 3.24
RT: 41.02 AA: 10.51
RT: 41.68 AA: 3.23
RT: 43.13 AA: 4.04
RT: 44.26 AA: 21.96

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

Time (min)

39.5   40.0   40.5   41.0   41.5   42.0   42.5   43.0   43.5   44.0   44.5

RT: 44.10 - 48.20

File Name: Y:\17FEB07\17FEB07-20
Sample ID: 8807306

Acq. Data: 2/8/2017 3:13:19 AM
Sample Name: SW-846 8290A Feb 2007 Rev 1 17031003 BB18 ARS1-17-00216-002 Soil
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 47.90 - 51.20

```
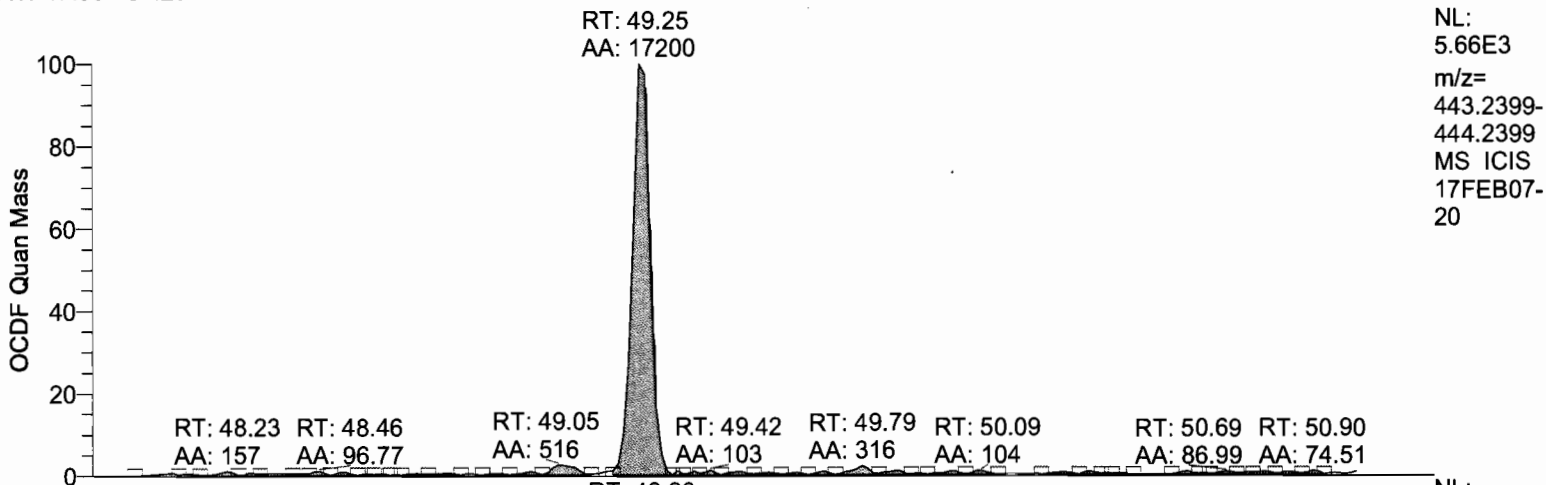*** file opened Wed Feb 08 03:18:46 2017 ***

Started by              - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

  Analysis started at: 08-Feb-17 03:18:45


  Analysis will stop at user request


  Firmware Version: 2.02


  MCAL file name:


  Sequence : ef723472-e848-43e5-a9f2-e1bcce0ed473


  MID procedure: PFK16MAR24+MDT



Mid Time Windows:
        Start       Measure      End        Cycletime

# 1  11:30 min   9:30 min  21:00 min   1.00 sec
# 2  21:00 min  13:36 min  34:36 min   1.00 sec
# 3  34:36 min   4:53 min  39:30 min   0.90 sec
# 4  39:30 min   4:45 min  44:15 min   0.80 sec
# 5  44:15 min   3:45 min  48:00 min   0.80 sec
# 6  48:00 min   3:00 min  51:00 min   0.80 sec

Mid Masses:
 Window # 1
      mass F  int  gr  time (ms)
   218.0129     1   1       95
   218.9851 l  20   1        4
   220.0100     1   1       95
   230.0532     2   1       47
   232.0502     2   1       47
   251.9739     1   1       95
   253.9710     1   1       95
   264.0142     2   1       47
   266.0112     2   1       47
   285.9350     1   1       95
   287.9320     1   1       95
   292.9819 c  20   1        4
   297.9752     2   1       47
   299.9723     2   1       47
 Window # 2
      mass F  int  gr  time (ms)
   292.9819 l  20   1        5
   303.9011     1   1      118
   305.8981     1   1      118
   315.9413     5   1       23
   317.9384     5   1       23
   319.8960     1   1      118
   321.8930     1   1      118
```
Page 1

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```
331.9363      5   1          23
333.9333      5   1          23
339.8592      1   1         118
341.8562      1   1         118
354.9787  c  20   1           5
375.8364      2   1          59
Window # 3
    mass F   int  gr    time (ms)
330.9787  l  20   1           6
339.8592      1   1         133
341.8562      1   1         133
351.8994      3   1          44
353.8965      3   1          44
355.8541      1   1         133
357.8511      1   1         133
367.8943      3   1          44
369.8914      3   1          44
380.9755  c  20   1           6
409.7969      2   1          66
Window # 4
    mass F   int  gr    time (ms)
373.8201      1   1         117
375.8172      1   1         117
380.9755  l  20   1           5
383.8634      3   1          39
385.8604      3   1          39
389.8151      1   1         117
391.8121      1   1         117
401.8554      3   1          39
403.8524      3   1          39
430.9723  c  20   1           5
445.7550      2   1          58
Window # 5
    mass F   int  gr    time (ms)
404.9755  l  20   1           5
407.7812      1   1         117
409.7783      1   1         117
417.8244      3   1          39
419.8215      3   1          39
423.7761      1   1         117
425.7732      1   1         117
435.8164      3   1          39
437.8134      3   1          39
479.7160      2   1          58
480.9691  c  20   1           5
Window # 6
    mass F   int  gr    time (ms)
441.7422      1   1          95
442.9723  l  20   1           4
443.7393      1   1          95
453.7825      1   1          95
455.7795      1   1          95
457.7372      1   1          95
459.7342      1   1          95
469.7774      3   1          31
471.7745      3   1          31
492.9691  c  20   1           4
513.6770      2   1          47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.600000 minutes
MID Window end time was 34.600000 minutes

Page 2

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MID Window terminated after 39.500000 minutes
MID Window end time was 39.500000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	95.5000
BQUAD	0.0500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	61.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	173.0000
ENSBR	0.0500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	172.0000	EXSBR	-0.4700
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	12.3500
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0175	FVINLET	0.0306	FVSRC	0.0289
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	714.0000
LENS_SYM	14.3000	LM	1050.0000	LMII	500.0000
LMASS	95.5000	LKM	442.9723	MASS	95.5000
MDAC	1429287.2593	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2524.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-9.0000	RECURR	0.8977	RELEN	0.0000
RES	12476.3116	RPUSHER	-8.6667	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	638.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0206	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	95.5000	XLENS_POT	896.0000
XLENS_SYM	-8.5000	YLENS_POT	568.0000	YLENS_SYM	0.0000

Source Gauge: 1.9e-005 mbar
Analyzer Penning: 5.1e-008 mbar
Pirani Analyse: 1.7e-002 mbar
Pirani Source: 2.9e-002 mbar
Pirani Inlet System: 3.0e-002 mbar

Scantype is magnetic

Sourcemode is EI POS

MID Time Window 1: Resolution is 12110.
MID Time Window 2: Resolution is 12335.
MID Time Window 3: Resolution is 12382.
MID Time Window 4: Resolution is 12632.

Page 3

MID Time Window 5: Resolution is 12403.
MID Time Window 6: Resolution is 12476.

Amplifier Offset: 87.

*** File closed Wed Feb 08 04:09:48 2017
   ***

Standards Data

Dioxins/Furans by HRMS

ॐ **eurofins** | Lancaster
Laboratories

Quantitation Settings

Data File Parameter

Acq. Data	2017/01/31 21:06
Number of Entries	26
Comment	
Vial	2
Sample Name	TDTFWD ST1701737A
Sample ID	CPS01
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-02.quan
Data	y:\17jan31\17jan31-02.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	No Summation
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	1.0
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

✸ eurofins | Lancaster
Laboratories

Chromatogram

RT: 31.21 - 33.21 SM: 3G

NL:
8.41E4
m/z=
321.88-
321.91 MS
17JAN31-02

NL:
6.68E4
m/z=
319.88-
319.91 MS
17JAN31-02

NL:
3.47E4
m/z=
333.93-
333.94 MS
17JAN31-02

Entry Parameters

Smoothing Points	3
Compound Name	2378-TCDD
Quan. Mass	321.8936 +/- 50 ppm
QM Integration Mode	A
Ratio Mass 1	319.8965 +/- 50 ppm
RM1 Integration Mode	A
ManInt	0
RM1 Retention Time	32.20
RM1 Left Baseline Height	360.97
RM1 Left Height	6483
RM1 Height	63563
GC Res (%) left	10.821187

File Name: Y:\17JAN31\17JAN31-02
Sample ID: CPS01

Acq. Data: 1/31/2017 9:06:30 PM
Sample Name: TDTFWD ST1701737A
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17JAN31

RT: 22.50 - 51.00

*** file opened Tue Jan 31 21:09:24 2017 ***

Started by   - Xcalibur
Instrument Internet name - DFS MS
Instrument model   - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

  Analysis started at: 31-Jan-17 21:09:24

  Analysis will stop at user request

  Firmware Version: 2.02

  MCAL file name:

  Sequence : 62d69d10-234f-46c5-bc8a-53bf0dc2f3b7

  MID procedure: PFK16MAR24+MDT

Mid Time Windows:
        Start   Measure   End   Cycletime

1   11:30 min   9:30 min   21:00 min   1.00 sec
2   21:00 min   13:44 min   34:44 min   1.00 sec
3   34:44 min   5:03 min   39:47 min   0.90 sec
4   39:47 min   4:27 min   44:15 min   0.80 sec
5   44:15 min   3:45 min   48:00 min   0.80 sec
6   48:00 min   3:00 min   51:00 min   0.80 sec

Mid Masses:
 Window # 1
      mass F int gr time (ms)
  218.0129   1   1   95
  218.9851 1 20   1   4
  220.0100   1   1   95
  230.0532   2   1   47
  232.0502   2   1   47
  251.9739   1   1   95
  253.9710   1   1   95
  264.0142   2   1   47
  266.0112   2   1   47
  285.9350   1   1   95
  287.9320   1   1   95
  292.9819 c 20   1   4
  297.9752   2   1   47
  299.9723   2   1   47
 Window # 2
      mass F int gr time (ms)
  292.9819 1 20   1   5
  303.9011   1   1   118
  305.8981   1   1   118
  315.9413   5   1   23
  317.9384   5   1   23
  319.8960   1   1   118
  321.8930   1   1   118

Page 1

```
331.9363      5  1       23
333.9333      5  1       23
339.8592      1  1      118
341.8562      1  1      118
354.9787 c   20  1        5
375.8364      2  1       59
Window # 3
   mass F   int  gr   time (ms)
330.9787 l   20  1        6
339.8592      1  1      133
341.8562      1  1      133
351.8994      3  1       44
353.8965      3  1       44
355.8541      1  1      133
357.8511      1  1      133
367.8943      3  1       44
369.8914      3  1       44
380.9755 c   20  1        6
409.7969      2  1       66
Window # 4
   mass F   int  gr   time (ms)
373.8201      1  1      117
375.8172      1  1      117
380.9755 l   20  1        5
383.8634      3  1       39
385.8604      3  1       39
389.8151      1  1      117
391.8121      1  1      117
401.8554      3  1       39
403.8524      3  1       39
430.9723 c   20  1        5
445.7550      2  1       58
Window # 5
   mass F   int  gr   time (ms)
404.9755 l   20  1        5
407.7812      1  1      117
409.7783      1  1      117
417.8244      3  1       39
419.8215      3  1       39
423.7761      1  1      117
425.7732      1  1      117
435.8164      3  1       39
437.8134      3  1       39
479.7160      2  1       58
480.9691 c   20  1        5
Window # 6
   mass F   int  gr   time (ms)
441.7422      1  1       95
442.9723 l   20  1        4
443.7393      1  1       95
453.7825      1  1       95
455.7795      1  1       95
457.7372      1  1       95
459.7342      1  1       95
469.7774      3  1       31
471.7745      3  1       31
492.9691 c   20  1        4
513.6770      2  1       47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.750000 minutes
MID Window end time was 34.740000 minutes
                              Page 2

MID Window terminated after 39.800000 minutes
MID Window end time was 39.800000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	99.0000
BQUAD	0.4500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	156.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	175.0000
ENSBR	0.4500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	171.0000	EXSBR	-0.5300
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	13.9000
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0153	FVINLET	0.0275	FVSRC	0.0273
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	718.0000
LENS_SYM	12.7500	LM	1050.0000	LMII	500.0000
LMASS	99.0000	LKM	442.9723	MASS	99.0000
MDAC	1472957.1872	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2520.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-15.0000	RECURR	0.8972	RELEN	0.0000
RES	14475.0295	RPUSHER	-14.5568	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	664.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0180	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	99.0000	XLENS_POT	880.0000
XLENS_SYM	-2.5000	YLENS_POT	602.0000	YLENS_SYM	-7.7500

Source Gauge: 2.0e-005 mbar
Analyzer Penning: 5.2e-008 mbar
Pirani Analyse: 1.5e-002 mbar
Pirani Source: 2.7e-002 mbar
Pirani Inlet System: 2.8e-002 mbar

Scantype is magnetic

Sourcemode is EI POS

MID Time Window 1: Resolution is 11312.
MID Time Window 2: Resolution is 10930.
MID Time Window 3: Resolution is 10949.
MID Time Window 4: Resolution is 11416.

MID Time Window 5: Resolution is 14928.
MID Time Window 6: Resolution is 14475.

Amplifier Offset: 88.

*** File closed Tue Jan 31 22:00:26 2017
***

Compound Name	RF Area 17JAN31-04	RF Area 17JAN31-08	RF Area 17JAN31-09	RF Area 17JAN31-10	RF Area 17JAN31-11	RF Area 17JAN31-12	Average	Std Dev	% RSD
2378-TCDF	1.2686	0.9433	0.9848	0.9924	1.0207	0.9997	1.0349	0.1173	11.33
2378-TCDD	1.0962	1.2788	1.3223	1.2553	1.2343	1.2160	1.2338	0.0769	6.23
12378-PeCDF	1.0106	0.9945	0.9482	0.9591	0.9792	0.9275	0.9698	0.0308	3.17
23478-PeCDF	1.1087	1.0468	1.0986	1.0954	1.0889	1.0331	1.0786	0.0309	2.86
12378-PeCDD	1.1183	1.0488	1.0397	1.0442	1.0714	1.0325	1.0591	0.0318	3.01
123478-HxCDF	1.1736	1.1331	1.1791	1.1873	1.2283	1.1485	1.1750	0.0331	2.81
123678-HxCDF	1.2265	1.1404	1.1493	1.1337	1.1607	1.0931	1.1506	0.0437	3.80
234678-HxCDF	1.1669	1.2558	1.2053	1.2228	1.2464	1.1666	1.2106	0.0383	3.17
123478-HxCDD	0.9591	1.0483	1.0256	1.0668	1.0438	1.0008	1.0241	0.0389	3.80
123678-HxCDD	1.0928	1.0260	0.9950	1.0013	1.0427	0.9689	1.0211	0.0434	4.26
123789-HxCDD	1.1461	1.0126	1.1021	1.0877	1.1062	1.0483	1.0838	0.0470	4.34
123789-HxCDF	1.2413	1.1415	1.1427	1.1200	1.1733	1.1009	1.1533	0.0495	4.29
1234678-HpCDF	1.2168	1.3035	1.2921	1.2918	1.3521	1.2360	1.2820	0.0489	3.81
1234678-HpCDD	1.0440	1.1163	1.0542	1.0544	1.0722	1.0126	1.0590	0.0343	3.24
1234789-HpCDF	1.3579	1.2741	1.3659	1.3523	1.3290	1.2596	1.3231	0.0455	3.44
OCDD	1.0176	1.0140	1.0401	1.0261	1.0409	0.9897	1.0214	0.0191	1.87
OCDF	0.9608	0.9388	0.9247	0.9212	0.9546	0.8974	0.9329	0.0235	2.51
13C12-1234-TCDD	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00
13C12-123468-HxCDD	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00
13C12-2378-TCDF	1.8541	1.8101	1.9086	1.8668	1.8420	1.9267	1.8681	0.0432	2.31
13C12-2378-TCDD	0.9704	0.9560	1.0019	0.9632	1.0025	1.0158	0.9850	0.0248	2.52
13C12-12378-PeCDF	1.6871	1.5955	1.7237	1.7639	1.7816	1.8104	1.7271	0.0777	4.50
13C12-23478-PeCDF	1.6480	1.5851	1.7045	1.7527	1.8100	1.8489	1.7249	0.0992	5.75
13C12-12378-PeCDD	0.9507	0.8892	0.9564	1.0105	1.0148	1.0277	0.9749	0.0528	5.41
13C12-123478-HxCDF	1.2640	1.2621	1.2746	1.2660	1.2649	1.3792	1.2851	0.0463	3.60
13C12-123678-HxCDF	1.3088	1.3040	1.3335	1.3454	1.3228	1.4978	1.3520	0.0730	5.40
13C12-234678-HxCDF	1.2151	1.2141	1.2388	1.2346	1.2565	1.3674	1.2544	0.0576	4.59
13C12-123478-HxCDD	0.9156	0.8988	0.9488	0.9098	0.9529	1.0505	0.9461	0.0556	5.87
13C12-123678-HxCDD	0.9403	0.9241	0.9391	0.9714	0.9831	1.0985	0.9761	0.0639	6.55
13C12-123789-HxCDD	0.9220	0.8855	0.9206	0.9280	0.9250	1.0237	0.9341	0.0466	4.98
13C12-123789-HxCDF	1.1650	1.1227	1.1561	1.1655	1.1876	1.3074	1.1840	0.0640	5.40
13C12-1234678-HpCDF	1.0796	1.0362	1.0747	1.1136	1.1105	1.2151	1.1050	0.0609	5.51
13C12-1234678-HpCDD	0.8364	0.7934	0.8284	0.8738	0.9009	0.9577	0.8651	0.0587	6.79
13C12-1234789-HpCDF	0.9172	0.8507	0.8909	0.9394	1.0009	1.0628	0.9436	0.0769	8.15
13C12-OCDD	0.7725	0.6911	0.7384	0.7853	0.8083	0.8808	0.7794	0.0643	8.25
13C12-OCDF	1.1442	0.9964	1.0705	1.1522	1.2110	1.3164	1.1485	0.1108	9.65
Total TCDF	1.2686	0.9433	0.9848	0.9924	1.0207	0.9997	1.0349	0.1173	11.33
Total TCDD	1.0962	1.2788	1.3223	1.2553	1.2343	1.2160	1.2338	0.0769	6.23
Total PeCDD	1.1183	1.0488	1.0397	1.0442	1.0714	1.0325	1.0591	0.0319	3.01
Total PeCDF	1.0590	1.0206	1.0230	1.0270	1.0345	0.9808	1.0242	0.0254	2.48
Total HpCDD	1.0440	1.1163	1.0542	1.0544	1.0722	1.0126	1.0590	0.0343	3.24
Total HxCDF	1.2019	1.1673	1.1692	1.1660	1.2021	1.1268	1.1722	0.0280	2.38
Total HxCDD	1.0664	1.0290	1.0404	1.0510	1.0636	1.0051	1.0426	0.0231	2.22
Total HpCDF	1.2816	1.2902	1.3256	1.3195	1.3411	1.2470	1.3008	0.0345	2.65
13C12-1278-TCDD (CRS)	---	1.3707	1.3004	1.2467	1.2296	1.2735	1.2842	0.0553	4.31

The table header above: **DF18471-17JAN31DFICAL**

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Quantitation Settings

Data File Parameter

Acq. Data	2017/01/31 22:57
Number of Entries	63
Comment	
Vial	3
Sample Name	CALDF11737B
Sample ID	CSL01
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-04.quan
Data	y:\17jan31\17jan31-04.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	RRT Status	Status Info
1	2378-TCDF	31.17	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.19	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.68	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.88	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.26	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.44	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.60	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.27	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.46	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.57	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.88	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.27	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.96	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.15	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.70	passed	passed	passed	passed	passed	passed	
16	OCDD	49.14	passed	passed	passed	passed	passed	passed	
17	OCDF	49.34	passed	passed	passed	passed	passed	passed	
18	13C12-1234-TCDD	31.41	passed	passed	passed	passed	passed	passed	
19	13C12-123468-HxCDD	41.34	passed	passed	passed	passed	passed	passed	
20	13C12-2378-TCDF	31.13	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDD	32.16	passed	passed	passed	passed	passed	passed	
22	13C12-12378-PeCDF	36.65	passed	passed	passed	passed	passed	passed	
23	13C12-23478-PeCDF	37.86	passed	passed	passed	passed	passed	passed	
24	13C12-12378-PeCDD	38.25	passed	passed	passed	passed	passed	passed	
25	13C12-123478-HxCDF	41.44	passed	passed	passed	passed	passed	passed	
26	13C12-123678-HxCDF	41.59	passed	passed	passed	passed	passed	passed	
27	13C12-234678-HxCDF	42.26	passed	passed	passed	passed	passed	passed	
28	13C12-123478-HxCDD	42.45	passed	passed	passed	passed	passed	passed	
29	13C12-123678-HxCDD	42.56	passed	passed	passed	passed	passed	passed	
30	13C12-123789-HxCDD	42.87	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDF	43.26	passed	passed	passed	passed	passed	passed	
32	13C12-1234678-HpCDF	44.94	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDD	46.13	passed	passed	passed	passed	passed	passed	
34	13C12-1234789-HpCDF	46.70	passed	passed	passed	passed	passed	passed	
35	13C12-OCDD	49.12	passed	passed	passed	passed	passed	passed	
36	13C12-OCDF	49.32	passed	passed	passed	passed	passed	passed	
37	Total TCDF	29.84	passed (1)	---	---	---	---	—	
38	Total TCDD	30.61	passed (1)	---	---	---	---	—	
39	Total PeCDF	36.97	passed (2)	---	---	---	---	—	
40	Total PeCDD	37.05	passed (1)	---	---	---	---	—	
41	Total HxCDF	41.91	passed (4)	---	---	---	---	—	
42	Total HxCDD	42.65	passed (3)	---	---	---	---	—	
43	Total HpCDD	45.68	passed (1)	---	---	---	---	—	
44	Total HpCDF	45.90	passed (2)	---	---	---	---	—	
45	Single TCDF	31.17	passed	passed	passed	passed	passed	passed	
46	Single TCDD	32.19	passed	passed	passed	passed	passed	passed	
47	Single PeCDD	38.26	passed	passed	passed	passed	passed	passed	
48	Single PeCDF	37.88	passed	passed	passed	passed	passed	passed	
49	Single PeCDF	36.68	passed	passed	passed	passed	passed	passed	
50	Single HpCDD	46.15	passed	passed	passed	passed	passed	passed	
51	Single HxCDF	41.60	passed	passed	passed	passed	passed	passed	
52	Single HxCDF	41.44	passed	passed	passed	passed	passed	passed	
53	Single HxCDF	42.27	passed	passed	passed	passed	passed	passed	
54	Single HxCDF	43.27	passed	passed	passed	passed	passed	passed	
55	Single HxCDD	42.57	passed	passed	passed	passed	passed	passed	
56	Single HxCDD	42.46	passed	passed	passed	passed	passed	passed	
57	Single HxCDD	42.88	passed	passed	passed	passed	passed	passed	
58	Single HpCDF	44.96	passed	passed	passed	passed	passed	passed	
59	Single HpCDF	46.70	passed	passed	passed	passed	passed	passed	

TargetQual 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

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Quantitation Settings

Data File Parameter

Acq. Data	2017/01/31 22:57
Number of Entries	63
Comment	
Vial	3
Sample Name	CALDF11737B
Sample ID	CSL01
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-04.quan
Data	y:\17jan31\17jan31-04.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

Chromatogram

RT: 30.17 - 32.17 SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.17
QM Area	2214
QM Integration Mode	M
RM1 Area	1431
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0022
Unqualified Amount (A)	0.100000
Adjusted Amount (A)	0.1000
Signal-to-Noise	139
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.19 - 33.19 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.19
QM Area	984
QM Integration Mode	A
RM1 Area	664
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0030
Unqualified Amount (A)	0.100000
Adjusted Amount (A)	0.1000
Signal-to-Noise	80
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3 **APPROVED** AIL01 Page 173 of 560 ThermoFisher
By ujd2 at 10:16 am, 2/1/17   **REVIEWED** 695 of 1081
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Chromatogram

RT: 35.68 - 37.68   SM: 3G

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.68
QM Area	5060
QM Integration Mode	A
RM1 Area	8150
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0024
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	532
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3   **APPROVED**   AIL01 Page 174 of 560   **REVIEWED**   ThermoFisher
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Chromatogram

RT: 36.88 - 38.88 SM: 3G

NL:
1.24E3
m/z=
341.85-
341.86 MS
17JAN31-04

NL:
2.49E3
m/z=
339.86-
339.86 MS
17JAN31-04

NL:
2.57E5
m/z=
353.90-
353.90 MS
17JAN31-04

NL:
3.97E5
m/z=
351.90-
351.90 MS
17JAN31-04

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.88
QM Area	5380
QM Integration Mode	A
RM1 Area	8776
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0022
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	585
Client Flags	
Status Overview	passed
Status Info	

TargetQuan

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Chromatogram

RT: 37.26 - 39.26 SM: 3G

NL:
7.24E2
m/z=
357.85-
357.85 MS
17JAN31-04

NL:
1.37E3
m/z=
355.85-
355.86 MS
17JAN31-04

NL:
1.49E5
m/z=
369.89-
369.89 MS
17JAN31-04

NL:
2.32E5
m/z=
367.89-
367.90 MS
17JAN31-04

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.26
QM Area	2959
QM Integration Mode	A .
RM1 Area	5278
RM1 Integration Mode	M
ManInt	1
Detection Limit (A)	0.0063
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	193
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 40.44 - 42.44 SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.44
QM Area	5444
QM Integration Mode	A
RM1 Area	7288
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0037
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	343
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.60 - 42.60 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.60
QM Area	6125
QM Integration Mode	A
RM1 Area	7653
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0034
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	378
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.27 - 43.27 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.27
QM Area	5275
QM Integration Mode	A
RM1 Area	6895
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0037
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	347
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 41.46 - 43.46 SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.46
QM Area	3610
QM Integration Mode	A
RM1 Area	3927
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0079
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	156
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.57 - 43.57 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.57
QM Area	4271
QM Integration Mode	A
RM1 Area	4548
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0068
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	184
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3

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Chromatogram

RT: 41.88 - 43.88 SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.88
QM Area	4091
QM Integration Mode	A
RM1 Area	4978
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0068
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	200
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 42.27 - 44.27   SM: 3G

NL:
1.62E3
m/z=
375.82-
375.82 MS
17JAN31-04

NL:
2.12E3
m/z=
373.82-
373.82 MS
17JAN31-04

NL:
3.77E5
m/z=
385.86-
385.86 MS
17JAN31-04

NL:
2.03E5
m/z=
383.86-
383.87 MS
17JAN31-04

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.27
QM Area	5122
QM Integration Mode	A
RM1 Area	7290
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0037
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	328
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 43.96 - 45.96 SM: 3G

NL:
1.86E3
m/z=
409.78-
409.78 MS
17JAN31-04

NL:
1.71E3
m/z=
407.78-
407.78 MS
17JAN31-04

NL:
3.98E5
m/z=
419.82-
419.82 MS
17JAN31-04

NL:
1.83E5
m/z=
417.82-
417.83 MS
17JAN31-04

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.96
QM Area	5496
QM Integration Mode	A
RM1 Area	5779
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0023
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	538
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.15 - 47.15 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.15
QM Area	3913
QM Integration Mode	A
RM1 Area	3581
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0045
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	289
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.70 - 47.70 SM: 3G

NL:
1.82E3
m/z=
409.78-
409.78 MS
17JAN31-04

NL:
1.40E3
m/z=
407.78-
407.78 MS
17JAN31-04

NL:
3.29E5
m/z=
419.82-
419.82 MS
17JAN31-04

NL:
1.49E5
m/z=
417.82-
417.83 MS
17JAN31-04

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.70
QM Area	5603
QM Integration Mode	A
RM1 Area	5087
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0025
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	483
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.14 - 50.14 SM: 3G

NL:
2.40E3
m/z=
459.73-
459.74 MS
17JAN31-04

NL:
2.08E3
m/z=
457.74-
457.74 MS
17JAN31-04

NL:
4.31E5
m/z=
471.77-
471.78 MS
17JAN31-04

NL:
3.84E5
m/z=
469.76-
469.78 MS
17JAN31-04

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.14
QM Area	7308
QM Integration Mode	A
RM1 Area	6187
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0047
Unqualified Amount (A)	1.000000
Adjusted Amount (A)	1.0000
Signal-to-Noise	567
Client Flags	
Status Overview	passed
Status Info	

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By ujd2 at 10:16 am, 2/1/17

REVIEWED ThermoFisher
By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 48.34 - 50.34 SM: 3G

NL:
3.32E3
m/z=
443.74-
443.74 MS
17JAN31-04

NL:
3.02E3
m/z=
441.74-
441.75 MS
17JAN31-04

NL:
6.40E5
m/z=
455.78-
455.78 MS
17JAN31-04

NL:
5.93E5
m/z=
453.78-
453.79 MS
17JAN31-04

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.34
QM Area	9738
QM Integration Mode	A
RM1 Area	9133
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0051
Unqualified Amount (A)	1.000000
Adjusted Amount (A)	1.0000
Signal-to-Noise	523
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3 **APPROVED**
By ujd2 at 10:16 am, 2/1/17

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By UMJS at 10:13 am, 2/2/17

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Quantitation Settings

Data File Parameter

Acq. Data	2017/01/31 22:57
Number of Entries	63
Comment	
Vial	3
Sample Name	CALDF11737B
Sample ID	CSL01
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-04.quan
Data	y:\17jan31\17jan31-04.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 25.66 - 34.02 SM: 3G

Entry Parameters

Compound Name	Total TCDF
QM Retention Time	29.84
QM Area	2214
QM Integration Mode	M
RM1 Area	1431
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0022
Unqualified Amount (A)	0.100000
Adjusted Amount (A)	0.1000
Signal-to-Noise	139
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 27.53 - 33.69 SM: 3G

Entry Parameters

Compound Name	Total TCDD
QM Retention Time	30.61
QM Area	984
QM Integration Mode	A
RM1 Area	664
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0030
Unqualified Amount (A)	0.100000
Adjusted Amount (A)	0.1000
Signal-to-Noise	80
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 33.71 - 40.23 SM: 3G

Entry Parameters

Compound Name	Total PeCDF
QM Retention Time	36.97
QM Area	10441
QM Integration Mode	A
RM1 Area	16926
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0023
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	1.0000
Signal-to-Noise	559
Client Flags	
Status Overview	passed (2)
Status Info	

TargetQuan 3 **APPROVED**
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Chromatogram

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.05
QM Area	2959
QM Integration Mode	A
RM1 Area	5278
RM1 Integration Mode	M
ManInt	1
Detection Limit (A)	0.0063
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	193
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 39.94 - 43.89 SM: 3G

NL:
1.79E3
m/z=
375.82-
375.82
MS
17JAN31-
04

NL:
2.29E3
m/z=
373.82-
373.82
MS
17JAN31-
04

Entry Parameters

Compound Name	Total HxCDF
QM Retention Time	41.91
QM Area	21966
QM Integration Mode	A
RM1 Area	29126
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0036
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	2.0000
Signal-to-Noise	349
Client Flags	
Status Overview	passed (4)
Status Info	

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Chromatogram

RT: 41.28 - 44.03 SM: 3G

Entry Parameters

Compound Name	Total HxCDD
QM Retention Time	42.65
QM Area	11973
QM Integration Mode	A
RM1 Area	13453
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0072
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	1.5000
Signal-to-Noise	180
Client Flags	
Status Overview	passed (3)
Status Info	

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Chromatogram

RT: 44.68 - 46.68 SM: 3G

Entry Parameters

Compound Name	Total HpCDD
QM Retention Time	45.68
QM Area	3913
QM Integration Mode	A
RM1 Area	3581
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0045
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	289
Client Flags	
Status Overview	passed (1)
Status Info	

TargetQuant **APPROVED** AIL01 Page 196 of 560 ThermoFisher
By ujd2 at 10:16 am, 2/1/17   **REVIEWED** 718 of 1081
By UMJS at 10:13 am, 2/2/17

Chromatogram

RT: 44.75 - 47.06 SM: 3G

Entry Parameters

Compound Name	Total HpCDF
QM Retention Time	45.90
QM Area	11099
QM Integration Mode	A
RM1 Area	10866
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0024
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	1.0000
Signal-to-Noise	510
Client Flags	
Status Overview	passed (2)
Status Info	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/01/31 22:57
Number of Entries	195
Comment	
Vial	3
Sample Name	CALDF11737B
Sample ID	CSL01
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-04.quan
Data	y:\17jan31\17jan31-04.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 30.17 - 32.17 SM: 3G

Relative Abundance vs Time (min)

QM panel — RT: 31.17
NL: 4.93E2 m/z= 305.90-305.90 MS 17JAN31-04
30.42 30.57 30.72 30.93 31.41 31.61 31.90 32.06

RM1 panel — RT: 31.17
NL: 3.70E2 m/z= 303.90-303.90 MS 17JAN31-04
30.50 30.65 30.83 31.00 31.37 31.68 32.04

IS QM panel — RT: 31.13
NL: 2.98E5 m/z= 317.94-317.94 MS 17JAN31-04
30.30 30.54 30.67 30.83 31.39 31.66 31.87 32.04

IS RM1 panel — RT: 31.13
NL: 2.30E5 m/z= 315.94-315.94 MS 17JAN31-04
30.42 30.67 30.95 31.32 31.49 31.70 31.90 32.11

Time (min): 30.2 30.4 30.6 30.8 31.0 31.2 31.4 31.6 31.8 32.0

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.17
QM Area	2244
QM Integration Mode	A
RM1 Area	1431
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0022
Unqualified Amount (A)	0.100825
Adjusted Amount (A)	n.d.
Signal-to-Noise	139
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

TargetQuan 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

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REVIEWED By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 37.26 - 39.26 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.26
QM Area	2959
QM Integration Mode	A
RM1 Area	5291
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0063
Unqualified Amount (A)	0.500758
Adjusted Amount (A)	n.d.
Signal-to-Noise	193
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

TargetQuan **APPROVED** By ujd2 at 10:16 am, 2/1/17

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Quantitation Settings

Data File Parameter

Acq. Data	2017/01/31 22:57
Number of Entries	195
Comment	
Vial	3
Sample Name	CALDF11737B
Sample ID	CSL01
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-04.quan
Data	y:\17jan31\17jan31-04.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 25.66 - 34.02 SM: 3G

Entry Parameters

Compound Name	Total TCDF
QM Retention Time	29.84
QM Area	42
QM Integration Mode	A
RM1 Area	36
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0022
Unqualified Amount (A)	0.002154
Adjusted Amount (A)	0.0022
Signal-to-Noise	5
Client Flags	
Status Overview	passed (1)
Status Info	

Chromatogram

RT: 35.09 - 39.01 SM: 3G

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.05
QM Area	2
QM Integration Mode	A
RM1 Area	3
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0063
Unqualified Amount (A)	0.000275
Adjusted Amount (A)	0.0003
Signal-to-Noise	0
Client Flags	
Status Overview	passed (1)
Status Info	

TargetQuan **APPROVED** AIL01 Page 203 of 560 ThermoFisher
By ujd2 at 10:16 am, 2/1/17 **REVIEWED** 725 of 1081
By UMJS at 10:13 am, 2/2/17

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	RT Window [min]	Specified RT [min]	QM Retention Time	RM1 Retention Time	RM1 Time Status	RRT Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	0.67	31.17	31.17	31.17	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	0.67	32.19	32.19	32.18	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	36.68	36.68	36.68	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	37.88	37.88	37.88	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	0.67	38.26	38.26	38.26	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.44	41.44	41.45	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.60	41.60	41.60	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	42.27	42.27	42.27	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.46	42.46	42.46	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.57	42.57	42.58	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.88	42.88	42.89	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	43.27	43.27	43.28	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	44.96	44.96	44.96	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	0.67	46.15	46.15	46.15	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	46.70	46.70	46.70	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	0.67	49.14	49.14	49.14	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	0.67	49.34	49.34	49.34	passed	passed
18	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	31.41	31.41	31.41	passed	passed
19	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	1.00	41.34	41.34	41.34	passed	passed
20	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	0.67	31.13	31.13	31.13	passed	passed
21	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	32.16	32.16	32.16	passed	passed
22	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	36.65	36.65	36.65	passed	passed
23	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	37.86	37.86	37.86	passed	passed
24	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	0.67	38.25	38.25	38.25	passed	passed
25	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.44	41.44	41.44	passed	passed
26	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.59	41.59	41.59	passed	passed
27	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	42.26	42.26	42.26	passed	passed
28	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.45	42.45	42.45	passed	passed
29	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.56	42.56	42.56	passed	passed
30	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.87	42.87	42.87	passed	passed
31	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	43.26	43.26	43.26	passed	passed
32	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	44.94	44.94	44.94	passed	passed
33	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	0.67	46.13	46.13	46.13	passed	passed
34	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	46.70	46.70	46.70	passed	passed
35	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	0.67	49.12	49.12	49.12	passed	passed
36	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	1.00	49.32	49.32	49.32	passed	passed
37	Total TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.60	29.84	29.84	29.84	---	—
38	Total TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.60	30.61	30.61	30.61	---	—
39	Total PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	36.97	36.97	36.97	---	—
40	Total PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.56	37.05	37.05	37.05	---	—
41	Total HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.91	41.91	41.91	---	—
42	Total HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.65	42.65	42.65	---	—
43	Total HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.05	45.68	45.68	45.68	---	—
44	Total HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	45.90	45.90	45.90	---	—
45	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.60	31.17	31.17	31.17	passed	passed
46	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.60	32.19	32.19	32.18	passed	passed
47	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.56	38.26	38.26	38.26	passed	passed
48	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	37.88	37.88	37.88	passed	passed
49	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	36.68	36.68	36.68	passed	passed
50	Single HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.05	46.15	46.15	46.15	passed	passed
51	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.60	41.60	41.60	passed	passed
52	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.44	41.44	41.45	passed	passed
53	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	42.27	42.27	42.27	passed	passed
54	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	43.27	43.27	43.28	passed	passed
55	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.57	42.57	42.58	passed	passed
56	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.46	42.46	42.46	passed	passed
57	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.88	42.88	42.89	passed	passed
58	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	44.96	44.96	44.96	passed	passed
59	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	46.70	46.70	46.70	passed	passed

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	31.17	0.6462	0.6450 -	0.8950	passed	100.00	0 -	0	passed
2	2378-TCDD	32.19	0.6752	0.6450 -	0.8950	passed	100.00	0 -	0	passed
3	12378-PeCDF	36.68	1.6105	1.3150 -	1.7850	passed	100.00	0 -	0	passed
4	23478-PeCDF	37.88	1.6312	1.3150 -	1.7850	passed	100.00	0 -	0	passed
5	12378-PeCDD	38.26	1.7837	1.3150 -	1.7850	passed	100.00	0 -	0	passed
6	123478-HxCDF	41.44	1.3386	1.0450 -	1.4350	passed	100.00	0 -	0	passed
7	123678-HxCDF	41.60	1.2494	1.0450 -	1.4350	passed	100.00	0 -	0	passed
8	234678-HxCDF	42.27	1.3071	1.0450 -	1.4350	passed	100.00	0 -	0	passed
9	123478-HxCDD	42.46	1.0878	1.0450 -	1.4350	passed	100.00	0 -	0	passed
10	123678-HxCDD	42.57	1.0649	1.0450 -	1.4350	passed	100.00	0 -	0	passed
11	123789-HxCDD	42.88	1.2167	1.0450 -	1.4350	passed	100.00	0 -	0	passed
12	123789-HxCDF	43.27	1.4235	1.0450 -	1.4350	passed	100.00	0 -	0	passed
13	1234678-HpCDF	44.96	1.0515	0.8750 -	1.2050	passed	100.00	0 -	0	passed
14	1234678-HpCDD	46.15	0.9154	0.8750 -	1.2050	passed	100.00	0 -	0	passed
15	1234789-HpCDF	46.70	0.9079	0.8750 -	1.2050	passed	100.00	0 -	0	passed
16	OCDD	49.14	0.8466	0.7550 -	1.0250	passed	100.00	0 -	0	passed
17	OCDF	49.34	0.9379	0.7550 -	1.0250	passed	100.00	0 -	0	passed
18	13C12-1234-TCDD	31.41	0.8031	0.6450 -	0.8950	passed	100.00	0 -	0	passed
19	13C12-123468-HxCDD	41.34	1.2654	1.0450 -	1.4350 .	passed	100.00	0 -	0	passed
20	13C12-2378-TCDF	31.13	0.7792	0.6450 -	0.8950	passed	100.00	0 -	0	passed
21	13C12-2378-TCDD	32.16	0.7819	0.6450 -	0.8950	passed	100.00	0 -	0	passed
22	13C12-12378-PeCDF	36.65	1.5695	1.3150 -	1.7850	passed	100.00	0 -	0	passed
23	13C12-23478-PeCDF	37.86	1.5646	1.3150 -	1.7850	passed	100.00	0 -	0	passed
24	13C12-12378-PeCDD	38.25	1.5928	1.3150 -	1.7850	passed	100.00	0 -	0	passed
25	13C12-123478-HxCDF	41.44	0.5095	0.4250 -	0.5950	passed	100.00	0 -	0	passed
26	13C12-123678-HxCDF	41.59	0.5363	0.4250 -	0.5950	passed	100.00	0 -	0	passed
27	13C12-234678-HxCDF	42.26	0.5340	0.4250 -	0.5950	passed	100.00	0 -	0	passed
28	13C12-123478-HxCDD	42.45	1.2425	1.0450 -	1.4350	passed	100.00	0 -	0	passed
29	13C12-123678-HxCDD	42.56	1.2447	1.0450 -	1.4350	passed	100.00	0 -	0	passed
30	13C12-123789-HxCDD	42.87	1.2234	1.0450 -	1.4350	passed	100.00	0 -	0	passed
31	13C12-123789-HxCDF	43.26	0.5317	0.4250 -	0.5950	passed	100.00	0 -	0	passed
32	13C12-1234678-HpCDF	44.94	0.4594	0.3650 -	0.5150	passed	100.00	0 -	0	passed
33	13C12-1234678-HpCDD	46.13	1.0794	0.8750 -	1.2050	passed	100.00	0 -	0	passed
34	13C12-1234789-HpCDF	46.70	0.4498	0.3650 -	0.5150	passed	100.00	0 -	0	passed
35	13C12-OCDD	49.12	0.9027	0.7550 -	1.0250	passed	100.00	0 -	0	passed
36	13C12-OCDF	49.32	0.9145	0.7550 -	1.0250	passed	100.00	0 -	0	passed
37	Total TCDF	29.84	0.6462	0.6450 -	0.8950	---	100.00	0 -	0	—
38	Total TCDD	30.61	0.6752	0.6450 -	0.8950	---	100.00	0 -	0	—
39	Total PeCDF	36.97	1.6212	1.3150 -	1.7850	---	100.00	0 -	0	—
40	Total PeCDD	37.05	1.7838	1.3150 -	1.7850	---	100.00	0 -	0	—
41	Total HxCDF	41.91	1.3260	1.0450 -	1.4350	---	100.00	0 -	0	—
42	Total HxCDD	42.65	1.1237	1.0450 -	1.4350	---	100.00	0 -	0	—
43	Total HpCDD	45.68	0.9154	0.8750 -	1.2050	---	100.00	0 -	0	—
44	Total HpCDF	45.90	0.9790	0.8750 -	1.2050	---	100.00	0 -	0	—
45	Single TCDF	31.17	0.6462	0.6450 -	0.8950	passed	100.00	0 -	0	passed
46	Single TCDD	32.19	0.6752	0.6450 -	0.8950	passed	100.00	0 -	0	passed
47	Single PeCDD	38.26	1.7838	1.3150 -	1.7850	passed	100.00	0 -	0	passed
48	Single PeCDF	37.88	1.6312	1.3150 -	1.7850	passed	100.00	0 -	0	passed
49	Single PeCDF	36.68	1.6105	1.3150 -	1.7850	passed	100.00	0 -	0	passed
50	Single HpCDD	46.15	0.9154	0.8750 -	1.2050	passed	100.00	0 -	0	passed
51	Single HxCDF	41.60	1.2494	1.0450 -	1.4350	passed	100.00	0 -	0	passed
52	Single HxCDF	41.44	1.3386	1.0450 -	1.4350	passed	100.00	0 -	0	passed
53	Single HxCDF	42.27	1.3071	1.0450 -	1.4350	passed	100.00	0 -	0	passed
54	Single HxCDF	43.27	1.4235	1.0450 -	1.4350	passed	100.00	0 -	0	passed
55	Single HxCDD	42.57	1.0649	1.0450 -	1.4350	passed	100.00	0 -	0	passed
56	Single HxCDD	42.46	1.0878	1.0450 -	1.4350	passed	100.00	0 -	0	passed
57	Single HxCDD	42.88	1.2167	1.0450 -	1.4350	passed	100.00	0 -	0	passed
58	Single HpCDF	44.96	1.0515	0.8750 -	1.2050	passed	100.00	0 -	0	passed
59	Single HpCDF	46.70	0.9079	0.8750 -	1.2050	passed	100.00	0 -	0	passed

TargetQuan 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

AIL01 Page 205 of 560

REVIEWED By UMJS at 10:13 am, 2/2/17 ThermoFisher Scientific

727 1081

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Nois	Client Flags
1	2378-TCDF	passed	31.17	2214	M	1431	A	0.0022	0.100000	0.1000	0.100000	139	
2	2378-TCDD	passed	32.19	984	A	664	A	0.0030	0.100000	0.1000	0.100000	80	
3	12378-PeCDF	passed	36.68	5060	A	8150	A	0.0024	0.500000	0.5000	0.500000	532	
4	23478-PeCDF	passed	37.88	5380	A	8776	A	0.0022	0.500000	0.5000	0.500000	585	
5	12378-PeCDD	passed	38.26	2959	A	5278	M	0.0063	0.500000	0.5000	0.500000	193	
6	123478-HxCDF	passed	41.44	5444	A	7288	A	0.0037	0.500000	0.5000	0.500000	343	
7	123678-HxCDF	passed	41.60	6125	A	7653	A	0.0034	0.500000	0.5000	0.500000	378	
8	234678-HxCDF	passed	42.27	5275	A	6895	A	0.0037	0.500000	0.5000	0.500000	347	
9	123478-HxCDD	passed	42.46	3610	A	3927	A	0.0079	0.500000	0.5000	0.500000	156	
10	123678-HxCDD	passed	42.57	4271	A	4548	A	0.0068	0.500000	0.5000	0.500000	184	
11	123789-HxCDD	passed	42.88	4091	A	4978	A	0.0068	0.500000	0.5000	0.500000	200	
12	123789-HxCDF	passed	43.27	5122	A	7290	A	0.0037	0.500000	0.5000	0.500000	328	
13	1234678-HpCDF	passed	44.96	5496	A	5779	A	0.0023	0.500000	0.5000	0.500000	538	
14	1234678-HpCDD	passed	46.15	3913	A	3581	A	0.0045	0.500000	0.5000	0.500000	289	
15	1234789-HpCDF	passed	46.70	5603	A	5087	A	0.0025	0.500000	0.5000	0.500000	483	
16	OCDD	passed	49.14	7308	A	6187	A	0.0047	1.000000	1.0000	1.000000	567	
17	OCDF	passed	49.34	9738	A	9133	A	0.0051	1.000000	1.0000	1.000000	523	
18	13C12-1234-TCDD	passed	31.41	859424	A	690222	A	0.0121	100.000000	100.0000	100.000000	20596	
19	13C12-123468-HxCDD	passed	41.34	757718	A	958841	A	0.0225	100.000000	100.0000	100.000000	11104	
20	13C12-2378-TCDF	passed	31.13	1614889	A	1258368	A	0.0045	100.000000	100.0000	100.000000	55032	
21	13C12-2378-TCDF	passed	32.16	843952	A	659847	A	0.0125	100.000000	100.0000	100.000000	21338	
22	13C12-12378-PeCDF	passed	36.65	1017487	A	1596981	A	0.0298	100.000000	100.0000	100.000000	10972	
23	13C12-23478-PeCDF	passed,	37.86	995810	A	1558028	A	0.0305	100.000000	100.0000	100.000000	11193	
24	13C12-12378-PeCDD	passed	38.25	568191	A	905030	A	0.0201	100.000000	100.0000	100.000000	17204	
25	13C12-123478-HxCDF	passed	41.44	1437426	A	732340	A	0.0246	100.000000	100.0000	100.000000	9942	
26	13C12-123678-HxCDF	passed	41.59	1462339	A	784314	A	0.0237	100.000000	100.0000	100.000000	10342	
27	13C12-234678-HxCDF	passed	42.26	1359673	A	726044	A	0.0256	100.000000	100.0000	100.000000	10242	
28	13C12-123478-HxCDD	passed	42.45	700908	A	870856	A	0.0246	100.000000	100.0000	100.000000	10478	
29	13C12-123678-HxCDD	passed	42.56	719073	A	895012	A	0.0239	100.000000	100.0000	100.000000	10795	
30	13C12-123789-HxCDD	passed	42.87	711820	A	870872	A	0.0244	100.000000	100.0000	100.000000	10319	
31	13C12-123789-HxCDF	passed	43.26	1305618	A	694171	A	0.0267	100.000000	100.0000	100.000000	9500	
32	13C12-1234678-HpCDF	passed	44.94	1269886	A	583331	A	0.0322	100.000000	100.0000	100.000000	8509	
33	13C12-1234678-HpCDD	passed	46.13	690399	A	745248	A	0.0266	100.000000	100.0000	100.000000	10195	
34	13C12-1234789-HpCDF	passed	46.70	1085981	A	488506	A	0.0379	100.000000	100.0000	100.000000	6996	
35	13C12-OCDD	passed	49.12	1393945	A	1258306	A	0.0204	200.000000	200.0000	200.000000	26347	
36	13C12-OCDF	passed	49.32	2051878	A	1876451	A	0.0218	200.000000	200.0000	200.000000	25215	
37	Total TCDF	passed (1)	29.84	2214	M	1431	A	0.0022	0.100000	0.1000	0.100000	139	
38	Total TCDD	passed (1)	30.61	984	A	664	A	0.0030	0.100000	0.1000	0.100000	80	
39	Total PeCDF	passed (2)	36.97	10441	A	16926	A	0.0023	0.500000	1.0000	0.500000	559	
40	Total PeCDD	passed (1)	37.05	2959	A	5278	M	0.0063	0.500000	0.5000	0.500000	193	
41	Total HxCDF	passed (4)	41.91	21966	A	29126	A	0.0036	0.500000	2.0000	0.500000	349	
42	Total HxCDD	passed (3)	42.65	11973	A	13453	A	0.0072	0.500000	1.5000	0.500000	180	
43	Total HpCDD	passed (1)	45.68	3913	A	3581	A	0.0045	0.500000	0.5000	0.500000	289	
44	Total HpCDF	passed (2)	45.90	11099	A	10866	A	0.0024	0.500000	1.0000	0.500000	510	
45	Single TCDF	passed	31.17	2214	M	1431	A	0.0022	0.100000	0.1000	0.100000	139	
46	Single TCDD	passed	32.19	984	A	664	A	0.0030	0.100000	0.1000	0.100000	80	
47	Single PeCDD	passed	38.26	2959	A	5278	M	0.0063	0.500000	0.5000	0.500000	193	
48	Single PeCDF	passed	37.88	5380	A	8776	A	0.0022	0.500000	0.5000	0.500000	585	
49	Single PeCDF	passed	36.68	5060	A	8150	A	0.0024	0.500000	0.5000	0.500000	532	
50	Single HpCDD	passed	46.15	3913	A	3581	A	0.0045	0.500000	0.5000	0.500000	289	
51	Single HxCDF	passed	41.60	6125	A	7653	A	0.0034	0.500000	0.5000	0.500000	378	
52	Single HxCDF	passed	41.44	5444	A	7288	A	0.0036	0.500000	0.5000	0.500000	343	
53	Single HxCDF	passed	42.27	5275	A	6895	A	0.0038	0.500000	0.5000	0.500000	347	
54	Single HxCDF	passed	43.27	5122	A	7290	A	0.0037	0.500000	0.5000	0.500000	328	
55	Single HxCDD	passed	42.57	4271	A	4548	A	0.0068	0.500000	0.5000	0.500000	184	
56	Single HxCDD	passed	42.46	3610	A	3927	A	0.0080	0.500000	0.5000	0.500000	156	
57	Single HxCDD	passed	42.88	4091	A	4978	A	0.0066	0.500000	0.5000	0.500000	200	
58	Single HpCDF	passed	44.96	5496	A	5779	A	0.0024	0.500000	0.5000	0.500000	538	
59	Single HpCDF	passed	46.70	5603	A	5087	A	0.0025	0.500000	0.5000	0.500000	483	

File Name: Y:\17JAN31\17JAN31-04
Sample ID: CSL01

Acq. Data: 1/31/2017 10:57:03 PM
Sample Name: CALDF11737B
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17JAN31

RT: 22.50 - 51.00

NL:
4.61E5
m/z=
291.9825-
292.9825
MS
17JAN31-
04

NL:
5.07E5
m/z=
330.4792-
331.4792
MS
17JAN31-
04

NL:
2.69E5
m/z=
380.4760-
381.4760
MS
17JAN31-
04

NL:
6.42E4
m/z=
404.4760-
405.4760
MS
17JAN31-
04

NL:
6.57E4
m/z=
442.4728-
443.4728
MS
17JAN31-
04

```
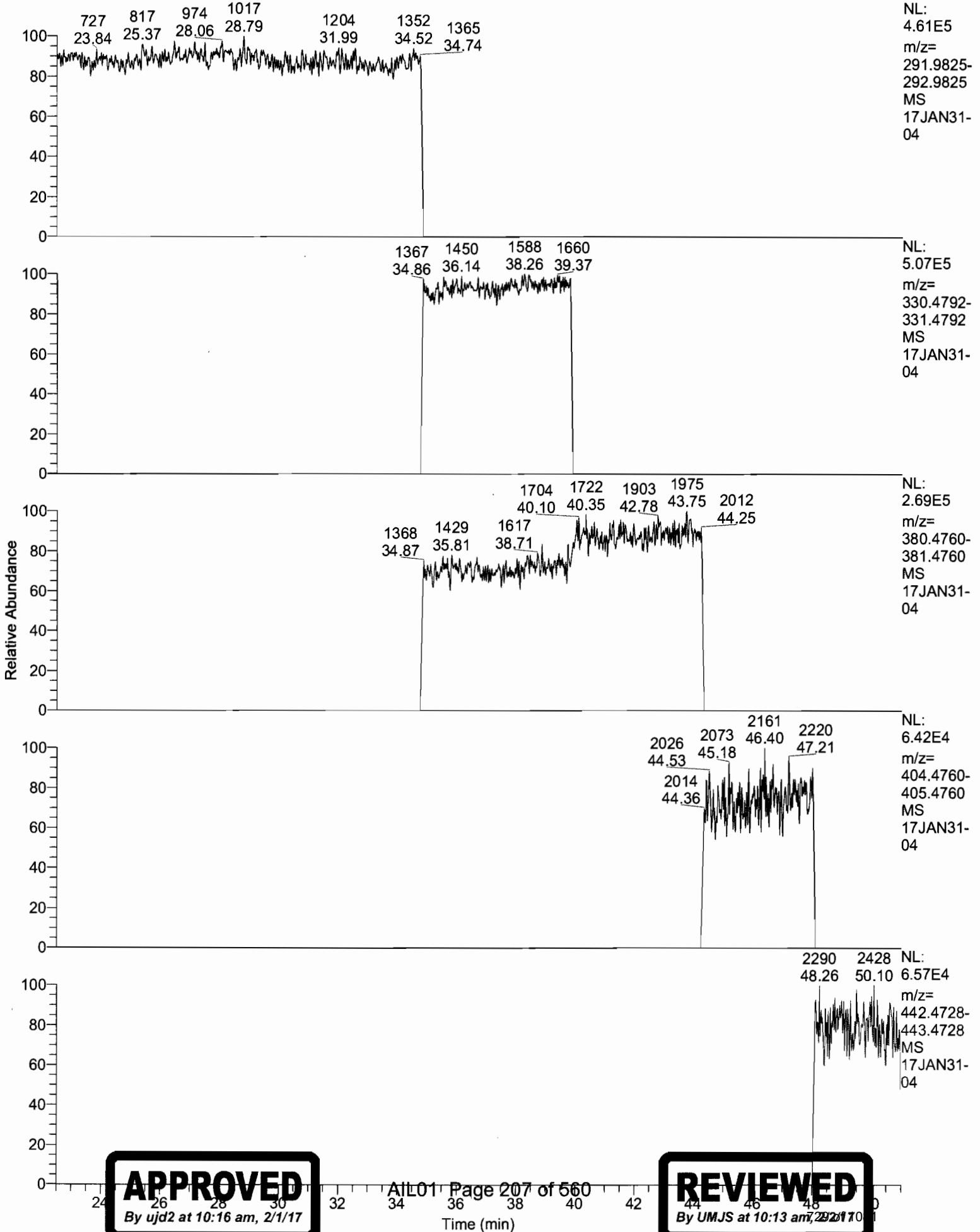*** file opened Tue Jan 31 23:02:28 2017 ***

Started by              - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

   Analysis started at: 31-Jan-17 23:02:27


   Analysis will stop at user request


   Firmware Version: 2.02


   MCAL file name:


   Sequence : 62d69d10-234f-46c5-bc8a-53bf0dc2f3b7


   MID procedure: PFK16MAR24+MDT



   Mid Time Windows:
         Start        Measure        End        Cycletime

 # 1   11:30 min    9:30 min   21:00 min    1.00 sec
 # 2   21:00 min   13:44 min   34:44 min    1.00 sec
 # 3   34:44 min    5:03 min   39:47 min    0.90 sec
 # 4   39:47 min    4:27 min   44:15 min    0.80 sec
 # 5   44:15 min    3:45 min   48:00 min    0.80 sec
 # 6   48:00 min    3:00 min   51:00 min    0.80 sec

   Mid Masses:
    Window # 1
        mass F   int  gr   time (ms)
      218.0129    1   1        95
      218.9851 l  20   1         4
      220.0100    1   1        95
      230.0532    2   1        47
      232.0502    2   1        47
      251.9739    1   1        95
      253.9710    1   1        95
      264.0142    2   1        47
      266.0112    2   1        47
      285.9350    1   1        95
      287.9320    1   1        95
      292.9819 c  20   1         4
      297.9752    2   1        47
      299.9723    2   1        47
    Window # 2
        mass F   int  gr   time (ms)
      292.9819 l  20   1         5
      303.9011    1   1       118
      305.8981    1   1       118
      315.9413    5   1        23
      317.9384    5   1        23
      319.8960    1   1       118
      321.8930    1   1       118
```
                              Page 1

```
331.9363       5  1        23
333.9333       5  1        23
339.8592       1  1       118
341.8562       1  1       118
354.9787 c    20  1         5
375.8364       2  1        59
Window # 3
     mass F   int gr   time (ms)
330.9787 ]    20  1         6
339.8592       1  1       133
341.8562       1  1       133
351.8994       3  1        44
353.8965       3  1        44
355.8541       1  1       133
357.8511       1  1       133
367.8943       3  1        44
369.8914       3  1        44
380.9755 c    20  1         6
409.7969       2  1        66
Window # 4
     mass F   int gr   time (ms)
373.8201       1  1       117
375.8172       1  1       117
380.9755 ]    20  1         5
383.8634       3  1        39
385.8604       3  1        39
389.8151       1  1       117
391.8121       1  1       117
401.8554       3  1        39
403.8524       3  1        39
430.9723 c    20  1         5
445.7550       2  1        58
Window # 5
     mass F   int gr   time (ms)
404.9755 ]    20  1         5
407.7812       1  1       117
409.7783       1  1       117
417.8244       3  1        39
419.8215       3  1        39
423.7761       1  1       117
425.7732       1  1       117
435.8164       3  1        39
437.8134       3  1        39
479.7160       2  1        58
480.9691 c    20  1         5
Window # 6
     mass F   int gr   time (ms)
441.7422       1  1        95
442.9723 ]    20  1         4
443.7393       1  1        95
453.7825       1  1        95
455.7795       1  1        95
457.7372       1  1        95
459.7342       1  1        95
469.7774       3  1        31
471.7745       3  1        31
492.9691 c    20  1         4
513.6770       2  1        47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.750000 minutes
MID Window end time was 34.740000 minutes

```
MID Window terminated after 39.800000 minutes
MID Window end time was 39.800000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes
```

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	98.0000
BQUAD	0.4500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	156.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	175.0000
ENSBR	0.4500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	171.0000	EXSBR	-0.5300
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	13.9000
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0155	FVINLET	0.0276	FVSRC	0.0273
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	718.0000
LENS_SYM	12.7500	LM	1050.0000	LMII	500.0000
LMASS	98.0000	LKM	442.9723	MASS	98.0000
MDAC	1460524.2399	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2521.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-15.0000	RECURR	0.8977	RELEN	0.0000
RES	12476.8853	RPUSHER	-14.5568	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	664.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0180	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	98.0000	XLENS_POT	880.0000
XLENS_SYM	-2.5000	YLENS_POT	602.0000	YLENS_SYM	-7.7500

```
Source Gauge:          2.0e-005 mbar
Analyzer Penning:      5.2e-008 mbar
Pirani Analyse:        1.5e-002 mbar
Pirani Source:         2.7e-002 mbar
Pirani Inlet System:   2.7e-002 mbar
```

Scantype is magnetic

Sourcemode is EI POS

```
MID Time Window 1: Resolution is 11373.
MID Time Window 2: Resolution is 11461.
MID Time Window 3: Resolution is 11648.
MID Time Window 4: Resolution is 11061.
```

Page 3

MID Time Window 5: Resolution is 11753.
MID Time Window 6: Resolution is 12476.

Amplifier Offset: 89.

*** File closed Tue Jan 31 23:53:30 2017
    ***

ఇ: **eurofins** | **Lancaster Laboratories**

Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 02:43
Number of Entries	64
Comment	
Vial	4
Sample Name	CALDF21737B
Sample ID	CS101
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-08.quan
Data	y:\17jan31\17jan31-08.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	RRT Status	Status Info
1	2378-TCDF	31.14	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.17	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.66	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.87	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.26	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.45	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.60	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.27	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.46	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.57	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.89	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.27	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.95	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.13	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.71	passed	passed	passed	passed	passed	passed	
16	OCDD	49.13	passed	passed	passed	passed	passed	passed	
17	OCDF	49.33	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.53	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.40	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.34	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	31.11	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.13	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.64	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.86	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.24	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.42	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.58	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.26	passed	passed	passed	passed	passed	passed	
29	13C12-123476-HxCDD	42.44	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.55	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.88	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.25	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.94	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.13	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.70	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.13	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.32	passed	passed	passed	passed	passed	passed	
38	Total TCDF	29.82	passed (1)	—	—	---	—	—	
39	Total TCDD	30.59	passed (1)	---	---	---	—	—	
40	Total PeCDF	36.96	passed (2)	---	---	---	—	---	
41	Total PeCDD	37.04	passed (1)	---	---	—	—	--	
42	Total HxCDF	41.91	passed (4)	---	---	---	—	—	
43	Total HxCDD	42.65	passed (3)	---	---	---	—	—	
44	Total HpCDD	45.68	passed (1)	---	---	—	—	---	
45	Total HpCDF	45.90	passed (2)	---	---	---	—	—	
46	Single TCDF	31.14	passed	passed	passed	passed	passed	passed	
47	Single TCDD	32.17	passed	passed	passed	passed	passed	passed	
48	Single PeCDD	38.26	passed	passed	passed	passed	passed	passed	
49	Single PeCDF	37.87	passed	passed	passed	passed	passed	passed	
50	Single PeCDF	36.66	passed	passed	passed	passed	passed	passed	
51	Single HpCDD	46.13	passed	passed	passed	passed	passed	passed	
52	Single HxCDF	42.27	passed	passed	passed	passed	passed	passed	
53	Single HxCDF	41.45	passed	passed	passed	passed	passed	passed	
54	Single HxCDF	41.60	passed	passed	passed	passed	passed	passed	
55	Single HxCDF	43.27	passed	passed	passed	passed	passed	passed	
56	Single HxCDD	42.89	passed	passed	passed	passed	passed	passed	
57	Single HxCDD	42.46	passed	passed	passed	passed	passed	passed	
58	Single HxCDD	42.57	passed	passed	passed	passed	passed	passed	
59	Single HpCDF	44.95	passed	passed	passed	passed	passed	passed	
60	Single HpCDF	46.71	passed	passed	passed	passed	passed	passed	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 02:43
Number of Entries	64
Comment	
Vial	4
Sample Name	CALDF21737B
Sample ID	CS101
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-08.quan
Data	y:\17jan31\17jan31-08.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 30.13 - 32.13 SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.14
QM Area	6702
QM Integration Mode	A
RM1 Area	5002
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0033
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	432
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.17 - 33.17 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.17
QM Area	5065
QM Integration Mode	A
RM1 Area	3314
RM1 Integration Mode	M
ManInt	1
Detection Limit (A)	0.0033
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	428
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

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Chromatogram

RT: 35.66 - 37.66 SM: 3G

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.66
QM Area	21515
QM Integration Mode	A
RM1 Area	32868
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0030
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	1998
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 36.87 - 38.87 SM: 3G

Relative Abundance vs Time (min)

QM — RT: 37.87 — NL: 5.75E3 m/z= 341.85-341.86 MS 17JAN31-08

RM1 — RT: 37.87 — NL: 8.53E3 m/z= 339.86-339.86 MS 17JAN31-08

IS QM — RT: 37.86 — NL: 2.14E5 m/z= 353.90-353.90 MS 17JAN31-08

IS RM1 — RT: 37.86 — NL: 3.44E5 m/z= 351.90-351.90 MS 17JAN31-08

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.87
QM Area	22543
QM Integration Mode	A
RM1 Area	34328
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0027
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	2223
Client Flags	
Status Overview	passed
Status Info	

17JAN31-08 printed 2/1/2017 09:54
Sample CALDF21737B / CS10
Inst ID: DF18471-17JAN31 / Client:

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Chromatogram

RT: 37.27 - 39.27 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.26
QM Area	12817
QM Integration Mode	A
RM1 Area	19144
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0077
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	847
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.43 - 42.43 SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.45
QM Area	22382
QM Integration Mode	A
RM1 Area	28775
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0074
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	851
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 40.60 - 42.60 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.60
QM Area	24118
QM Integration Mode	A
RM1 Area	29074
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0071
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	883
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.27 - 43.27 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.27
QM Area	25712
QM Integration Mode	A
RM1 Area	28825
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0066
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	943
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.46 - 43.46 SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.46
QM Area	14707
QM Integration Mode	A
RM1 Area	19000
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0081
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	776
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3

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Chromatogram

RT: 41.57 - 43.57 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.57
QM Area	15073
QM Integration Mode	A
RM1 Area	18843
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0079
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	773
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.89 - 43.89 SM: 3G

NL:
4.45E3
m/z=
391.81-
391.81 MS
17JAN31-08

NL:
5.65E3
m/z=
389.81-
389.82 MS
17JAN31-08

NL:
1.75E5
m/z=
403.85-
403.85 MS
17JAN31-08

NL:
2.21E5
m/z=
401.85-
401.86 MS
17JAN31-08

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.89
QM Area	14695
QM Integration Mode	A
RM1 Area	17380
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0088
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	762
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 42.27 - 44.27 SM: 3G

NL:
7.62E3
m/z=
375.82-
375.82 MS
17JAN31-08

NL:
8.43E3
m/z=
373.82-
373.82 MS
17JAN31-08

NL:
3.01E5
m/z=
385.86-
385.86 MS
17JAN31-08

NL:
1.63E5
m/z=
383.86-
383.87 MS
17JAN31-08

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.27
QM Area	19908
QM Integration Mode	A
RM1 Area	25934
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0080
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	790
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 43.95 - 45.95 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.95
QM Area	24704
QM Integration Mode	A
RM1 Area	23614
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0046
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	1400
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.14 - 47.14 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.13
QM Area	15361
QM Integration Mode	A
RM1 Area	16321
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0056
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	1065
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.71 - 47.71 SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.71
QM Area	19351
QM Integration Mode	A
RM1 Area	19418
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0056
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	1079
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.15 - 50.15 SM: 3G

NL: 7.84E3
m/z= 459.73-459.74 MS 17JAN31-08

NL: 7.71E3
m/z= 457.74-457.74 MS 17JAN31-08

NL: 3.37E5
m/z= 471.77-471.78 MS 17JAN31-08

NL: 2.98E5
m/z= 469.78-469.78 MS 17JAN31-08

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.13
QM Area	24963
QM Integration Mode	A
RM1 Area	25170
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0074
Unqualified Amount (A)	5.000000
Adjusted Amount (A)	5.0000
Signal-to-Noise	1628
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.33 - 50.33 SM: 3G

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.33
QM Area	33832
QM Integration Mode	A
RM1 Area	33092
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0058
Unqualified Amount (A)	5.000000
Adjusted Amount (A)	5.0000
Signal-to-Noise	2212
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.53 - 33.53 SM: 3G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.53
QM Area	5107
QM Integration Mode	M
RM1 Area	4288
RM1 Integration Mode	M
ManInt	1
Detection Limit (A)	0.0093
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	233
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3   **APPROVED**   AIL01   Page 232 of 560   ThermoFisher
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By UMJS at 10:13 am, 2/2/17

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 02:43
Number of Entries	64
Comment	
Vial	4
Sample Name	CALDF21737B
Sample ID	CS101
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-08.quan
Data	y:\17jan31\17jan31-08.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 25.67 - 33.97 SM: 3G

Entry Parameters

Compound Name	Total TCDF
QM Retention Time	29.82
QM Area	6702
QM Integration Mode	A
RM1 Area	5002
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0033
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	432
Client Flags	
Status Overview	passed (1)
Status Info	

TargetQual 3   **APPROVED**   AIL01   Page 234 of 560   ThermoFisher
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Chromatogram

RT: 27.50 - 33.67 SM: 3G

Entry Parameters

Compound Name	Total TCDD
QM Retention Time	30.59
QM Area	5065
QM Integration Mode	A
RM1 Area	3314
RM1 Integration Mode	M
ManInt	1
Detection Limit (A)	0.0033
Unqualified Amount (A)	0.500000
Adjusted Amount (A)	0.5000
Signal-to-Noise	428
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 33.62 - 40.29 SM: 3G

Entry Parameters

Compound Name	Total PeCDF
QM Retention Time	36.96
QM Area	44059
QM Integration Mode	A
RM1 Area	67195
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0029
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	5.0000
Signal-to-Noise	2110
Client Flags	
Status Overview	passed (2)
Status Info	

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Chromatogram

RT: 35.05 - 39.03 SM: 3G

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.04
QM Area	12817
QM Integration Mode	A
RM1 Area	19144
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0077
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	847
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 39.91 - 43.91 SM: 3G

NL:
7.62E3
m/z=
375.82-
375.82
MS
17JAN31-
08

NL:
8.43E3
m/z=
373.82-
373.82
MS
17JAN31-
08

Entry Parameters

Compound Name	Total HxCDF
QM Retention Time	41.91
QM Area	92120
QM Integration Mode	A
RM1 Area	112608
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0073
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	10.0000
Signal-to-Noise	867
Client Flags	
Status Overview	passed (4)
Status Info	

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Chromatogram

RT: 41.35 - 43.95 SM: 3G

NL:
4.45E3
m/z=
391.81-
391.81
MS
17JAN31-
08

NL:
5.65E3
m/z=
389.81-
389.82
MS
17JAN31-
08

Entry Parameters

Compound Name	Total HxCDD
QM Retention Time	42.65
QM Area	44474
QM Integration Mode	A
RM1 Area	55223
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0083
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	7.5000
Signal-to-Noise	771
Client Flags	
Status Overview	passed (3)
Status Info	

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Chromatogram

RT: 44.68 - 46.68 SM: 3G

Entry Parameters

Compound Name	Total HpCDD
QM Retention Time	45.68
QM Area	15361
QM Integration Mode	A
RM1 Area	16321
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0056
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	2.5000
Signal-to-Noise	1065
Client Flags	
Status Overview	passed (1)
Status Info	

TargetQuan 3 · ThermoFisher Scientific

APPROVED By ujd2 at 10:16 am, 2/1/17

REVIEWED By UMJS at 10:13 am, 2/2/17

762   1081

Chromatogram

RT: 44.74 - 47.05 SM: 3G

Entry Parameters

Compound Name	Total HpCDF
QM Retention Time	45.90
QM Area	44055
QM Integration Mode	A
RM1 Area	43032
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0051
Unqualified Amount (A)	2.500000
Adjusted Amount (A)	5.0000
Signal-to-Noise	1240
Client Flags	
Status Overview	passed (2)
Status Info	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 02:43
Number of Entries	220
Comment	
Vial	4
Sample Name	CALDF21737B
Sample ID	CS101
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-08.quan
Data	y:\17jan31\17jan31-08.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

Chromatogram

RT: 31.17 - 33.17 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.17
QM Area	5065
QM Integration Mode	A
RM1 Area	3174
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0033
Unqualified Amount (A)	0.491609
Adjusted Amount (A)	n.d.
Signal-to-Noise	428
Client Flags	
Status Overview	failed
Status Info	Failed on: Ratio1A

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Chromatogram

RT: 31.53 - 33.53 SM: 3G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.13
QM Area	735846
QM Integration Mode	A
RM1 Area	574667
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0093
Unqualified Amount (A)	69.742121
Adjusted Amount (A)	n.d.
Signal-to-Noise	19200
Client Flags	
Status Overview	failed
Status Info	Failed on: RT

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 02:43
Number of Entries	220
Comment	
Vial	4
Sample Name	CALDF21737B
Sample ID	CS101
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-08.quan
Data	y:\17jan31\17jan31-08.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 27.50 - 33.67   SM: 3G

Entry Parameters

Compound Name	Total TCDD
QM Retention Time	30.59
QM Area	0
QM Integration Mode	A
RM1 Area	0
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	---
Unqualified Amount (A)	---
Adjusted Amount (A)	---
Signal-to-Noise	---
Client Flags	
Status Overview	failed
Status Info	Failed on:

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	31.14	0.7464	0.6450 -	0.8950	passed	100.00	0 -	0	passed
2	2378-TCDD	32.17	0.6544	0.6450 -	0.8950	passed	100.00	0 -	0	passed
3	12378-PeCDF	36.66	1.5276	1.3150 -	1.7850	passed	100.00	0 -	0	passed
4	23478-PeCDF	37.87	1.5227	1.3150 -	1.7850	passed	100.00	0 -	0	passed
5	12378-PeCDD	38.26	1.4937	1.3150 -	1.7850	passed	100.00	0 -	0	passed
6	123478-HxCDF	41.45	1.2856	1.0450 -	1.4350	passed	100.00	0 -	0	passed
7	123678-HxCDF	41.60	1.2055	1.0450 -	1.4350	passed	100.00	0 -	0	passed
8	234678-HxCDF	42.27	1.1211	1.0450 -	1.4350	passed	100.00	0 -	0	passed
9	123478-HxCDD	42.46	1.2919	1.0450 -	1.4350	passed	100.00	0 -	0	passed
10	123678-HxCDD	42.57	1.2502	1.0450 -	1.4350	passed	100.00	0 -	0	passed
11	123789-HxCDD	42.89	1.1827	1.0450 -	1.4350	passed	100.00	0 -	0	passed
12	123789-HxCDF	43.27	1.3027	1.0450 -	1.4350	passed	100.00	0 -	0	passed
13	1234678-HpCDF	44.95	0.9559	0.8750 -	1.2050	passed	100.00	0 -	0	passed
14	1234678-HpCDD	46.13	1.0625	0.8750 -	1.2050	passed	100.00	0 -	0	passed
15	1234789-HpCDF	46.71	1.0034	0.8750 -	1.2050	passed	100.00	0 -	0	passed
16	OCDD	49.13	1.0083	0.7550 -	1.0250	passed	100.00	0 -	0	passed
17	OCDF	49.33	0.9781	0.7550 -	1.0250	passed	100.00	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.53	0.8397	0.6450 -	0.8950	passed	100.00	0 -	0	passed
19	13C12-1234-TCDD	31.40	0.8060	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.34	1.2569	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	31.11	0.7932	0.6450 -	0.8950	passed	100.00	0 -	0	passed
22	13C12-2378-TCDD	32.13	0.7810	0.6450 -	0.8950	passed	100.00	0 -	0	passed
23	13C12-12378-PeCDF	36.64	1.6059	1.3150 -	1.7850	passed	100.00	0 -	0	passed
24	13C12-23478-PeCDF	37.86	1.5786	1.3150 -	1.7850	passed	100.00	0 -	0	passed
25	13C12-12378-PeCDD	38.24	1.6170	1.3150 -	1.7850	passed	100.00	0 -	0	passed
26	13C12-123478-HxCDF	41.42	0.5169	0.4250 -	0.5950	passed	100.00	0 -	0	passed
27	13C12-123678-HxCDF	41.58	0.5253	0.4250 -	0.5950	passed	100.00	0 -	0	passed
28	13C12-234678-HxCDF	42.26	0.5314	0.4250 -	0.5950	passed	100.00	0 -	0	passed
29	13C12-123478-HxCDD	42.44	1.2632	1.0450 -	1.4350	passed	100.00	0 -	0	passed
30	13C12-123678-HxCDD	42.55	1.2485	1.0450 -	1.4350	passed	100.00	0 -	0	passed
31	13C12-123789-HxCDD	42.88	1.3057	1.0450 -	1.4350	passed	100.00	0 -	0	passed
32	13C12-123789-HxCDF	43.25	0.5384	0.4250 -	0.5950	passed	100.00	0 -	0	passed
33	13C12-1234678-HpCDF	44.94	0.4480	0.3650 -	0.5150	passed	100.00	0 -	0	passed
34	13C12-1234678-HpCDD	46.13	1.0620	0.8750 -	1.2050	passed	100.00	0 -	0	passed
35	13C12-1234789-HpCDF	46.70	0.4524	0.3650 -	0.5150	passed	100.00	0 -	0	passed
36	13C12-OCDD	49.13	0.8878	0.7550 -	1.0250	passed	100.00	0 -	0	passed
37	13C12-OCDF	49.32	0.9010	0.7550 -	1.0250	passed	100.00	0 -	0	passed
38	Total TCDF	29.82	0.7464	0.6450 -	0.8950	---	100.00	0 -	0	---
39	Total TCDD	30.59	0.6544	0.6450 -	0.8950	---	100.00	0 -	0	---
40	Total PeCDF	36.96	1.5251	1.3150 -	1.7850	---	100.00	0 -	0	---
41	Total PeCDD	37.04	1.4937	1.3150 -	1.7850	---	100.00	0 -	0	---
42	Total HxCDF	41.91	1.2224	1.0450 -	1.4350	---	100.00	0 -	0	---
43	Total HxCDD	42.65	1.2417	1.0450 -	1.4350	---	100.00	0 -	0	---
44	Total HpCDD	45.68	1.0625	0.8750 -	1.2050	---	100.00	0 -	0	---
45	Total HpCDF	45.90	0.9768	0.8750 -	1.2050	---	100.00	0 -	0	---
46	Single TCDF	31.14	0.7464	0.6450 -	0.8950	passed	100.00	0 -	0	passed
47	Single TCDD	32.17	0.6544	0.6450 -	0.8950	passed	100.00	0 -	0	passed
48	Single PeCDD	38.26	1.4937	1.3150 -	1.7850	passed	100.00	0 -	0	passed
49	Single PeCDF	37.87	1.5227	1.3150 -	1.7850	passed	100.00	0 -	0	passed
50	Single PeCDF	36.66	1.5276	1.3150 -	1.7850	passed	100.00	0 -	0	passed
51	Single HpCDD	46.13	1.0625	0.8750 -	1.2050	passed	100.00	0 -	0	passed
52	Single HxCDF	42.27	1.1211	1.0450 -	1.4350	passed	100.00	0 -	0	passed
53	Single HxCDF	41.45	1.2856	1.0450 -	1.4350	passed	100.00	0 -	0	passed
54	Single HxCDF	41.60	1.2055	1.0450 -	1.4350	passed	100.00	0 -	0	passed
55	Single HxCDF	43.27	1.3027	1.0450 -	1.4350	passed	100.00	0 -	0	passed
56	Single HxCDD	42.89	1.1827	1.0450 -	1.4350	passed	100.00	0 -	0	passed
57	Single HxCDD	42.46	1.2919	1.0450 -	1.4350	passed	100.00	0 -	0	passed
58	Single HxCDD	42.57	1.2502	1.0450 -	1.4350	passed	100.00	0 -	0	passed
59	Single HpCDF	44.95	0.9559	0.8750 -	1.2050	passed	100.00	0 -	0	passed
60	Single HpCDF	46.71	1.0034	0.8750 -	1.2050	passed	100.00	0 -	0	passed

Sample CALDF21737B / CS10
Inst ID: DF18471-17JAN31 / Client:

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Noise	Client Flags
1	2378-TCDF	passed	31.14	6702	A	5002	A	0.0033	0.500000	0.5000	0.500000	432	
2	2378-TCDD	passed	32.17	5065	A	3314	M	0.0033	0.500000	0.5000	0.500000	428	
3	12378-PeCDF	passed	36.66	21515	A	32868	A	0.0030	2.500000	2.5000	2.500000	1998	
4	23478-PeCDF	passed	37.87	22543	A	34328	A	0.0027	2.500000	2.5000	2.500000	2223	
5	12378-PeCDD	passed	38.26	12817	A	19144	A	0.0077	2.500000	2.5000	2.500000	847	
6	123478-HxCDF	passed	41.45	22382	A	28775	A	0.0074	2.500000	2.5000	2.500000	851	
7	123678-HxCDF	passed	41.60	24118	A	29074	A	0.0071	2.500000	2.5000	2.500000	883	
8	234678-HxCDF	passed	42.27	25712	A	28825	A	0.0066	2.500000	2.5000	2.500000	943	
9	123478-HxCDD	passed	42.46	14707	A	19000	A	0.0081	2.500000	2.5000	2.500000	776	
10	123678-HxCDD	passed	42.57	15073	A	18843	A	0.0079	2.500000	2.5000	2.500000	773	
11	123789-HxCDD	passed	42.89	14695	A	17380	A	0.0088	2.500000	2.5000	2.500000	762	
12	123789-HxCDF	passed	43.27	19908	A	25934	A	0.0080	2.500000	2.5000	2.500000	790	
13	1234678-HpCDF	passed	44.95	24704	A	23614	A	0.0046	2.500000	2.5000	2.500000	1400	
14	1234678-HpCDD	passed	46.13	15361	A	16321	A	0.0056	2.500000	2.5000	2.500000	1065	
15	1234789-HpCDF	passed	46.71	19351	A	19418	A	0.0056	2.500000	2.5000	2.500000	1079	
16	OCDD	passed	49.13	24963	A	25170	A	0.0074	5.000000	5.0000	5.000000	1628	
17	OCDF	passed	49.33	33832	A	33092	A	0.0058	5.000000	5.0000	5.000000	2212	
18	13C12-1278-TCDD (CRS)	passed	32.53	5107	M	4288	M	0.0093	0.500000	0.5000	0.500000	233	
19	13C12-1234-TCDD	passed	31.40	759078	A	611806	A	0.0127	100.000000	100.0000	100.000000	19634	
20	13C12-123468-HxCDD	passed	41.34	633980	A	796873	A	0.0297	100.000000	100.0000	100.000000	8416	
21	13C12-2378-TCDF	passed	31.11	1383785	A	1097616	A	0.0071	100.000000	100.0000	100.000000	33535	
22	13C12-2378-TCDD	passed	32.13	735846	A	574667	A	0.0133	100.000000	100.0000	100.000000	19200	
23	13C12-12378-PeCDF	passed	36.64	839362	A	1347892	A	0.0329	100.000000	100.0000	100.000000	9752	
24	13C12-23478-PeCDF	passed	37.86	842742	A	1330312	A	0.0331	100.000000	100.0000	100.000000	10205	
25	13C12-12378-PeCDD	passed	38.24	465777	A	753153	A	0.0267	100.000000	100.0000	100.000000	12745	
26	13C12-123478-HxCDF	passed	41.42	1190528	A	615413	A	0.0269	100.000000	100.0000	100.000000	9082	
27	13C12-123678-HxCDF	passed	41.58	1223239	A	642527	A	0.0260	100.000000	100.0000	100.000000	9420	
28	13C12-234678-HxCDF	passed	42.26	1134403	A	602766	A	0.0279	100.000000	100.0000	100.000000	9195	
29	13C12-123478-HxCDD	passed	42.44	568280	A	717831	A	0.0330	100.000000	100.0000	100.000000	7781	
30	13C12-123678-HxCDD	passed	42.55	588035	A	734173	A	0.0321	100.000000	100.0000	100.000000	8114	
31	13C12-123789-HxCDD	passed	42.88	549521	A	717532	A	0.0335	100.000000	100.0000	100.000000	7393	
32	13C12-123789-HxCDF	passed	43.25	1044162	A	562218	A	0.0302	100.000000	100.0000	100.000000	8353	
33	13C12-1234678-HpCDF	passed	44.94	1023948	A	458771	A	0.0296	100.000000	100.0000	100.000000	9027	
34	13C12-1234678-HpCDD	passed	46.13	550518	A	584672	A	0.0210	100.000000	100.0000	100.000000	13011	
35	13C12-1234789-HpCDF	passed	46.70	838064	A	379112	A	0.0360	100.000000	100.0000	100.000000	7621	
36	13C12-OCDD	passed	49.13	1047624	A	930080	A	0.0264	200.000000	200.0000	200.000000	21199	
37	13C12-OCDF	passed	49.32	1499937	A	1351383	A	0.0284	200.000000	200.0000	200.000000	19621	
38	Total TCDF	passed (1)	29.82	6702	A	5002	A	0.0033	0.500000	0.5000	0.500000	432	
39	Total TCDD	passed (1)	30.59	5065	A	3314	M	0.0033	0.500000	0.5000	0.500000	428	
40	Total PeCDF	passed (2)	36.96	44059	A	67195	A	0.0029	2.500000	5.0000	2.500000	2110	
41	Total PeCDD	passed (1)	37.04	12817	A	19144	A	0.0077	2.500000	2.5000	2.500000	847	
42	Total HxCDF	passed (4)	41.91	92120	A	112608	A	0.0073	2.500000	10.0000	2.500000	867	
43	Total HxCDD	passed (3)	42.65	44474	A	55223	A	0.0083	2.500000	7.5000	2.500000	771	
44	Total HpCDD	passed (1)	45.68	15361	A	16321	A	0.0056	2.500000	2.5000	2.500000	1065	
45	Total HpCDF	passed (2)	45.90	44055	A	43032	A	0.0051	2.500000	5.0000	2.500000	1240	
46	Single TCDF	passed	31.14	6702	A	5002	A	0.0033	0.500000	0.5000	0.500000	432	
47	Single TCDD	passed	32.17	5065	A	3314	M	0.0033	0.500000	0.5000	0.500000	428	
48	Single PeCDD	passed	38.26	12817	A	19144	A	0.0077	2.500000	2.5000	2.500000	847	
49	Single PeCDF	passed	37.87	22543	A	34328	A	0.0028	2.500000	2.5000	2.500000	2223	
50	Single PeCDF	passed	36.66	21515	A	32868	A	0.0029	2.500000	2.5000	2.500000	1998	
51	Single HpCDD	passed	46.13	15361	A	16321	A	0.0056	2.500000	2.5000	2.500000	1065	
52	Single HxCDF	passed	42.27	25712	A	28825	A	0.0068	2.500000	2.5000	2.500000	943	
53	Single HxCDF	passed	41.45	22382	A	28775	A	0.0073	2.500000	2.5000	2.500000	851	
54	Single HxCDF	passed	41.60	24118	A	29074	A	0.0070	2.500000	2.5000	2.500000	883	
55	Single HxCDF	passed	43.27	19908	A	25934	A	0.0081	2.500000	2.5000	2.500000	790	
56	Single HxCDD	passed	42.89	14695	A	17380	A	0.0086	2.500000	2.5000	2.500000	762	
57	Single HxCDD	passed	42.46	14707	A	19000	A	0.0082	2.500000	2.5000	2.500000	776	
58	Single HxCDD	passed	42.57	15073	A	18843	A	0.0081	2.500000	2.5000	2.500000	773	
59	Single HpCDF	passed	44.95	24704	A	23614	A	0.0045	2.500000	2.5000	2.500000	1400	
60	Single HpCDF	passed	46.71	19351	A	19418	A	0.0056	2.500000	2.5000	2.500000	1079	

TargetQuan 3

APPROVED
By ujd2 at 10:16 am, 2/1/17

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REVIEWED
By UMJS at 10:13 am, 2/2/17

ThermoFisher
777 of 1081

File Name: Y:\17JAN31\17JAN31-08
Sample ID: CS101

Acq. Data: 2/1/2017 2:43:15 AM
Sample Name: CALDF21737B
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17JAN31

RT: 22.50 - 51.00

NL:
4.23E5
m/z=
291.9825-
292.9825
MS
17JAN31-
08

NL:
4.65E5
m/z=
330.4792-
331.4792
MS
17JAN31-
08

NL:
2.39E5
m/z=
380.4760-
381.4760
MS
17JAN31-
08

NL:
5.59E4
m/z=
404.4760-
405.4760
MS
17JAN31-
08

NL:
6.33E4
m/z=
442.4728-
443.4728
MS
17JAN31-
08

Relative Abundance

Time (min)

*** file opened Wed Feb 01 02:48:38 2017 ***

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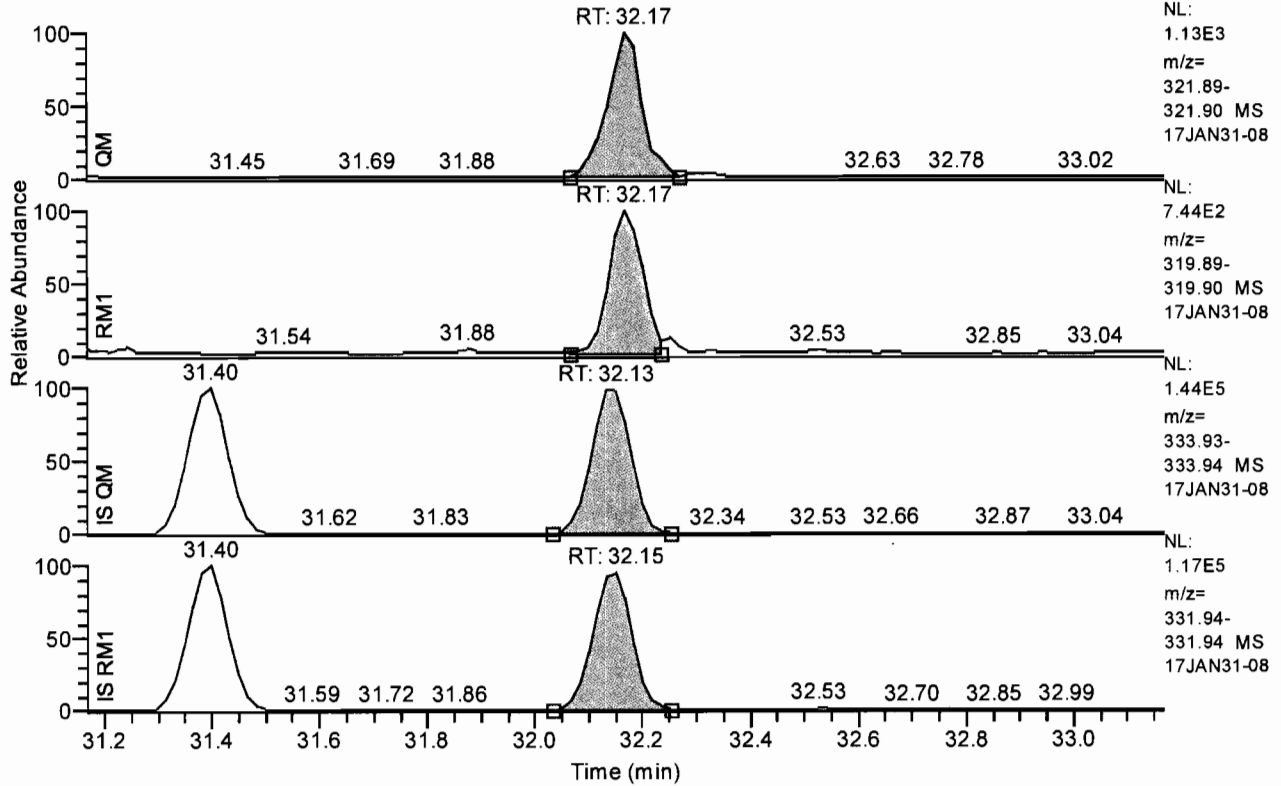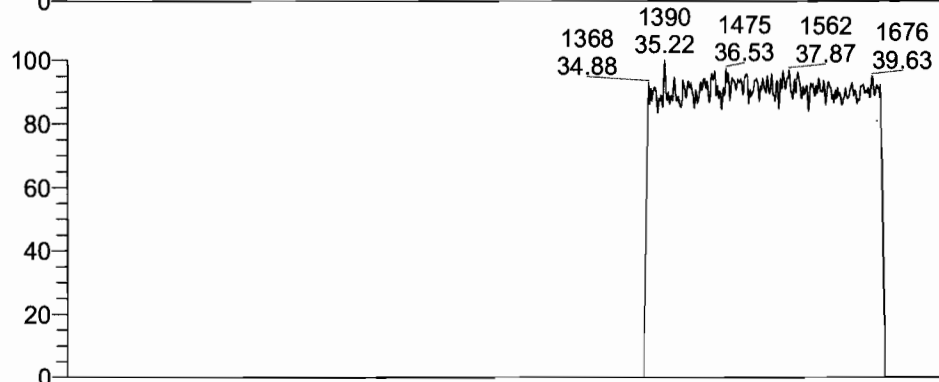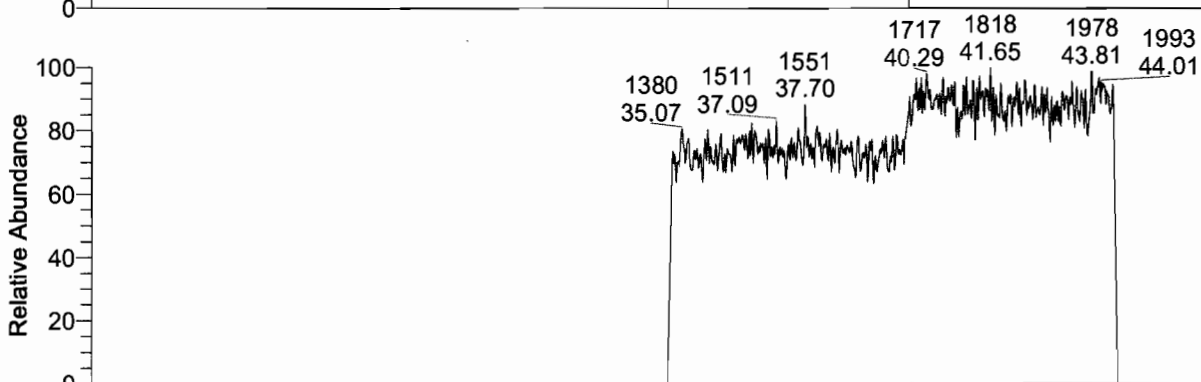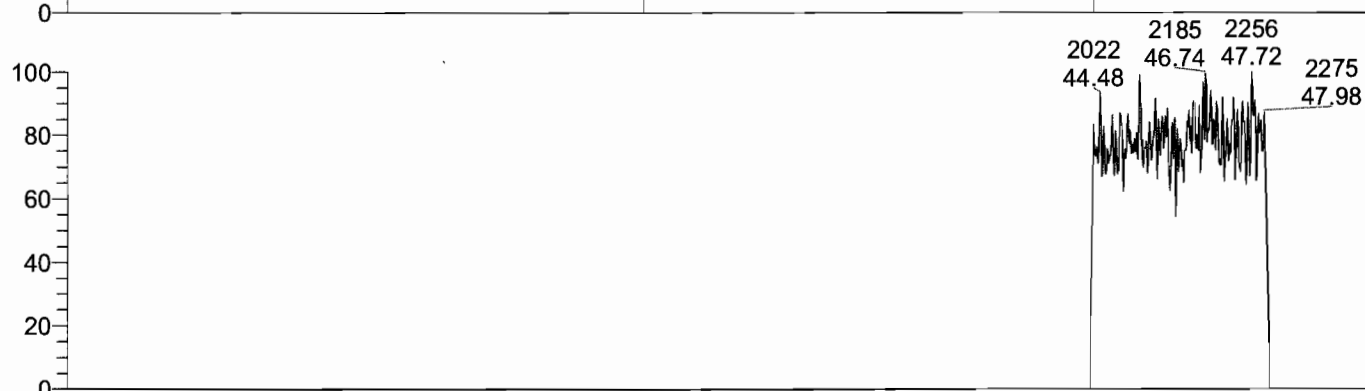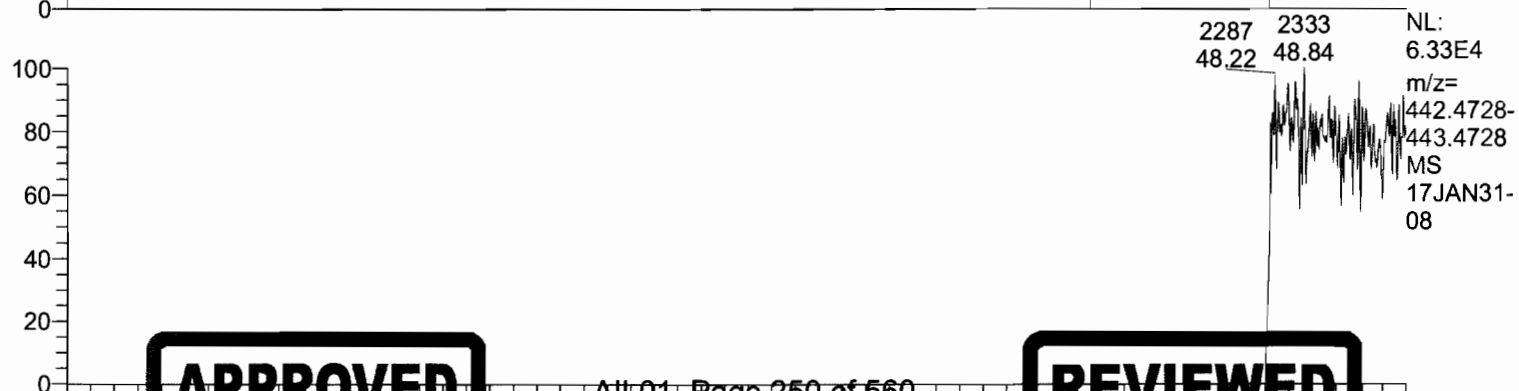Started by                - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470
```

  Analysis started at: 01-Feb-17 02:48:37

  Analysis will stop at user request

  Firmware Version: 2.02

  MCAL file name:

  Sequence : 62d69d10-234f-46c5-bc8a-53bf0dc2f3b7

  MID procedure: PFK16MAR24+MDT

Mid Time Windows:
```
        Start       Measure      End       Cycletime

# 1   11:30 min    9:30 min   21:00 min   1.00 sec
# 2   21:00 min   13:44 min   34:44 min   1.00 sec
# 3   34:44 min    5:03 min   39:47 min   0.90 sec
# 4   39:47 min    4:27 min   44:15 min   0.80 sec
# 5   44:15 min    3:45 min   48:00 min   0.80 sec
# 6   48:00 min    3:00 min   51:00 min   0.80 sec
```

Mid Masses:
 Window # 1
```
      mass F  int  gr  time (ms)
   218.0129   1    1      95
   218.9851 1 20    1       4
   220.0100   1    1      95
   230.0532   2    1      47
   232.0502   2    1      47
   251.9739   1    1      95
   253.9710   1    1      95
   264.0142   2    1      47
   266.0112   2    1      47
   285.9350   1    1      95
   287.9320   1    1      95
   292.9819 c 20    1       4
   297.9752   2    1      47
   299.9723   2    1      47
 window # 2
      mass F  int  gr  time (ms)
   292.9819 1 20    1       5
   303.9011   1    1     118
   305.8981   1    1     118
   315.9413   5    1      23
   317.9384   5    1      23
   319.8960   1    1     118
   321.8930   1    1     118
```

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```
331.9363      5  1        23
333.9333      5  1        23
339.8592      1  1       118
341.8562      1  1       118
354.9787 c   20  1         5
375.8364      2  1        59
Window # 3
    mass F  int  gr  time (ms)
330.9787 l   20  1         6
339.8592      1  1       133
341.8562      1  1       133
351.8994      3  1        44
353.8965      3  1        44
355.8541      1  1       133
357.8511      1  1       133
367.8943      3  1        44
369.8914      3  1        44
380.9755 c   20  1         6
409.7969      2  1        66
Window # 4
    mass F  int  gr  time (ms)
373.8201      1  1       117
375.8172      1  1       117
380.9755 l   20  1         5
383.8634      3  1        39
385.8604      3  1        39
389.8151      1  1       117
391.8121      1  1       117
401.8554      3  1        39
403.8524      3  1        39
430.9723 c   20  1         5
445.7550      2  1        58
Window # 5
    mass F  int  gr  time (ms)
404.9755 l   20  1         5
407.7812      1  1       117
409.7783      1  1       117
417.8244      3  1        39
419.8215      3  1        39
423.7761      1  1       117
425.7732      1  1       117
435.8164      3  1        39
437.8134      3  1        39
479.7160      2  1        58
480.9691 c   20  1         5
Window # 6
    mass F  int  gr  time (ms)
441.7422      1  1        95
442.9723 l   20  1         4
443.7393      1  1        95
453.7825      1  1        95
455.7795      1  1        95
457.7372      1  1        95
459.7342      1  1        95
469.7774      3  1        31
471.7745      3  1        31
492.9691 c   20  1         4
513.6770      2  1        47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.750000 minutes
MID Window end time was 34.740000 minutes

Page 2

```
MID Window terminated after 39.800000 minutes
MID Window end time was 39.800000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes
```

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	96.0000
BQUAD	0.4500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	156.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	175.0000
ENSBR	0.4500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	171.0000	EXSBR	-0.5300
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	13.9000
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0159	FVINLET	0.0275	FVSRC	0.0275
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	718.0000
LENS_SYM	12.7500	LM	1050.0000	LMII	500.0000
LMASS	96.0000	LKM	442.9723	MASS	96.0000
MDAC	1435550.5184	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2521.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-15.0000	RECURR	0.8962	RELEN	0.0000
RES	13122.1795	RPUSHER	-14.4982	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	664.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0180	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	96.0000	XLENS_POT	880.0000
XLENS_SYM	-2.5000	YLENS_POT	602.0000	YLENS_SYM	-7.7500

```
Source Gauge:        1.9e-005 mbar
Analyzer Penning:    5.3e-008 mbar
Pirani Analyse:      1.6e-002 mbar
Pirani Source:       2.7e-002 mbar
Pirani Inlet System: 2.8e-002 mbar
```

Scantype is magnetic

Sourcemode is EI POS

```
MID Time Window 1: Resolution is 11863.
MID Time Window 2: Resolution is 11423.
MID Time Window 3: Resolution is 11447.
MID Time Window 4: Resolution is 12156.
```

MID Time Window 5: Resolution is 13685.
MID Time Window 6: Resolution is 13122.

Amplifier Offset: 88.

*** File closed Wed Feb 01 03:39:40 2017
***

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 03:39
Number of Entries	64
Comment	
Vial	5
Sample Name	CALDF31737A
Sample ID	CS201
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-09.quan
Data	y:\17jan31\17jan31-09.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hlJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	RRT Status	Status Info
1	2378-TCDF	31.12	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.16	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.65	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.87	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.24	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.43	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.58	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.25	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.44	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.55	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.87	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.25	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.93	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.11	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.69	passed	passed	passed	passed	passed	passed	
16	OCDD	49.11	passed	passed	passed	passed	passed	passed	
17	OCDF	49.31	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.52	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.37	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.32	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	31.10	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.13	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.62	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.84	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.22	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.41	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.56	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.24	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.43	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.53	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.84	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.23	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.92	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.11	passed	passed	passed	passed	pessed	passed	
35	13C12-1234789-HpCDF	46.68	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.11	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.30	passed	passed	passed	passed	passed	passed	
38	Total TCDF	29.81	passed (1)	---	---	---	---	---	
39	Total TCDD	30.58	passed (1)	---	---	---	---	---	
40	Total PeCDF	36.93	passed (2)	---	---	---	---	---	
41	Total PeCDD	37.02	passed (1)	---	---	---	---	---	
42	Total HxCDF	41.89	passed (4)	---	---	---	---	---	
43	Total HxCDD	42.63	passed (3)	---	---	---	---	---	
44	Total HpCDD	45.66	passed (1)	---	---	---	---	---	
45	Total HpCDF	45.88	passed (2)	---	---	---	---	---	
46	Single TCDF	31.12	passed	passed	pessed	passed	passed	passed	
47	Single TCDD	32.16	passed	passed	passed	passed	pessed	passed	
48	Single PeCDD	38.24	passed	passed	passed	passed	passed	passed	
49	Single PeCDF	37.87	passed	passed	passed	passed	passed	passed	
50	Single PeCDF	36.65	passed	passed	passed	passed	passed	passed	
51	Single HpCDD	46.11	passed	passed	passed	passed	passed	passed	
52	Single HxCDF	42.25	passed	passed	passed	passed	passed	passed	
53	Single HxCDF	41.43	passed	passed	passed	passed	passed	passed	
54	Single HxCDF	41.58	passed	passed	passed	passed	passed	passed	
55	Single HxCDF	43.25	passed	passed	passed	passed	passed	passed	
56	Single HxCDD	42.87	passed	passed	passed	passed	passed	passed	
57	Single HxCDD	42.44	passed	passed	passed	passed	passed	passed	
58	Single HxCDD	42.55	passed	passed	passed	passed	passed	passed	
59	Single HpCDF	44.93	passed	passed	passed	passed	passed	passed	
60	Single HpCDF	46.69	passed	passed	passed	passed	passed	passed	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 03:39
Number of Entries	64
Comment	
Vial	5
Sample Name	CALDF31737A
Sample ID	CS201
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-09.quan
Data	y:\17jan31\17jan31-09.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 30.14 - 32.14 SM: 3G

NL: 5.75E3
m/z= 305.90-305.90 MS 17JAN31-09

NL: 4.13E3
m/z= 303.90-303.90 MS 17JAN31-09

NL: 2.90E5
m/z= 317.94-317.94 MS 17JAN31-09

NL: 2.38E5
m/z= 315.94-315.94 MS 17JAN31-09

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.12
QM Area	31629
QM Integration Mode	A
RM1 Area	23651
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0028
Unqualified Amount (A)	2.000000
Adjusted Amount (A)	2.0000
Signal-to-Noise	1696
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

REVIEWED By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 31.16 - 33.16 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.16
QM Area	21881
QM Integration Mode	A
RM1 Area	17082
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0034
Unqualified Amount (A)	2.000000
Adjusted Amount (A)	2.0000
Signal-to-Noise	1524
Client Flags	
Status Overview	passed
Status Info	

TargetQuan **APPROVED** By ujd2 at 10:16 am, 2/1/17

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Chromatogram

RT: 35.65 - 37.65 SM: 3G

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.65
QM Area	92762
QM Integration Mode	A
RM1 Area	147587
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0035
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	7457
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 36.87 - 38.87 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.87
QM Area	104540
QM Integration Mode	A
RM1 Area	170811
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0029
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	8396
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 37.24 - 39.24 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.24
QM Area	55524
QM Integration Mode	A
RM1 Area	90701
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0076
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	3287
Client Flags	
Status Overview	passed
Status Info	

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By ujd2 at 10:16 am, 2/1/17

REVIEWED
By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 40.43 - 42.43 SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.43
QM Area	107321
QM Integration Mode	A
RM1 Area	137608
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0096
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2624
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.58 - 42.58 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.58
QM Area	111365
QM Integration Mode	A
RM1 Area	138401
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0095
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2689
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.25 - 43.25 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.25
QM Area	110315
QM Integration Mode	A
RM1 Area	133019
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0093
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2697
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.45 - 43.45 SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.44
QM Area	69400
QM Integration Mode	A
RM1 Area	89195
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0099
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2528
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.56 - 43.56 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.55
QM Area	67590
QM Integration Mode	A
RM1 Area	84688
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0103
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2386
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.86 - 43.86 SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.87
QM Area	75205
QM Integration Mode	A
RM1 Area	90141
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0098
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2532
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 42.25 - 44.25   SM: 3G

NL:
3.23E4
m/z=
375.82-
375.82 MS
17JAN31-09

NL:
3.95E4
m/z=
373.82-
373.82 MS
17JAN31-09

NL:
3.53E5
m/z=
385.86-
385.86 MS
17JAN31-09

NL:
1.81E5
m/z=
383.86-
383.87 MS
17JAN31-09

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.25
QM Area	96556
QM Integration Mode	A
RM1 Area	118734
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0109
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2309
Client Flags	
Status Overview	passed
Status Info	

TargetQuan

APPROVED
By ujd2 at 10:16 am, 2/1/17

REVIEWED
By UMJS at 10:13 am, 2/2/17

ThermoFisher
scientific
790   1081

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Chromatogram

RT: 43.93 - 45.93 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.93
QM Area	111505
QM Integration Mode	A
RM1 Area	114804
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0096
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2571
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.12 - 47.12 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.11
QM Area	70434
QM Integration Mode	A
RM1 Area	71895
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0106
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2266
Client Flags	
Status Overview	passed
Status Info	

TargetQuan

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Chromatogram

RT: 45.69 - 47.69 SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.69
QM Area	98436
QM Integration Mode	A
RM1 Area	99900
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0109
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2257
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

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REVIEWED By UMJS at 10:13 am, 2/2/17 ThermoFisher

Chromatogram

RT: 48.12 - 50.12 SM: 3G

NL: 4.16E4
m/z= 459.73-459.74 MS 17JAN31-09

NL: 3.64E4
m/z= 457.74-457.74 MS 17JAN31-09

NL: 4.02E5
m/z= 471.77-471.78 MS 17JAN31-09

NL: 3.59E5
m/z= 469.78-469.78 MS 17JAN31-09

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.11
QM Area	134573
QM Integration Mode	A
RM1 Area	115762
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0111
Unqualified Amount (A)	20.000000
Adjusted Amount (A)	20.0000
Signal-to-Noise	4422
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3   **APPROVED**
By ujd2 at 10:16 am, 2/1/17

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REVIEWED
By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 48.31 - 50.31 SM: 3G

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.31
QM Area	169942
QM Integration Mode	A
RM1 Area	152697
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0079
Unqualified Amount (A)	20.000000
Adjusted Amount (A)	20.0000
Signal-to-Noise	6362
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.48 - 33.48 SM: 3G

NL:
1.60E5
m/z=
333.93-
333.94 MS
17JAN31-09

NL:
1.30E5
m/z=
331.94-
331.94 MS
17JAN31-09

NL:
1.60E5
m/z=
333.93-
333.94 MS
17JAN31-09

NL:
1.30E5
m/z=
331.94-
331.94 MS
17JAN31-09

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.52
QM Area	22844
QM Integration Mode	A
RM1 Area	15401
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0095
Unqualified Amount (A)	2.000000
Adjusted Amount (A)	2.0000
Signal-to-Noise	574
Client Flags	
Status Overview	passed
Status Info	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 03:39
Number of Entries	64
Comment	
Vial	5
Sample Name	CALDF31737A
Sample ID	CS201
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-09.quan
Data	y:\17jan31\17jan31-09.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 25.67 - 33.96 SM: 3G

NL:
5.75E3
m/z=
305.90-
305.90
MS
17JAN31-
09

NL:
4.13E3
m/z=
303.90-
303.90
MS
17JAN31-
09

Entry Parameters

Compound Name	Total TCDF
QM Retention Time	29.81
QM Area	31629
QM Integration Mode	A
RM1 Area	23651
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0028
Unqualified Amount (A)	2.000000
Adjusted Amount (A)	2.0000
Signal-to-Noise	1696
Client Flags	
Status Overview	passed (1)
Status Info	

TargetQuan 3 **APPROVED**
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By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 27.49 - 33.66 SM: 3G

Entry Parameters

Compound Name	Total TCDD
QM Retention Time	30.58
QM Area	21881
QM Integration Mode	A
RM1 Area	17082
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0034
Unqualified Amount (A)	2.000000
Adjusted Amount (A)	2.0000
Signal-to-Noise	1524
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 33.60 - 40.26 SM: 3G

Entry Parameters

Compound Name	Total PeCDF
QM Retention Time	36.93
QM Area	197302
QM Integration Mode	A
RM1 Area	318398
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0032
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	20.0000
Signal-to-Noise	7926
Client Flags	
Status Overview	passed (2)
Status Info	

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Chromatogram

RT: 35.03 - 39.01   SM: 3G

RT: 38.24

NL:
1.47E4
m/z=
357.85-
357.85
MS
17JAN31-
09

QM   35.29   35.62   36.03   36.36   36.62   36.88   37.17   37.51   37.85   38.55   38.85

RT: 38.24

NL:
2.38E4
m/z=
355.85-
355.86
MS
17JAN31-
09

RM1   35.45   36.00   36.30   36.63   36.91   37.37   37.84   38.68

35.5   36.0   36.5   37.0   37.5   38.0   38.5   39.0
Time (min)

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.02
QM Area	55524
QM Integration Mode	A
RM1 Area	90701
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0076
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	3287
Client Flags	
Status Overview	passed (1)
Status Info	

Chromatogram

RT: 39.89 - 43.89 SM: 3G

Entry Parameters

Compound Name	Total HxCDF
QM Retention Time	41.89
QM Area	425558
QM Integration Mode	A
RM1 Area	527761
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0098
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	40.0000
Signal-to-Noise	2580
Client Flags	
Status Overview	passed (4)
Status Info	

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Chromatogram

RT: 41.33 - 43.93 SM: 3G

NL:
2.17E4
m/z=
391.81-
391.81
MS
17JAN31-
09

NL:
2.68E4
m/z=
389.81-
389.82
MS
17JAN31-
09

Entry Parameters

Compound Name	Total HxCDD
QM Retention Time	42.63
QM Area	212195
QM Integration Mode	A
RM1 Area	264024
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0100
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	30.0000
Signal-to-Noise	2482
Client Flags	
Status Overview	passed (3)
Status Info	

TargetQuan 3

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Chromatogram

RT: 44.66 - 46.66 SM: 3G

Entry Parameters

Compound Name	Total HpCDD
QM Retention Time	45.66
QM Area	70434
QM Integration Mode	A
RM1 Area	71895
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0106
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2266
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 44.72 - 47.03 SM: 3G

NL:
3.44E4
m/z=
409.78-
409.78
MS
17JAN31-
09

NL:
3.43E4
m/z=
407.78-
407.78
MS
17JAN31-
09

Entry Parameters

Compound Name	Total HpCDF
QM Retention Time	45.88
QM Area	209941
QM Integration Mode	A
RM1 Area	214704
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0102
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	20.0000
Signal-to-Noise	2414
Client Flags	
Status Overview	passed (2)
Status Info	

TargetQuan3 **APPROVED**
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Entry Parameters

No	Compound Name	Quan. Mass	Ratio Mass 1	RT Window [min]	Specified RT [min]	QM Retention Time	RM1 Retention Time	RM1 Time Status	RRT Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	0.67	31.12	31.12	31.14	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	0.67	32.16	32.16	32.16	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	36.65	36.65	36.65	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	37.87	37.87	37.87	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	0.67	38.24	38.24	38.24	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.43	41.43	41.43	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.58	41.58	41.58	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	42.25	42.25	42.25	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.44	42.44	42.44	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.55	42.55	42.55	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.87	42.87	42.87	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	43.25	43.25	43.26	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	44.93	44.93	44.93	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	0.67	46.11	46.11	46.12	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	46.69	46.69	46.69	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	0.67	49.11	49.11	49.12	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	0.67	49.31	49.31	49.31	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	1.00	32.52	32.52	32.52	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	31.37	31.37	31.37	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	1.00	41.32	41.32	41.31	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	0.67	31.10	31.10	31.10	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	32.13	32.13	32.13	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	36.62	36.62	36.62	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	37.84	37.84	37.84	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	0.67	38.22	38.22	38.22	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.41	41.41	41.41	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.56	41.56	41.56	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	42.24	42.24	42.24	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.43	42.43	42.43	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.53	42.53	42.53	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.84	42.84	42.84	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	43.23	43.23	43.23	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	44.92	44.92	44.92	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	0.67	46.11	46.11	46.11	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	46.68	46.68	46.68	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	0.67	49.11	49.11	49.11	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	1.00	49.30	49.30	49.30	passed	passed
38	Total TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.54	29.81	29.81	29.81	---	---
39	Total TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.61	30.58	30.58	30.58	---	---
40	Total PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	6.06	36.93	36.93	36.93	---	---
41	Total PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.62	37.02	37.02	37.02	---	---
42	Total HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.63	41.89	41.89	41.89	---	---
43	Total HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.37	42.63	42.63	42.63	---	---
44	Total HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.06	45.66	45.66	45.66	---	---
45	Total HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	45.88	45.88	45.88	---	---
46	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.54	31.12	31.12	31.14	passed	passed
47	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.61	32.16	32.16	32.16	passed	passed
48	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.62	38.24	38.24	38.24	passed	passed
49	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	6.06	37.87	37.87	37.87	passed	passed
50	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	6.06	36.65	36.65	36.65	passed	passed
51	Single HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.06	46.11	46.11	46.12	passed	passed
52	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.63	42.25	42.25	42.25	passed	passed
53	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.63	41.43	41.43	41.43	passed	passed
54	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.63	41.58	41.58	41.58	passed	passed
55	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.63	43.25	43.25	43.26	passed	passed
56	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.37	42.87	42.87	42.87	passed	passed
57	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.37	42.44	42.44	42.44	passed	passed
58	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.37	42.55	42.55	42.55	passed	passed
59	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	44.93	44.93	44.93	passed	passed
60	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	46.69	46.69	46.69	passed	passed

TargetQuan **APPROVED** By ujd2 at 10:16 am, 2/1/17

REVIEWED By UMJS at 10:13 am, 2/2/17

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	31.12	0.7478	0.6450 -	0.8950	passed	100.00	0 -	0	passed
2	2378-TCDD	32.16	0.7807	0.6450 -	0.8950	passed	100.00	0 -	0	passed
3	12378-PeCDF	36.65	1.5910	1.3150 -	1.7850	passed	100.00	0 -	0	passed
4	23478-PeCDF	37.87	1.6339	1.3150 -	1.7850	passed	100.00	0 -	0	passed
5	12378-PeCDD	38.24	1.6335	1.3150 -	1.7850	passed	100.00	0 -	0	passed
6	123478-HxCDF	41.43	1.2822	1.0450 -	1.4350	pessed	100.00	0 -	0	passed
7	123678-HxCDF	41.58	1.2428	1.0450 -	1.4350	passed	100.00	0 -	0	passed
8	234678-HxCDF	42.25	1.2058	1.0450 -	1.4350	passed	100.00	0 -	0	passed
9	123478-HxCDD	42.44	1.2852	1.0450 -	1.4350	passed	100.00	0 -	0	passed
10	123678-HxCDD	42.55	1.2530	1.0450 -	1.4350	passed	100.00	0 -	0	passed
11	123789-HxCDD	42.87	1.1986	1.0450 -	1.4350	passed	100.00	0 -	0	passed
12	123789-HxCDF	43.25	1.2297	1.0450 -	1.4350	passed	100.00	0 -	0	passed
13	1234678-HpCDF	44.93	1.0296	0.8750 -	1.2050	passed	100.00	0 -	0	passed
14	1234678-HpCDD	46.11	1.0207	0.8750 -	1.2050	passed	100.00	0 -	0	passed
15	1234789-HpCDF	46.69	1.0149	0.8750 -	1.2050	passed	100.00	0 -	0	passed
16	OCDD	49.11	0.8602	0.7550 -	1.0250	passed	100.00	0 -	0	passed
17	OCDF	49.31	0.8985	0.7550 -	1.0250	passed	100.00	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.52	0.6742	0.6450 -	0.8950	passed	100.00	0 -	0	passed
19	13C12-1234-TCDD	31.37	0.8195	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.32	1.2704	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	31.10	0.8159	0.6450 -	0.8950	passed	100.00	0 -	0	passed
22	13C12-2378-TCDD	32.13	0.8190	0.6450 -	0.8950	passed	100.00	0 -	0	passed
23	13C12-12378-PeCDF	36.62	1.5903	1.3150 -	1.7850	passed	100.00	0 -	0	passed
24	13C12-23478-PeCDF	37.84	1.5456	1.3150 -	1.7850	passed	100.00	0 -	0	passed
25	13C12-12378-PeCDD	38.22	1.5977	1.3150 -	1.7850	passed	100.00	0 -	0	passed
26	13C12-123478-HxCDF	41.41	0.5162	0.4250 -	0.5950	passed	100.00	0 -	0	passed
27	13C12-123678-HxCDF	41.56	0.5384	0.4250 -	0.5950	passed	100.00	0 -	0	passed
28	13C12-234678-HxCDF	42.24	0.5277	0.4250 -	0.5950	passed	100.00	0 -	0	passed
29	13C12-123478-HxCDD	42.43	1.2983	1.0450 -	1.4350	passed	100.00	0 -	0	passed
30	13C12-123678-HxCDD	42.53	1.2506	1.0450 -	1.4350	passed	100.00	0 -	0	passed
31	13C12-123789-HxCDD	42.84	1.2375	1.0450 -	1.4350	passed	100.00	0 -	0	passed
32	13C12-123789-HxCDF	43.23	0.5219	0.4250 -	0.5950	passed	100.00	0 -	0	passed
33	13C12-1234678-HpCDF	44.92	0.4560	0.3650 -	0.5150	passed	100.00	0 -	0	passed
34	13C12-1234678-HpCDD	46.11	1.0579	0.8750 -	1.2050	passed	100.00	0 -	0	passed
35	13C12-1234789-HpCDF	46.68	0.4559	0.3650 -	0.5150	passed	100.00	0 -	0	passed
36	13C12-OCDD	49.11	0.8984	0.7550 -	1.0250	passed	100.00	0 -	0	passed
37	13C12-OCDF	49.30	0.9061	0.7550 -	1.0250	passed	100.00	0 -	0	passed
38	Total TCDF	29.81	0.7478	0.6450 -	0.8950	---	100.00	0 -	0	---
39	Total TCDD	30.58	0.7807	0.6450 -	0.8950	---	100.00	0 -	0	---
40	Total PeCDF	36.93	1.6138	1.3150 -	1.7850	---	100.00	0 -	0	---
41	Total PeCDD	37.02	1.6335	1.3150 -	1.7850	---	100.00	0 -	0	---
42	Total HxCDF	41.89	1.2402	1.0450 -	1.4350	---	100.00	0 -	0	---
43	Total HxCDD	42.63	1.2443	1.0450 -	1.4350	---	100.00	0 -	0	---
44	Total HpCDD	45.66	1.0207	0.8750 -	1.2050	---	100.00	0 -	0	---
45	Total HpCDF	45.88	1.0227	0.8750 -	1.2050	---	100.00	0 -	0	---
46	Single TCDF	31.12	0.7478	0.6450 -	0.8950	passed	100.00	0 -	0	passed
47	Single TCDD	32.16	0.7807	0.6450 -	0.8950	passed	100.00	0 -	0	passed
48	Single PeCDD	38.24	1.6335	1.3150 -	1.7850	passed	100.00	0 -	0	passed
49	Single PeCDF	37.87	1.6339	1.3150 -	1.7850	passed	100.00	0 -	0	passed
50	Single PeCDF	36.65	1.5910	1.3150 -	1.7850	passed	100.00	0 -	0	passed
51	Single HpCDD	46.11	1.0207	0.8750 -	1.2050	passed	100.00	0 -	0	passed
52	Single HxCDF	42.25	1.2058	1.0450 -	1.4350	passed	100.00	0 -	0	passed
53	Single HxCDF	41.43	1.2822	1.0450 -	1.4350	passed	100.00	0 -	0	passed
54	Single HxCDF	41.58	1.2428	1.0450 -	1.4350	passed	100.00	0 -	0	passed
55	Single HxCDF	43.25	1.2297	1.0450 -	1.4350	passed	100.00	0 -	0	passed
56	Single HxCDD	42.87	1.1986	1.0450 -	1.4350	passed	100.00	0 -	0	passed
57	Single HxCDD	42.44	1.2852	1.0450 -	1.4350	passed	100.00	0 -	0	passed
58	Single HxCDD	42.55	1.2530	1.0450 -	1.4350	passed	100.00	0 -	0	passed
59	Single HpCDF	44.93	1.0296	0.8750 -	1.2050	passed	100.00	0 -	0	passed
60	Single HpCDF	46.69	1.0149	0.8750 -	1.2050	passed	100.00	0 -	0	passed

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Noise	Client Flags
1	2378-TCDF	passed	31.12	31629	A	23651	A	0.0028	2.000000	2.0000	2.000000	1696	
2	2378-TCDD	passed	32.16	21881	A	17082	A	0.0034	2.000000	2.0000	2.000000	1524	
3	12378-PeCDF	passed	36.65	92762	A	147587	A	0.0035	10.000000	10.0000	10.000000	7457	
4	23478-PeCDF	passed	37.87	104540	A	170811	A	0.0029	10.000000	10.0000	10.000000	8396	
5	12378-PeCDD	passed	38.24	55524	A	90701	A	0.0076	10.000000	10.0000	10.000000	3287	
6	123478-HxCDF	passed	41.43	107321	A	137608	A	0.0096	10.000000	10.0000	10.000000	2624	
7	123678-HxCDF	passed	41.58	111365	A	138401	A	0.0095	10.000000	10.0000	10.000000	2689	
8	234678-HxCDF	passed	42.25	110315	A	133019	A	0.0093	10.000000	10.0000	10.000000	2697	
9	123478-HxCDD	passed	42.44	69400	A	89195	A	0.0099	10.000000	10.0000	10.000000	2528	
10	123678-HxCDD	passed	42.55	67590	A	84688	A	0.0103	10.000000	10.0000	10.000000	2386	
11	123789-HxCDD	passed	42.87	75205	A	90141	A	0.0098	10.000000	10.0000	10.000000	2532	
12	123789-HxCDF	passed	43.25	96556	A	118734	A	0.0109	10.000000	10.0000	10.000000	2309	
13	1234678-HxCDF	passed	44.93	111505	A	114804	A	0.0096	10.000000	10.0000	10.000000	2571	
14	1234678-HpCDD	passed	46.11	70434	A	71895	A	0.0106	10.000000	10.0000	10.000000	2266	
15	1234789-HpCDF	passed	46.69	98436	A	99900	A	0.0109	10.000000	10.0000	10.000000	2257	
16	OCDD	passed	49.11	134573	A	115762	A	0.0111	20.000000	20.0000	20.000000	4422	
17	OCDF	passed	49.31	169942	A	152697	A	0.0079	20.000000	20.0000	20.000000	6362	
18	13C12-1278-TCDD (CRS)	passed	32.52	22844	A	15401	A	0.0095	2.000000	2.0000	2.000000	574	
19	13C12-1234-TCDD	passed	31.37	808178	A	662288	A	0.0123	100.000000	100.0000	100.000000	20249	
20	13C12-123468-HxCDD	passed	41.32	717819	A	911917	A	0.0300	100.000000	100.0000	100.000000	8340	
21	13C12-2378-TCDF	passed	31.10	1545520	A	1261082	A	0.0074	100.000000	100.0000	100.000000	33356	
22	13C12-2378-TCDD	passed	32.13	809922	A	663354	A	0.0123	100.000000	100.0000	100.000000	21117	
23	13C12-12378-PeCDF	passed	36.62	978544	A	1556140	A	0.0293	100.000000	100.0000	100.000000	10922	
24	13C12-23478-PeCDF	passed	37.84	984613	A	1521769	A	0.0296	100.000000	100.0000	100.000000	11259	
25	13C12-12378-PeCDD	passed	38.22	541394	A	865010	A	0.0156	100.000000	100.0000	100.000000	22189	
26	13C12-123478-HxCDF	passed	41.41	1370072	A	707227	A	0.0243	100.000000	100.0000	100.000000	10449	
27	13C12-123678-HxCDF	passed	41.56	1412661	A	760561	A	0.0232	100.000000	100.0000	100.000000	10892	
28	13C12-234678-HxCDF	passed	42.24	1321539	A	697387	A	0.0250	100.000000	100.0000	100.000000	10591	
29	13C12-123478-HxCDD	passed	42.43	672815	A	873530	A	0.0316	100.000000	100.0000	100.000000	8584	
30	13C12-123678-HxCDD	passed	42.53	679999	A	850432	A	0.0319	100.000000	100.0000	100.000000	8523	
31	13C12-123789-HxCDD	passed	42.84	670540	A	829773	A	0.0326	100.000000	100.0000	100.000000	8061	
32	13C12-123789-HxCDF	passed	43.23	1237959	A	646124	A	0.0268	100.000000	100.0000	100.000000	9505	
33	13C12-1234678-HpCDF	passed	44.92	1203015	A	548526	A	0.0347	100.000000	100.0000	100.000000	7981	
34	13C12-1234678-HpCDD	passed	46.11	656057	A	694053	A	0.0216	100.000000	100.0000	100.000000	13097	
35	13C12-1234789-HpCDF	passed	46.68	997321	A	454681	A	0.0418	100.000000	100.0000	100.000000	6624	
36	13C12-OCDD	passed	49.11	1267817	A	1139034	A	0.0197	200.000000	200.0000	200.000000	28759	
37	13C12-OCDF	passed	49.30	1830640	A	1658657	A	0.0219	200.000000	200.0000	200.000000	26053	
38	Total TCDF	passed (1)	29.81	31629	A	23651	A	0.0028	2.000000	2.0000	2.000000	1696	
39	Total TCDD	passed (1)	30.58	21881	A	17082	A	0.0034	2.000000	2.0000	2.000000	1524	
40	Total PeCDF	passed (2)	36.93	197302	A	318398	A	0.0032	10.000000	20.0000	10.000000	7926	
41	Total PeCDD	passed (1)	37.02	55524	A	90701	A	0.0076	10.000000	10.0000	10.000000	3287	
42	Total HxCDF	passed (4)	41.89	425558	A	527761	A	0.0098	10.000000	40.0000	10.000000	2580	
43	Total HxCDD	passed (3)	42.63	212195	A	264024	A	0.0100	10.000000	30.0000	10.000000	2482	
44	Total HpCDD	passed (1)	45.66	70434	A	71895	A	0.0106	10.000000	10.0000	10.000000	2266	
45	Total HpCDF	passed (2)	45.88	209941	A	214704	A	0.0102	10.000000	20.0000	10.000000	2414	
46	Single TCDF	passed	31.12	31629	A	23651	A	0.0028	2.000000	2.0000	2.000000	1696	
47	Single TCDD	passed	32.16	21881	A	17082	A	0.0034	2.000000	2.0000	2.000000	1524	
48	Single PeCDD	passed	38.24	55524	A	90701	A	0.0076	10.000000	10.0000	10.000000	3287	
49	Single PeCDF	passed	37.87	104540	A	170811	A	0.0030	10.000000	10.0000	10.000000	8396	
50	Single PeCDF	passed	36.65	92762	A	147587	A	0.0034	10.000000	10.0000	10.000000	7457	
51	Single HpCDD	passed	46.11	70434	A	71895	A	0.0106	10.000000	10.0000	10.000000	2266	
52	Single HxCDF	passed	42.25	110315	A	133019	A	0.0096	10.000000	10.0000	10.000000	2697	
53	Single HxCDF	passed	41.43	107321	A	137608	A	0.0095	10.000000	10.0000	10.000000	2624	
54	Single HxCDF	passed	41.58	111365	A	138401	A	0.0093	10.000000	10.0000	10.000000	2689	
55	Single HxCDF	passed	43.25	96556	A	118734	A	0.0108	10.000000	10.0000	10.000000	2309	
56	Single HxCDD	passed	42.87	75205	A	90141	A	0.0096	10.000000	10.0000	10.000000	2532	
57	Single HxCDD	passed	42.44	69400	A	89195	A	0.0100	10.000000	10.0000	10.000000	2528	
58	Single HxCDD	passed	42.55	67590	A	84688	A	0.0104	10.000000	10.0000	10.000000	2386	
59	Single HpCDF	passed	44.93	111505	A	114804	A	0.0096	10.000000	10.0000	10.000000	2571	
60	Single HpCDF	passed	46.69	98436	A	99900	A	0.0109	10.000000	10.0000	10.000000	2257	

File Name: Y:\17JAN31\17JAN31-09   Acq. Data: 2/1/2017 3:39:47 AM   Instrument ID: DF18471-17JAN31
Sample ID: CS201   Sample Name: CALDF31737A
    PFK Reference Lock Mass Traces

RT: 22.50 - 51.00

APPROVED
By ujd2 at 10:16 am, 2/1/17

REVIEWED
By UMJS at 10:13 am, 2/2/17

```
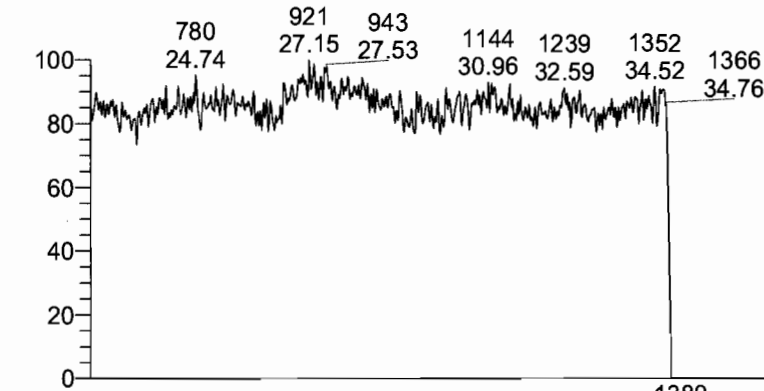*** file opened Wed Feb 01 03:45:10 2017 ***

Started by                - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

  Analysis started at: 01-Feb-17 03:45:10


  Analysis will stop at user request


  Firmware Version: 2.02


  MCAL file name:


  Sequence : 62d69d10-234f-46c5-bc8a-53bf0dc2f3b7


  MID procedure: PFK16MAR24+MDT



Mid Time Windows:
        Start         Measure      End         Cycletime

# 1  11:30 min    9:30 min   21:00 min    1.00 sec
# 2  21:00 min   13:44 min   34:44 min    1.00 sec
# 3  34:44 min    5:03 min   39:47 min    0.90 sec
# 4  39:47 min    4:27 min   44:15 min    0.80 sec
# 5  44:15 min    3:45 min   48:00 min    0.80 sec
# 6  48:00 min    3:00 min   51:00 min    0.80 sec

Mid Masses:
 window # 1
     mass F  int  gr  time (ms)
    218.0129    1  1       95
    218.9851 l  20  1        4
    220.0100    1  1       95
    230.0532    2  1       47
    232.0502    2  1       47
    251.9739    1  1       95
    253.9710    1  1       95
    264.0142    2  1       47
    266.0112    2  1       47
    285.9350    1  1       95
    287.9320    1  1       95
    292.9819 c  20  1        4
    297.9752    2  1       47
    299.9723    2  1       47
 window # 2
     mass F  int  gr  time (ms)
    292.9819 l  20  1        5
    303.9011    1  1      118
    305.8981    1  1      118
    315.9413    5  1       23
    317.9384    5  1       23
    319.8960    1  1      118
    321.8930    1  1      118
```
Page 1

```
331.9363      5  1       23
333.9333      5  1       23
339.8592      1  1      118
341.8562      1  1      118
354.9787 c   20  1        5
375.8364      2  1       59
Window # 3
    mass F   int gr  time (ms)
330.9787 ]   20  1        6
339.8592      1  1      133
341.8562      1  1      133
351.8994      3  1       44
353.8965      3  1       44
355.8541      1  1      133
357.8511      1  1      133
367.8943      3  1       44
369.8914      3  1       44
380.9755 c   20  1        6
409.7969      2  1       66
Window # 4
    mass F   int gr  time (ms)
373.8201      1  1      117
375.8172      1  1      117
380.9755 ]   20  1        5
383.8634      3  1       39
385.8604      3  1       39
389.8151      1  1      117
391.8121      1  1      117
401.8554      3  1       39
403.8524      3  1       39
430.9723 c   20  1        5
445.7550      2  1       58
Window # 5
    mass F   int gr  time (ms)
404.9755 ]   20  1        5
407.7812      1  1      117
409.7783      1  1      117
417.8244      3  1       39
419.8215      3  1       39
423.7761      1  1      117
425.7732      1  1      117
435.8164      3  1       39
437.8134      3  1       39
479.7160      2  1       58
480.9691 c   20  1        5
Window # 6
    mass F   int gr  time (ms)
441.7422      1  1       95
442.9723 ]   20  1        4
443.7393      1  1       95
453.7825      1  1       95
455.7795      1  1       95
457.7372      1  1       95
459.7342      1  1       95
469.7774      3  1       31
471.7745      3  1       31
492.9691 c   20  1        4
513.6770      2  1       47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.750000 minutes
MID Window end time was 34.740000 minutes

Page 2

MID Window terminated after 39.800000 minutes
MID Window end time was 39.800000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	95.5000
BQUAD	0.4500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	156.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	175.0000
ENSBR	0.4500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	171.0000	EXSBR	-0.5300
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	13.9000
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0157	FVINLET	0.0276	FVSRC	0.0272
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	718.0000
LENS_SYM	12.7500	LM	1050.0000	LMII	500.0000
LMASS	95.5000	LKM	442.9723	MASS	95.5000
MDAC	1429287.2593	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2521.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-15.0000	RECURR	0.8962	RELEN	0.0000
RES	13526.1016	RPUSHER	-14.5861	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	664.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0180	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	95.5000	XLENS_POT	880.0000
XLENS_SYM	-2.5000	YLENS_POT	602.0000	YLENS_SYM	-7.7500

Source Gauge: 2.0e-005 mbar
Analyzer Penning: 5.2e-008 mbar
Pirani Analyse: 1.5e-002 mbar
Pirani Source: 2.7e-002 mbar
Pirani Inlet System: 2.8e-002 mbar

Scantype is magnetic

Sourcemode is EI POS

MID Time Window 1: Resolution is 11437.
MID Time Window 2: Resolution is 11372.
MID Time Window 3: Resolution is 11130.
MID Time Window 4: Resolution is 11505.

Page 3

MID Time Window 5: Resolution is 14477.
MID Time Window 6: Resolution is 13526.

Amplifier Offset: 88.

*** File closed Wed Feb 01 04:36:12 2017
***

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 04:36
Number of Entries	64
Comment	
Vial	6
Sample Name	CALDF41737A
Sample ID	CS301
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-10.quan
Data	y:\17jan31\17jan31-10.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	RRT Status	Status Info
1	2378-TCDF	31.13	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.15	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.65	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.86	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.24	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.42	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.57	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.26	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.43	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.55	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.86	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.25	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.94	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.11	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.68	passed	passed	passed	passed	passed	passed	
16	OCDD	49.12	passed	passed	passed	passed	passed	passed	
17	OCDF	49.32	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.51	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.38	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.31	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	31.11	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.13	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.62	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.84	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.23	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.41	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.56	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.24	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.42	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.54	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.85	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.24	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.93	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.10	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.67	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.10	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.30	passed	passed	passed	passed	passed	passed	
38	Total TCDF	29.82	passed (1)	---	---	---	---	—	
39	Total TCDD	30.59	passed (1)	---	---	---	---	—	
40	Total PeCDF	36.94	passed (2)	---	---	---	---	—	
41	Total PeCDD	37.03	passed (1)	---	---	---	---	—	
42	Total HxCDF	41.88	passed (4)	---	---	---	---	—	
43	Total HxCDD	42.62	passed (3)	---	---	---	---	—	
44	Total HpCDD	45.65	passed (1)	---	---	---	---	—	
45	Total HpCDF	45.87	passed (2)	---	---	---	---	—	
46	Single TCDF	31.13	passed	passed	passed	passed	passed	passed	
47	Single TCDD	32.15	passed	passed	passed	passed	passed	passed	
48	Single PeCDD	38.24	passed	passed	passed	passed	passed	passed	
49	Single PeCDF	37.86	passed	passed	passed	passed	passed	passed	
50	Single PeCDF	36.65	passed	passed	passed	passed	passed	passed	
51	Single HpCDD	46.11	passed	passed	passed	passed	passed	passed	
52	Single HxCDF	42.26	passed	passed	passed	passed	passed	passed	
53	Single HxCDF	41.42	passed	passed	passed	passed	passed	passed	
54	Single HxCDF	41.57	passed	passed	passed	passed	passed	passed	
55	Single HxCDF	43.25	passed	passed	passed	passed	passed	passed	
56	Single HxCDD	42.86	passed	passed	passed	passed	passed	passed	
57	Single HxCDD	42.43	passed	passed	passed	passed	passed	passed	
58	Single HxCDD	42.55	passed	passed	passed	passed	passed	passed	
59	Single HpCDF	44.94	passed	passed	passed	passed	passed	passed	
60	Single HpCDF	46.68	passed	passed	passed	passed	passed	passed	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 04:36
Number of Entries	64
Comment	
Vial	6
Sample Name	CALDF41737A
Sample ID	CS301
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-10.quan
Data	y:\17jan31\17jan31-10.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 30.15 - 32.15 SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.13
QM Area	126925
QM Integration Mode	A
RM1 Area	101187
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0048
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	5296
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.17 - 33.17 SM: 3G

NL:
1.66E4
m/z=
321.89-
321.90 MS
17JAN31-10

NL:
1.26E4
m/z=
319.89-
319.90 MS
17JAN31-10

NL:
1.32E5
m/z=
333.93-
333.94 MS
17JAN31-10

NL:
1.04E5
m/z=
331.94-
331.94 MS
17JAN31-10

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.15
QM Area	83956
QM Integration Mode	A
RM1 Area	64932
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0056
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	4430
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3   **APPROVED** By ujd2 at 10:16 am, 2/1/17

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Chromatogram

RT: 35.66 - 37.66 SM: 3G

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.65
QM Area	404299
QM Integration Mode	A
RM1 Area	637239
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0058
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	21668
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 36.87 - 38.87 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.86
QM Area	458862
QM Integration Mode	A
RM1 Area	723138
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0048
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	25623
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 37.24 - 39.24 SM: 3G

NL:
6.69E4
m/z=
357.85-
357.85 MS
17JAN31-10

NL:
1.05E5
m/z=
355.85-
355.86 MS
17JAN31-10

NL:
1.24E5
m/z=
369.89-
369.89 MS
17JAN31-10

NL:
2.03E5
m/z=
367.89-
367.90 MS
17JAN31-10

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.24
QM Area	253735
QM Integration Mode	A
RM1 Area	395844
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0132
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	9517
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3

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Chromatogram

RT: 40.42 - 42.42   SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.42
QM Area	490884
QM Integration Mode	A
RM1 Area	608801
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0178
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6810
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.58 - 42.58 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.57
QM Area	497196
QM Integration Mode	A
RM1 Area	618722
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0178
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6912
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 41.26 - 43.26 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.26
QM Area	490433
QM Integration Mode	A
RM1 Area	614127
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0180
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	7069
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.43 - 43.43 SM: 3G

NL:
9.56E4
m/z=
391.81-
391.81 MS
17JAN31-10

NL:
1.21E5
m/z=
389.81-
389.82 MS
17JAN31-10

NL:
1.85E5
m/z=
403.85-
403.85 MS
17JAN31-10

NL:
2.34E5
m/z=
401.85-
401.86 MS
17JAN31-10

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.43
QM Area	316134
QM Integration Mode	A
RM1 Area	393975
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0187
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6577
Client Flags	
Status Overview	passed
Status Info	

TargetQua3

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Chromatogram

RT: 41.55 - 43.55 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.55
QM Area	311420
QM Integration Mode	A
RM1 Area	400139
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0189
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6719
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.86 - 43.86 SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.86
QM Area	325889
QM Integration Mode	A
RM1 Area	412542
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0182
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6819
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 42.25 - 44.25 SM: 3G

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.25
QM Area	423867
QM Integration Mode	A
RM1 Area	531146
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0204
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6184
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 43.94 - 45.94 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.94
QM Area	513505
QM Integration Mode	A
RM1 Area	539020
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0160
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	7792
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 45.12 - 47.12 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.11
QM Area	328495
QM Integration Mode	A
RM1 Area	345592
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0182
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6938
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.68 - 47.68 SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.68
QM Area	446612
QM Integration Mode	A
RM1 Area	482805
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0187
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6747
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.12 - 50.12 SM: 3G

NL:
1.99E5
m/z=
459.73-
459.74 MS
17JAN31-10

NL:
1.77E5
m/z=
457.74-
457.74 MS
17JAN31-10

NL:
3.78E5
m/z=
471.77-
471.78 MS
17JAN31-10

NL:
3.34E5
m/z=
469.78-
469.78 MS
17JAN31-10

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.12
QM Area	623186
QM Integration Mode	A
RM1 Area	555804
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0200
Unqualified Amount (A)	100.000000
Adjusted Amount (A)	100.0000
Signal-to-Noise	12844
Client Flags	
Status Overview	passed
Status Info	

TargetQuan B

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Chromatogram

RT: 48.32 - 50.32 SM: 3G

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.32
QM Area	813641
QM Integration Mode	A
RM1 Area	739445
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0144
Unqualified Amount (A)	100.000000
Adjusted Amount (A)	100.0000
Signal-to-Noise	17357
Client Flags	
Status Overview	passed
Status Info	

TargetQua B **APPROVED** By ujd2 at 10:16 am, 2/1/17   AIL01 Page 812 of 560   **REVIEWED** By UMJS at 10:13 am, 2/2/17   ThermoFisher scientific
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Chromatogram

RT: 31.49 - 33.49 SM: 3G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.51
QM Area	81841
QM Integration Mode	A
RM1 Area	71666
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0108
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	2783
Client Flags	
Status Overview	passed
Status Info	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 04:36
Number of Entries	64
Comment	
Vial	6
Sample Name	CALDF41737A
Sample ID	CS301
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-10.quan
Data	y:\17jan31\17jan31-10.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

TargetQual B **APPROVED**
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Chromatogram

RT: 25.64 - 34.00 SM: 3G

NL:
2.36E4
m/z=
305.90-
305.90
MS
17JAN31-
10

NL:
1.90E4
m/z=
303.90-
303.90
MS
17JAN31-
10

Entry Parameters

Compound Name	Total TCDF
QM Retention Time	29.82
QM Area	126925
QM Integration Mode	A
RM1 Area	101187
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0048
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	5296
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 27.51 - 33.67 SM: 3G

Entry Parameters

Compound Name	Total TCDD
QM Retention Time	30.59
QM Area	83956
QM Integration Mode	A
RM1 Area	64932
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0056
Unqualified Amount (A)	10.000000
Adjusted Amount (A)	10.0000
Signal-to-Noise	4430
Client Flags	
Status Overview	passed (1)
Status Info	

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17JAN31-10 printed 2/1/2017 10:02
Sample CALDF41737A / CS30
Inst ID: DF18471-17JAN31 / Client:

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Chromatogram

RT: 33.68 - 40.20 SM: 3G

Entry Parameters

Compound Name	Total PeCDF
QM Retention Time	36.94
QM Area	863161
QM Integration Mode	A
RM1 Area	1360377
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0053
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	100.0000
Signal-to-Noise	23646
Client Flags	
Status Overview	passed (2)
Status Info	

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Chromatogram

RT: 35.07 - 38.99 SM: 3G

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.03
QM Area	253735
QM Integration Mode	A
RM1 Area	395844
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0132
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	9517
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 39.91 - 43.86 SM: 3G

Entry Parameters

Compound Name	Total HxCDF
QM Retention Time	41.88
QM Area	1902380
QM Integration Mode	A
RM1 Area	2372796
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0185
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	6744
Client Flags	
Status Overview	passed (4)
Status Info	

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Chromatogram

RT: 41.25 - 44.00 SM: 3G

Entry Parameters

Compound Name	Total HxCDD
QM Retention Time	42.62
QM Area	953444
QM Integration Mode	A
RM1 Area	1206656
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0186
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	150.0000
Signal-to-Noise	6705
Client Flags	
Status Overview	passed (3)
Status Info	

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Chromatogram

RT: 44.65 - 46.65 SM: 3G

Entry Parameters

Compound Name	Total HpCDD
QM Retention Time	45.65
QM Area	328495
QM Integration Mode	A
RM1 Area	345592
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0182
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	50.0000
Signal-to-Noise	6938
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 44.72 - 47.03 SM: 3G

Entry Parameters

Compound Name	Total HpCDF
QM Retention Time	45.87
QM Area	960117
QM Integration Mode	A
RM1 Area	1021825
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0173
Unqualified Amount (A)	50.000000
Adjusted Amount (A)	100.0000
Signal-to-Noise	7270
Client Flags	
Status Overview	passed (2)
Status Info	

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	RT Window [min]	Specified RT [min]	QM Retention Time	RM1 Retention Time	RM1 Time Status	RRT Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	0.67	31.13	31.13	31.13	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	0.67	32.15	32.15	32.15	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	36.65	36.65	36.65	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	37.86	37.86	37.86	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	0.67	38.24	38.24	38.24	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.42	41.42	41.42	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.57	41.57	41.57	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	42.26	42.26	42.26	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.43	42.43	42.44	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.55	42.55	42.55	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.86	42.86	42.86	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	43.25	43.25	43.25	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	44.94	44.94	44.94	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	0.67	46.11	46.11	46.11	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	46.68	46.68	46.68	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	0.67	49.12	49.12	49.12	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	0.67	49.32	49.32	49.32	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	1.00	32.51	32.51	32.51	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	31.38	31.38	31.38	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	1.00	41.31	41.31	41.31	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	0.67	31.11	31.11	31.11	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	32.13	32.13	32.13	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	36.62	36.62	36.62	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	37.84	37.84	37.84	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	0.67	38.23	38.23	38.23	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.41	41.41	41.41	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.56	41.56	41.56	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	42.24	42.24	42.24	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.42	42.42	42.42	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.54	42.54	42.54	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.85	42.85	42.85	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	43.24	43.24	43.24	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	44.93	44.93	44.93	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	0.67	46.10	46.10	46.11	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	46.67	46.67	46.67	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	0.67	49.10	49.10	49.10	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	1.00	49.30	49.30	49.30	passed	passed
38	Total TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.60	29.82	29.82	29.82	---	---
39	Total TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.60	30.59	30.59	30.59	---	---
40	Total PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	36.94	36.94	36.94	---	---
41	Total PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.56	37.03	37.03	37.03	---	---
42	Total HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.88	41.88	41.88	---	---
43	Total HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.62	42.62	42.62	---	---
44	Total HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.05	45.65	45.65	45.65	---	---
45	Total HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	45.87	45.87	45.87	---	---
46	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.60	31.13	31.13	31.13	passed	passed
47	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.60	32.15	32.15	32.15	passed	passed
48	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.56	38.24	38.24	38.24	passed	passed
49	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	37.86	37.86	37.86	passed	passed
50	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	36.65	36.65	36.65	passed	passed
51	Single HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.05	46.11	46.11	46.11	passed	passed
52	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	42.26	42.26	42.26	passed	passed
53	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.42	41.42	41.42	passed	passed
54	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.57	41.57	41.57	passed	passed
55	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	43.25	43.25	43.25	passed	passed
56	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.86	42.86	42.86	passed	passed
57	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.43	42.43	42.44	passed	passed
58	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.55	42.55	42.55	passed	passed
59	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	44.94	44.94	44.94	passed	passed
60	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	46.68	46.68	46.68	passed	passed

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	31.13	0.7972	0.6450 -	0.8950	passed	100.00	0 -	0	passed
2	2378-TCDD	32.15	0.7734	0.6450 -	0.8950	passed	100.00	0 -	0	passed
3	12378-PeCDF	36.65	1.5762	1.3150 -	1.7850	passed	100.00	0 -	0	passed
4	23478-PeCDF	37.86	1.5759	1.3150 -	1.7850	passed	100.00	0 -	0	passed
5	12378-PeCDD	38.24	1.5601	1.3150 -	1.7850	passed	100.00	0 -	0	passed
6	123478-HxCDF	41.42	1.2402	1.0450 -	1.4350	passed	100.00	0 -	0	passed
7	123678-HxCDF	41.57	1.2444	1.0450 -	1.4350	passed	100.00	0 -	0	passed
8	234678-HxCDF	42.26	1.2522	1.0450 -	1.4350	passed	100.00	0 -	0	passed
9	123478-HxCDD	42.43	1.2462	1.0450 -	1.4350	passed	100.00	0 -	0	passed
10	123678-HxCDD	42.55	1.2849	1.0450 -	1.4350	passed	100.00	0 -	0	passed
11	123789-HxCDD	42.86	1.2659	1.0450 -	1.4350	passed	100.00	0 -	0	passed
12	123789-HxCDF	43.25	1.2531	1.0450 -	1.4350	passed	100.00	0 -	0	passed
13	1234678-HpCDF	44.94	1.0497	0.8750 -	1.2050	passed	100.00	0 -	0	passed
14	1234678-HpCDD	46.11	1.0520	0.8750 -	1.2050	passed	100.00	0 -	0	passed
15	1234789-HpCDF	46.68	1.0810	0.8750 -	1.2050	passed	100.00	0 -	0	passed
16	OCDD	49.12	0.8919	0.7550 -	1.0250	passed	100.00	0 -	0	passed
17	OCDF	49.32	0.9088	0.7550 -	1.0250	passed	100.00	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.51	0.8757	0.6450 -	0.8950	passed	100.00	0 -	0	passed
19	13C12-1234-TCDD	31.38	0.7594	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.31	1.2471	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	31.11	0.7911	0.6450 -	0.8950	passed	100.00	0 -	0	passed
22	13C12-2378-TCDD	32.13	0.8081	0.6450 -	0.8950	passed	100.00	0 -	0	passed
23	13C12-12378-PeCDF	36.62	1.6035	1.3150 -	1.7850	passed	100.00	0 -	0	passed
24	13C12-23478-PeCDF	37.84	1.6031	1.3150 -	1.7850	passed	100.00	0 -	0	passed
25	13C12-12378-PeCDD	38.23	1.6162	1.3150 -	1.7850	passed	100.00	0 -	0	passed
26	13C12-123478-HxCDF	41.41	0.5243	0.4250 -	0.5950	passed	100.00	0 -	0	passed
27	13C12-123678-HxCDF	41.56	0.5371	0.4250 -	0.5950	passed	100.00	0 -	0	passed
28	13C12-234678-HxCDF	42.24	0.5375	0.4250 -	0.5950	passed	100.00	0 -	0	passed
29	13C12-123478-HxCDD	42.42	1.2807	1.0450 -	1.4350	passed	100.00	0 -	0	passed
30	13C12-123678-HxCDD	42.54	1.2688	1.0450 -	1.4350	passed	100.00	0 -	0	passed
31	13C12-123789-HxCDD	42.85	1.2290	1.0450 -	1.4350	passed	100.00	0 -	0	passed
32	13C12-123789-HxCDF	43.24	0.5059	0.4250 -	0.5950	passed	100.00	0 -	0	passed
33	13C12-1234678-HpCDF	44.93	0.4561	0.3650 -	0.5150	passed	100.00	0 -	0	passed
34	13C12-1234678-HpCDD	46.10	1.0896	0.8750 -	1.2050	passed	100.00	0 -	0	passed
35	13C12-1234789-HpCDF	46.67	0.4608	0.3650 -	0.5150	passed	100.00	0 -	0	passed
36	13C12-OCDD	49.10	0.8832	0.7550 -	1.0250	passed	100.00	0 -	0	passed
37	13C12-OCDF	49.30	0.8988	0.7550 -	1.0250	passed	100.00	0 -	0	passed
38	Total TCDF	29.82	0.7972	0.6450 -	0.8950	---	100.00	0 -	0	---
39	Total TCDD	30.59	0.7734	0.6450 -	0.8950	---	100.00	0 -	0	---
40	Total PeCDF	36.94	1.5760	1.3150 -	1.7850	---	100.00	0 -	0	---
41	Total PeCDD	37.03	1.5601	1.3150 -	1.7850	---	100.00	0 -	0	---
42	Total HxCDF	41.88	1.2473	1.0450 -	1.4350	---	100.00	0 -	0	---
43	Total HxCDD	42.62	1.2656	1.0450 -	1.4350	---	100.00	0 -	0	---
44	Total HpCDD	45.65	1.0520	0.8750 -	1.2050	---	100.00	0 -	0	---
45	Total HpCDF	45.87	1.0643	0.8750 -	1.2050	---	100.00	0 -	0	---
46	Single TCDF	31.13	0.7972	0.6450 -	0.8950	passed	100.00	0 -	0	passed
47	Single TCDD	32.15	0.7734	0.6450 -	0.8950	passed	100.00	0 -	0	passed
48	Single PeCDD	38.24	1.5601	1.3150 -	1.7850	passed	100.00	0 -	0	passed
49	Single PeCDF	37.86	1.5759	1.3150 -	1.7850	passed	100.00	0 -	0	passed
50	Single PeCDF	36.65	1.5762	1.3150 -	1.7850	passed	100.00	0 -	0	passed
51	Single HpCDD	46.11	1.0520	0.8750 -	1.2050	passed	100.00	0 -	0	passed
52	Single HxCDF	42.26	1.2522	1.0450 -	1.4350	passed	100.00	0 -	0	passed
53	Single HxCDF	41.42	1.2402	1.0450 -	1.4350	passed	100.00	0 -	0	passed
54	Single HxCDF	41.57	1.2444	1.0450 -	1.4350	passed	100.00	0 -	0	passed
55	Single HxCDF	43.25	1.2531	1.0450 -	1.4350	passed	100.00	0 -	0	passed
56	Single HxCDD	42.86	1.2659	1.0450 -	1.4350	passed	100.00	0 -	0	passed
57	Single HxCDD	42.43	1.2462	1.0450 -	1.4350	passed	100.00	0 -	0	passed
58	Single HxCDD	42.55	1.2849	1.0450 -	1.4350	passed	100.00	0 -	0	passed
59	Single HpCDF	44.94	1.0497	0.8750 -	1.2050	passed	100.00	0 -	0	passed
60	Single HpCDF	46.68	1.0810	0.8750 -	1.2050	passed	100.00	0 -	0	passed

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Nois	Client Flags
1	2378-TCDF	passed	31.13	126925	A	101187	A	0.0048	10.000000	10.0000	10.000000	5296	
2	2378-TCDD	passed	32.15	83956	A	64932	A	0.0056	10.000000	10.0000	10.000000	4430	
3	12378-PeCDF	passed	36.65	404299	A	637239	A	0.0058	50.000000	50.0000	50.000000	21668	
4	23478-PeCDF	passed	37.86	458862	A	723138	A	0.0048	50.000000	50.0000	50.000000	25623	
5	12378-PeCDD	passed	38.24	253735	A	395844	A	0.0132	50.000000	50.0000	50.000000	9517	
6	123478-HxCDF	passed	41.42	490884	A	608801	A	0.0178	50.000000	50.0000	50.000000	6810	
7	123678-HxCDF	passed	41.57	497196	A	618722	A	0.0178	50.000000	50.0000	50.000000	6912	
8	234678-HxCDF	passed	42.26	490433	A	614127	A	0.0180	50.000000	50.0000	50.000000	7069	
9	123478-HxCDD	passed	42.43	316134	A	393975	A	0.0187	50.000000	50.0000	50.000000	6577	
10	123678-HxCDD	passed	42.55	311420	A	400139	A	0.0189	50.000000	50.0000	50.000000	6719	
11	123789-HxCDD	passed	42.86	325889	A	412542	A	0.0182	50.000000	50.0000	50.000000	6819	
12	123789-HxCDF	passed	43.25	423867	A	531146	A	0.0204	50.000000	50.0000	50.000000	6184	
13	1234678-HxCDF	passed	44.94	513505	A	539020	A	0.0160	50.000000	50.0000	50.000000	7792	
14	1234678-HpCDD	passed	46.11	328495	A	345592	A	0.0182	50.000000	50.0000	50.000000	6938	
15	1234789-HpCDF	passed	46.68	446612	A	482805	A	0.0187	50.000000	50.0000	50.000000	6747	
16	OCDD	passed	49.12	623186	A	555804	A	0.0200	100.000000	100.0000	100.000000	12844	
17	OCDF	passed	49.32	813641	A	739445	A	0.0144	100.000000	100.0000	100.000000	17357	
18	13C12-1278-TCDD (CRS)	passed	32.51	81841	A	71666	A	0.0108	10.000000	10.0000	10.000000	2783	
19	13C12-1234-TCDD	passed	31.38	699860	A	531465	A	0.0135	100.000000	100.0000	100.000000	18510	
20	13C12-123468-HxCDD	passed	41.31	651172	A	812068	A	0.0293	100.000000	100.0000	100.000000	8541	
21	13C12-2378-TCDF	passed	31.11	1283399	A	1015238	A	0.0049	100.000000	100.0000	100.000000	49989	
22	13C12-2378-TCDD	passed	32.13	655964	A	530090	A	0.0140	100.000000	100.0000	100.000000	18660	
23	13C12-12378-PeCDF	passed	36.62	834243	A	1337730	A	0.0387	100.000000	100.0000	100.000000	8204	
24	13C12-23478-PeCDF	passed	37.84	829051	A	1329085	A	0.0389	100.000000	100.0000	100.000000	8695	
25	13C12-12378-PeCDD	passed	38.23	475589	A	768629	A	0.0220	100.000000	100.0000	100.000000	15805	
26	13C12-123478-HxCDF	passed	41.41	1215294	A	637137	A	0.0253	100.000000	100.0000	100.000000	9939	
27	13C12-123678-HxCDF	passed	41.56	1280748	A	687838	A	0.0238	100.000000	100.0000	100.000000	10449	
28	13C12-234678-HxCDD	passed	42.24	1174974	A	631583	A	0.0260	100.000000	100.0000	100.000000	9586	
29	13C12-123478-HxCDD	passed	42.42	583701	A	747548	A	0.0322	100.000000	100.0000	100.000000	7988	
30	13C12-123678-HxCDD	passed	42.54	626475	A	794849	A	0.0301	100.000000	100.0000	100.000000	8417	
31	13C12-123789-HxCDD	passed	42.85	609150	A	748663	A	0.0315	100.000000	100.0000	100.000000	8033	
32	13C12-123789-HxCDF	passed	43.24	1132496	A	572927	A	0.0275	100.000000	100.0000	100.000000	9208	
33	13C12-1234678-HpCDF	passed	44.93	1119082	A	510406	A	0.0293	100.000000	100.0000	100.000000	9196	
34	13C12-1234678-HpCDD	passed	46.10	611901	A	666738	A	0.0235	100.000000	100.0000	100.000000	11289	
35	13C12-1234789-HpCDF	passed	46.67	940962	A	433602	A	0.0348	100.000000	100.0000	100.000000	7516	
36	13C12-OCDD	passed	49.10	1220301	A	1077794	A	0.0192	200.000000	200.0000	200.000000	27779	
37	13C12-OCDF	passed	49.30	1775785	A	1596161	A	0.0238	200.000000	200.0000	200.000000	22716	
38	Total TCDF	passed (1)	29.82	126925	A	101187	A	0.0048	10.000000	10.0000	10.000000	5296	
39	Total TCDD	passed (1)	30.59	83956	A	64932	A	0.0056	10.000000	10.0000	10.000000	4430	
40	Total PeCDF	passed (2)	36.94	863161	A	1360377	A	0.0053	50.000000	100.0000	50.000000	23646	
41	Total PeCDD	passed (1)	37.03	253735	A	395844	A	0.0132	50.000000	50.0000	50.000000	9517	
42	Total HxCDF	passed (4)	41.88	1902380	A	2372796	A	0.0185	50.000000	200.0000	50.000000	6744	
43	Total HxCDD	passed (3)	42.62	953444	A	1206656	A	0.0186	50.000000	150.0000	50.000000	6705	
44	Total HpCDD	passed (1)	45.65	328495	A	345592	A	0.0182	50.000000	50.0000	50.000000	6938	
45	Total HpCDF	passed (2)	45.87	960117	A	1021825	A	0.0173	50.000000	100.0000	50.000000	7270	
46	Single TCDF	passed	31.13	126925	A	101187	A	0.0048	10.000000	10.0000	10.000000	5296	
47	Single TCDD	passed	32.15	83956	A	64932	A	0.0056	10.000000	10.0000	10.000000	4430	
48	Single PeCDD	passed	38.24	253735	A	395844	A	0.0132	50.000000	50.0000	50.000000	9517	
49	Single PeCDF	passed	37.86	458862	A	723138	A	0.0049	50.000000	50.0000	50.000000	25623	
50	Single PeCDF	passed	36.65	404299	A	637239	A	0.0056	50.000000	50.0000	50.000000	21668	
51	Single HpCDD	passed	46.11	328495	A	345592	A	0.0182	50.000000	50.0000	50.000000	6938	
52	Single HxCDF	passed	42.26	490433	A	614127	A	0.0178	50.000000	50.0000	50.000000	7069	
53	Single HxCDF	passed	41.42	490884	A	608801	A	0.0179	50.000000	50.0000	50.000000	6810	
54	Single HxCDF	passed	41.57	497196	A	618722	A	0.0177	50.000000	50.0000	50.000000	6912	
55	Single HxCDF	passed	43.25	423867	A	531146	A	0.0206	50.000000	50.0000	50.000000	6184	
56	Single HxCDD	passed	42.86	325889	A	412542	A	0.0181	50.000000	50.0000	50.000000	6819	
57	Single HxCDD	passed	42.43	316134	A	393975	A	0.0189	50.000000	50.0000	50.000000	6577	
58	Single HxCDD	passed	42.55	311420	A	400139	A	0.0188	50.000000	50.0000	50.000000	6719	
59	Single HpCDF	passed	44.94	513505	A	539020	A	0.0162	50.000000	50.0000	50.000000	7792	
60	Single HpCDF	passed	46.68	446612	A	482805	A	0.0184	50.000000	50.0000	50.000000	6747	

File Name: Y:\17JAN31\17JAN31-10
Sample ID: CS301

Acq. Data: 2/1/2017 4:36:17 AM
Sample Name: CALDF41737A
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17JAN31

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292.9825
MS
17JAN31-
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NL:
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MS
17JAN31-
10

NL:
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380.4760-
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405.4760
MS
17JAN31-
10

NL:
6.11E4
m/z=
442.4728-
443.4728
MS
17JAN31-
10

APPROVED
By ujd2 at 10:16 am, 2/1/17

REVIEWED
By UMJS at 10:13 am, 2/2/17

*** file opened Wed Feb 01 04:41:42 2017 ***

```
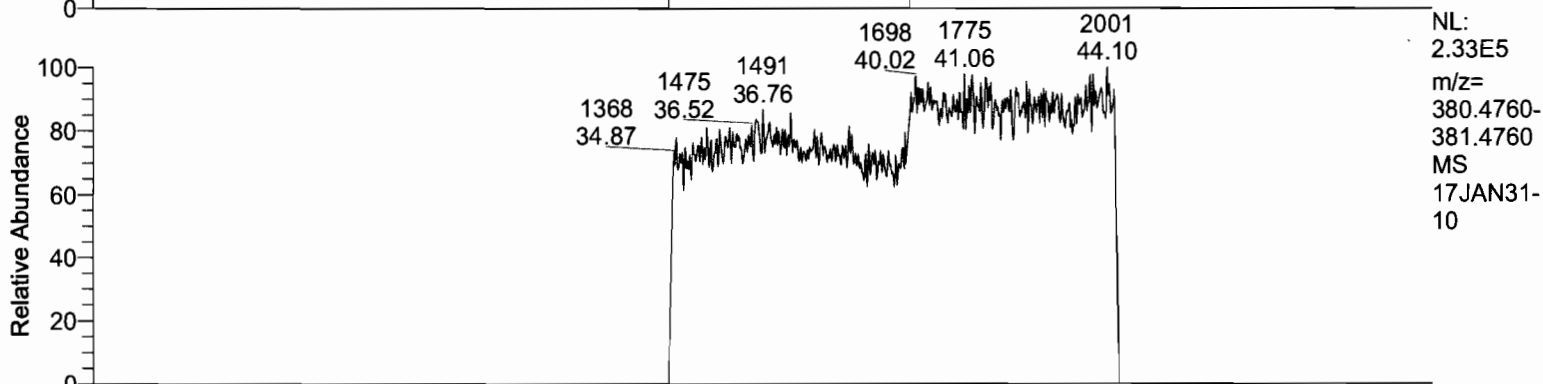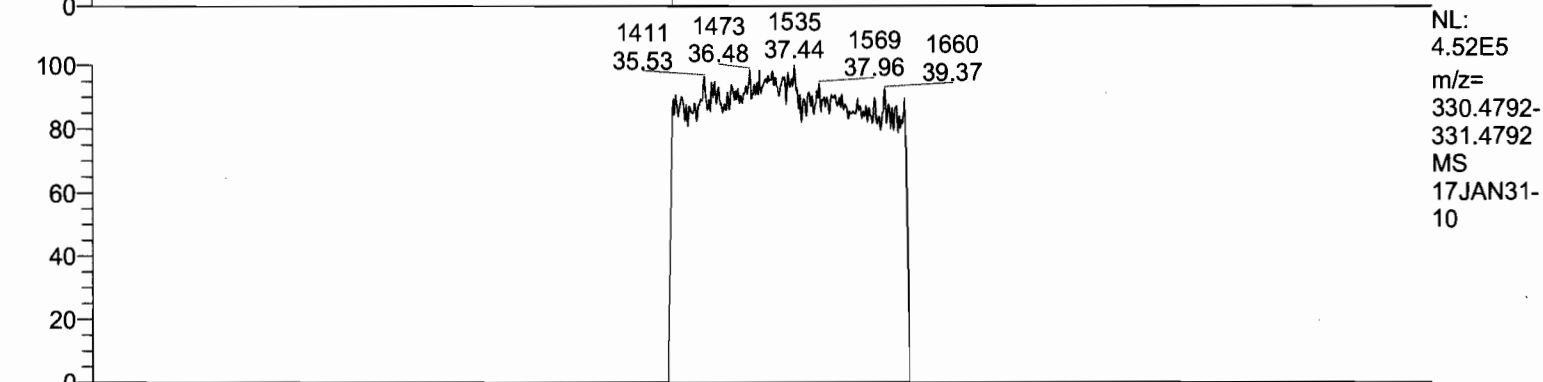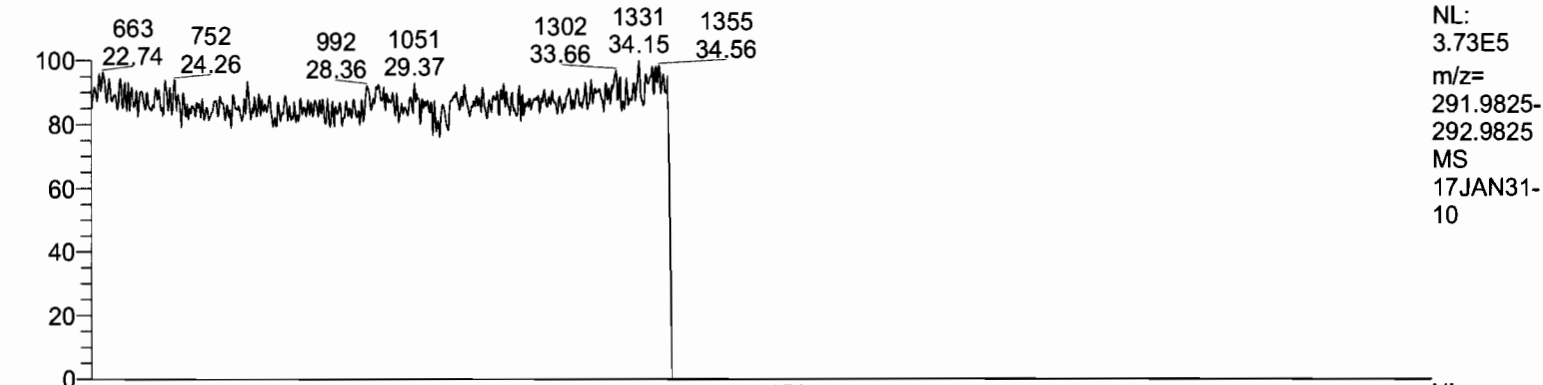Started by              - Xcalibur
Instrument Internet name - DFS MS
Instrument model        - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470
```

Analysis started at: 01-Feb-17 04:41:42

Analysis will stop at user request

Firmware Version: 2.02

MCAL file name:

Sequence : 62d69d10-234f-46c5-bc8a-53bf0dc2f3b7

MID procedure: PFK16MAR24+MDT

Mid Time Windows:

	Start	Measure	End	Cycletime
# 1	11:30 min	9:30 min	21:00 min	1.00 sec
# 2	21:00 min	13:44 min	34:44 min	1.00 sec
# 3	34:44 min	5:03 min	39:47 min	0.90 sec
# 4	39:47 min	4:27 min	44:15 min	0.80 sec
# 5	44:15 min	3:45 min	48:00 min	0.80 sec
# 6	48:00 min	3:00 min	51:00 min	0.80 sec

Mid Masses:
Window # 1

mass	F	int	gr	time (ms)
218.0129		1	1	95
218.9851	l	20	1	4
220.0100		1	1	95
230.0532		2	1	47
232.0502		2	1	47
251.9739		1	1	95
253.9710		1	1	95
264.0142		2	1	47
266.0112		2	1	47
285.9350		1	1	95
287.9320		1	1	95
292.9819	c	20	1	4
297.9752		2	1	47
299.9723		2	1	47

Window # 2

mass	F	int	gr	time (ms)
292.9819	l	20	1	5
303.9011		1	1	118
305.8981		1	1	118
315.9413		5	1	23
317.9384		5	1	23
319.8960		1	1	118
321.8930		1	1	118

Page 1

```
331.9363     5  1       23
333.9333     5  1       23
339.8592     1  1      118
341.8562     1  1      118
354.9787  c 20  1        5
375.8364     2  1       59
```

Window # 3

mass	F	int	gr	time (ms)
330.9787	l	20	1	6
339.8592		1	1	133
341.8562		1	1	133
351.8994		3	1	44
353.8965		3	1	44
355.8541		1	1	133
357.8511		1	1	133
367.8943		3	1	44
369.8914		3	1	44
380.9755	c	20	1	6
409.7969		2	1	66

Window # 4

mass	F	int	gr	time (ms)
373.8201		1	1	117
375.8172		1	1	117
380.9755	l	20	1	5
383.8634		3	1	39
385.8604		3	1	39
389.8151		1	1	117
391.8121		1	1	117
401.8554		3	1	39
403.8524		3	1	39
430.9723	c	20	1	5
445.7550		2	1	58

Window # 5

mass	F	int	gr	time (ms)
404.9755	l	20	1	5
407.7812		1	1	117
409.7783		1	1	117
417.8244		3	1	39
419.8215		3	1	39
423.7761		1	1	117
425.7732		1	1	117
435.8164		3	1	39
437.8134		3	1	39
479.7160		2	1	58
480.9691	c	20	1	5

Window # 6

mass	F	int	gr	time (ms)
441.7422		1	1	95
442.9723	l	20	1	4
443.7393		1	1	95
453.7825		1	1	95
455.7795		1	1	95
457.7372		1	1	95
459.7342		1	1	95
469.7774		3	1	31
471.7745		3	1	31
492.9691	c	20	1	4
513.6770		2	1	47

```
MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.750000 minutes
MID Window end time was 34.740000 minutes
```

Page 2

MID Window terminated after 39.800000 minutes
MID Window end time was 39.800000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	95.0000
BQUAD	0.4500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	156.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	175.0000
ENSBR	0.4500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	171.0000	EXSBR	-0.5300
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	13.9000
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0151	FVINLET	0.0275	FVSRC	0.0275
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	718.0000
LENS_SYM	12.7500	LM	1050.0000	LMII	500.0000
LMASS	95.0000	LKM	442.9723	MASS	95.0000
MDAC	1423018.7233	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2521.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-15.0000	RECURR	0.8952	RELEN	0.0000
RES	12861.3326	RPUSHER	-14.5568	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	664.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0180	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	95.0000	XLENS_POT	880.0000
XLENS_SYM	-2.5000	YLENS_POT	602.0000	YLENS_SYM	-7.7500

Source Gauge: 2.0e-005 mbar
Analyzer Penning: 5.2e-008 mbar
Pirani Analyse: 1.5e-002 mbar
Pirani Source: 2.7e-002 mbar
Pirani Inlet System: 2.8e-002 mbar

Scantype is magnetic

Sourcemode is EI POS

MID Time Window 1: Resolution is 11263.
MID Time Window 2: Resolution is 11997.
MID Time Window 3: Resolution is 11911.
MID Time Window 4: Resolution is 11852.

MID Time Window 5: Resolution is 14486.
MID Time Window 6: Resolution is 12861.

Amplifier Offset: 88.

*** File closed Wed Feb 01 05:32:45 2017
***

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 05:32
Number of Entries	64
Comment	
Vial	7
Sample Name	CALDF51737A
Sample ID	CS401
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-11.quan
Data	y:\17jan31\17jan31-11.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	RRT Status	Status Info
1	2378-TCDF	31.11	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.15	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.64	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.86	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.24	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.42	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.57	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.24	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.43	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.55	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.86	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.25	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.94	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.11	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.68	passed	passed	passed	passed	passed	passed	
16	OCDD	49.12	passed	passed	passed	passed	passed	passed	
17	OCDF	49.31	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.50	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.37	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.31	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	31.09	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.12	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.63	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.84	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.21	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.41	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.55	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.23	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.42	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.54	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.85	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.24	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.92	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.10	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.67	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.11	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.29	passed	passed	passed	passed	passed	passed	
38	Total TCDF	29.81	passed (1)	—	—	—	—	—	
39	Total TCDD	30.57	passed (1)	—	—	—	—	—	
40	Total PeCDF	36.92	passed (2)	—	—	—	—	—	
41	Total PeCDD	37.01	passed (1)	—	—	—	—	—	
42	Total HxCDF	41.88	passed (4)	—	—	—	—	—	
43	Total HxCDD	42.62	passed (3)	—	—	—	—	—	
44	Total HpCDD	45.65	passed (1)	—	—	—	—	—	
45	Total HpCDF	45.87	passed (2)	—	—	—	—	—	
46	Single TCDF	31.11	passed	passed	passed	passed	passed	passed	
47	Single TCDD	32.15	passed	passed	passed	passed	passed	passed	
48	Single PeCDD	38.24	passed	passed	passed	passed	passed	passed	
49	Single PeCDF	37.86	passed	passed	passed	passed	passed	passed	
50	Single PeCDF	36.64	passed	passed	passed	passed	passed	passed	
51	Single HpCDD	46.11	passed	passed	passed	passed	passed	passed	
52	Single HxCDF	41.42	passed	passed	passed	passed	passed	passed	
53	Single HxCDF	41.57	passed	passed	passed	passed	passed	passed	
54	Single HxCDF	42.24	passed	passed	passed	passed	passed	passed	
55	Single HxCDF	43.25	passed	passed	passed	passed	passed	passed	
56	Single HxCDD	42.86	passed	passed	passed	passed	passed	passed	
57	Single HxCDD	42.43	passed	passed	passed	passed	passed	passed	
58	Single HxCDD	42.55	passed	passed	passed	passed	passed	passed	
59	Single HpCDF	44.94	passed	passed	passed	passed	passed	passed	
60	Single HpCDF	46.68	passed	passed	passed	passed	passed	passed	

TargetQuan 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

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REVIEWED ThermoFisher By UMJS at 10:13 am, 2/2/17

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 05:32
Number of Entries	64
Comment	
Vial	7
Sample Name	CALDF51737A
Sample ID	CS401
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-11.quan
Data	y:\17jan31\17jan31-11.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 30.13 - 32.13 SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.11
QM Area	421958
QM Integration Mode	A
RM1 Area	330587
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0086
Unqualified Amount (A)	40.000000
Adjusted Amount (A)	40.0000
Signal-to-Noise	11116
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.14 - 33.14 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.15
QM Area	277270
QM Integration Mode	A
RM1 Area	218013
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0087
Unqualified Amount (A)	40.000000
Adjusted Amount (A)	40.0000
Signal-to-Noise	11096
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3   **APPROVED** By ujd2 at 10:16 am, 2/1/17   AIL01 Page 335 of 560   **REVIEWED** By UMJS at 10:13 am, 2/2/17   ThermoFisher

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Chromatogram

RT: 35.64 - 37.64 SM: 3G

NL: 3.34E5
m/z= 341.85-341.86 MS 17JAN31-11

NL: 5.19E5
m/z= 339.86-339.86 MS 17JAN31-11

NL: 1.70E5
m/z= 353.90-353.90 MS 17JAN31-11

NL: 2.62E5
m/z= 351.90-351.90 MS 17JAN31-11

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.64
QM Area	1357309
QM Integration Mode	A
RM1 Area	2134135
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0104
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	48296
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3

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By ujd2 at 10:16 am, 2/1/17

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Chromatogram

RT: 36.86 - 38.86 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.86
QM Area	1543609
QM Integration Mode	A
RM1 Area	2400669
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0089
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	56980
Client Flags	
Status Overview	passed
Status Info	

TargetQuan **APPROVED** By ujd2 at 10:16 am, 2/1/17

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Chromatogram

RT: 37.23 - 39.23 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.24
QM Area	839707
QM Integration Mode	A
RM1 Area	1336188
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0236
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	21038
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 40.42 - 42.42 SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.42
QM Area	1697242
QM Integration Mode	A
RM1 Area	2156528
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0346
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	14219
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 40.57 - 42.57 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.57
QM Area	1699347
QM Integration Mode	A
RM1 Area	2109214
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0353
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	13996
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.26 - 43.26 SM: 3G

NL: 5.00E5
m/z= 375.82-375.82 MS 17JAN31-11

NL: 6.30E5
m/z= 373.82-373.82 MS 17JAN31-11

NL: 3.13E5
m/z= 385.86-385.86 MS 17JAN31-11

NL: 1.71E5
m/z= 383.86-383.87 MS 17JAN31-11

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.24
QM Area	1717946
QM Integration Mode	A
RM1 Area	2166663
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0353
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	14277
Client Flags	
Status Overview	passed
Status Info	

APPROVED By ujd2 at 10:16 am, 2/1/17

REVIEWED By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 41.43 - 43.43 SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.43
QM Area	1089099
QM Integration Mode	A
RM1 Area	1377848
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0279
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	17698
Client Flags	
Status Overview	passed
Status Info	

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By UMJS at 10:13 am, 2/2/17

Chromatogram

RT: 41.55 - 43.55 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.55
QM Area	1124697
QM Integration Mode	A
RM1 Area	1418066
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0276
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	18169
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3   **APPROVED**   AIL01   Page 343 of 560   ThermoFisher
By ujd2 at 10:16 am, 2/1/17   **REVIEWED**   864 of 1081
By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 41.86 - 43.86 SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.86
QM Area	1132177
QM Integration Mode	A
RM1 Area	1406034
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0271
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	18318
Client Flags	
Status Overview	passed
Status Info	

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By ujd2 at 10:16 am, 2/1/17

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By UMJS at 10:13 am, 2/2/17

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Chromatogram

RT: 42.25 - 44.25 SM: 3G

NL:
4.90E5
m/z=
375.82-
375.82 MS
17JAN31-11

NL:
6.30E5
m/z=
373.82-
373.82 MS
17JAN31-11

NL:
2.86E5
m/z=
385.86-
385.86 MS
17JAN31-11

NL:
1.52E5
m/z=
383.86-
383.87 MS
17JAN31-11

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.25
QM Area	1538459
QM Integration Mode	A
RM1 Area	1917754
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0384
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	12980
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 43.94 - 45.94 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.94
QM Area	1823122
QM Integration Mode	A
RM1 Area	1901238
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0333
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	14938
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.11 - 47.11 SM: 3G

NL:
3.69E5
m/z=
425.77-
425.78 MS
17JAN31-11

NL:
3.78E5
m/z=
423.77-
423.78 MS
17JAN31-11

NL:
1.72E5
m/z=
437.81-
437.82 MS
17JAN31-11

NL:
1.77E5
m/z=
435.81-
435.82 MS
17JAN31-11

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.11
QM Area	1174428
QM Integration Mode	A
RM1 Area	1221579
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0308
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	16218
Client Flags	
Status Overview	passed
Status Info	

TargetQuan **APPROVED**
By ujd2 at 10:16 am, 2/1/17

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REVIEWED ThermoFisher
By UMJS at 10:13 am, 2/2/17
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Chromatogram

RT: 45.68 - 47.68 SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.68
QM Area	1609411
QM Integration Mode	A
RM1 Area	1690021
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0369
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	13645
Client Flags	
Status Overview	passed
Status Info	

APPROVED
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Chromatogram

RT: 48.12 - 50.12 SM: 3G

NL:
7.18E5
m/z=
459.73-
459.74 MS
17JAN31-11

NL:
6.45E5
m/z=
457.74-
457.74 MS
17JAN31-11

NL:
3.42E5
m/z=
471.77-
471.78 MS
17JAN31-11

NL:
3.05E5
m/z=
469.78-
469.78 MS
17JAN31-11

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.12
QM Area	2194846
QM Integration Mode	A
RM1 Area	1979000
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0338
Unqualified Amount (A)	400.000000
Adjusted Amount (A)	400.0000
Signal-to-Noise	29921
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.31 - 50.31 SM: 3G

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.31
QM Area	3002159
QM Integration Mode	A
RM1 Area	2732906
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0301
Unqualified Amount (A)	400.000000
Adjusted Amount (A)	400.0000
Signal-to-Noise	33771
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3

APPROVED
By ujd2 at 10:16 am, 2/1/17

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Chromatogram

RT: 31.48 - 33.48 SM: 3G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.50
QM Area	273619
QM Integration Mode	A
RM1 Area	218531
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0123
Unqualified Amount (A)	40.000000
Adjusted Amount (A)	40.0000
Signal-to-Noise	8660
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 05:32
Number of Entries	64
Comment	
Vial	7
Sample Name	CALDF51737A
Sample ID	CS401
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-11.quan
Data	y:\17jan31\17jan31-11.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 25.63 - 33.99 SM: 3G

Entry Parameters

Compound Name	Total TCDF
QM Retention Time	29.81
QM Area	421958
QM Integration Mode	A
RM1 Area	330587
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0086
Unqualified Amount (A)	40.000000
Adjusted Amount (A)	40.0000
Signal-to-Noise	11116
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 27.49 - 33.65 SM: 3G

Entry Parameters

Compound Name	Total TCDD
QM Retention Time	30.57
QM Area	277270
QM Integration Mode	A
RM1 Area	218013
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0087
Unqualified Amount (A)	40.000000
Adjusted Amount (A)	40.0000
Signal-to-Noise	11096
Client Flags	
Status Overview	passed (1)
Status Info	

TargetQuan 3   **APPROVED**
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Chromatogram

RT: 33.66 - 40.18 SM: 3G

Entry Parameters

Compound Name	Total PeCDF
QM Retention Time	36.92
QM Area	2900918
QM Integration Mode	A
RM1 Area	4534803
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0096
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	400.0000
Signal-to-Noise	52638
Client Flags	
Status Overview	passed (2)
Status Info	

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Chromatogram

RT: 35.06 - 38.97 SM: 3G

RT: 38.24

NL:
2.14E5
m/z=
357.85-
357.85
MS
17JAN31-
11

QM 35.47   35.93   36.32   36.66   36.98   37.40 37.69   38.57 38.85

RT: 38.24

NL:
3.50E5
m/z=
355.85-
355.86
MS
17JAN31-
11

RM1 35.39 35.67   36.15   36.66 37.00   37.40 37.69 37.98   38.51 38.81

35.5   36.0   36.5   37.0   37.5   38.0   38.5

Time (min)

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.01
QM Area	839707
QM Integration Mode	A
RM1 Area	1336188
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0236
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	21038
Client Flags	
Status Overview	passed (1)
Status Info	

APPROVED
By ujd2 at 10:16 am, 2/1/17

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Chromatogram

RT: 39.91 - 43.86 SM: 3G

NL:
5.00E5
m/z=
375.82-
375.82
MS
17JAN31-
11

NL:
6.30E5
m/z=
373.82-
373.82
MS
17JAN31-
11

Entry Parameters

Compound Name	Total HxCDF
QM Retention Time	41.88
QM Area	6652993
QM Integration Mode	A
RM1 Area	8350159
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0359
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	800.0000
Signal-to-Noise	13868
Client Flags	
Status Overview	passed (4)
Status Info	

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Chromatogram

RT: 41.25 - 44.00 SM: 3G

Entry Parameters

Compound Name	Total HxCDD
QM Retention Time	42.62
QM Area	3345973
QM Integration Mode	A
RM1 Area	4201947
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0275
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	600.0000
Signal-to-Noise	18062
Client Flags	
Status Overview	passed (3)
Status Info	

TargetQuant3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

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Chromatogram

RT: 44.65 - 46.65 SM: 3G

RT: 46.11

NL:
3.69E5
m/z=
425.77-
425.78
MS
17JAN31-
11

NL:
3.78E5
m/z=
423.77-
423.78
MS
17JAN31-
11

Entry Parameters

Compound Name	Total HpCDD
QM Retention Time	45.65
QM Area	1174428
QM Integration Mode	A
RM1 Area	1221579
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0308
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	16218
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 44.71 - 47.02 SM: 3G

Entry Parameters

Compound Name	Total HpCDF
QM Retention Time	45.87
QM Area	3432533
QM Integration Mode	A
RM1 Area	3591259
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0351
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	400.0000
Signal-to-Noise	14292
Client Flags	
Status Overview	passed (2)
Status Info	

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By UMJS at 10:13 am, 2/2/17

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	RT Window [min]	Specified RT [min]	QM Retention Time	RM1 Retention Time	RM1 Time Status	RRT Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	0.67	31.11	31.11	31.13	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	0.67	32.15	32.15	32.15	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	36.64	36.64	36.64	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	37.86	37.86	37.86	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	0.67	38.24	38.24	38.24	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.42	41.42	41.42	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.57	41.57	41.57	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	42.24	42.24	42.25	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.43	42.43	42.43	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.55	42.55	42.55	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.86	42.86	42.86	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	43.25	43.25	43.25	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	44.94	44.94	44.94	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	0.67	46.11	46.11	46.11	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	46.68	46.68	46.68	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	0.67	49.12	49.12	49.12	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	0.67	49.31	49.31	49.31	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	1.00	32.50	32.50	32.51	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	31.37	31.37	31.37	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	1.00	41.31	41.31	41.31	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	0.67	31.09	31.09	31.09	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	32.12	32.12	32.12	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	36.63	36.63	36.63	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	37.84	37.84	37.84	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	0.67	38.21	38.21	38.21	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.41	41.41	41.41	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.55	41.55	41.55	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	42.23	42.23	42.23	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.42	42.42	42.42	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.54	42.54	42.54	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.85	42.85	42.85	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	43.24	43.24	43.24	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	44.92	44.92	44.92	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	0.67	46.10	46.10	46.10	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	46.67	46.67	46.67	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	0.67	49.11	49.11	49.11	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	1.00	49.29	49.29	49.31	passed	passed
38	Total TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.60	29.81	29.81	29.81	—	—
39	Total TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.60	30.57	30.57	30.57	—	—
40	Total PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	36.92	36.92	36.92	—	—
41	Total PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.56	37.01	37.01	37.01	—	—
42	Total HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.88	41.88	41.88	—	—
43	Total HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.62	42.62	42.62	—	—
44	Total HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.05	45.65	45.65	45.65	—	—
45	Total HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	45.87	45.87	45.87	—	—
46	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.60	31.11	31.11	31.13	passed	passed
47	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.60	32.15	32.15	32.15	passed	passed
48	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.56	38.24	38.24	38.24	passed	passed
49	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	37.86	37.86	37.86	passed	passed
50	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	36.64	36.64	36.64	passed	passed
51	Single HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.05	46.11	46.11	46.11	passed	passed
52	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.42	41.42	41.42	passed	passed
53	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.57	41.57	41.57	passed	passed
54	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	42.24	42.24	42.25	passed	passed
55	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	43.25	43.25	43.25	passed	passed
56	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.86	42.86	42.86	passed	passed
57	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.43	42.43	42.43	passed	passed
58	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.55	42.55	42.55	passed	passed
59	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	44.94	44.94	44.94	passed	passed
60	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	46.68	46.68	46.68	passed	passed

TargetQuan 3   **APPROVED** By ujd2 at 10:16 am, 2/1/17

REVIEWED ThermoFisher Scientific By UMJS at 10:13 am, 2/2/17

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	31.11	0.7835	0.6450 -	0.8950	passed	100.00	0 -	0	passed
2	2378-TCDD	32.15	0.7863	0.6450 -	0.8950	passed	100.00	0 -	0	passed
3	12378-PeCDF	36.64	1.5723	1.3150 -	1.7850	passed	100.00	0 -	0	passed
4	23478-PeCDF	37.86	1.5552	1.3150 -	1.7850	passed	100.00	0 -	0	passed
5	12378-PeCDD	38.24	1.5913	1.3150 -	1.7850	passed	100.00	0 -	0	passed
6	123478-HxCDF	41.42	1.2706	1.0450 -	1.4350	passed	100.00	0 -	0	passed
7	123678-HxCDF	41.57	1.2412	1.0450 -	1.4350	passed	100.00	0 -	0	passed
8	234678-HxCDF	42.24	1.2612	1.0450 -	1.4350	passed	100.00	0 -	0	passed
9	123478-HxCDD	42.43	1.2651	1.0450 -	1.4350	passed	100.00	0 -	0	passed
10	123678-HxCDD	42.55	1.2608	1.0450 -	1.4350	passed	100.00	0 -	0	passed
11	123789-HxCDD	42.86	1.2419	1.0450 -	1.4350	passed	100.00	0 -	0	passed
12	123789-HxCDF	43.25	1.2465	1.0450 -	1.4350	passed	100.00	0 -	0	passed
13	1234678-HpCDF	44.94	1.0428	0.8750 -	1.2050	passed	100.00	0 -	0	passed
14	1234678-HpCDD	46.11	1.0401	0.8750 -	1.2050	passed	100.00	0 -	0	passed
15	1234789-HpCDF	46.68	1.0501	0.8750 -	1.2050	passed	100.00	0 -	0	passed
16	OCDD	49.12	0.9017	0.7550 -	1.0250	passed	100.00	0 -	0	passed
17	OCDF	49.31	0.9103	0.7550 -	1.0250	passed	100.00	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.50	0.7987	0.6450 -	0.8950	passed	100.00	0 -	0	passed
19	13C12-1234-TCDD	31.37	0.8067	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.31	1.2494	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	31.09	0.7968	0.6450 -	0.8950	passed	100.00	0 -	0	passed
22	13C12-2378-TCDD	32.12	0.7981	0.6450 -	0.8950	passed	100.00	0 -	0	passed
23	13C12-12378-PeCDF	36.63	1.5627	1.3150 -	1.7850	passed	100.00	0 -	0	passed
24	13C12-23478-PeCDF	37.84	1.5495	1.3150 -	1.7850	passed	100.00	0 -	0	passed
25	13C12-12378-PeCDD	38.21	1.5884	1.3150 -	1.7850	passed	100.00	0 -	0	passed
26	13C12-123478-HxCDF	41.41	0.5106	0.4250 -	0.5950	passed	100.00	0 -	0	passed
27	13C12-123678-HxCDF	41.55	0.5439	0.4250 -	0.5950	passed	100.00	0 -	0	passed
28	13C12-234678-HxCDF	42.23	0.5372	0.4250 -	0.5950	passed	100.00	0 -	0	passed
29	13C12-123478-HxCDD	42.42	1.2637	1.0450 -	1.4350	passed	100.00	0 -	0	passed
30	13C12-123678-HxCDD	42.54	1.2783	1.0450 -	1.4350	passed	100.00	0 -	0	passed
31	13C12-123789-HxCDD	42.85	1.2945	1.0450 -	1.4350	passed	100.00	0 -	0	passed
32	13C12-123789-HxCDF	43.24	0.5321	0.4250 -	0.5950	passed	100.00	0 -	0	passed
33	13C12-1234678-HpCDF	44.92	0.4534	0.3650 -	0.5150	passed	100.00	0 -	0	passed
34	13C12-1234678-HpCDD	46.10	1.0465	0.8750 -	1.2050	passed	100.00	0 -	0	passed
35	13C12-1234789-HpCDF	46.67	0.4522	0.3650 -	0.5150	passed	100.00	0 -	0	passed
36	13C12-OCDD	49.11	0.8969	0.7550 -	1.0250	passed	100.00	0 -	0	passed
37	13C12-OCDF	49.29	0.9023	0.7550 -	1.0250	passed	100.00	0 -	0	passed
38	Total TCDF	29.81	0.7835	0.6450 -	0.8950	—	100.00	0 -	0	—
39	Total TCDD	30.57	0.7863	0.6450 -	0.8950	—	100.00	0 -	0	—
40	Total PeCDF	36.92	1.5632	1.3150 -	1.7850	—	100.00	0 -	0	—
41	Total PeCDD	37.01	1.5913	1.3150 -	1.7850	—	100.00	0 -	0	—
42	Total HxCDF	41.88	1.2551	1.0450 -	1.4350	—	100.00	0 -	0	—
43	Total HxCDD	42.62	1.2558	1.0450 -	1.4350	—	100.00	0 -	0	—
44	Total HpCDD	45.65	1.0401	0.8750 -	1.2050	—	100.00	0 -	0	—
45	Total HpCDF	45.87	1.0462	0.8750 -	1.2050	—	100.00	0 -	0	—
46	Single TCDF	31.11	0.7835	0.6450 -	0.8950	passed	100.00	0 -	0	passed
47	Single TCDD	32.15	0.7863	0.6450 -	0.8950	passed	100.00	0 -	0	passed
48	Single PeCDD	38.24	1.5913	1.3150 -	1.7850	passed	100.00	0 -	0	passed
49	Single PeCDF	37.86	1.5552	1.3150 -	1.7850	passed	100.00	0 -	0	passed
50	Single PeCDF	36.64	1.5723	1.3150 -	1.7850	passed	100.00	0 -	. 0	passed
51	Single HpCDD	46.11	1.0401	0.8750 -	1.2050	passed	100.00	0 -	0	passed
52	Single HxCDF	41.42	1.2706	1.0450 -	1.4350	passed	100.00	0 -	0	passed
53	Single HxCDF	41.57	1.2412	1.0450 -	1.4350	passed	100.00	0 -	0	passed
54	Single HxCDF	42.24	1.2612	1.0450 -	1.4350	passed	100.00	0 -	0	passed
55	Single HxCDF	43.25	1.2465	1.0450 -	1.4350	passed	100.00	0 -	0	passed
56	Single HxCDD	42.86	1.2419	1.0450 -	1.4350	passed	100.00	0 -	0	passed
57	Single HxCDD	42.43	1.2651	1.0450 -	1.4350	passed	100.00	0 -	0	passed
58	Single HxCDD	42.55	1.2608	1.0450 -	1.4350	passed	100.00	0 -	0	passed
59	Single HpCDF	44.94	1.0428	0.8750 -	1.2050	passed	100.00	0 -	0	passed
60	Single HpCDF	46.68	1.0501	0.8750 -	1.2050	passed	100.00	0 -	0	passed

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Noise	Client Flags
1	2378-TCDF	passed	31.11	421958	A	330587	A	0.0086	40.000000	40.0000	40.000000	11116	
2	2378-TCDD	passed	32.15	277270	A	218013	A	0.0087	40.000000	40.0000	40.000000	11096	
3	12378-PeCDF	passed	36.64	1357309	A	2134135	A	0.0104	200.000000	200.0000	200.000000	48296	
4	23478-PeCDF	passed	37.86	1543609	A	2400669	A	0.0089	200.000000	200.0000	200.000000	56980	
5	12378-PeCDD	passed	38.24	839707	A	1336188	A	0.0236	200.000000	200.0000	200.000000	21038	
6	123478-HxCDF	passed	41.42	1697242	A	2156528	A	0.0346	200.000000	200.0000	200.000000	14219	
7	123678-HxCDF	passed	41.57	1699347	A	2109214	A	0.0353	200.000000	200.0000	200.000000	13996	
8	234678-HxCDF	passed	42.24	1717946	A	2166663	A	0.0353	200.000000	200.0000	200.000000	14277	
9	123478-HxCDD	passed	42.43	1089099	A	1377848	A	0.0279	200.000000	200.0000	200.000000	17698	
10	123678-HxCDD	passed	42.55	1124697	A	1418066	A	0.0276	200.000000	200.0000	200.000000	18169	
11	123789-HxCDD	passed	42.86	1132177	A	1406034	A	0.0271	200.000000	200.0000	200.000000	18318	
12	123789-HxCDF	passed	43.25	1538459	A	1917754	A	0.0384	200.000000	200.0000	200.000000	12980	
13	1234678-HpCDF	passed	44.94	1823122	A	1901238	A	0.0333	200.000000	200.0000	200.000000	14938	
14	1234678-HpCDD	passed	46.11	1174428	A	1221579	A	0.0308	200.000000	200.0000	200.000000	16218	
15	1234789-HpCDF	passed	46.68	1609411	A	1690021	A	0.0369	200.000000	200.0000	200.000000	13645	
16	OCDD	passed	49.12	2194846	A	1979000	A	0.0338	400.000000	400.0000	400.000000	29921	
17	OCDF	passed	49.31	3002159	A	2732906	A	0.0301	400.000000	400.0000	400.000000	33771	
18	13C12-1278-TCDD (CRS)	passed	32.50	273619	A	218531	A	0.0123	40.000000	40.0000	40.000000	8660	
19	13C12-1234-TCDD	passed	31.37	553831	A	446802	A	0.0152	100.000000	100.0000	100.000000	16484	
20	13C12-123468-HxCDD	passed	41.31	551359	A	688860	A	0.0260	100.000000	100.0000	100.000000	9609	
21	13C12-2378-TCDD	passed	31.09	1025770	A	817354	A	0.0068	100.000000	100.0000	100.000000	38368	
22	13C12-2378-TCDD	passed	32.12	557889	A	445277	A	0.0151	100.000000	100.0000	100.000000	18450	
23	13C12-12378-PeCDF	passed	36.63	695651	A	1087111	A	0.0398	100.000000	100.0000	100.000000	8285	
24	13C12-23478-PeCDF	passed	37.84	710386	A	1100735	A	0.0391	100.000000	100.0000	100.000000	8768	
25	13C12-12378-PeCDD	passed	38.21	392310	A	623131	A	0.0245	100.000000	100.0000	100.000000	14433	
26	13C12-123478-HxCDD	passed	41.41	1038538	A	530256	A	0.0289	100.000000	100.0000	100.000000	8940	
27	13C12-123678-HxCDF	passed	41.55	1062612	A	577966	A	0.0276	100.000000	100.0000	100.000000	9256	
28	13C12-234678-HxCDF	passed	42.23	1013717	A	544579	A	0.0290	100.000000	100.0000	100.000000	8626	
29	13C12-123478-HxCDF	passed	42.42	522044	A	659721	A	0.0273	100.000000	100.0000	100.000000	9568	
30	13C12-123678-HxCDD	passed	42.54	535168	A	684120	A	0.0265	100.000000	100.0000	100.000000	9693	
31	13C12-123789-HxCDD	passed	42.85	500012	A	647246	A	0.0281	100.000000	100.0000	100.000000	9294	
32	13C12-123789-HxCDF	passed	43.24	961359	A	511536	A	0.0307	100.000000	100.0000	100.000000	8425	
33	13C12-1234678-HpCDF	passed	44.92	947648	A	429622	A	0.0287	100.000000	100.0000	100.000000	9257	
34	13C12-1234678-HpCDD	passed	46.10	545959	A	571345	A	0.0225	100.000000	100.0000	100.000000	12077	
35	13C12-1234789-HpCDF	passed	46.67	854774	A	386543	A	0.0318	100.000000	100.0000	100.000000	8486	
36	13C12-OCDD	passed	49.11	1057004	A	947996	A	0.0233	200.000000	200.0000	200.000000	24113	
37	13C12-OCDF	passed	49.29	1579048	A	1424731	A	0.0239	200.000000	200.0000	200.000000	22334	
38	Total TCDF	passed (1)	29.81	421958	A	330587	A	0.0086	40.000000	40.0000	40.000000	11116	
39	Total TCDD	passed (1)	30.57	277270	A	218013	A	0.0087	40.000000	40.0000	40.000000	11096	
40	Total PeCDF	passed (2)	36.92	2900918	A	4534803	A	0.0096	200.000000	400.0000	200.000000	52638	
41	Total PeCDD	passed (1)	37.01	839707	A	1336188	A	0.0236	200.000000	200.0000	200.000000	21038	
42	Total HxCDF	passed (4)	41.88	6652993	A	8350159	A	0.0359	200.000000	800.0000	200.000000	13868	
43	Total HxCDD	passed (3)	42.62	3345973	A	4201947	A	0.0275	200.000000	600.0000	200.000000	18062	
44	Total HpCDD	passed (1)	45.65	1174428	A	1221579	A	0.0308	200.000000	200.0000	200.000000	16218	
45	Total HpCDF	passed (2)	45.87	3432533	A	3591259	A	0.0351	200.000000	400.0000	200.000000	14292	
46	Single TCDF	passed	31.11	421958	A	330587	A	0.0086	40.000000	40.0000	40.000000	11116	
47	Single TCDD	passed	32.15	277270	A	218013	A	0.0087	40.000000	40.0000	40.000000	11096	
48	Single PeCDD	passed	38.24	839707	A	1336188	A	0.0236	200.000000	200.0000	200.000000	21038	
49	Single PeCDF	passed	37.86	1543609	A	2400669	A	0.0090	200.000000	200.0000	200.000000	56980	
50	Single PeCDF	passed	36.64	1357309	A	2134135	A	0.0102	200.000000	200.0000	200.000000	48296	
51	Single HpCDD	passed	46.11	1174428	A	1221579	A	0.0308	200.000000	200.0000	200.000000	16218	
52	Single HxCDF	passed	41.42	1697242	A	2156528	A	0.0349	200.000000	200.0000	200.000000	14219	
53	Single HxCDF	passed	41.57	1699347	A	2109214	A	0.0353	200.000000	200.0000	200.000000	13996	
54	Single HxCDF	passed	42.24	1717946	A	2166663	A	0.0346	200.000000	200.0000	200.000000	14277	
55	Single HxCDF	passed	43.25	1538459	A	1917754	A	0.0389	200.000000	200.0000	200.000000	12980	
56	Single HxCDD	passed	42.86	1132177	A	1406034	A	0.0273	200.000000	200.0000	200.000000	18318	
57	Single HxCDD	passed	42.43	1089099	A	1377848	A	0.0281	200.000000	200.0000	200.000000	17698	
58	Single HxCDD	passed	42.55	1124697	A	1418066	A	0.0272	200.000000	200.0000	200.000000	18169	
59	Single HpCDF	passed	44.94	1823122	A	1901238	A	0.0330	200.000000	200.0000	200.000000	14938	
60	Single HpCDF	passed	46.68	1609411	A	1690021	A	0.0373	200.000000	200.0000	200.000000	13645	

APPROVED By ujd2 at 10:16 am, 2/1/17

REVIEWED By UMJS at 10:13 am, 2/2/17

ThermoFisher

File Name: Y:\17JAN31\17JAN31-11
Sample ID: CS401

Acq. Data: 2/1/2017 5:32:49 AM
Sample Name: CALDF51737A
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17JAN31

RT: 22.50 - 51.00

NL:
3.72E5
m/z=
291.9825-
292.9825
MS
17JAN31-
11

NL:
4.11E5
m/z=
330.4792-
331.4792
MS
17JAN31-
11

NL:
2.29E5
m/z=
380.4760-
381.4760
MS
17JAN31-
11

NL:
5.57E4
m/z=
404.4760-
405.4760
MS
17JAN31-
11

NL:
6.71E4
m/z=
442.4728-
443.4728
MS
17JAN31-
11

Time (min)

*** file opened Wed Feb 01 05:38:18 2017 ***

```
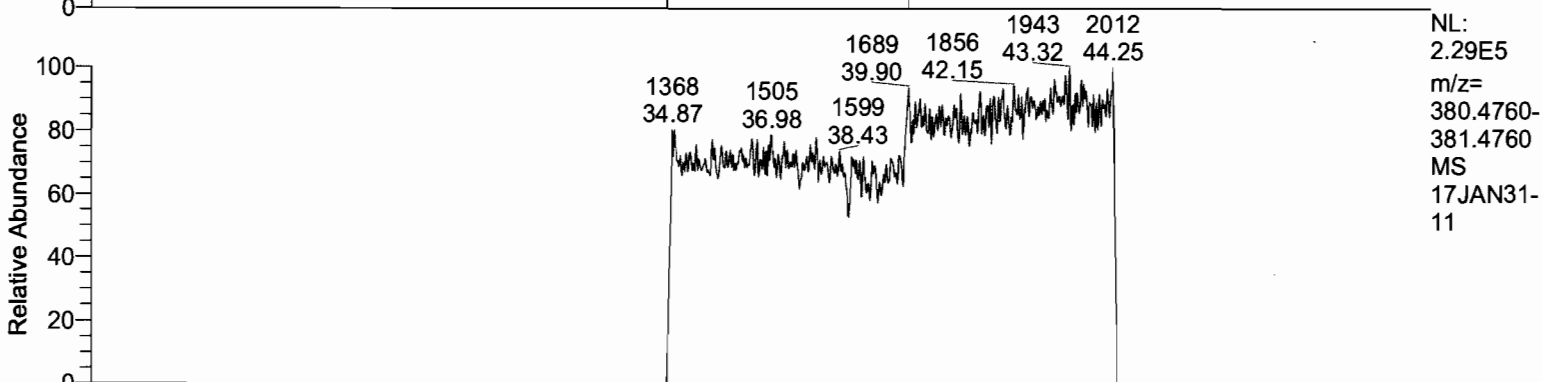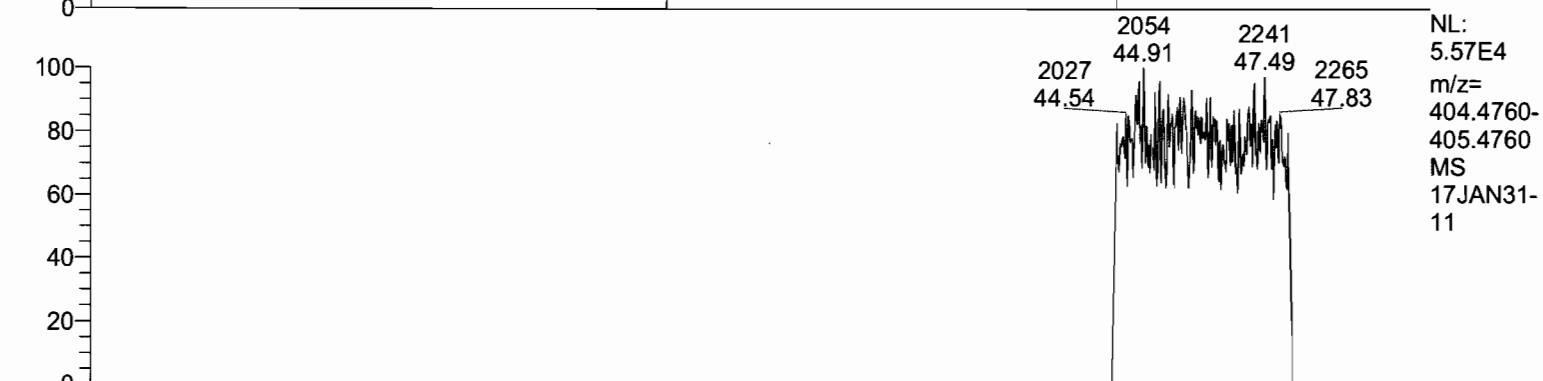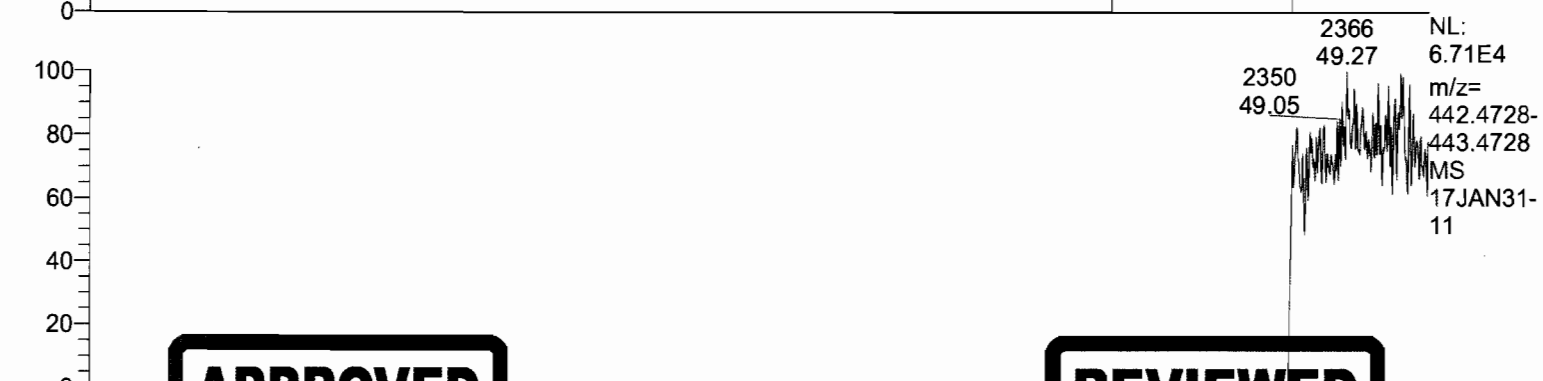Started by               - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470
```

  Analysis started at: 01-Feb-17 05:38:17

  Analysis will stop at user request

  Firmware Version: 2.02

  MCAL file name:

  Sequence : 62d69d10-234f-46c5-bc8a-53bf0dc2f3b7

  MID procedure: PFK16MAR24+MDT

Mid Time Windows:
```
        Start        Measure      End          Cycletime

# 1  11:30 min    9:30 min   21:00 min    1.00 sec
# 2  21:00 min   13:44 min   34:44 min    1.00 sec
# 3  34:44 min    5:03 min   39:47 min    0.90 sec
# 4  39:47 min    4:27 min   44:15 min    0.80 sec
# 5  44:15 min    3:45 min   48:00 min    0.80 sec
# 6  48:00 min    3:00 min   51:00 min    0.80 sec
```

Mid Masses:
 Window # 1
```
     mass F  int  gr  time (ms)
  218.0129    1   1       95
  218.9851 1  20   1        4
  220.0100    1   1       95
  230.0532    2   1       47
  232.0502    2   1       47
  251.9739    1   1       95
  253.9710    1   1       95
  264.0142    2   1       47
  266.0112    2   1       47
  285.9350    1   1       95
  287.9320    1   1       95
  292.9819 c  20   1        4
  297.9752    2   1       47
  299.9723    2   1       47
```
 Window # 2
```
     mass F  int  gr  time (ms)
  292.9819 1  20   1        5
  303.9011    1   1      118
  305.8981    1   1      118
  315.9413    5   1       23
  317.9384    5   1       23
  319.8960    1   1      118
  321.8930    1   1      118
```

Page 1

```
331.9363      5  1        23
333.9333      5  1        23
339.8592      1  1       118
341.8562      1  1       118
354.9787  c  20  1         5
375.8364      2  1        59
Window # 3
    mass F  int  gr   time (ms)
330.9787 l  20  1         6
339.8592      1  1       133
341.8562      1  1       133
351.8994      3  1        44
353.8965      3  1        44
355.8541      1  1       133
357.8511      1  1       133
367.8943      3  1        44
369.8914      3  1        44
380.9755  c  20  1         6
409.7969      2  1        66
Window # 4
    mass F  int  gr   time (ms)
373.8201      1  1       117
375.8172      1  1       117
380.9755 l  20  1         5
383.8634      3  1        39
385.8604      3  1        39
389.8151      1  1       117
391.8121      1  1       117
401.8554      3  1        39
403.8524      3  1        39
430.9723  c  20  1         5
445.7550      2  1        58
Window # 5
    mass F  int  gr   time (ms)
404.9755 l  20  1         5
407.7812      1  1       117
409.7783      1  1       117
417.8244      3  1        39
419.8215      3  1        39
423.7761      1  1       117
425.7732      1  1       117
435.8164      3  1        39
437.8134      3  1        39
479.7160      2  1        58
480.9691  c  20  1         5
Window # 6
    mass F  int  gr   time (ms)
441.7422      1  1        95
442.9723 l  20  1         4
443.7393      1  1        95
453.7825      1  1        95
455.7795      1  1        95
457.7372      1  1        95
459.7342      1  1        95
469.7774      3  1        31
471.7745      3  1        31
492.9691  c  20  1         4
513.6770      2  1        47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.750000 minutes
MID Window end time was 34.740000 minutes

Page 2

```
MID Window terminated after 39.800000 minutes
MID Window end time was 39.800000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes
```

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	94.5000
BQUAD	0.4500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	156.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	175.0000
ENSBR	0.4500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	171.0000	EXSBR	-0.5300
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	13.9000
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0154	FVINLET	0.0275	FVSRC	0.0275
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	718.0000
LENS_SYM	12.7500	LM	1050.0000	LMII	500.0000
LMASS	94.5000	LKM	442.9723	MASS	94.5000
MDAC	1416744.8971	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2521.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-15.0000	RECURR	0.8957	RELEN	0.0000
RES	12956.5230	RPUSHER	-14.6007	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	664.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0180	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	94.5000	XLENS_POT	880.0000
XLENS_SYM	-2.5000	YLENS_POT	602.0000	YLENS_SYM	-7.7500

```
Source Gauge:          1.9e-005 mbar
Analyzer Penning:      5.2e-008 mbar
Pirani Analyse:        1.5e-002 mbar
Pirani Source:         2.7e-002 mbar
Pirani Inlet System:   2.8e-002 mbar
```

Scantype is magnetic

Sourcemode is EI POS

```
MID Time Window 1: Resolution is 11022.
MID Time Window 2: Resolution is 11830.
MID Time Window 3: Resolution is 11636.
MID Time Window 4: Resolution is 12670.
```

MID Time Window 5: Resolution is 13042.
MID Time Window 6: Resolution is 12956.

Amplifier Offset: 88.

*** File closed Wed Feb 01 06:29:20 2017
   ***

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 06:29
Number of Entries	64
Comment	
Vial	8
Sample Name	CALDF61737A
Sample ID	CS501
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-12.quan
Data	y:\17jan31\17jan31-12.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

17JAN31-12 printed 2/1/2017 10:05
Sample CALDF61737A / CS50
Inst ID: DF18471-17JAN31 / Client:

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	RRT Status	Status Info
1	2378-TCDF	31.13	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.15	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.64	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.86	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.25	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.43	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.58	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.26	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.44	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.55	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.86	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.25	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.94	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.12	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.68	passed	passed	passed	passed	passed	passed	
16	OCDD	49.13	passed	passed	passed	passed	passed	passed	
17	OCDF	49.32	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.51	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.37	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.31	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	31.09	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.12	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.63	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.85	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.23	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.42	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.56	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.24	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.43	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.54	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.85	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.24	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.93	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.12	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.67	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.12	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.31	passed	passed	passed	passed	passed	passed	
38	Total TCDF	29.81	passed (1)	—	—	—	—	—	
39	Total TCDD	30.57	passed (1)	—	—	—	—	—	
40	Total PeCDF	36.92	passed (2)	—	—	—	—	—	
41	Total PeCDD	37.03	passed (1)	—	—	—	—	—	
42	Total HxCDF	41.88	passed (4)	—	—	—	—	—	
43	Total HxCDD	42.62	passed (3)	—	—	—	—	—	
44	Total HpCDD	45.67	passed (1)	—	—	—	—	—	
45	Total HpCDF	45.87	passed (2)	—	—	—	—	—	
46	Single TCDF	31.13	passed	passed	passed	passed	passed	passed	
47	Single TCDD	32.15	passed	passed	passed	passed	passed	passed	
48	Single PeCDD	38.25	passed	passed	pessed	passed	passed	passed	
49	Single PeCDF	37.86	passed	passed	passed	passed	passed	passed	
50	Single PeCDF	36.64	passed	passed	passed	passed	passed	passed	
51	Single HpCDD	46.12	passed	passed	passed	passed	passed	passed	
52	Single HxCDF	42.26	passed	passed	passed	passed	passed	passed	
53	Single HxCDF	41.43	passed	passed	passed	passed	passed	passed	
54	Single HxCDF	41.58	passed	passed	passed	passed	passed	passed	
55	Single HxCDF	43.25	passed	passed	passed	passed	passed	passed	
56	Single HxCDD	42.55	passed	passed	passed	passed	passed	passed	
57	Single HxCDD	42.44	passed	passed	passed	passed	passed	passed	
58	Single HxCDD	42.86	passed	passed	passed	passed	passed	passed	
59	Single HpCDF	44.94	passed	passed	passed	passed	passed	passed	
60	Single HpCDF	46.68	passed	passed	passed	passed	passed	passed	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 06:29
Number of Entries	64
Comment	
Vial	8
Sample Name	CALDF61737A
Sample ID	CS501
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-12.quan
Data	y:\17jan31\17jan31-12.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 30.11 - 32.11 SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.13
QM Area	2925614
QM Integration Mode	A
RM1 Area	2286155
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0126
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	39839
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.14 - 33.14 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.15
QM Area	1873000
QM Integration Mode	A
RM1 Area	1469325
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0139
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	36462
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 35.64 - 37.64 SM: 3G

Relative Abundance

QM — RT: 36.64
35.78 35.95 36.12 36.41 36.97 37.15 37.34 37.49
NL: 2.18E6
m/z= 341.85-341.86 MS 17JAN31-12

RM1 — RT: 36.64
35.78 35.98 36.12 36.41 36.98 37.14 37.31 37.44
NL: 3.36E6
m/z= 339.86-339.86 MS 17JAN31-12

IS QM — RT: 36.63
35.95 36.09 36.41 36.91 37.07 37.34 37.57
NL: 2.29E5
m/z= 353.90-353.90 MS 17JAN31-12

IS RM1 — RT: 36.63
35.90 36.09 36.40 36.92 37.14 37.29 37.49
NL: 3.69E5
m/z= 351.90-351.90 MS 17JAN31-12

Time (min)
35.8 36.0 36.2 36.4 36.6 36.8 37.0 37.2 37.4 37.6

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.64
QM Area	8892501
QM Integration Mode	A
RM1 Area	13823636
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0125
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	199858
Client Flags	
Status Overview	passed
Status Info	

TargetQuan 3

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Chromatogram

RT: 36.86 - 38.86 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.86
QM Area	10092325
QM Integration Mode	A
RM1 Area	15748932
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0104
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	239353
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 37.25 - 39.25 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.25
QM Area	5665435
QM Integration Mode	A
RM1 Area	8689913
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0325
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	77939
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.43 - 42.43 SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.43
QM Area	10628454
QM Integration Mode	A
RM1 Area	13191762
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0665
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	38367
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 40.57 - 42.57 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.58
QM Area	10916132
QM Integration Mode	A
RM1 Area	13704794
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0651
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	39032
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.26 - 43.26 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.26
QM Area	10650094
QM Integration Mode	A
RM1 Area	13338334
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0635
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	40232
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.45 - 43.45 SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.44
QM Area	7047619
QM Integration Mode	A
RM1 Area	8763815
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0427
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	59546
Client Flags	
Status Overview	passed
Status Info	

Chromatogram

RT: 41.55 - 43.55 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.55
QM Area	7143701
QM Integration Mode	A
RM1 Area	8861153
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0409
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	59609
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.86 - 43.86 SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.86
QM Area	7223715
QM Integration Mode	A
RM1 Area	8914626
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0426
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	58490
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 42.25 - 44.25 SM: 3G

NL: 3.21E6
m/z= 375.82-375.82 MS 17JAN31-12

NL: 4.03E6
m/z= 373.82-373.82 MS 17JAN31-12

NL: 3.72E5
m/z= 385.86-385.86 MS 17JAN31-12

NL: 1.95E5
m/z= 383.86-383.87 MS 17JAN31-12

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.25
QM Area	9613342
QM Integration Mode	A
RM1 Area	12031691
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0721
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	35037
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 43.93 - 45.93 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.94
QM Area	11048929
QM Integration Mode	A
RM1 Area	11536604
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0596
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	41416
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.13 - 47.13   SM: 3G

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.12
QM Area	7145705
QM Integration Mode	A
RM1 Area	7438140
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0612
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	40840
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.69 - 47.69 SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.68
QM Area	9858490
QM Integration Mode	A
RM1 Area	10273358
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0689
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	36074
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.12 - 50.12 SM: 3G

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.13
QM Area	13861054
QM Integration Mode	A
RM1 Area	12358162
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0563
Unqualified Amount (A)	2000.000000
Adjusted Amount (A)	2000.0000
Signal-to-Noise	89512
Client Flags	.
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.32 - 50.32 SM: 3G

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.32
QM Area	18694084
QM Integration Mode	A
RM1 Area	16836788
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0449
Unqualified Amount (A)	2000.000000
Adjusted Amount (A)	2000.0000
Signal-to-Noise	114509
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.48 - 33.48 SM: 3G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.51
QM Area	1903734
QM Integration Mode	A
RM1 Area	1541979
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0092
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	57755
Client Flags	
Status Overview	passed
Status Info	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/01 06:29
Number of Entries	64
Comment	
Vial	8
Sample Name	CALDF61737A
Sample ID	CS501
Inst ID	DF18471-17JAN31
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17jan31\17jan31-12.quan
Data	y:\17jan31\17jan31-12.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Single Point (Spec. RF)
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 25.63 - 33.99 SM: 3G

NL:
5.45E5
m/z=
305.90-
305.90
MS
17JAN31-
12

NL:
4.28E5
m/z=
303.90-
303.90
MS
17JAN31-
12

Entry Parameters

Compound Name	Total TCDF
QM Retention Time	29.81
QM Area	2925614
QM Integration Mode	A
RM1 Area	2286155
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0126
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	39839
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 27.49 - 33.65 SM: 3G

NL: 3.71E5
m/z= 321.89-321.90 MS 17JAN31-12

NL: 2.89E5
m/z= 319.89-319.90 MS 17JAN31-12

Entry Parameters

Compound Name	Total TCDD
QM Retention Time	30.57
QM Area	1873000
QM Integration Mode	A
RM1 Area	1469325
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0139
Unqualified Amount (A)	200.000000
Adjusted Amount (A)	200.0000
Signal-to-Noise	36462
Client Flags	
Status Overview	passed (1)
Status Info	

Chromatogram

RT: 33.66 - 40.18 SM: 3G

Entry Parameters

Compound Name	Total PeCDF
QM Retention Time	36.92
QM Area	18984826
QM Integration Mode	A
RM1 Area	29572568
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0114
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	2000.0000
Signal-to-Noise	219606
Client Flags	
Status Overview	passed (2)
Status Info	

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Chromatogram

RT: 35.07 - 38.99 SM: 3G

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.03
QM Area	5665435
QM Integration Mode	A
RM1 Area	8689913
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0325
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	77939
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 39.91 - 43.86 SM: 3G

NL:
3.21E6
m/z=
375.82-
375.82
MS
17JAN31-
12

NL:
4.03E6
m/z=
373.82-
373.82
MS
17JAN31-
12

Entry Parameters

Compound Name	Total HxCDF
QM Retention Time	41.88
QM Area	41808022
QM Integration Mode	A
RM1 Area	52266580
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0668
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	4000.0000
Signal-to-Noise	38167
Client Flags	
Status Overview	passed (4)
Status Info	

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Chromatogram

RT: 41.25 - 44.00 SM: 3G

NL: 2.13E6
m/z= 391.81-391.81
MS 17JAN31-12

NL: 2.63E6
m/z= 389.81-389.82
MS 17JAN31-12

Entry Parameters

Compound Name	Total HxCDD
QM Retention Time	42.62
QM Area	21415035
QM Integration Mode	A
RM1 Area	26539594
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0420
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	3000.0000
Signal-to-Noise	59215
Client Flags	
Status Overview	passed (3)
Status Info	

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Chromatogram

RT: 44.67 - 46.67 SM: 3G

NL:
2.20E6
m/z=
425.77-
425.78
MS
17JAN31-
12

NL:
2.30E6
m/z=
423.77-
423.78
MS
17JAN31-
12

Entry Parameters

Compound Name	Total HpCDD
QM Retention Time	45.67
QM Area	7145705
QM Integration Mode	A
RM1 Area	7438140
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0612
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	1000.0000
Signal-to-Noise	40840
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 44.72 - 47.03 SM: 3G

NL:
3.40E6
m/z=
409.78-
409.78
MS
17JAN31-
12

NL:
3.58E6
m/z=
407.78-
407.78
MS
17JAN31-
12

Entry Parameters

Compound Name	Total HpCDF
QM Retention Time	45.87
QM Area	20907418
QM Integration Mode	A
RM1 Area	21809962
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0641
Unqualified Amount (A)	1000.000000
Adjusted Amount (A)	2000.0000
Signal-to-Noise	38745
Client Flags	
Status Overview	passed (2)
Status Info	

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	RT Window [min]	Specified RT [min]	QM Retention Time	RM1 Retention Time	RM1 Time Status	RRT Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	0.67	31.13	31.13	31.13	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	0.67	32.15	32.15	32.15	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	36.64	36.64	36.64	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.67	37.86	37.86	37.86	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	0.67	38.25	38.25	38.25	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.43	41.43	41.43	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	41.58	41.58	41.58	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	42.26	42.26	42.26	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.44	42.44	42.44	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.55	42.55	42.57	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.67	42.86	42.86	42.88	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.67	43.25	43.25	43.27	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	44.94	44.94	44.94	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	0.67	46.12	46.12	46.13	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.67	46.68	46.68	46.70	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	0.67	49.13	49.13	49.13	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	0.67	49.32	49.32	49.32	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	1.00	32.51	32.51	32.51	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	31.37	31.37	31.37	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	1.00	41.31	41.31	41.31	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	0.67	31.09	31.09	31.09	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	0.67	32.12	32.12	32.12	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	36.63	36.63	36.63	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	0.67	37.85	37.85	37.85	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	0.67	38.23	38.23	38.23	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.42	41.42	41.42	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	41.56	41.56	41.56	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	42.24	42.24	42.24	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.43	42.43	42.43	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.54	42.54	42.54	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	0.67	42.85	42.85	42.85	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	0.67	43.24	43.24	43.24	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	44.93	44.93	44.93	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	0.67	46.12	46.12	46.12	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	0.67	46.67	46.67	46.68	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	0.67	49.12	49.12	49.12	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	1.00	49.31	49.31	49.31	passed	passed
38	Total TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.60	29.81	29.81	29.81	—	—
39	Total TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.60	30.57	30.57	30.57	—	—
40	Total PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	36.92	36.92	36.92	—	—
41	Total PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.56	37.03	37.03	37.03	—	—
42	Total HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.88	41.88	41.88	—	—
43	Total HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.62	42.62	42.62	—	—
44	Total HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.05	45.67	45.67	45.67	—	—
45	Total HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	45.87	45.87	45.87	—	—
46	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	7.60	31.13	31.13	31.13	passed	passed
47	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	5.60	32.15	32.15	32.15	passed	passed
48	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	3.56	38.25	38.25	38.25	passed	passed
49	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	37.86	37.86	37.86	passed	passed
50	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	5.93	36.64	36.64	36.64	passed	passed
51	Single HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	1.05	46.12	46.12	46.13	passed	passed
52	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	42.26	42.26	42.26	passed	passed
53	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.43	41.43	41.43	passed	passed
54	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	41.58	41.58	41.58	passed	passed
55	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	3.59	43.25	43.25	43.27	passed	passed
56	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.55	42.55	42.57	passed	passed
57	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.44	42.44	42.44	passed	passed
58	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	2.50	42.86	42.86	42.88	passed	passed
59	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	44.94	44.94	44.94	passed	passed
60	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	2.10	46.68	46.68	46.70	passed	passed

TargetQuan 3 **APPROVED** By ujd2 at 10:16 am, 2/1/17

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REVIEWED By UMJS at 10:13 am, 2/2/17

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	31.13	0.7814	0.6450 -	0.8950	passed	100.00	0 -	0	passed
2	2378-TCDD	32.15	0.7845	0.6450 -	0.8950	passed	100.00	0 -	0	passed
3	12378-PeCDF	36.64	1.5545	1.3150 -	1.7850	passed	100.00	0 -	0	passed
4	23478-PeCDF	37.86	1.5605	1.3150 -	1.7850	passed	100.00	0 -	0	passed
5	12378-PeCDD	38.25	1.5338	1.3150 -	1.7850	passed	100.00	0 -	0	passed
6	123478-HxCDF	41.43	1.2412	1.0450 -	1.4350	passed	100.00	0 -	0	passed
7	123678-HxCDF	41.58	1.2555	1.0450 -	1.4350	passed	100.00	0 -	0	passed
8	234678-HxCDF	42.26	1.2524	1.0450 -	1.4350	passed	100.00	0 -	0	passed
9	123478-HxCDD	42.44	1.2435	1.0450 -	1.4350	passed	100.00	0 -	0	passed
10	123678-HxCDD	42.55	1.2404	1.0450 -	1.4350	passed	100.00	0 -	0	passed
11	123789-HxCDD	42.86	1.2341	1.0450 -	1.4350	passed	100.00	0 -	0	passed
12	123789-HxCDF	43.25	1.2516	1.0450 -	1.4350	passed	100.00	0 -	0	passed
13	1234678-HpCDF	44.94	1.0441	0.8750 -	1.2050	passed	100.00	0 -	0	passed
14	1234678-HpCDD	46.12	1.0409	0.8750 -	1.2050	passed	100.00	0 -	0	passed
15	1234789-HpCDF	46.68	1.0421	0.8750 -	1.2050	passed	100.00	0 -	0	passed
16	OCDD	49.13	0.8916	0.7550 -	1.0250	passed	100.00	0 -	0	passed
17	OCDF	49.32	0.9006	0.7550 -	1.0250	passed	100.00	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.51	0.8100	0.6450 -	0.8950	passed	100.00	0 -	0	passed
19	13C12-1234-TCDD	31.37	0.7859	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.31	1.2745	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	31.09	0.8117	0.6450 -	0.8950	passed	100.00	0 -	0	passed
22	13C12-2378-TCDD	32.12	0.7735	0.6450 -	0.8950	passed	100.00	0 -	0	passed
23	13C12-12378-PeCDF	36.63	1.5956	1.3150 -	1.7850	passed	100.00	0 -	0	passed
24	13C12-23478-PeCDF	37.85	1.5783	1.3150 -	1.7850	passed	100.00	0 -	0	passed
25	13C12-12378-PeCDD	38.23	1.5982	1.3150 -	1.7850	passed	100.00	0 -	0	passed
26	13C12-123478-HxCDF	41.42	0.5299	0.4250 -	0.5950	passed	100.00	0 -	0	passed
27	13C12-123678-HxCDF	41.56	0.5231	0.4250 -	0.5950	passed	100.00	0 -	0	passed
28	13C12-234678-HxCDF	42.24	0.5181	0.4250 -	0.5950	passed	100.00	0 -	0	passed
29	13C12-123478-HxCDD	42.43	1.2964	1.0450 -	1.4350	passed	100.00	0 -	0	passed
30	13C12-123678-HxCDD	42.54	1.2505	1.0450 -	1.4350	passed	100.00	0 -	0	passed
31	13C12-123789-HxCDD	42.85	1.2089	1.0450 -	1.4350	passed	100.00	0 -	0	passed
32	13C12-123789-HxCDF	43.24	0.5338	0.4250 -	0.5950	passed	100.00	0 -	0	passed
33	13C12-1234678-HpCDF	44.93	0.4466	0.3650 -	0.5150	passed	100.00	0 -	0	passed
34	13C12-1234678-HpCDD	46.12	1.0731	0.8750 -	1.2050	passed	100.00	0 -	0	passed
35	13C12-1234789-HpCDF	46.67	0.4520	0.3650 -	0.5150	passed	100.00	0 -	0	passed
36	13C12-OCDD	49.12	0.8966	0.7550 -	1.0250	passed	100.00	0 -	0	passed
37	13C12-OCDF	49.31	0.9090	0.7550 -	1.0250	passed	100.00	0 -	0	passed
38	Total TCDF	29.81	0.7814	0.6450 -	0.8950	---	100.00	0 -	0	---
39	Total TCDD	30.57	0.7845	0.6450 -	0.8950	---	100.00	0 -	0	---
40	Total PeCDF	36.92	1.5577	1.3150 -	1.7850	---	100.00	0 -	0	---
41	Total PeCDD	37.03	1.5338	1.3150 -	1.7850	---	100.00	0 -	0	---
42	Total HxCDF	41.88	1.2502	1.0450 -	1.4350	---	100.00	0 -	0	---
43	Total HxCDD	42.62	1.2393	1.0450 -	1.4350	---	100.00	0 -	0	---
44	Total HpCDD	45.67	1.0409	0.8750 -	1.2050	---	100.00	0 -	0	---
45	Total HpCDF	45.87	1.0432	0.8750 -	1.2050	---	100.00	0 -	0	---
46	Single TCDF	31.13	0.7814	0.6450 -	0.8950	passed	100.00	0 -	0	passed
47	Single TCDD	32.15	0.7845	0.6450 -	0.8950	passed	100.00	0 -	0	passed
48	Single PeCDD	38.25	1.5338	1.3150 -	1.7850	passed	100.00	0 -	0	passed
49	Single PeCDF	37.86	1.5605	1.3150 -	1.7850	passed	100.00	0 -	0	passed
50	Single PeCDF	36.64	1.5545	1.3150 -	1.7850	passed	100.00	0 -	0	passed
51	Single HpCDD	46.12	1.0409	0.8750 -	1.2050	passed	100.00	0 -	0	passed
52	Single HxCDF	42.26	1.2524	1.0450 -	1.4350	passed	100.00	0 -	0	passed
53	Single HxCDF	41.43	1.2412	1.0450 -	1.4350	passed	100.00	0 -	0	passed
54	Single HxCDF	41.58	1.2555	1.0450 -	1.4350	passed	100.00	0 -	0	passed
55	Single HxCDF	43.25	1.2516	1.0450 -	1.4350	passed	100.00	0 -	0	passed
56	Single HxCDD	42.55	1.2404	1.0450 -	1.4350	passed	100.00	0 -	0	passed
57	Single HxCDD	42.44	1.2435	1.0450 -	1.4350	passed	100.00	0 -	0	passed
58	Single HxCDD	42.86	1.2341	1.0450 -	1.4350	passed	100.00	0 -	0	passed
59	Single HpCDF	44.94	1.0441	0.8750 -	1.2050	passed	100.00	0 -	0	passed
60	Single HpCDF	46.68	1.0421	0.8750 -	1.2050	passed	100.00	0 -	0	passed

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Nois	Client Flags
1	2378-TCDF	passed	31.13	2925614	A	2286155	A	0.0126	200.000000	200.0000	200.000000	39839	
2	2378-TCDD	passed	32.15	1873000	A	1469325	A	0.0139	200.000000	200.0000	200.000000	36462	
3	12378-PeCDF	passed	36.64	8892501	A	13823636	A	0.0125	1000.000000	1000.0000	1000.000000	199858	
4	23478-PeCDF	passed	37.86	10092325	A	15748932	A	0.0104	1000.000000	1000.0000	1000.000000	239353	
5	12378-PeCDD	passed	38.25	5665435	A	8689913	A	0.0325	1000.000000	1000.0000	1000.000000	77939	
6	123478-HxCDF	passed	41.43	10628454	A	13191762	A	0.0665	1000.000000	1000.0000	1000.000000	38367	
7	123678-HxCDF	passed	41.58	10916132	A	13704794	A	0.0651	1000.000000	1000.0000	1000.000000	39032	
8	234678-HxCDF	passed	42.26	10650094	A	13338334	A	0.0635	1000.000000	1000.0000	1000.000000	40232	
9	123478-HxCDD	passed	42.44	7047619	A	8763815	A	0.0427	1000.000000	1000.0000	1000.000000	59546	
10	123678-HxCDD	passed	42.55	7143701	A	8861153	A	0.0409	1000.000000	1000.0000	1000.000000	59609	
11	123789-HxCDO	passed	42.86	7223715	A	8914626	A	0.0426	1000.000000	1000.0000	1000.000000	58490	
12	123789-HxCDF	passed	43.25	9613342	A	12031691	A	0.0721	1000.000000	1000.0000	1000.000000	35037	
13	1234678-HxCDF	passed	44.94	11048929	A	11536604	A	0.0596	1000.000000	1000.0000	1000.000000	41416	
14	1234678-HpCDD	passed	46.12	7145705	A	7438140	A	0.0612	1000.000000	1000.0000	1000.000000	40840	
15	1234789-HpCDF	passed	46.68	9858490	A	10273358	A	0.0689	1000.000000	1000.0000	1000.000000	36074	
16	OCDD	passed	49.13	13861054	A	12358162	A	0.0563	2000.000000	2000.0000	2000.000000	89512	
17	OCDF	passed	49.32	18694084	A	16836788	A	0.0449	2000.000000	2000.0000	2000.000000	114509	
18	13C12-1278-TCDD (CRS)	passed	32.51	1903734	A	1541979	A	0.0092	200.000000	200.0000	200.000000	57755	
19	13C12-1234-TCDD	passed	31.37	757553	A	595345	A	0.0117	100.000000	100.0000	100.000000	21337	
20	13C12-123468-HxCDD	passed	41.31	661193	A	842665	A	0.0230	100.000000	100.0000	100.000000	10879	
21	13C12-2378-TCDF	passed	31.09	1438831	A	1167848	A	0.0055	100.000000	100.0000	100.000000	43986	
22	13C12-2378-TCDD	passed	32.12	774919	A	599403	A	0.0115	100.000000	100.0000	100.000000	22229	
23	13C12-12378-PeCDF	passed	36.63	943634	A	1505676	A	0.0232	100.000000	100.0000	100.000000	13817	
24	13C12-23478-PeCDF	passed	37.85	970164	A	1531246	A	0.0227	100.000000	100.0000	100.000000	14828	
25	13C12-12378-PeCDD	passed	38.23	535139	A	855265	A	0.0157	100.000000	100.0000	100.000000	21198	
26	13C12-123478-HxCDF	passed	41.42	1355663	A	718427	A	0.0222	100.000000	100.0000	100.000000	11343	
27	13C12-123678-HxCDF	passed	41.56	1478861	A	773573	A	0.0204	100.000000	100.0000	100.000000	12185	
28	13C12-234678-HxCDF	passed	42.24	1354516	A	701827	A	0.0224	100.000000	100.0000	100.000000	11701	
29	13C12-123478-HxCDD	passed	42.43	687944	A	891869	A	0.0219	100.000000	100.0000	100.000000	11852	
30	13C12-123678-HxCDD	passed	42.54	734048	A	917892	A	0.0209	100.000000	100.0000	100.000000	12777	
31	13C12-123789-HxCDD	passed	42.85	696966	A	842567	A	0.0224	100.000000	100.0000	100.000000	11346	
32	13C12-123789-HxCDF	passed	43.24	1281815	A	684267	A	0.0234	100.000000	100.0000	100.000000	10920	
33	13C12-1234678-HpCDF	passed	44.93	1263197	A	564149	A	0.0252	100.000000	100.0000	100.000000	10993	
34	13C12-1234678-HpCDD	passed	46.12	694726	A	745485	A	0.0223	100.000000	100.0000	100.000000	12212	
35	13C12-1234789-HpCDF	passed	46.67	1100679	A	497553	A	0.0288	100.000000	100.0000	100.000000	9333	
36	13C12-OCDD	passed	49.12	1396882	A	1252394	A	0.0144	200.000000	200.0000	200.000000	39787	
37	13C12-OCDF	passed	49.31	2074084	A	1885297	A	0.0155	200.000000	200.0000	200.000000	36607	
38	Total TCDF	passed (1)	29.81	2925614	A	2286155	A	0.0126	200.000000	200.0000	200.000000	39839	
39	Total TCDD	passed (1)	30.57	1873000	A	1469325	A	0.0139	200.000000	200.0000	200.000000	36462	
40	Total PeCDF	passed (2)	36.92	18984826	A	29572568	A	0.0114	1000.000000	2000.0000	1000.000000	219606	
41	Total PeCDD	passed (1)	37.03	5665435	A	8689913	A	0.0325	1000.000000	1000.0000	1000.000000	77939	
42	Total HxCDF	passed (4)	41.88	41808022	A	52266580	A	0.0668	1000.000000	4000.0000	1000.000000	38167	
43	Total HxCDD	passed (3)	42.62	21415035	A	26539594	A	0.0420	1000.000000	3000.0000	1000.000000	59215	
44	Total HpCDD	passed (1)	45.67	7145705	A	7438140	A	0.0612	1000.000000	1000.0000	1000.000000	40840	
45	Total HpCDF	passed (2)	45.87	20907418	A	21809962	A	0.0641	1000.000000	2000.0000	1000.000000	38745	
46	Single TCDF	passed	31.13	2925614	A	2286155	A	0.0126	200.000000	200.0000	200.000000	39839	
47	Single TCDD	passed	32.15	1873000	A	1469325	A	0.0139	200.000000	200.0000	200.000000	36462	
48	Single PeCDD	passed	38.25	5665435	A	8689913	A	0.0325	1000.000000	1000.0000	1000.000000	77939	
49	Single PeCDF	passed	37.86	10092325	A	15748932	A	0.0107	1000.000000	1000.0000	1000.000000	239353	
50	Single PeCDF	passed	36.64	8892501	A	13823636	A	0.0122	1000.000000	1000.0000	1000.000000	199858	
51	Single HpCDD	passed	46.12	7145705	A	7438140	A	0.0612	1000.000000	1000.0000	1000.000000	40840	
52	Single HxCDF	passed	42.26	10650094	A	13338334	A	0.0654	1000.000000	1000.0000	1000.000000	40232	
53	Single HxCDF	passed	41.43	10628454	A	13191762	A	0.0658	1000.000000	1000.0000	1000.000000	38367	
54	Single HxCDF	passed	41.58	10916132	A	13704794	A	0.0637	1000.000000	1000.0000	1000.000000	39032	
55	Single HxCDF	passed	43.25	9613342	A	12031691	A	0.0724	1000.000000	1000.0000	1000.000000	35037	
56	Single HxCDD	passed	42.55	7143701	A	8861153	A	0.0420	1000.000000	1000.0000	1000.000000	59609	
57	Single HxCDD	passed	42.44	7047619	A	8763815	A	0.0425	1000.000000	1000.0000	1000.000000	59546	
58	Single HxCDD	passed	42.86	7223715	A	8914626	A	0.0416	1000.000000	1000.0000	1000.000000	58490	
59	Single HpCDF	passed	44.94	11048929	A	11536604	A	0.0605	1000.000000	1000.0000	1000.000000	41416	
60	Single HpCDF	passed	46.68	9858490	A	10273358	A	0.0678	1000.000000	1000.0000	1000.000000	36074	

File Name: Y:\17JAN31\17JAN31-12
Sample ID: CS501

Acq. Data: 2/1/2017 6:29:25 AM
Sample Name: CALDF61737A
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17JAN31

RT: 22.50 - 51.00

NL:
3.58E5
m/z=
291.9825-
292.9825
MS
17JAN31-
12

NL:
3.83E5
m/z=
330.4792-
331.4792
MS
17JAN31-
12

NL:
2.22E5
m/z=
380.4760-
381.4760
MS
17JAN31-
12

NL:
6.82E4
m/z=
404.4760-
405.4760
MS
17JAN31-
12

NL:
6.94E4
m/z=
442.4728-
443.4728
MS
17JAN31-
12

APPROVED
By ujd2 at 10:16 am, 2/1/17

AIL01 Page 402 of 560

REVIEWED
By UMJS at 10:13 am, 2/1/17

Time (min)

```
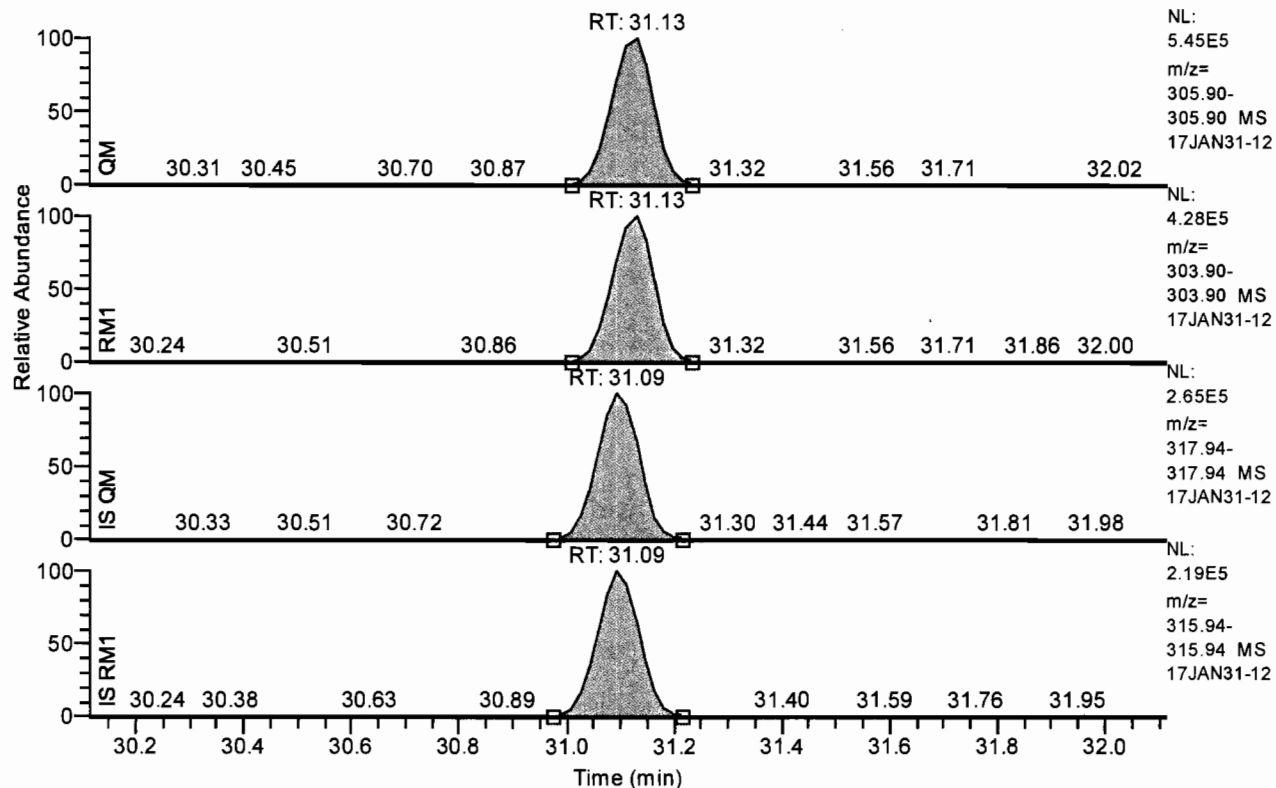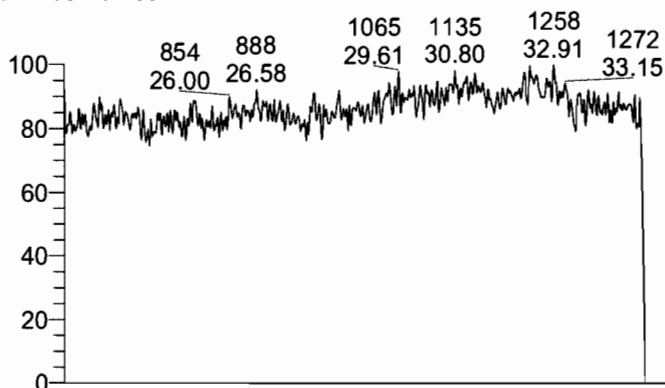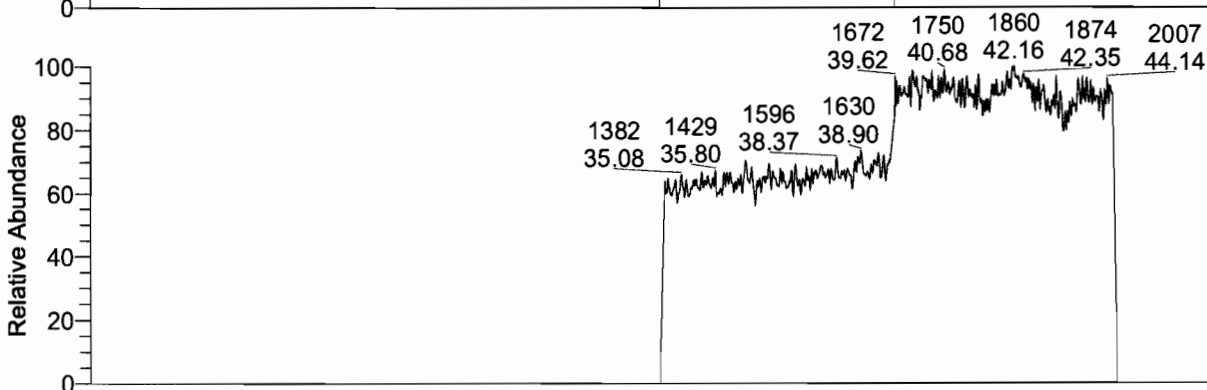*** file opened Wed Feb 01 06:34:48 2017 ***

Started by              - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

  Analysis started at: 01-Feb-17 06:34:47


  Analysis will stop at user request


  Firmware Version: 2.02


  MCAL file name:


  Sequence : 62d69d10-234f-46c5-bc8a-53bf0dc2f3b7


  MID procedure: PFK16MAR24+MDT



  Mid Time Windows:
        Start         Measure       End         Cycletime

 # 1   11:30 min     9:30 min   21:00 min     1.00 sec
 # 2   21:00 min    13:44 min   34:44 min     1.00 sec
 # 3   34:44 min     5:03 min   39:47 min     0.90 sec
 # 4   39:47 min     4:27 min   44:15 min     0.80 sec
 # 5   44:15 min     3:45 min   48:00 min     0.80 sec
 # 6   48:00 min     3:00 min   51:00 min     0.80 sec

  Mid Masses:
   Window # 1
        mass F  int  gr  time (ms)
     218.0129    1   1      95
     218.9851 1  20   1       4
     220.0100    1   1      95
     230.0532    2   1      47
     232.0502    2   1      47
     251.9739    1   1      95
     253.9710    1   1      95
     264.0142    2   1      47
     266.0112    2   1      47
     285.9350    1   1      95
     287.9320    1   1      95
     292.9819 c  20   1       4
     297.9752    2   1      47
     299.9723    2   1      47
   Window # 2
        mass F  int  gr  time (ms)
     292.9819 1  20   1       5
     303.9011    1   1     118
     305.8981    1   1     118
     315.9413    5   1      23
     317.9384    5   1      23
     319.8960    1   1     118
     321.8930    1   1     118
```

Page 1

```
331.9363      5  1        23
333.9333      5  1        23
339.8592      1  1       118
341.8562      1  1       118
354.9787 c   20  1         5
375.8364      2  1        59
Window # 3
    mass F  int  gr  time (ms)
330.9787 l   20  1         6
339.8592      1  1       133
341.8562      1  1       133
351.8994      3  1        44
353.8965      3  1        44
355.8541      1  1       133
357.8511      1  1       133
367.8943      3  1        44
369.8914      3  1        44
380.9755 c   20  1         6
409.7969      2  1        66
Window # 4
    mass F  int  gr  time (ms)
373.8201      1  1       117
375.8172      1  1       117
380.9755 l   20  1         5
383.8634      3  1        39
385.8604      3  1        39
389.8151      1  1       117
391.8121      1  1       117
401.8554      3  1        39
403.8524      3  1        39
430.9723 c   20  1         5
445.7550      2  1        58
Window # 5
    mass F  int  gr  time (ms)
404.9755 l   20  1         5
407.7812      1  1       117
409.7783      1  1       117
417.8244      3  1        39
419.8215      3  1        39
423.7761      1  1       117
425.7732      1  1       117
435.8164      3  1        39
437.8134      3  1        39
479.7160      2  1        58
480.9691 c   20  1         5
Window # 6
    mass F  int  gr  time (ms)
441.7422      1  1        95
442.9723 l   20  1         4
443.7393      1  1        95
453.7825      1  1        95
455.7795      1  1        95
457.7372      1  1        95
459.7342      1  1        95
469.7774      3  1        31
471.7745      3  1        31
492.9691 c   20  1         4
513.6770      2  1        47
```

```
MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.750000 minutes
MID Window end time was 34.740000 minutes
```

MID Window terminated after 39.800000 minutes
MID Window end time was 39.800000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	94.0000
BQUAD	0.4500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	156.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	175.0000
ENSBR	0.4500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	171.0000	EXSBR	-0.5300
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	13.9000
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0155	FVINLET	0.0279	FVSRC	0.0276
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	718.0000
LENS_SYM	12.7500	LM	1050.0000	LMII	500.0000
LMASS	94.0000	LKM	442.9723	MASS	94.0000
MDAC	1410466.8076	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2521.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-15.0000	RECURR	0.8972	RELEN	0.0000
RES	13763.9385	RPUSHER	-14.5861	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	664.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0180	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	94.0000	XLENS_POT	880.0000
XLENS_SYM	-2.5000	YLENS_POT	602.0000	YLENS_SYM	-7.7500

Source Gauge: 1.9e-005 mbar
Analyzer Penning: 5.2e-008 mbar
Pirani Analyse: 1.5e-002 mbar
Pirani Source: 2.8e-002 mbar
Pirani Inlet System: 2.8e-002 mbar

Scantype is magnetic

Sourcemode is EI POS

MID Time Window 1: Resolution is 11699.
MID Time Window 2: Resolution is 11774.
MID Time Window 3: Resolution is 11134.
MID Time Window 4: Resolution is 12079.

Page 3

MID Time Window 5: Resolution is 12985.
MID Time Window 6: Resolution is 13763.

Amplifier Offset: 87.

*** File closed Wed Feb 01 07:25:50 2017
***

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/07 20:39
Number of Entries	26
Comment	
Vial	2
Sample Name	TDTFWD ST1701737A
Sample ID	CPS03
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-13.quan
Data	y:\17feb07\17feb07-13.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	No Summation
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	1.0
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher

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Chromatogram

RT: 31.06 - 33.06 SM: 3G

NL:
1.23E5
m/z=
321.88-
321.91 MS
17FEB07-13

NL:
9.65E4
m/z=
319.88-
319.91 MS
17FEB07-13

NL:
4.65E4
m/z=
333.93-
333.94 MS
17FEB07-13

Entry: 2378-TCDD IS: 13C12-2378-TCDD

Entry Parameters

Smoothing Points	3
Compound Name	2378-TCDD
Quan. Mass	321.8936 +/- 50 ppm
QM Integration Mode	M
Ratio Mass 1	319.8965 +/- 50 ppm
RM1 Integration Mode	M
ManInt	1
RM1 Retention Time	32.06
RM1 Left Baseline Height	546.40
RM1 Left Height	9572
RM1 Height	89418
GC Res (%) left	11.049462

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher
929 of 1081

❄ **eurofins** | **Lancaster Laboratories**

Quantitation Settings

Data File Parameter

Acq. Data	2017/02/07 20:39
Number of Entries	26
Comment	
Vial	2
Sample Name	TDTFWD ST1701737A
Sample ID	CPS03
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-13.quan
Data	y:\17feb07\17feb07-13.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	No Summation
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	1.0
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher
930 of 1081

ᐠᐟ eurofins | Lancaster
Laboratories

Chromatogram

RT: 31.06 - 33.06 SM: 3G

Entry: 2378-TCDD   IS: 13C12-2378-TCDD

Entry Parameters

Smoothing Points	3
Compound Name	2378-TCDD
Quan. Mass	321.8936 +/- 50 ppm
QM Integration Mode	A
Ratio Mass 1	319.8965 +/- 50 ppm
RM1 Integration Mode	A
ManInt	1
RM1 Retention Time	32.06
RM1 Left Baseline Height	546.40
RM1 Left Height	9572
RM1 Height	89312
GC Res (%) left	11.057159

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

AIL01 Page 410 of 560

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher
Scientific
931 C 1081

RT: 22.50 - 51.00

NL:
4.66E5
m/z=
291.9825-
292.9825
MS
17FEB07-
13

NL:
6.14E5
m/z=
330.4792-
331.4792
MS
17FEB07-
13

NL:
3.57E5
m/z=
380.4760-
381.4760
MS
17FEB07-
13

NL:
9.20E4
m/z=
404.4760-
405.4760
MS
17FEB07-
13

NL:
1.08E5
m/z=
442.4728-
443.4728
MS
17FEB07-
13

```
*** file opened Tue Feb 07 20:42:43 2017 ***

Started by             - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

  Analysis started at: 07-Feb-17 20:42:42


  Analysis will stop at user request


  Firmware Version: 2.02


  MCAL file name:


  Sequence : ef723472-e848-43e5-a9f2-e1bcce0ed473


  MID procedure: PFK16MAR24+MDT



Mid Time Windows:
        Start        Measure       End        Cycletime

# 1  11:30 min   9:30 min  21:00 min   1.00 sec
# 2  21:00 min  13:36 min  34:36 min   1.00 sec
# 3  34:36 min   4:53 min  39:30 min   0.90 sec
# 4  39:30 min   4:45 min  44:15 min   0.80 sec
# 5  44:15 min   3:45 min  48:00 min   0.80 sec
# 6  48:00 min   3:00 min  51:00 min   0.80 sec

Mid Masses:
 Window # 1
      mass F   int  gr   time (ms)
   218.0129     1   1        95
   218.9851 l  20   1         4
   220.0100     1   1        95
   230.0532     2   1        47
   232.0502     2   1        47
   251.9739     1   1        95
   253.9710     1   1        95
   264.0142     2   1        47
   266.0112     2   1        47
   285.9350     1   1        95
   287.9320     1   1        95
   292.9819 c  20   1         4
   297.9752     2   1        47
   299.9723     2   1        47
 Window # 2
      mass F   int  gr   time (ms)
   292.9819 l  20   1         5
   303.9011     1   1       118
   305.8981     1   1       118
   315.9413     5   1        23
   317.9384     5   1        23
   319.8960     1   1       118
   321.8930     1   1       118
```
                              Page 1

```
331.9363      5  1        23
333.9333      5  1        23
339.8592      1  1       118
341.8562      1  1       118
354.9787 c   20  1         5
375.8364      2  1        59
window # 3
     mass F  int gr  time (ms)
330.9787 1   20  1         6
339.8592      1  1       133
341.8562      1  1       133
351.8994      3  1        44
353.8965      3  1        44
355.8541      1  1       133
357.8511      1  1       133
367.8943      3  1        44
369.8914      3  1        44
380.9755 c   20  1         6
409.7969      2  1        66
window # 4
     mass F  int gr  time (ms)
373.8201      1  1       117
375.8172      1  1       117
380.9755 1   20  1         5
383.8634      3  1        39
385.8604      3  1        39
389.8151      1  1       117
391.8121      1  1       117
401.8554      3  1        39
403.8524      3  1        39
430.9723 c   20  1         5
445.7550      2  1        58
window # 5
     mass F  int gr  time (ms)
404.9755 1   20  1         5
407.7812      1  1       117
409.7783      1  1       117
417.8244      3  1        39
419.8215      3  1        39
423.7761      1  1       117
425.7732      1  1       117
435.8164      3  1        39
437.8134      3  1        39
479.7160      2  1        58
480.9691 c   20  1         5
window # 6
     mass F  int gr  time (ms)
441.7422      1  1        95
442.9723 1   20  1         4
443.7393      1  1        95
453.7825      1  1        95
455.7795      1  1        95
457.7372      1  1        95
459.7342      1  1        95
469.7774      3  1        31
471.7745      3  1        31
492.9691 c   20  1         4
513.6770      2  1        47
```

```
MID window terminated after 21.000000 minutes
MID window end time was 21.000000 minutes
MID window terminated after 34.600000 minutes
MID window end time was 34.600000 minutes
```
                                        Page 2

```
MID Window terminated after 39.500000 minutes
MID Window end time was 39.500000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes
```

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	99.0000
BQUAD	0.0500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	61.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	173.0000
ENSBR	0.0500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	172.0000	EXSBR	-0.4700
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	12.3500
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0172	FVINLET	0.0301	FVSRC	0.0289
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	714.0000
LENS_SYM	14.3000	LM	1050.0000	LMII	500.0000
LMASS	99.0000	LKM	442.9723	MASS	99.0000
MDAC	1472957.1872	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2525.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-9.0000	RECURR	0.8967	RELEN	0.0000
RES	13192.5417	RPUSHER	-8.6813	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	638.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0206	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	99.0000	XLENS_POT	896.0000
XLENS_SYM	-8.5000	YLENS_POT	568.0000	YLENS_SYM	0.0000

```
Source Gauge:        2.0e-005 mbar
Analyzer Penning:    5.1e-008 mbar
Pirani Analyse:      1.7e-002 mbar
Pirani Source:       2.9e-002 mbar
Pirani Inlet System: 3.0e-002 mbar
```

Scantype is magnetic

Sourcemode is EI POS

```
MID Time Window 1: Resolution is 11430.
MID Time Window 2: Resolution is 11687.
MID Time Window 3: Resolution is 12014.
MID Time Window 4: Resolution is 12047.
```

MID Time Window 5: Resolution is 13454.
MID Time Window 6: Resolution is 13192.

Amplifier Offset: 88.

*** File closed Tue Feb 07 21:33:45 2017
   ***

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/07 21:33
Number of Entries	150
Comment	
Vial	6
Sample Name	VER-CALDF41737A
Sample ID	CS3CC03
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-14.quan
Data	y:\17feb07\17feb07-14.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	Native vs Labeled Time Status	Status Info
1	2378-TCDF	30.98	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.01	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.54	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.76	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.15	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.34	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.49	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.16	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.35	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.47	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.78	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.17	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.86	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.05	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.61	passed	passed	passed	passed	passed	passed	
16	OCDD	49.05	passed	passed	passed	passed	passed	passed	
17	OCDF	49.24	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.37	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.24	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.23	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	30.95	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	31.99	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.51	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.75	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.12	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.32	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.47	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.15	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.33	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.46	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.77	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.16	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.84	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.03	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.60	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.04	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.22	passed	passed	passed	passed	passed	passed	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/07 21:33
Number of Entries	150
Comment	
Vial	6
Sample Name	VER-CALDF41737A
Sample ID	CS3CC03
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-14.quan
Data	y:\17feb07\17feb07-14.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

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Chromatogram

RT: 29.97 - 31.97   SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	30.98
QM Area	186441
QM Integration Mode	A
RM1 Area	152781
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0059
Unqualified Amount (A)	10.297268
Adjusted Amount (A)	10.2973
Signal-to-Noise	4249
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

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By UMJS at 12:42 pm, 2/9/17

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Chromatogram

RT: 31.01 - 33.01 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.01
QM Area	121720
QM Integration Mode	A
RM1 Area	91745
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0059
Unqualified Amount (A)	10.296230
Adjusted Amount (A)	10.2962
Signal-to-Noise	4242
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 35.54 - 37.54 SM: 3G

NL:
1.39E5
m/z=
341.85-
341.86 MS
17FEB07-14

NL:
2.26E5
m/z=
339.86-
339.86 MS
17FEB07-14

NL:
2.80E5
m/z=
353.90-
353.90 MS
17FEB07-14

NL:
4.40E5
m/z=
351.90-
351.90 MS
17FEB07-14

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.54
QM Area	579990
QM Integration Mode	A
RM1 Area	917042
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0065
Unqualified Amount (A)	50.487143
Adjusted Amount (A)	50.4871
Signal-to-Noise	20035
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 36.76 - 38.76 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.76
QM Area	670846
QM Integration Mode	A
RM1 Area	1056923
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0052
Unqualified Amount (A)	50.595828
Adjusted Amount (A)	50.5958
Signal-to-Noise	24628
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 37.13 - 39.13 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.15
QM Area	350556
QM Integration Mode	A
RM1 Area	553251
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0129
Unqualified Amount (A)	49.687557
Adjusted Amount (A)	49.6876
Signal-to-Noise	9584
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 40.34 - 42.34 SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.34
QM Area	724359
QM Integration Mode	A
RM1 Area	902340
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0121
Unqualified Amount (A)	49.858873
Adjusted Amount (A)	49.8589
Signal-to-Noise	10456
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 40.49 - 42.49 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.49
QM Area	734677
QM Integration Mode	A
RM1 Area	918565
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0119
Unqualified Amount (A)	49.493914
Adjusted Amount (A)	49.4939
Signal-to-Noise	10460
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.16 - 43.16 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.16
QM Area	736536
QM Integration Mode	A
RM1 Area	927430
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0117
Unqualified Amount (A)	51.276015
Adjusted Amount (A)	51.2760
Signal-to-Noise	10595
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 41.35 - 43.35 SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.35
QM Area	483174
QM Integration Mode	A
RM1 Area	608428
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0097
Unqualified Amount (A)	50.751955
Adjusted Amount (A)	50.7520
Signal-to-Noise	13032
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 41.47 - 43.47 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.47
QM Area	493890
QM Integration Mode	A
RM1 Area	618416
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0094
Unqualified Amount (A)	51.193296
Adjusted Amount (A)	51.1933
Signal-to-Noise	13576
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 41.78 - 43.78 SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.78
QM Area	488521
QM Integration Mode	A
RM1 Area	631377
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0094
Unqualified Amount (A)	50.857803
Adjusted Amount (A)	50.8578
Signal-to-Noise	13523
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 42.17 - 44.17 SM: 3G

NL:
2.01E5
m/z=
375.82-
375.82 MS
17FEB07-14

NL:
2.59E5
m/z=
373.82-
373.82 MS
17FEB07-14

NL:
5.09E5
m/z=
385.86-
385.86 MS
17FEB07-14

NL:
2.70E5
m/z=
383.86-
383.87 MS
17FEB07-14

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.17
QM Area	634049
QM Integration Mode	A
RM1 Area	792409
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0127
Unqualified Amount (A)	47.156668
Adjusted Amount (A)	47.1567
Signal-to-Noise	9259
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 43.86 - 45.86 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.86
QM Area	825215
QM Integration Mode	A
RM1 Area	852071
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0156
Unqualified Amount (A)	50.530698
Adjusted Amount (A)	50.5307
Signal-to-Noise	7993
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 45.05 - 47.05 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.05
QM Area	529221
QM Integration Mode	A
RM1 Area	554363
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0153
Unqualified Amount (A)	49.898481
Adjusted Amount (A)	49.8985
Signal-to-Noise	8036
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.61 - 47.61 SM: 3G

NL:
2.10E5
m/z=
409.78-
409.78 MS
17FEB07-14

NL:
2.21E5
m/z=
407.78-
407.78 MS
17FEB07-14

NL:
4.56E5
m/z=
419.82-
419.82 MS
17FEB07-14

NL:
2.13E5
m/z=
417.82-
417.83 MS
17FEB07-14

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.61
QM Area	684747
QM Integration Mode	A
RM1 Area	710190
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0182
Unqualified Amount (A)	49.135580
Adjusted Amount (A)	49.1356
Signal-to-Noise	6684
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 48.05 - 50.05 SM: 3G

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.05
QM Area	1041242
QM Integration Mode	A
RM1 Area	928115
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0153
Unqualified Amount (A)	101.351009
Adjusted Amount (A)	101.3510
Signal-to-Noise	16040
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Chromatogram

RT: 48.24 - 50.24 SM: 3G

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.24
QM Area	1264724
QM Integration Mode	A
RM1 Area	1133209
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0106
Unqualified Amount (A)	98.265618
Adjusted Amount (A)	98.2656
Signal-to-Noise	23576
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 31.36 - 33.36 SM: 5G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.37
QM Area	119075
QM Integration Mode	A
RM1 Area	86071
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0137
Unqualified Amount (A)	9.476062
Adjusted Amount (A)	9.4761
Signal-to-Noise	1680
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	Specified RT [min]	QM Retention Time	RM1 Retention Time	Labeled RT	RM1 Time Status	Native vs Labeled Time Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	30.98	30.98	30.98	30.95	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	32.01	32.01	32.02	31.99	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.54	36.54	36.54	36.51	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.76	37.76	37.76	37.75	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.15	38.15	38.15	38.12	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.34	41.34	41.34	41.32	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.49	41.49	41.49	41.47	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.16	42.16	42.16	42.15	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.35	42.35	42.35	42.33	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.47	42.47	42.47	42.46	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.78	42.78	42.78	42.77	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.17	43.17	43.17	43.16	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.86	44.86	44.86	44.84	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	46.05	46.05	46.05	46.03	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.61	46.61	46.61	46.60	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	49.05	49.05	49.05	49.04	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	49.24	49.24	49.24	49.22	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	32.37	32.37	32.38	32.37	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.24	31.24	31.24	31.24	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	41.23	41.23	41.23	41.23	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	30.95	30.95	30.95	30.91	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.99	31.99	31.99	31.99	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	36.51	36.51	36.53	36.68	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	37.75	37.75	37.75	37.62	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	38.12	38.12	38.12	38.12	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.32	41.32	41.32	41.35	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.47	41.47	41.47	41.46	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	42.15	42.15	42.15	42.33	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.33	42.33	42.33	42.33	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.46	42.46	42.46	42.46	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.77	42.77	42.77	42.77	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	43.16	43.16	43.16	43.16	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	44.84	44.84	44.84	44.82	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	46.03	46.03	46.03	46.03	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	46.60	46.60	46.60	46.53	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	49.04	49.04	49.04	49.04	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	49.22	49.22	49.22	49.13	passed	passed

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher Scientific
958   1081

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Calculated RF (A)	Response File RF (A)	RF Limit		RF Status
1	2378-TCDF	30.98	0.8195	0.6450 -	0.8950	passed	1.0657	1.0349	0.8227 -	1.2471	passed
2	2378-TCDD	32.01	0.7537	0.6450 -	0.8950	passed	1.2704	1.2338	0.9809 -	1.4867	passed
3	12378-PeCDF	36.54	1.5811	1.3150 -	1.7850	passed	0.9793	0.9698	0.7710 -	1.1686	passed
4	23478-PeCDF	37.76	1.5755	1.3150 -	1.7850	passed	1.0914	1.0786	0.8575 -	1.2997	passed
5	12378-PeCDD	38.15	1.5782	1.3150 -	1.7850	passed	1.0525	1.0591	0.8420 -	1.2762	passed
6	123478-HxCDF	41.34	1.2457	1.0450 -	1.4350	passed	1.1716	1.1750	0.9341 -	1.4159	passed
7	123678-HxCDF	41.49	1.2503	1.0450 -	1.4350	passed	1.1390	1.1506	0.9147 -	1.3865	passed
8	234678-HxCDF	42.16	1.2592	1.0450 -	1.4350	passed	1.2415	1.2106	0.9624 -	1.4588	passed
9	123478-HxCDD	42.35	1.2592	1.0450 -	1.4350	passed	1.0395	1.0241	0.8142 -	1.2340	passed
10	123678-HxCDD	42.47	1.2521	1.0450 -	1.4350	passed	1.0455	1.0211	0.8118 -	1.2304	passed
11	123789-HxCDD	42.78	1.2924	1.0450 -	1.4350	passed	1.1024	1.0838	0.8616 -	1.3060	passed
12	123789-HxCDF	43.17	1.2498	1.0450 -	1.4350	passed	1.0877	1.1533	0.9169 -	1.3897	passed
13	1234678-HpCDF	44.86	1.0325	0.8750 -	1.2050	passed	1.2957	1.2820	1.0192 -	1.5448	passed
14	1234678-HpCDD	46.05	1.0475	0.8750 -	1.2050	passed	1.0568	1.0590	0.8419 -	1.2761	passed
15	1234789-HpCDF	46.61	1.0372	0.8750 -	1.2050	passed	1.3003	1.3231	1.0519 -	1.5943	passed
16	OCDD	49.05	0.8914	0.7550 -	1.0250	passed	1.0352	1.0214	0.8120 -	1.2308	passed
17	OCDF	49.24	0.8960	0.7550 -	1.0250	passed	0.9167	0.9329	0.7417 -	1.1241	passed
18	13C12-1278-TCDD (CRS)	32.37	0.7228	0.6450 -	0.8950	passed	1.2169	1.2842	0.8925 -	1.6759	passed
19	13C12-1234-TCDD	31.24	0.7780	0.6450 -	0.8950	passed	1.0000	1.0000	1.0000 -	1.0000	passed
20	13C12-123468-HxCDD	41.23	1.2569	1.0450 -	1.4350	passed	1.0000	1.0000	1.0000 -	1.0000	passed
21	13C12-2378-TCDF	30.95	0.8148	0.6450 -	0.8950	passed	1.8882	1.8681	1.2983 -	2.4379	passed
22	13C12-2378-TCDD	31.99	0.8083	0.6450 -	0.8950	passed	0.9967	0.9850	0.6846 -	1.2854	passed
23	13C12-12378-PeCDF	36.51	1.5820	1.3150 -	1.7850	passed	1.8136	1.7271	1.2003 -	2.2539	passed
24	13C12-23478-PeCDF	37.75	1.5704	1.3150 -	1.7850	passed	1.8781	1.7249	1.1988 -	2.2510	passed
25	13C12-12378-PeCDD	38.12	1.5817	1.3150 -	1.7850	passed	1.0187	0.9749	0.6776 -	1.2722	passed
26	13C12-123478-HxCDF	41.32	0.5246	0.4250 -	0.5950	passed	1.2577	1.2851	0.8931 -	1.6771	passed
27	13C12-123678-HxCDF	41.47	0.5359	0.4250 -	0.5950	passed	1.3149	1.3520	0.9396 -	1.7644	passed
28	13C12-234678-HxCDF	42.15	0.5198	0.4250 -	0.5950	passed	1.2141	1.2544	0.8718 -	1.6370	passed
29	13C12-123478-HxCDD	42.33	1.2747	1.0450 -	1.4350	passed	0.9513	0.9461	0.6575 -	1.2347	passed
30	13C12-123678-HxCDD	42.46	1.2535	1.0450 -	1.4350	passed	0.9638	0.9761	0.6784 -	1.2738	passed
31	13C12-123789-HxCDD	42.77	1.2404	1.0450 -	1.4350	passed	0.9202	0.9341	0.6492 -	1.2190	passed
32	13C12-123789-HxCDF	43.16	0.5318	0.4250 -	0.5950	passed	1.1880	1.1840	0.8229 -	1.5451	passed
33	13C12-1234678-HpCDF	44.84	0.4685	0.3650 -	0.5150	passed	1.1727	1.1050	0.7680 -	1.4420	passed
34	13C12-1234678-HpCDD	46.03	1.0771	0.8750 -	1.2050	passed	0.9288	0.8651	0.6012 -	1.1290	passed
35	13C12-1234789-HpCDF	46.60	0.4572	0.3650 -	0.5150	passed	0.9718	0.9436	0.6558 -	1.2314	passed
36	13C12-OCDD	49.04	0.9043	0.7550 -	1.0250	passed	0.8617	0.7794	0.5417 -	1.0171	passed
37	13C12-OCDF	49.22	0.9025	0.7550 -	1.0250	passed	1.1848	1.1485	0.7982 -	1.4988	passed

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Entry Parameters

No	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Noise	Client Flags
1	2378-TCDF	passed	30.98	186441	A	152781	A	0.0059	10.297268	10.2973	10.000000	4249	
2	2378-TCDD	passed	32.01	121720	A	91745	A	0.0059	10.296230	10.2962	10.000000	4242	
3	12378-PeCDF	passed	36.54	579990	A	917042	A	0.0065	50.487143	50.4871	50.000000	20035	
4	23478-PeCDF	passed	37.76	670846	A	1056923	A	0.0052	50.595828	50.5958	50.000000	24628	
5	12378-PeCDD	passed	38.15	350556	A	553251	A	0.0129	49.687557	49.6876	50.000000	9584	
6	123478-HxCDF	passed	41.34	724359	A	902340	A	0.0121	49.858873	49.8589	50.000000	10456	
7	123678-HxCDF	passed	41.49	734677	A	918565	A	0.0119	49.493914	49.4939	50.000000	10460	
8	234678-HxCDF	passed	42.16	736536	A	927430	A	0.0117	51.276015	51.2760	50.000000	10595	
9	123478-HxCDD	passed	42.35	483174	A	608428	A	0.0097	50.751955	50.7520	50.000000	13032	
10	123678-HxCDD	passed	42.47	493890	A	618416	A	0.0094	51.193296	51.1933	50.000000	13576	
11	123789-HxCDD	passed	42.78	488521	A	631377	A	0.0094	50.857803	50.8578	50.000000	13523	
12	123789-HxCDF	passed	43.17	634049	A	792409	A	0.0127	47.156668	47.1567	50.000000	9259	
13	1234678-HpCDF	passed	44.86	825215	A	852071	A	0.0156	50.530698	50.5307	50.000000	7993	
14	1234678-HpCDD	passed	46.05	529221	A	554363	A	0.0153	49.898481	49.8985	50.000000	8036	
15	1234789-HpCDF	passed	46.61	684747	A	710190	A	0.0182	49.135580	49.1356	50.000000	6684	
16	OCDD	passed	49.05	1041242	A	928115	A	0.0153	101.351009	101.3510	100.000000	16040	
17	OCDF	passed	49.24	1264724	A	1133209	A	0.0106	98.265618	98.2656	100.000000	23576	
18	13C12-1278-TCDD (CRS)	passed	32.37	119075	A	86071	A	0.0137	9.476062	9.4761	10.000000	1680	
19	13C12-1234-TCDD	passed	31.24	948145	A	737673	A	0.0190	100.000000	100.0000	100.000000	13177	
20	13C12-123468-HxCDD	passed	41.23	978273	A	1229553	A	0.0191	100.000000	100.0000	100.000000	13075	
21	13C12-2378-TCDF	passed	30.95	1753944	A	1429193	A	0.0057	101.077563	101.0776	100.000000	42819	
22	13C12-2378-TCDD	passed	31.99	929204	A	751121	A	0.0193	101.193999	101.1940	100.000000	13896	
23	13C12-12378-PeCDF	passed	36.51	1184091	A	1873273	A	0.0247	105.009709	105.0097	100.000000	13434	
24	13C12-23478-PeCDF	passed	37.75	1231765	A	1934305	A	0.0247	108.881188	108.8812	100.000000	15160	
25	13C12-12378-PeCDD	passed	38.12	665213	A	1052198	A	0.0160	104.499357	104.4994	100.000000	22234	
26	13C12-123478-HxCDF	passed	41.32	1821377	A	955409	A	0.0256	97.864460	97.8645	100.000000	9491	
27	13C12-123678-HxCDF	passed	41.47	1890130	A	1012907	A	0.0244	97.252534	97.2525	100.000000	9805	
28	13C12-234678-HxCDF	passed	42.15	1763702	A	916815	A	0.0263	96.786933	96.7869	100.000000	9482	
29	13C12-123478-HxCDD	passed	42.33	923302	A	1176979	A	0.0202	100.550420	100.5504	100.000000	12921	
30	13C12-123678-HxCDD	passed	42.46	944242	A	1183584	A	0.0196	98.739997	98.7400	100.000000	13253	
31	13C12-123789-HxCDD	passed	42.77	906864	A	1124870	A	0.0205	98.512181	98.5122	100.000000	12529	
32	13C12-123789-HxCDF	passed	43.16	1712246	A	910649	A	0.0278	100.334695	100.3347	100.000000	9226	
33	13C12-1234678-HpCDF	passed	44.84	1763152	A	825950	A	0.0288	106.128840	106.1288	100.000000	9666	
34	13C12-1234678-HpCDD	passed	46.03	987277	A	1063403	A	0.0278	107.367013	107.3670	100.000000	10364	
35	13C12-1234789-HpCDF	passed	46.60	1472380	A	673236	A	0.0337	102.985920	102.9859	100.000000	8208	
36	13C12-OCDD	passed	49.04	1998066	A	1806819	A	0.0169	221.109950	221.1099	200.000000	36924	
37	13C12-OCDF	passed	49.22	2749823	A	2481667	A	0.0173	206.322230	206.3222	200.000000	33313	

TargetQuan3   **APPROVED** By uma9 at 12:02 pm, 2/9/17

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REVIEWED By UMJS at 12:42 pm, 2/9/17   ThermoFisher

960   1081

File Name: Y:\17FEB07\17FEB07-14
Sample ID: CS3CC03

Acq. Data: 2/7/2017 9:33:53 PM
Sample Name: VER-CALDF41737A
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17FEB07

RT: 22.50 - 51.00

NL:
4.57E5
m/z=
291.9825-
292.9825
MS
17FEB07-14

NL:
6.00E5
m/z=
330.4792-
331.4792
MS
17FEB07-14

NL:
3.51E5
m/z=
380.4760-
381.4760
MS
17FEB07-14

NL:
9.26E4
m/z=
404.4760-
405.4760
MS
17FEB07-14

NL:
1.19E5
m/z=
442.4728-
443.4728
MS
17FEB07-14

Relative Abundance

Time (min)

```
*** file opened Tue Feb 07 21:39:19 2017 ***

Started by              - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

  Analysis started at: 07-Feb-17 21:39:18


  Analysis will stop at user request


  Firmware Version: 2.02


  MCAL file name:


  Sequence : ef723472-e848-43e5-a9f2-e1bcce0ed473


  MID procedure: PFK16MAR24+MDT



Mid Time Windows:
       Start        Measure      End        Cycletime

# 1  11:30 min   9:30 min  21:00 min   1.00 sec
# 2  21:00 min  13:36 min  34:36 min   1.00 sec
# 3  34:36 min   4:53 min  39:30 min   0.90 sec
# 4  39:30 min   4:45 min  44:15 min   0.80 sec
# 5  44:15 min   3:45 min  48:00 min   0.80 sec
# 6  48:00 min   3:00 min  51:00 min   0.80 sec

Mid Masses:
 Window # 1
     mass F   int  gr   time (ms)
   218.0129    1   1       95
   218.9851 l  20  1        4
   220.0100    1   1       95
   230.0532    2   1       47
   232.0502    2   1       47
   251.9739    1   1       95
   253.9710    1   1       95
   264.0142    2   1       47
   266.0112    2   1       47
   285.9350    1   1       95
   287.9320    1   1       95
   292.9819 c  20  1        4
   297.9752    2   1       47
   299.9723    2   1       47
 Window # 2
     mass F   int  gr   time (ms)
   292.9819 l  20  1        5
   303.9011    1   1      118
   305.8981    1   1      118
   315.9413    5   1       23
   317.9384    5   1       23
   319.8960    1   1      118
   321.8930    1   1      118
```

Page 1

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```
331.9363      5  1        23
333.9333      5  1        23
339.8592      1  1       118
341.8562      1  1       118
354.9787 c   20  1         5
375.8364      2  1        59
Window # 3
     mass F  int  gr  time (ms)
330.9787 l   20  1         6
339.8592      1  1       133
341.8562      1  1       133
351.8994      3  1        44
353.8965      3  1        44
355.8541      1  1       133
357.8511      1  1       133
367.8943      3  1        44
369.8914      3  1        44
380.9755 c   20  1         6
409.7969      2  1        66
Window # 4
     mass F  int  gr  time (ms)
373.8201      1  1       117
375.8172      1  1       117
380.9755 l   20  1         5
383.8634      3  1        39
385.8604      3  1        39
389.8151      1  1       117
391.8121      1  1       117
401.8554      3  1        39
403.8524      3  1        39
430.9723 c   20  1         5
445.7550      2  1        58
Window # 5
     mass F  int  gr  time (ms)
404.9755 l   20  1         5
407.7812      1  1       117
409.7783      1  1       117
417.8244      3  1        39
419.8215      3  1        39
423.7761      1  1       117
425.7732      1  1       117
435.8164      3  1        39
437.8134      3  1        39
479.7160      2  1        58
480.9691 c   20  1         5
Window # 6
     mass F  int  gr  time (ms)
441.7422      1  1        95
442.9723 l   20  1         4
443.7393      1  1        95
453.7825      1  1        95
455.7795      1  1        95
457.7372      1  1        95
459.7342      1  1        95
469.7774      3  1        31
471.7745      3  1        31
492.9691 c   20  1         4
513.6770      2  1        47

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.600000 minutes
MID Window end time was 34.600000 minutes
```

```
MID Window terminated after 39.500000 minutes
MID Window end time was 39.500000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes
```

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	98.5000
BQUAD	0.0500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	61.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	173.0000
ENSBR	0.0500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	172.0000	EXSBR	-0.4700
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	12.3500
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0172	FVINLET	0.0297	FVSRC	0.0286
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	714.0000
LENS_SYM	14.3000	LM	1050.0000	LMII	500.0000
LMASS	98.5000	LKM	442.9723	MASS	98.5000
MDAC	1466744.8101	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2525.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-9.0000	RECURR	0.8982	RELEN	0.0000
RES	12487.8137	RPUSHER	-8.6374	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	638.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0206	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	98.5000	XLENS_POT	896.0000
XLENS_SYM	-8.5000	YLENS_POT	568.0000	YLENS_SYM	0.0000

```
Source Gauge:        1.9e-005 mbar
Analyzer Penning:    5.1e-008 mbar
Pirani Analyse:      1.7e-002 mbar
Pirani Source:       2.9e-002 mbar
Pirani Inlet System: 3.0e-002 mbar
```

Scantype is magnetic

Sourcemode is EI POS

```
MID Time Window 1: Resolution is 11542.
MID Time Window 2: Resolution is 12270.
MID Time Window 3: Resolution is 11749.
MID Time Window 4: Resolution is 12327.
```

Page 3

MID Time Window 5: Resolution is 11640.
MID Time Window 6: Resolution is 12487.

Amplifier Offset: 88.

*** File closed Tue Feb 07 22:30:21 2017
   ***

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 10:03
Number of Entries	153
Comment	
Vial	6
Sample Name	VER-CALDF41737A
Sample ID	CS3CC04
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-28-8290.quan
Data	y:\17feb07\17feb07-28.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	Native vs Labeled Time Status	Status Info
1	2378-TCDF	31.00	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.05	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.56	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.78	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.16	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.35	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.50	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.18	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.37	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.49	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.80	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.19	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.87	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.06	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.63	passed	passed	passed	passed	passed	passed	
16	OCDD	49.06	passed	passed	passed	passed	passed	passed	
17	OCDF	49.26	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.41	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.26	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.25	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	30.97	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.01	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.55	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.76	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.13	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.34	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.49	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.16	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.35	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.47	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.78	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.17	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.86	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.05	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.62	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.06	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.24	passed	passed	passed	passed	passed	passed	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 10:03
Number of Entries	153
Comment	
Vial	6
Sample Name	VER-CALDF41737A
Sample ID	CS3CC04
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-28-8290.quan
Data	y:\17feb07\17feb07-28.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	1.0
Sample Weight [hSWT]	1.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 29.99 - 31.99 SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.00
QM Area	211967
QM Integration Mode	A
RM1 Area	163645
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0065
Unqualified Amount (A)	10.026235
Adjusted Amount (A)	10.0262
Signal-to-Noise	3922
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.03 - 33.03 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.05
QM Area	134077
QM Integration Mode	A
RM1 Area	102753
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0067
Unqualified Amount (A)	10.274205
Adjusted Amount (A)	10.2742
Signal-to-Noise	3801
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 35.58 - 37.58 SM: 3G

NL:
1.66E5
m/z=
341.85-
341.86 MS
17FEB07-28

NL:
2.67E5
m/z=
339.86-
339.86 MS
17FEB07-28

NL:
3.28E5
m/z=
353.90-
353.90 MS
17FEB07-28

NL:
5.15E5
m/z=
351.90-
351.90 MS
17FEB07-28

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.56
QM Area	672905
QM Integration Mode	A
RM1 Area	1070113
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0049
Unqualified Amount (A)	51.164132
Adjusted Amount (A)	51.1641
Signal-to-Noise	27184
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 36.78 - 38.78 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.78
QM Area	761885
QM Integration Mode	A
RM1 Area	1189277
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0040
Unqualified Amount (A)	50.432100
Adjusted Amount (A)	50.4321
Signal-to-Noise	31749
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 37.15 - 39.15 SM: 3G

NL:
1.06E5
m/z=
357.85-
357.85 MS
17FEB07-28

NL:
1.68E5
m/z=
355.85-
355.86 MS
17FEB07-28

NL:
1.96E5
m/z=
369.89-
369.89 MS
17FEB07-28

NL:
3.12E5
m/z=
367.89-
367.90 MS
17FEB07-28

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.16
QM Area	416042
QM Integration Mode	A
RM1 Area	654150
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0141
Unqualified Amount (A)	50.497473
Adjusted Amount (A)	50.4975
Signal-to-Noise	8993
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.35 - 42.35 SM: 3G

NL:
2.68E5
m/z=
375.82-
375.82 MS
17FEB07-28

NL:
3.31E5
m/z=
373.82-
373.82 MS
17FEB07-28

NL:
6.86E5
m/z=
385.86-
385.86 MS
17FEB07-28

NL:
3.62E5
m/z=
383.86-
383.87 MS
17FEB07-28

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.35
QM Area	912020
QM Integration Mode	A
RM1 Area	1135170
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0116
Unqualified Amount (A)	50.564220
Adjusted Amount (A)	50.5642
Signal-to-Noise	10914
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.50 - 42.50 SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.50
QM Area	908588
QM Integration Mode	A
RM1 Area	1130843
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0113
Unqualified Amount (A)	49.292628
Adjusted Amount (A)	49.2926
Signal-to-Noise	10919
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.18 - 43.18 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.18
QM Area	880891
QM Integration Mode	A
RM1 Area	1108930
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0118
Unqualified Amount (A)	50.462030
Adjusted Amount (A)	50.4620
Signal-to-Noise	10571
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.37 - 43.37   SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.37
QM Area	575336
QM Integration Mode	A
RM1 Area	726854
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0116
Unqualified Amount (A)	50.728331
Adjusted Amount (A)	50.7283
Signal-to-Noise	10924
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.49 - 43.49   SM: 3G

NL:
1.79E5
m/z=
391.81-
391.81 MS
17FEB07-28

NL:
2.26E5
m/z=
389.81-
389.82 MS
17FEB07-28

NL:
3.30E5
m/z=
403.85-
403.85 MS
17FEB07-28

NL:
4.24E5
m/z=
401.85-
401.86 MS
17FEB07-28

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.49
QM Area	576266
QM Integration Mode	A
RM1 Area	725509
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0120
Unqualified Amount (A)	51.090887
Adjusted Amount (A)	51.0909
Signal-to-Noise	10869
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 41.80 - 43.80 SM: 3G

NL:
1.79E5
m/z=
391.81-
391.81 MS
17FEB07-28

NL:
2.26E5
m/z=
389.81-
389.82 MS
17FEB07-28

NL:
3.30E5
m/z=
403.85-
403.85 MS
17FEB07-28

NL:
4.24E5
m/z=
401.85-
401.86 MS
17FEB07-28

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.80
QM Area	589489
QM Integration Mode	A
RM1 Area	749660
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0113
Unqualified Amount (A)	51.077936
Adjusted Amount (A)	51.0779
Signal-to-Noise	11252
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 42.19 - 44.19 SM: 3G

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.19
QM Area	756611
QM Integration Mode	A
RM1 Area	969890
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0132
Unqualified Amount (A)	49.243239
Adjusted Amount (A)	49.2432
Signal-to-Noise	9335
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 43.87 - 45.87 SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.87
QM Area	888766
QM Integration Mode	A
RM1 Area	919392
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0138
Unqualified Amount (A)	49.344911
Adjusted Amount (A)	49.3449
Signal-to-Noise	8846
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.06 - 47.06   SM: 3G

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.06
QM Area	574773
QM Integration Mode	A
RM1 Area	600907
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0191
Unqualified Amount (A)	50.679330
Adjusted Amount (A)	50.6793
Signal-to-Noise	6633
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.63 - 47.63   SM: 3G

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.63
QM Area	734739
QM Integration Mode	A
RM1 Area	764859
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0165
Unqualified Amount (A)	49.937723
Adjusted Amount (A)	49.9377
Signal-to-Noise	7441
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.07 - 50.07 SM: 3G

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.06
QM Area	1044572
QM Integration Mode	A
RM1 Area	930738
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0185
Unqualified Amount (A)	102.154103
Adjusted Amount (A)	102.1541
Signal-to-Noise	13689
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.26 - 50.26 SM: 3G

NL:
4.11E5
m/z=
443.74-
443.74 MS
17FEB07-28

NL:
3.71E5
m/z=
441.74-
441.75 MS
17FEB07-28

NL:
8.87E5
m/z=
455.78-
455.78 MS
17FEB07-28

NL:
8.00E5
m/z=
453.78-
453.79 MS
17FEB07-28

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.26
QM Area	1280674
QM Integration Mode	A
RM1 Area	1145102
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0128
Unqualified Amount (A)	98.363268
Adjusted Amount (A)	98.3633
Signal-to-Noise	19330
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 31.38 - 33.38 SM: 5G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.41
QM Area	132045
QM Integration Mode	A
RM1 Area	108149
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0077
Unqualified Amount (A)	9.535057
Adjusted Amount (A)	9.5351
Signal-to-Noise	2997
Client Flags	
Status Overview	passed
Status Info	

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	Specified RT [min]	QM Retention Time	RM1 Retention Time	Labeled RT	RM1 Time Status	Native vs Labeled Time Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	31.00	31.00	31.00	30.97	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	32.05	32.05	32.05	32.01	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.56	36.56	36.56	36.55	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.78	37.78	37.78	37.76	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.16	38.16	38.16	38.13	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.35	41.35	41.35	41.34	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.50	41.50	41.50	41.49	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.18	42.18	42.18	42.16	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.37	42.37	42.37	42.35	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.49	42.49	42.49	42.47	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.80	42.80	42.80	42.78	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.19	43.19	43.19	43.17	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.87	44.87	44.87	44.86	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	46.06	46.06	46.06	46.05	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.63	46.63	46.63	46.62	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	49.06	49.06	49.06	49.06	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	49.26	49.26	49.26	49.24	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	32.41	32.41	32.41	32.41	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.26	31.26	31.26	31.26	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	41.25	41.25	41.25	41.25	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	30.97	30.97	30.97	31.00	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	32.01	32.01	32.01	32.01	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	36.55	36.55	36.55	36.70	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	37.76	37.76	37.76	37.70	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	38.13	38.13	38.13	38.13	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.34	41.34	41.34	41.38	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.49	41.49	41.49	41.48	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	42.16	42.16	42.16	42.15	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.35	42.35	42.35	42.35	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.47	42.47	42.47	42.47	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.78	42.78	42.78	42.78	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	43.17	43.17	43.17	43.24	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	44.86	44.86	44.86	44.89	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	46.05	46.05	46.05	46.05	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	46.62	46.62	46.62	46.57	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	49.06	49.06	49.06	49.06	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	49.24	49.24	49.24	49.23	passed	passed

eurofins | **Lancaster Laboratories**

Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Calculated RF (A)	Response File RF (A)	RF Limit		RF Status
1	2378-TCDF	31.00	0.7720	0.6450 -	0.8950	passed	1.0376	1.0349	0.8227 -	1.2471	passed
2	2378-TCDD	32.05	0.7664	0.6450 -	0.8950	passed	1.2677	1.2338	0.9809 -	1.4867	passed
3	12378-PeCDF	36.56	1.5903	1.3150 -	1.7850	passed	0.9924	0.9698	0.7710 -	1.1686	passed
4	23478-PeCDF	37.78	1.5610	1.3150 -	1.7850	passed	1.0879	1.0786	0.8575 -	1.2997	passed
5	12378-PeCDD	38.16	1.5723	1.3150 -	1.7850	passed	1.0697	1.0591	0.8420 -	1.2762	passed
6	123478-HxCDF	41.35	1.2447	1.0450 -	1.4350	passed	1.1882	1.1750	0.9341 -	1.4159	passed
7	123678-HxCDF	41.50	1.2446	1.0450 -	1.4350	passed	1.1343	1.1506	0.9147 -	1.3865	passed
8	234678-HxCDF	42.18	1.2589	1.0450 -	1.4350	passed	1.2218	1.2106	0.9624 -	1.4588	passed
9	123478-HxCDD	42.37	1.2634	1.0450 -	1.4350	passed	1.0390	1.0241	0.8142 -	1.2340	passed
10	123678-HxCDD	42.49	1.2590	1.0450 -	1.4350	passed	1.0434	1.0211	0.8118 -	1.2304	passed
11	123789-HxCDD	42.80	1.2717	1.0450 -	1.4350	passed	1.1072	1.0838	0.8616 -	1.3060	passed
12	123789-HxCDF	43.19	1.2819	1.0450 -	1.4350	passed	1.1358	1.1533	0.9169 -	1.3897	passed
13	1234678-HpCDF	44.87	1.0345	0.8750 -	1.2050	passed	1.2652	1.2820	1.0192 -	1.5448	passed
14	1234678-HpCDD	46.06	1.0455	0.8750 -	1.2050	passed	1.0733	1.0590	0.8419 -	1.2761	passed
15	1234789-HpCDF	46.63	1.0410	0.8750 -	1.2050	passed	1.3215	1.3231	1.0519 -	1.5943	passed
16	OCDD	49.06	0.8910	0.7550 -	1.0250	passed	1.0434	1.0214	0.8120 -	1.2308	passed
17	OCDF	49.26	0.8941	0.7550 -	1.0250	passed	0.9176	0.9329	0.7417 -	1.1241	passed
18	13C12-1278-TCDD (CRS)	32.41	0.8190	0.6450 -	0.8950	passed	1.2245	1.2842	0.8925 -	1.6759	passed
19	13C12-1234-TCDD	31.26	0.8107	0.6450 -	0.8950	passed	1.0000	1.0000	1.0000 -	1.0000	passed
20	13C12-123468-HxCDD	41.25	1.2592	1.0450 -	1.4350	passed	1.0000	1.0000	1.0000 -	1.0000	passed
21	13C12-2378-TCDF	30.97	0.7872	0.6450 -	0.8950	passed	1.8454	1.8681	1.2983 -	2.4379	passed
22	13C12-2378-TCDD	32.01	0.7948	0.6450 -	0.8950	passed	0.9524	0.9850	0.6846 -	1.2854	passed
23	13C12-12378-PeCDF	36.55	1.6059	1.3150 -	1.7850	passed	1.7907	1.7271	1.2003 -	2.2539	passed
24	13C12-23478-PeCDF	37.76	1.5908	1.3150 -	1.7850	passed	1.8286	1.7249	1.1988 -	2.2510	passed
25	13C12-12378-PeCDD	38.13	1.6123	1.3150 -	1.7850	passed	1.0201	0.9749	0.6776 -	1.2722	passed
26	13C12-123478-HxCDF	41.34	0.5317	0.4250 -	0.5950	passed	1.2001	1.2851	0.8931 -	1.6771	passed
27	13C12-123678-HxCDF	41.49	0.5241	0.4250 -	0.5950	passed	1.2523	1.3520	0.9396 -	1.7644	passed
28	13C12-234678-HxCDF	42.16	0.5353	0.4250 -	0.5950	passed	1.1344	1.2544	0.8718 -	1.6370	passed
29	13C12-123478-HxCDD	42.35	1.2857	1.0450 -	1.4350	passed	0.8730	0.9461	0.6575 -	1.2347	passed
30	13C12-123678-HxCDD	42.47	1.2856	1.0450 -	1.4350	passed	0.8690	0.9761	0.6784 -	1.2738	passed
31	13C12-123789-HxCDD	42.78	1.2380	1.0450 -	1.4350	passed	0.8425	0.9341	0.6492 -	1.2190	passed
32	13C12-123789-HxCDF	43.17	0.5298	0.4250 -	0.5950	passed	1.0588	1.1840	0.8229 -	1.5451	passed
33	13C12-1234678-HpCDF	44.86	0.4543	0.3650 -	0.5150	passed	0.9954	1.1050	0.7680 -	1.4420	passed
34	13C12-1234678-HpCDD	46.05	1.0487	0.8750 -	1.2050	passed	0.7630	0.8651	0.6012 -	1.1290	passed
35	13C12-1234789-HpCDF	46.62	0.4437	0.3650 -	0.5150	passed	0.7904	0.9436	0.6558 -	1.2314	passed
36	13C12-OCDD	49.06	0.9095	0.7550 -	1.0250	passed	0.6594	0.7794	0.5417 -	1.0171	passed
37	13C12-OCDF	49.24	0.8932	0.7550 -	1.0250	passed	0.9207	1.1485	0.7982 -	1.4988	passed

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher Scientific

Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signal-to-Noise	Client Flags
1	2378-TCDF	passed	31.00	211967	A	163645	A	0.0065	10.026235	10.0262	10.000000	3922	
2	2378-TCDD	passed	32.05	134077	A	102753	A	0.0067	10.274205	10.2742	10.000000	3801	
3	12378-PeCDF	passed	36.56	672905	A	1070113	A	0.0049	51.164132	51.1641	50.000000	27184	
4	23478-PeCDF	passed	37.78	761885	A	1189277	A	0.0040	50.432100	50.4321	50.000000	31749	
5	12378-PeCDD	passed	38.16	416042	A	654150	A	0.0141	50.497473	50.4975	50.000000	8993	
6	123478-HxCDF	passed	41.35	912020	A	1135170	A	0.0116	50.564220	50.5642	50.000000	10914	
7	123678-HxCDF	passed	41.50	908588	A	1130843	A	0.0113	49.292628	49.2926	50.000000	10919	
8	234678-HxCDF	passed	42.18	880891	A	1108930	A	0.0118	50.462030	50.4620	50.000000	10571	
9	123478-HxCDD	passed	42.37	575336	A	726854	A	0.0116	50.728331	50.7283	50.000000	10924	
10	123678-HxCDD	passed	42.49	576266	A	725509	A	0.0120	51.090887	51.0909	50.000000	10869	
11	123789-HxCDD	passed	42.80	589489	A	749660	A	0.0113	51.077936	51.0779	50.000000	11252	
12	123789-HxCDF	passed	43.19	756611	A	969890	A	0.0132	49.243239	49.2432	50.000000	9335	
13	123478-HpCDF	passed	44.87	888766	A	919392	A	0.0138	49.344911	49.3449	50.000000	8846	
14	1234678-HpCDF	passed	46.06	574773	A	600907	A	0.0191	50.679330	50.6793	50.000000	6633	
15	1234789-HpCDF	passed	46.63	734739	A	764859	A	0.0165	49.937723	49.9377	50.000000	7441	
16	OCDD	passed	49.06	1044572	A	930738	A	0.0185	102.154103	102.1541	100.000000	13689	
17	OCDF	passed	49.26	1280674	A	1145102	A	0.0128	98.363268	98.3633	100.000000	19330	
18	13C12-1278-TCDD (CRS)	passed	32.41	132045	A	108149	A	0.0077	9.535057	9.5351	10.000000	2997	
19	13C12-1234-TCDD	passed	31.26	1083350	A	878260	A	0.0148	100.000000	100.0000	100.000000	16866	
20	13C12-123468-HxCDD	passed	41.25	1270915	A	1600384	A	0.0159	100.000000	100.0000	100.000000	15685	
21	13C12-2378-TCDF	passed	30.97	2025483	A	1594399	A	0.0042	98.785170	98.7852	100.000000	55664	
22	13C12-2378-TCDD	passed	32.01	1040950	A	827295	A	0.0150	96.692804	96.6926	100.000000	16466	
23	13C12-12378-PeCDF	passed	36.55	1347934	A	2164702	A	0.0255	103.684373	103.6844	100.000000	12736	
24	13C12-23478-PeCDF	passed	37.76	1384548	A	2202489	A	0.0256	106.014712	106.0147	100.000000	13892	
25	13C12-12378-PeCDD	passed	38.13	765969	A	1234989	A	0.0158	104.634586	104.6346	100.000000	21992	
26	13C12-123478-HxCDF	passed	41.34	2249734	A	1196085	A	0.0175	93.381601	93.3816	100.000000	13292	
27	13C12-123678-HxCDF	passed	41.49	2359303	A	1236494	A	0.0166	92.625293	92.6253	100.000000	13917	
28	13C12-234678-HxCDF	passed	42.16	2121525	A	1135623	A	0.0179	90.431950	90.4320	100.000000	12766	
29	13C12-123478-HxCDD	passed	42.35	1096668	A	1409958	A	0.0168	92.274604	92.2746	100.000000	14112	
30	13C12-123678-HxCDD	passed	42.47	1091752	A	1403518	A	0.0163	89.034977	89.0350	100.000000	13758	
31	13C12-123789-HxCDD	passed	42.78	1080871	A	1338159	A	0.0171	90.188372	90.1884	100.000000	13711	
32	13C12-123789-HxCDF	passed	43.17	1987196	A	1052884	A	0.0189	89.421396	89.4214	100.000000	11936	
33	13C12-1234678-HpCDF	passed	44.86	1965305	A	892887	A	0.0252	90.086932	90.0869	100.000000	9512	
34	13C12-1234678-HpCDD	passed	46.05	1069299	A	1121392	A	0.0208	68.194238	88.1942	100.000000	11468	
35	13C12-1234789-HpCDF	passed	46.62	1572022	A	697527	A	0.0295	83.762907	83.7629	100.000000	7706	
36	13C12-OCDD	passed	49.06	1982892	A	1803493	A	0.0145	169.191184	169.1912	200.000000	31926	
37	13C12-OCDF	passed	49.24	2792667	A	2494314	A	0.0112	160.329918	160.3299	200.000000	39157	

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

AIL01 Page 468 of 560

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher
989 of 1081

File Name: Y:\17FEB07\17FEB07-28
Sample ID: CS3CC04

Acq. Data: 2/8/2017 10:03:13 AM
Sample Name: VER-CALDF41737A
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17FEB07

RT: 22.50 - 51.00

NL:
2.75E5
m/z=
291.9825-
292.9825
MS
17FEB07-
28

NL:
3.82E5
m/z=
330.4792-
331.4792
MS
17FEB07-
28

NL:
2.77E5
m/z=
380.4760-
381.4760
MS
17FEB07-
28

NL:
7.38E4
m/z=
404.4760-
405.4760
MS
17FEB07-
28

NL:
9.71E4
m/z=
442.4728-
443.4728
MS
17FEB07-
28

Relative Abundance

Time (min)

*** file opened Wed Feb 08 10:08:38 2017 ***

```
Started by                - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470
```

Analysis started at: 08-Feb-17 10:08:37

Analysis will stop at user request

Firmware Version: 2.02

MCAL file name:

Sequence : 44428e9b-1f82-4600-a587-45b396ba3037

MID procedure: PFK16MAR24+MDT

Mid Time Windows:

	Start	Measure	End	Cycletime
# 1	11:30 min	9:30 min	21:00 min	1.00 sec
# 2	21:00 min	13:36 min	34:36 min	1.00 sec
# 3	34:36 min	4:53 min	39:30 min	0.90 sec
# 4	39:30 min	4:45 min	44:15 min	0.80 sec
# 5	44:15 min	3:45 min	48:00 min	0.80 sec
# 6	48:00 min	3:00 min	51:00 min	0.80 sec

Mid Masses:
Window # 1

mass	F	int	gr	time (ms)
218.0129		1	1	95
218.9851	l	20	1	4
220.0100		1	1	95
230.0532		2	1	47
232.0502		2	1	47
251.9739		1	1	95
253.9710		1	1	95
264.0142		2	1	47
266.0112		2	1	47
285.9350		1	1	95
287.9320		1	1	95
292.9819	c	20	1	4
297.9752		2	1	47
299.9723		2	1	47

Window # 2

mass	F	int	gr	time (ms)
292.9819	l	20	1	5
303.9011		1	1	118
305.8981		1	1	118
315.9413		5	1	23
317.9384		5	1	23
319.8960		1	1	118
321.8930		1	1	118

Page 1

```
331.9363      5  1        23
333.9333      5  1        23
339.8592      1  1       118
341.8562      1  1       118
354.9787  c  20  1         5
375.8364      2  1        59
Window # 3
      mass F  int  gr   time (ms)
330.9787 l   20  1         6
339.8592      1  1       133
341.8562      1  1       133
351.8994      3  1        44
353.8965      3  1        44
355.8541      1  1       133
357.8511      1  1       133
367.8943      3  1        44
369.8914      3  1        44
380.9755  c  20  1         6
409.7969      2  1        66
Window # 4
      mass F  int  gr   time (ms)
373.8201      1  1       117
375.8172      1  1       117
380.9755 l   20  1         5
383.8634      3  1        39
385.8604      3  1        39
389.8151      1  1       117
391.8121      1  1       117
401.8554      3  1        39
403.8524      3  1        39
430.9723  c  20  1         5
445.7550      2  1        58
Window # 5
      mass F  int  gr   time (ms)
404.9755 l   20  1         5
407.7812      1  1       117
409.7783      1  1       117
417.8244      3  1        39
419.8215      3  1        39
423.7761      1  1       117
425.7732      1  1       117
435.8164      3  1        39
437.8134      3  1        39
479.7160      2  1        58
480.9691  c  20  1         5
Window # 6
      mass F  int  gr   time (ms)
441.7422      1  1        95
442.9723 l   20  1         4
443.7393      1  1        95
453.7825      1  1        95
455.7795      1  1        95
457.7372      1  1        95
459.7342      1  1        95
469.7774      3  1        31
471.7745      3  1        31
492.9691  c  20  1         4
513.6770      2  1        47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.600000 minutes
MID Window end time was 34.600000 minutes

```
MID Window terminated after 39.500000 minutes
MID Window end time was 39.500000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes
```

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	98.5000
BQUAD	0.0500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	-49.6667
ELEN	-45.0000	EMULT	1300.0000	ENS	173.0000
ENSBR	0.0500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	172.0000	EXSBR	-0.4700
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	12.3500
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0175	FVINLET	0.0306	FVSRC	0.0291
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	714.0000
LENS_SYM	14.3000	LM	1050.0000	LMII	500.0000
LMASS	98.5000	LKM	442.9723	MASS	98.5000
MDAC	1466744.8101	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2524.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-9.0000	RECURR	0.9001	RELEN	0.0000
RES	12451.3110	RPUSHER	-8.6374	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	638.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0206	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	98.5000	XLENS_POT	896.0000
XLENS_SYM	-8.5000	YLENS_POT	568.0000	YLENS_SYM	0.0000

```
Source Gauge:        2.0e-005 mbar
Analyzer Penning:    5.2e-008 mbar
Pirani Analyse:      1.8e-002 mbar
Pirani Source:       2.9e-002 mbar
Pirani Inlet System: 3.1e-002 mbar
```

Scantype is magnetic

Sourcemode is EI POS

```
MID Time Window 1: Resolution is 11879.
MID Time Window 2: Resolution is 12729.
MID Time Window 3: Resolution is 12835.
MID Time Window 4: Resolution is 12755.
```

MID Time Window 5: Resolution is 13723.
MID Time Window 6: Resolution is 12451.

Amplifier Offset: 88.

*** File closed Wed Feb 08 10:59:40 2017
   ***

Raw QC Data

Dioxins/Furans by HRMS

Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 00:23
Number of Entries	247
Comment	BLK:11030:12937
Vial	102
Sample Name	17031003
Sample ID	BLK031003
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-17.quan
Data	y:\17feb07\17feb07-17.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher
Scientific

996   1081

Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	Native vs Labeled Time Status	Status Info
1	2378-TCDF	31.02	failed	passed	failed	failed	passed	failed	Failed on: Ratio1A RM1Time < min RM2Time
2	2378-TCDD	32.03	failed	failed	passed	failed	passed	passed	Failed on: CAA Ratio1A
3	12378-PeCDF	36.55	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
4	23478-PeCDF	37.76	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
5	12378-PeCDD	38.16	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.36	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.49	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
8	234678-HxCDF	42.18	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
9	123478-HxCDD	42.35	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
10	123678-HxCDD	42.47	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
11	123789-HxCDD	42.78	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
12	123789-HxCDF	43.16	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.86	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.04	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
15	1234789-HpCDF	46.60	passed	passed	passed	passed	passed	passed	
16	OCDD	49.04	passed	passed	passed	passed	passed	passed	
17	OCDF	49.26	failed	passed	passed	failed	passed	passed	Failed on: Ratio1A
18	13C12-1278-TCDD (CRS)	32.39	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.24	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.23	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	30.95	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	32.00	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.53	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.75	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.13	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.33	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.48	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.15	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.34	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.46	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.77	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.16	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.85	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.04	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.60	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.04	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.23	passed	passed	passed	passed	passed	passed	
38	Total TCDF	29.74	passed (1)	---	---	---	---	---	
39	Total TCDD	30.53	passed (1)	---	---	---	---	---	
40	Total PeCDF	36.18	failed	---	---	---	---	---	Failed on:
41	Total PeCDD	37.02	passed (1)	---	---	---	---	---	
42	Total HxCDF	41.54	passed (2)	---	---	---	---	---	
43	Total HxCDD	41.73	failed	---	---	---	---	---	Failed on:
44	Total HpCDD	45.63	failed	---	---	---	---	---	Failed on:
45	Total HpCDF	45.75	passed (3)	---	---	---	---	---	
46	AVG_Total PeCDF	0.00	passed (2)	---	---	---	---	---	
47	AVG_Total HxCDF	0.00	passed (4)	---	---	---	---	---	
48	AVG_Total HxCDD	0.00	passed (3)	---	---	---	---	---	
49	AVG_Total HpCDF	0.00	passed (2)	---	---	---	---	---	
50	TEQ WHO 2005	0.00	passed (6)	---	---	---	---	---	
51	Single TCDF	29.83	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
52	Single TCDF	26.08	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
53	Single TCDF	27.83	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
54	Single TCDF	30.54	failed	passed	failed	failed	passed	---	Failed on: Ratio1A RM1Time < min
55	Single TCDF	31.02	failed	passed	failed	failed	passed	---	Failed on: Ratio1A RM1Time < min
56	Single TCDF	31.14	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
57	Single TCDF	31.30	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
58	Single TCDF	31.45	failed	passed	failed	failed	passed	---	Failed on: Ratio1A RM1Time < min
59	Single TCDF	32.06	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
60	Single TCDF	32.85	passed	passed	passed	passed	passed	---	
61	Single TCDF	33.42	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
62	Single TCDD	30.94	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
63	Single TCDD	27.84	failed	passed	passed	failed	passed	---	Failed on: Ratio1A

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No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	Native vs Labeled Time Status	Status Info
64	Single TCDD	28.08	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
65	Single TCDD	29.12	passed	passed	passed	passed	passed	--	
66	Single TCDD	29.67	failed	passed	passed	failed	passed	---	Failed on: Ratio1A
67	Single TCDD	31.16	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
68	Single TCDD	33.14	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
69	Single PeCDD	38.16	passed	passed	passed	passed	passed	--	
70	Single PeCDD	35.36	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
71	Single PeCDD	38.09	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
72	Single PeCDD	38.70	failed	passed	failed	failed	passed	--	Failed on: Ratio1A RM1Time2 > max
73	Single PeCDF	36.55	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
74	Single PeCDF	33.38	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
75	Single PeCDF	36.42	failed	passed	failed	failed	passed	--	Failed on: Ratio1A RM1Time < min
76	Single PeCDF	36.64	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
77	Single PeCDF	36.75	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
78	Single PeCDF	36.99	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
79	Single PeCDF	37.53	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
80	Single PeCDF	37.66	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
81	Single PeCDF	37.76	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
82	Single PeCDF	38.03	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
83	Single PeCDF	38.41	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
84	Single PeCDF	38.60	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
85	Single PeCDF	38.74	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
86	Single PeCDF	39.00	failed	passed	failed	failed	passed	--	Failed on: Ratio1A RM1Time < min
87	Single HpCDD	46.04	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
88	Single HpCDD	45.21	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
89	Single HxCDF	43.16	passed	passed	passed	passed	passed	--	
90	Single HxCDF	40.10	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
91	Single HxCDF	41.36	passed	passed	passed	passed	passed	--	
92	Single HxCDF	41.49	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
93	Single HxCDF	42.18	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
94	Single HxCDF	42.81	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
95	Single HxCDF	42.90	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
96	Single HxCDF	43.04	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
97	Single HxCDD	41.33	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
98	Single HxCDD	40.56	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
99	Single HxCDD	41.48	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
100	Single HxCDD	42.14	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
101	Single HxCDD	42.20	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
102	Single HxCDD	42.35	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
103	Single HxCDD	42.47	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
104	Single HxCDD	42.65	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
105	Single HxCDD	42.78	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
106	Single HpCDF	44.86	passed	passed	passed	passed	passed	--	
107	Single HpCDF	44.97	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
108	Single HpCDF	45.07	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
109	Single HpCDF	45.22	failed	passed	failed	passed	passed	--	Failed on: RM1Time2 > max
110	Single HpCDF	45.39	passed	passed	passed	passed	passed	--	
111	Single HpCDF	45.44	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
112	Single HpCDF	46.05	failed	passed	passed	failed	passed	--	Failed on: Ratio1A
113	Single HpCDF	46.60	passed	passed	passed	passed	passed	--	

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 00:23
Number of Entries	247
Comment	BLK:11030:12937
Vial	102
Sample Name	17031003
Sample ID	BLK031003
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-17.quan
Data	y:\17feb07\17feb07-17.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 29.99 - 31.99 SM: 3G

Entry: 2378-tcdf   IS: 13C12-2378-TCDF

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	31.02
QM Area	247
QM Integration Mode	A
RM1 Area	12
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0108
Adjusted Amount (A)	n.d.
Signal-to-Noise	10
Client Flags	
Status Info	Failed on: Ratio1A RM1Time < min RM2Time < min
Status Overview	failed

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Chromatogram

RT: 31.01 - 33.01 SM: 3G

Entry : 2378-tcdd   IS: 13C12-2378-TCDD

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.03
QM Area	1
QM Integration Mode	A
RM1 Area	53
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0117
Adjusted Amount (A)	n.d. < 0.0117
Signal-to-Noise	3
Client Flags	
Status Info	Failed on: CAA Ratio1A
Status Overview	failed

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Chromatogram

RT: 35.56 - 37.56 SM: 3G

Entry: 12378-pecdf   IS: 13C12-12378-PeCDF

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.55
QM Area	327
QM Integration Mode	A
RM1 Area	706
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0087
Adjusted Amount (A)	n.d.
Signal-to-Noise	30
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

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Chromatogram

RT: 36.76 - 38.76 SM: 3G

Entry: 23478-pecdf IS: 13C12-23478-PeCDF

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.76
QM Area	228
QM Integration Mode	A
RM1 Area	450
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0081
Adjusted Amount (A)	n.d.
Signal-to-Noise	23
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

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Chromatogram

RT: 37.16 - 39.16   SM: 3G

Entry: 12378-pecdd   IS: 13C12-12378-PeCDD

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.16
QM Area	135
QM Integration Mode	A
RM1 Area	189
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0185
Adjusted Amount (A)	0.0463
Signal-to-Noise	9
Client Flags	
Status Info	
Status Overview	passed

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Chromatogram

RT: 40.34 - 42.34 SM: 3G

Entry: 123478-hxcdf   IS: 13C12-123478-HxCDF

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.36
QM Area	183
QM Integration Mode	A
RM1 Area	213
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0076
Adjusted Amount (A)	0.0341
Signal-to-Noise	10
Client Flags	
Status Info	
Status Overview	passed

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Chromatogram

RT: 40.49 - 42.49 SM: 3G

Entry: 123678-hxcdf   IS: 13C12-123678-HxCDF

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.49
QM Area	179
QM Integration Mode	A
RM1 Area	367
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0069
Adjusted Amount (A)	n.d.
Signal-to-Noise	16
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

TargetQuan3

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Chromatogram

RT: 41.16 - 43.16 SM: 3G

Entry: 234678-hxcdf   IS: 13C12-234678-HxCDF

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.18
QM Area	84
QM Integration Mode	A
RM1 Area	496
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0075
Adjusted Amount (A)	n.d.
Signal-to-Noise	15
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

TargetQuan3

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Chromatogram

RT: 41.35 - 43.35 SM: 3G

Entry: 123478-hxcdd IS: 13C12-123478-HxCDD

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.35
QM Area	51
QM Integration Mode	A
RM1 Area	183
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0116
Adjusted Amount (A)	n.d.
Signal-to-Noise	9
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

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Chromatogram

RT: 41.47 - 43.47 SM: 3G

Entry: 123678-hxcdd IS: 13C12-123678-HxCDD

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.47
QM Area	85
QM Integration Mode	A
RM1 Area	348
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0115
Adjusted Amount (A)	n.d.
Signal-to-Noise	12
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

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Chromatogram

RT: 41.78 - 43.78 SM: 3G

Entry : 123789-hxcdd   IS: 13C12-123789-HxCDD

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.78
QM Area	220
QM Integration Mode	A
RM1 Area	198
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0110
Adjusted Amount (A)	n.d.
Signal-to-Noise	11
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

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RT: 42.17 - 44.17 SM: 3G

Entry: 123789-hxcdf IS: 13C12-123789-HxCDF

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.16
QM Area	604
QM Integration Mode	A
RM1 Area	646
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0080
Adjusted Amount (A)	0.1121
Signal-to-Noise	36
Client Flags	
Status Info	
Status Overview	passed

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Chromatogram

RT: 43.86 - 45.86 SM: 3G

Entry: 1234678-hpcdf   IS: 13C12-1234678-HpCDF

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.86
QM Area	450
QM Integration Mode	A
RM1 Area	404
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0065
Adjusted Amount (A)	0.0605
Signal-to-Noise	24
Client Flags	
Status Info	
Status Overview	passed

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RT: 45.05 - 47.05 SM: 3G

Entry: 1234678-hpcdd   IS: 13C12-1234678-HpCDD

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.04
QM Area	254
QM Integration Mode	A
RM1 Area	347
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0090
Adjusted Amount (A)	n.d.
Signal-to-Noise	24
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

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Chromatogram

RT: 45.62 - 47.62 SM: 3G

Entry: 1234789-hpcdf   IS: 13C12-1234789-HpCDF

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.60
QM Area	275
QM Integration Mode	A
RM1 Area	270
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0098
Adjusted Amount (A)	0.0578
Signal-to-Noise	16
Client Flags	
Status Info	
Status Overview	passed

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Chromatogram

RT: 48.06 - 50.06 SM: 3G

Entry: ocdd   IS: 13C12-OCDD

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.04
QM Area	474
QM Integration Mode	A
RM1 Area	469
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0197
Adjusted Amount (A)	0.1287
Signal-to-Noise	21
Client Flags	
Status Info	
Status Overview	passed

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Chromatogram

RT: 48.24 - 50.24 SM: 3G

Entry: ocdf IS: 13C12-OCDF

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.26
QM Area	166
QM Integration Mode	A
RM1 Area	504
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0135
Adjusted Amount (A)	n.d.
Signal-to-Noise	16
Client Flags	
Status Info	Failed on: Ratio1A
Status Overview	failed

TargetQuan3

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Chromatogram

RT: 31.37 - 33.37 SM: 5G

Entry: 1278-TCDD   IS: 13C12-1234-TCDD

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.39
QM Area	182877
QM Integration Mode	A
RM1 Area	141979
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0261
Adjusted Amount (A)	35.5615
Signal-to-Noise	3342
Client Flags	
Status Info	
Status Overview	passed

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 00:23
Number of Entries	247
Comment	BLK:11030:12937
Vial	102
Sample Name	17031003
Sample ID	BLK031003
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-17.quan
Data	y:\17feb07\17feb07-17.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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By uma9 at 12:02 pm, 2/9/17

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By UMJS at 12:42 pm, 2/9/17

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Chromatogram

RT: 25.57 - 33.90 SM: 3G

Entry: total-tcdf   IS: 13C12-2378-TCDF

Entry Parameters

Compound Name	Total TCDF
QM Retention Time	29.74
QM Area	79
QM Integration Mode	A
RM1 Area	61
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0108
Adjusted Amount (A)	0.0149
Signal-to-Noise	8
Client Flags	
Status Info	
Status Overview	passed (1)

TargetQuan3

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Chromatogram

RT: 27.47 - 33.58 SM: 3G

Entry : total-tcdd IS: 13C12-2378-TCDD

Entry Parameters

Compound Name	Total TCDD
QM Retention Time	30.53
QM Area	66
QM Integration Mode	A
RM1 Area	48
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0117
Adjusted Amount (A)	0.0160
Signal-to-Noise	7
Client Flags	
Status Info	
Status Overview	passed (1)

TargetQuan3

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Chromatogram

RT: 32.96 - 39.39   SM: 3G

Entry: total-pecdf   IS: 13C12-PeCDF_AVG

Entry Parameters

Compound Name	Total PeCDF
QM Retention Time	36.18
QM Area	0
QM Integration Mode	A
RM1 Area	0
RM1 Integration Mode	M
ManInt	1
Detection Limit (A)	---
Adjusted Amount (A)	---
Signal-to-Noise	---
Client Flags	
Status Info	Failed on:
Status Overview	failed

TargetQuan3   **APPROVED** By uma9 at 12:02 pm, 2/9/17   AIL01 Page 500 of 560   **REVIEWED** By UMJS at 12:42 pm, 2/9/17   ThermoFisher

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Chromatogram

RT: 35.09 - 38.95 SM: 3G

Entry : total-pecdd   IS: 13C12-12378-PeCDD

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.02
QM Area	135
QM Integration Mode	M
RM1 Area	189
RM1 Integration Mode	M
Manint	1
Detection Limit (A)	0.0185
Adjusted Amount (A)	0.0463
Signal-to-Noise	9
Client Flags	
Status Info	
Status Overview	passed (1)

TargetQuan3

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Chromatogram

RT: 39.60 - 43.49 SM: 3G

Entry: total-hxcdf   IS: 13C12-HxCDF_AVG

Entry Parameters

Compound Name	Total HxCDF
QM Retention Time	41.54
QM Area	787
QM Integration Mode	M
RM1 Area	858
RM1 Integration Mode	M
ManInt	1
Detection Limit (A)	0.0075
Adjusted Amount (A)	0.1368
Signal-to-Noise	23
Client Flags	
Status Info	
Status Overview	passed (2)

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Chromatogram

RT: 40.33 - 43.14   SM: 3G

Entry : total-hxcdd   IS: 13C12-HxCDD_AVG

Entry Parameters

Compound Name	Total HxCDD
QM Retention Time	41.73
QM Area	0
QM Integration Mode	M
RM1 Area	0
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	---
Adjusted Amount (A)	---
Signal-to-Noise	---
Client Flags	
Status Info	Failed on:
Status Overview	failed

TargetQuan3

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Chromatogram

RT: 44.63 - 46.63 SM: 3G

Entry: total-hpcdd IS: 13C12-1234678-HpCDD

Entry Parameters

Compound Name	Total HpCDD
QM Retention Time	45.63
QM Area	0
QM Integration Mode	A
RM1 Area	0
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	---
Adjusted Amount (A)	---
Signal-to-Noise	---
Client Flags	
Status Info	Failed on:
Status Overview	failed

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Chromatogram

RT: 44.69 - 46.82 SM: 3G

Entry : total-hpcdf   IS: 13C12-HpCDF_AVG

Entry Parameters

Compound Name	Total HpCDF
QM Retention Time	45.75
QM Area	774
QM Integration Mode	A
RM1 Area	730
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0078
Adjusted Amount (A)	0.1275
Signal-to-Noise	15
Client Flags	
Status Info	
Status Overview	passed (3)

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Quantitation Settings

Data File Parameter

Acq. Data	2017/02/08 00:23
Number of Entries	249
Comment	BLK:11030:12937
Vial	102
Sample Name	17031003
Sample ID	BLK031003
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-17.quan
Data	y:\17feb07\17feb07-17.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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Chromatogram

RT: 32.96 - 39.39 SM: 3G

Entry: total-pecdf IS: 13C12-PeCDF_AVG

Entry Parameters

Compound Name	Total PeCDF
QM Retention Time	36.18
QM Area	26
QM Integration Mode	A
RM1 Area	42
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0084
Unqualified Amount (A)	0.002988
Adjusted Amount (A)	0.0060
Signal-to-Noise	2
Client Flags	
Status Overview	passed (2)
Status Info	

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Chromatogram

RT: 35.09 - 38.95 SM: 3G

Entry : total-pecdd   IS: 13C 12-12378-PeCDD

Entry Parameters

Compound Name	Total PeCDD
QM Retention Time	37.02
QM Area	135
QM Integration Mode	A
RM1 Area	189
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0185
Unqualified Amount (A)	0.046330
Adjusted Amount (A)	0.0463
Signal-to-Noise	9
Client Flags	
Status Overview	passed (1)
Status Info	

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Chromatogram

RT: 39.60 - 43.49   SM: 3G

Entry: total-hxcdf   IS: 13C12-HxCDF_AVG

Entry Parameters

Compound Name	Total HxCDF
QM Retention Time	41.54
QM Area	880
QM Integration Mode	A
RM1 Area	973
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	0.0075
Unqualified Amount (A)	0.038529
Adjusted Amount (A)	0.1541
Signal-to-Noise	13
Client Flags	
Status Overview	passed (4)
Status Info	

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Chromatogram

RT: 40.33 - 43.14   SM: 3G

Entry: total-hxcdd   IS: 13C12-HxCDD_AVG

Entry Parameters

Compound Name	Total HxCDD
QM Retention Time	41.73
QM Area	0
QM Integration Mode	A
RM1 Area	0
RM1 Integration Mode	A
ManInt	1
Detection Limit (A)	---
Unqualified Amount (A)	---
Adjusted Amount (A)	---
Signal-to-Noise	---
Client Flags	
Status Overview	failed
Status Info	Failed on:

TargetQuan3

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	Specified RT [min]	QM Retention Time	RM1 Retention Time	Labeled RT	RM1 Time Status	Native vs Labeled Time Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	30.98	31.02	30.92	30.95	failed	failed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	32.01	32.03	32.03	32.00	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.54	36.55	36.55	36.53	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.76	37.76	37.78	37.75	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.15	38.16	38.15	38.13	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.34	41.36	41.34	41.33	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.49	41.49	41.49	41.48	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.16	42.18	42.18	42.15	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.35	42.35	42.38	42.34	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.47	42.47	42.49	42.46	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.78	42.78	42.78	42.77	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.17	43.16	43.19	43.16	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.86	44.86	44.86	44.85	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	46.05	46.04	46.05	46.04	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.61	46.60	46.60	46.60	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	49.05	49.04	49.04	49.04	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	49.24	49.26	49.26	49.23	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	32.37	32.39	32.39	32.39	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.24	31.24	31.24	31.24	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	41.23	41.23	41.23	41.23	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	30.95	30.95	30.95	31.02	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.99	32.00	32.00	32.00	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	36.51	36.53	36.53	36.52	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	37.75	37.75	37.75	37.72	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	38.12	38.13	38.13	38.13	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.32	41.33	41.33	41.29	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.47	41.48	41.48	41.60	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	42.15	42.15	42.15	42.18	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.33	42.34	42.34	42.34	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.46	42.46	42.46	42.46	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.77	42.77	42.77	42.77	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	43.16	43.16	43.16	43.12	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	44.84	44.85	44.85	45.10	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	46.03	46.04	46.04	46.04	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	46.60	46.60	46.60	46.60	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	49.04	49.04	49.04	49.04	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	49.22	49.23	49.23	49.23	passed	passed
38	Total TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	29.73	29.74	29.74	29.74	---	---
39	Total TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	30.52	30.53	30.53	30.53	---	---
40	Total PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.17	36.18	36.18	36.18	---	---
41	Total PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	37.00	37.02	37.02	37.02	---	---
42	Total HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.54	41.54	41.54	41.54	---	---
43	Total HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	41.73	41.73	41.73	41.73	---	---
44	Total HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	45.63	45.63	45.63	45.63	---	---
45	Total HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	45.75	45.75	45.75	45.75	---	---
46	AVG_Total PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	0.00	0.00	0.00	0.00	---	---
47	AVG_Total HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	0.00	0.00	0.00	0.00	---	---
48	AVG_Total HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	0.00	0.00	0.00	0.00	---	---
49	AVG_Total HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	0.00	0.00	0.00	0.00	---	---
50	TEQ WHO 2005	0.0000 +/- 0.0 mmu	0.0000 +/- 0.0 mmu	0.00	0.00	0.00	0.00	---	---
51	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	29.83	29.83	29.83	0.00	passed	---
52	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	26.08	26.08	26.07	0.00	passed	---
53	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	27.83	27.83	27.86	0.00	passed	---
54	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	30.54	30.54	30.49	0.00	failed	---
55	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	31.02	31.02	30.92	0.00	failed	---
56	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	31.14	31.14	31.14	0.00	passed	---
57	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	31.30	31.30	31.28	0.00	passed	---
58	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	31.45	31.45	31.38	0.00	failed	---
59	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	32.06	32.06	32.06	0.00	passed	---
60	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	32.85	32.85	32.85	0.00	passed	---
61	Single TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	33.42	33.42	33.43	0.00	passed	---
62	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	30.94	30.94	30.94	0.00	passed	---
63	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	27.84	27.84	27.84	0.00	passed	---

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No.	Compound Name	Quan. Mass	Ratio Mass 1	Specified RT [min]	QM Retention Time	RM1 Retention Time	Labeled RT	RM1 Time Status	Native vs Labeled Time Status
64	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	28.08	28.08	28.08	0.00	passed	---
65	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	29.12	29.12	29.09	0.00	passed	---
66	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	29.67	29.67	29.71	0.00	passed	---
67	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	31.16	31.16	31.18	0.00	passed	---
68	Single TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	33.14	33.14	33.14	0.00	passed	---
69	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.16	38.16	38.15	0.00	passed	---
70	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	35.36	35.36	35.39	0.00	passed	---
71	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.09	38.09	38.07	0.00	passed	---
72	Single PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.70	38.70	38.75	0.00	failed	---
73	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.55	36.55	36.55	0.00	passed	---
74	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	33.38	33.38	33.36	0.00	passed	---
75	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.42	36.42	36.38	0.00	failed	---
76	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.64	36.64	36.65	0.00	passed	---
77	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.75	36.75	36.72	0.00	passed	---
78	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.99	36.99	36.99	0.00	passed	---
79	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.53	37.53	37.50	0.00	passed	---
80	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.66	37.66	37.63	0.00	passed	---
81	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.76	37.76	37.78	0.00	passed	---
82	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	38.03	38.03	38.04	0.00	passed	---
83	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	38.41	38.41	38.41	0.00	passed	---
84	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	38.60	38.60	38.61	0.00	passed	---
85	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	38.74	38.74	38.72	0.00	passed	---
86	Single PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	39.00	39.00	38.94	0.00	failed	---
87	Single HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	46.04	46.04	46.05	0.00	passed	---
88	Single HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	45.21	45.21	45.18	0.00	passed	---
89	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.16	43.16	43.19	0.00	passed	---
90	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	40.10	40.10	40.08	0.00	passed	---
91	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.36	41.36	41.34	0.00	passed	---
92	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.49	41.49	41.49	0.00	passed	---
93	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.18	42.18	42.18	0.00	passed	---
94	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.81	42.81	42.80	0.00	passed	---
95	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.90	42.90	42.88	0.00	passed	---
96	Single HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.04	43.04	43.05	0.00	passed	---
97	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	41.33	41.33	41.31	0.00	passed	---
98	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	40.56	40.56	40.56	0.00	passed	---
99	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	41.48	41.48	41.45	0.00	passed	---
100	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.14	42.14	42.16	0.00	passed	---
101	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.20	42.20	42.22	0.00	passed	---
102	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.39	42.35	42.38	0.00	passed	---
103	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.47	42.47	42.49	0.00	passed	---
104	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.65	42.65	42.68	0.00	passed	---
105	Single HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.78	42.78	42.78	0.00	passed	---
106	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.86	44.86	44.86	0.00	passed	---
107	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.97	44.97	44.97	0.00	passed	---
108	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	45.07	45.07	45.08	0.00	passed	---
109	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	45.22	45.22	45.28	0.00	failed	---
110	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	45.39	45.39	45.37	0.00	passed	---
111	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	45.44	45.44	45.43	0.00	passed	---
112	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.05	46.05	46.02	0.00	passed	---
113	Single HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.60	46.60	46.60	0.00	passed	---

TargetQuan3   **APPROVED** By uma9 at 12:02 pm, 2/9/17   AIL01 Page 512 of 560   **REVIEWED** By UMJS at 12:42 pm, 2/9/17   ThermoFisher Scientific

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	31.02	0.0482	0.6450 -	0.8950	failed	---	0 -	0	passed
2	2378-TCDD	32.03	48.5974	0.6450 -	0.8950	failed	---	0 -	0	passed
3	12378-PeCDF	36.55	2.1625	1.3150 -	1.7850	failed	---	0 -	0	passed
4	23478-PeCDF	37.76	1.9720	1.3150 -	1.7850	failed	---	0 -	0	passed
5	12378-PeCDD	38.16	1.4036	1.3150 -	1.7850	passed	---	0 -	0	passed
6	123478-HxCDF	41.36	1.1634	1.0450 -	1.4350	passed	---	0 -	0	passed
7	123678-HxCDF	41.49	2.0503	1.0450 -	1.4350	failed	---	0 -	0	passed
8	234678-HxCDF	42.18	5.9402	1.0450 -	1.4350	failed	---	0 -	0	passed
9	123478-HxCDD	42.35	3.6147	1.0450 -	1.4350	failed	---	0 -	0	passed
10	123678-HxCDD	42.47	4.0955	1.0450 -	1.4350	failed	---	0 -	0	passed
11	123789-HxCDD	42.78	0.9013	1.0450 -	1.4350	failed	---	0 -	0	passed
12	123789-HxCDF	43.16	1.0693	1.0450 -	1.4350	passed	---	0 -	0	passed
13	1234678-HpCDF	44.86	0.8973	0.8750 -	1.2050	passed	---	0 -	0	passed
14	1234678-HpCDD	46.04	1.3658	0.8750 -	1.2050	failed	---	0 -	0	passed
15	1234789-HpCDF	46.60	0.9829	0.8750 -	1.2050	passed	---	0 -	0	passed
16	OCDD	49.04	0.9892	0.7550 -	1.0250	passed	---	0 -	0	passed
17	OCDF	49.26	3.0340	0.7550 -	1.0250	failed	---	0 -	0	passed
18	13C12-1278-TCDD (CRS)	32.39	0.7764	0.6450 -	0.8950	passed	44.45	35 -	197	passed
19	13C12-1234-TCDD	31.24	0.8336	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.23	1.2646	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	30.95	0.7869	0.6450 -	0.8950	passed	68.61	40 -	135	passed
22	13C12-2378-TCDD	32.00	0.8178	0.6450 -	0.8950	passed	82.21	40 -	135	passed
23	13C12-12378-PeCDF	36.53	1.5796	1.3150 -	1.7850	passed	96.16	40 -	135	passed
24	13C12-23478-PeCDF	37.75	1.5824	1.3150 -	1.7850	passed	86.98	40 -	135	passed
25	13C12-12378-PeCDD	38.13	1.5883	1.3150 -	1.7850	passed	95.01	40 -	135	passed
26	13C12-123478-HxCDF	41.33	0.5135	0.4250 -	0.5950	passed	77.98	40 -	135	passed
27	13C12-123678-HxCDF	41.48	0.5249	0.4250 -	0.5950	passed	87.93	40 -	135	passed
28	13C12-234678-HxCDF	42.15	0.5323	0.4250 -	0.5950	passed	79.35	40 -	135	passed
29	13C12-123478-HxCDD	42.34	1.2541	1.0450 -	1.4350	passed	84.97	40 -	135	passed
30	13C12-123678-HxCDD	42.46	1.2457	1.0450 -	1.4350	passed	85.44	40 -	135	passed
31	13C12-123789-HxCDD	42.77	1.2616	1.0450 -	1.4350	passed	86.33	40 -	135	passed
32	13C12-123789-HxCDF	43.16	0.5400	0.4250 -	0.5950	passed	82.92	40 -	135	passed
33	13C12-1234678-HpCDF	44.85	0.4482	0.3650 -	0.5150	passed	101.21	40 -	135	passed
34	13C12-1234678-HpCDD	46.04	1.0513	0.8750 -	1.2050	passed	93.03	40 -	135	passed
35	13C12-1234789-HpCDF	46.60	0.4521	0.3650 -	0.5150	passed	76.85	40 -	135	passed
36	13C12-OCDD	49.04	0.9168	0.7550 -	1.0250	passed	93.56	40 -	135	passed
37	13C12-OCDF	49.23	0.9153	0.7550 -	1.0250	passed	74.42	40 -	135	passed
38	Total TCDF	29.74	0.7765	0.6450 -	0.8950	---	---	0 -	0	---
39	Total TCDD	30.53	0.7309	0.6450 -	0.8950	---	---	0 -	0	---
40	Total PeCDF	36.18	---	1.3150 -	1.7850	---	---	0 -	0	---
41	Total PeCDD	37.02	1.4036	1.3150 -	1.7850	---	---	0 -	0	---
42	Total HxCDF	41.54	1.0912	1.0450 -	1.4350	---	---	0 -	0	---
43	Total HxCDD	41.73	---	1.0450 -	1.4350	---	---	0 -	0	---
44	Total HpCDD	45.63	---	0.8750 -	1.2050	---	---	0 -	0	---
45	Total HpCDF	45.75	0.9439	0.8750 -	1.2050	---	---	0 -	0	---
46	AVG_Total PeCDF	0.00	0.0000	0.0000 -	0.0000	---	91.57	0 -	0	---
47	AVG_Total HxCDF	0.00	0.0000	0.0000 -	0.0000	---	82.04	0 -	0	---
48	AVG_Total HxCDD	0.00	0.0000	0.0000 -	0.0000	---	85.58	0 -	0	---
49	AVG_Total HpCDF	0.00	0.0000	0.0000 -	0.0000	---	89.03	0 -	0	---
50	TEQ WHO 2005	0.00	1.0330	0.0000 -	0.0000	---	0.00	0 -	0	---
51	Single TCDF	29.83	1.2721	0.6450 -	0.8950	failed	---	0 -	0	passed
52	Single TCDF	26.08	8.3694	0.6450 -	0.8950	failed	---	0 -	0	passed
53	Single TCDF	27.83	1.4158	0.6450 -	0.8950	failed	---	0 -	0	passed
54	Single TCDF	30.54	1.1744	0.6450 -	0.8950	failed	---	0 -	0	passed
55	Single TCDF	31.02	0.0482	0.6450 -	0.8950	failed	---	0 -	0	passed
56	Single TCDF	31.14	2.1921	0.6450 -	0.8950	failed	---	0 -	0	passed
57	Single TCDF	31.30	0.4170	0.6450 -	0.8950	failed	---	0 -	0	passed
58	Single TCDF	31.45	0.0309	0.6450 -	0.8950	failed	---	0 -	0	passed
59	Single TCDF	32.06	1.7461	0.6450 -	0.8950	failed	---	0 -	0	passed
60	Single TCDF	32.85	0.7765	0.6450 -	0.8950	passed	---	0 -	0	passed
61	Single TCDF	33.42	0.0711	0.6450 -	0.8950	failed	---	0 -	0	passed
62	Single TCDD	30.94	2.3618	0.6450 -	0.8950	failed	---	0 -	0	passed
63	Single TCDD	27.84	27.2173	0.6450 -	0.8950	failed	---	0 -	0	passed

TargetQuan3

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By uma9 at 12:02 pm, 2/9/17

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No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
64	Single TCDD	28.08	72.8583	0.6450 -	0.8950	failed	---	0 -	0	passed
65	Single TCDD	29.12	0.7309	0.6450 -	0.8950	passed	---	0 -	0	passed
66	Single TCDD	29.67	1.5109	0.6450 -	0.8950	failed	---	0 -	0	passed
67	Single TCDD	31.16	56.9728	0.6450 -	0.8950	failed	---	0 -	0	passed
68	Single TCDD	33.14	2.0975	0.6450 -	0.8950	failed	---	0 -	0	passed
69	Single PeCDD	38.16	1.4036	1.3150 -	1.7850	passed	---	0 -	0	passed
70	Single PeCDD	35.36	3.5105	1.3150 -	1.7850	failed	---	0 -	0	passed
71	Single PeCDD	38.09	0.8978	1.3150 -	1.7850	failed	---	0 -	0	passed
72	Single PeCDD	38.70	1.1649	1.3150 -	1.7850	failed	---	0 -	0	passed
73	Single PeCDF	36.55	2.1625	1.3150 -	1.7850	failed	---	0 -	0	passed
74	Single PeCDF	33.38	0.4705	1.3150 -	1.7850	failed	---	0 -	0	passed
75	Single PeCDF	36.42	0.4719	1.3150 -	1.7850	failed	---	0 -	0	passed
76	Single PeCDF	36.64	0.8737	1.3150 -	1.7850	failed	---	0 -	0	passed
77	Single PeCDF	36.75	0.8460	1.3150 -	1.7850	failed	---	0 -	0	passed
78	Single PeCDF	36.99	0.1363	1.3150 -	1.7850	failed	---	0 -	0	passed
79	Single PeCDF	37.53	0.8536	1.3150 -	1.7850	failed	---	0 -	0	passed
80	Single PeCDF	37.66	0.8669	1.3150 -	1.7850	failed	---	0 -	0	passed
81	Single PeCDF	37.76	1.9720	1.3150 -	1.7850	failed	---	0 -	0	passed
82	Single PeCDF	38.03	0.4445	1.3150 -	1.7850	failed	---	0 -	0	passed
83	Single PeCDF	38.41	0.4725	1.3150 -	1.7850	failed	---	0 -	0	passed
84	Single PeCDF	38.60	0.0304	1.3150 -	1.7850	failed	---	0 -	0	passed
85	Single PeCDF	38.74	0.0376	1.3150 -	1.7850	failed	---	0 -	0	passed
86	Single PeCDF	39.00	0.9605	1.3150 -	1.7850	failed	---	0 -	0	passed
87	Single HpCDD	46.04	1.3658	0.8750 -	1.2050	failed	---	0 -	0	passed
88	Single HpCDD	45.21	0.4649	0.8750 -	1.2050	failed	---	0 -	0	passed
89	Single HxCDF	43.16	1.0693	1.0450 -	1.4350	passed	---	0 -	0	passed
90	Single HxCDF	40.10	0.5399	1.0450 -	1.4350	failed	---	0 -	0	passed
91	Single HxCDF	41.36	1.1634	1.0450 -	1.4350	passed	---	0 -	0	passed
92	Single HxCDF	41.49	2.0503	1.0450 -	1.4350	failed	---	0 -	0	passed
93	Single HxCDF	42.18	5.9402	1.0450 -	1.4350	failed	---	0 -	0	passed
94	Single HxCDF	42.81	11.5800	1.0450 -	1.4350	failed	---	0 -	0	passed
95	Single HxCDF	42.90	5.9760	1.0450 -	1.4350	failed	---	0 -	0	passed
96	Single HxCDF	43.04	29.9647	1.0450 -	1.4350	failed	---	0 -	0	passed
97	Single HxCDD	41.33	1.6256	1.0450 -	1.4350	failed	---	0 -	0	passed
98	Single HxCDD	40.56	0.3840	1.0450 -	1.4350	failed	---	0 -	0	passed
99	Single HxCDD	41.48	5.8166	1.0450 -	1.4350	failed	---	0 -	0	passed
100	Single HxCDD	42.14	2.8026	1.0450 -	1.4350	failed	---	0 -	0	passed
101	Single HxCDD	42.20	0.4881	1.0450 -	1.4350	failed	---	0 -	0	passed
102	Single HxCDD	42.35	3.6060	1.0450 -	1.4350	failed	---	0 -	0	passed
103	Single HxCDD	42.47	4.0955	1.0450 -	1.4350	failed	---	0 -	0	passed
104	Single HxCDD	42.65	3.6404	1.0450 -	1.4350	failed	---	0 -	0	passed
105	Single HxCDD	42.78	0.9013	1.0450 -	1.4350	failed	---	0 -	0	passed
106	Single HpCDF	44.86	0.8973	0.8750 -	1.2050	passed	---	0 -	0	passed
107	Single HpCDF	44.97	30.3170	0.8750 -	1.2050	failed	---	0 -	0	passed
108	Single HpCDF	45.07	3.7540	0.8750 -	1.2050	failed	---	0 -	0	passed
109	Single HpCDF	45.22	1.1251	0.8750 -	1.2050	passed	---	0 -	0	passed
110	Single HpCDF	45.39	1.1540	0.8750 -	1.2050	passed	---	0 -	0	passed
111	Single HpCDF	45.44	214.1723	0.8750 -	1.2050	failed	---	0 -	0	passed
112	Single HpCDF	46.05	56.3652	0.8750 -	1.2050	failed	---	0 -	0	passed
113	Single HpCDF	46.60	0.9829	0.8750 -	1.2050	passed	---	0 -	0	passed

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

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Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	Signal-to-Noise
1	2378-TCDF	failed	31.02	247	A	12	A	0.0108	0.027399	n.d.	10
2	2378-TCDD	failed	32.03	1	A	53	A	0.0117	0.007642	n.d. < 0.0117	3
3	12378-PeCDF	failed	36.55	327	A	706	A	0.0087	0.090153	n.d.	30
4	23478-PeCDF	failed	37.76	228	A	450	A	0.0081	0.058891	n.d.	23
5	12378-PeCDD	passed	38.16	135	A	189	A	0.0185	0.046330	0.0463	9
6	123478-HxCDF	passed	41.36	183	A	213	A	0.0076	0.034109	0.0341	10
7	123678-HxCDF	failed	41.49	179	A	367	A	0.0069	0.040572	n.d.	16
8	234678-HxCDF	failed	42.18	84	A	496	A	0.0075	0.048864	n.d.	15
9	123478-HxCDD	failed	42.35	51	A	183	A	0.0116	0.028773	n.d.	9
10	123678-HxCDD	failed	42.47	85	A	348	A	0.0115	0.051612	n.d.	12
11	123789-HxCDD	failed	42.78	220	A	198	A	0.0110	0.048549	n.d.	11
12	123789-HxCDF	passed	43.16	604	A	646	A	0.0080	0.112129	0.1121	36
13	1234678-HpCDF	passed	44.86	450	A	404	A	0.0065	0.060496	0.0605	24
14	1234678-HpCDD	failed	46.04	254	A	347	A	0.0090	0.071606	n.d.	24
15	1234789-HpCDF	passed	46.60	275	A	270	A	0.0098	0.057772	0.0578	16
16	OCDD	passed	49.04	474	A	469	A	0.0197	0.128737	0.1287	21
17	OCDF	passed	49.26	166	A	504	A	0.0135	0.085351	n.d.	16
18	13C12-1278-TCDD (CRS)	passed	32.39	182877	A	141979	A	0.0261	35.581501	35.5615	3342
19	13C12-1234-TCDD	passed	31.24	775909	A	646801	A	0.0253	200.000000	200.0000	19725
20	13C12-123468-HxCDD	passed	41.23	869249	A	1099216	A	0.0452	200.000000	200.0000	11068
21	13C12-2378-TCDF	passed	30.95	1020542	A	803019	A	0.0131	137.228298	137.2283	24860
22	13C12-2378-TCDD	passed	32.00	633733	A	518292	A	0.0257	164.417311	164.4173	16162
23	13C12-12378-PeCDF	passed	36.53	915920	A	1446830	A	0.0656	192.319888	192.3199	9217
24	13C12-23478-PeCDF	passed	37.75	826563	A	1307961	A	0.0657	173.963184	173.9632	8823
25	13C12-12378-PeCDD	passed	38.13	509119	A	808611	A	0.0425	190.015831	190.0158	14775
26	13C12-123478-HxCDF	passed	41.33	1303320	A	669293	A	0.0437	155.952245	155.9522	8921
27	13C12-123678-HxCDF	passed	41.48	1534566	A	805513	A	0.0416	175.851365	175.8514	10147
28	13C12-234678-HxCDF	passed	42.15	1278759	A	680680	A	0.0448	158.707371	158.7074	8822
29	13C12-123478-HxCDD	passed	42.34	701999	A	880380	A	0.0477	169.935465	169.9355	9061
30	13C12-123678-HxCDD	passed	42.46	731025	A	910624	A	0.0463	170.885144	170.8851	9149
31	13C12-123789-HxCDD	passed	42.77	701872	A	885511	A	0.0484	172.652158	172.6522	8996
32	13C12-123789-HxCDF	passed	43.16	1254967	A	677666	A	0.0474	165.838920	165.8389	8641
33	13C12-1234678-HpCDF	passed	44.85	1520160	A	681303	A	0.0512	202.424273	202.4243	10381
34	13C12-1234678-HpCDD	passed	46.04	772310	A	811924	A	0.0532	186.062669	186.0627	9193
35	13C12-1234789-HpCDF	passed	46.60	983072	A	444445	A	0.0599	153.700199	153.7002	6679
36	13C12-OCDD	passed	49.04	1497676	A	1373140	A	0.0341	374.230406	374.2304	29977
37	13C12-OCDF	passed	49.23	1756885	A	1608128	A	0.0264	297.696980	297.6970	28024
38	Total TCDF	passed (1)	29.74	79	A	61	A	0.0108	0.014892	0.0149	8
39	Total TCDD	passed (1)	30.53	66	A	48	A	0.0117	0.015961	0.0160	7
40	Total PeCDF	failed	36.18	0	A	0	M	—	—	--	---
41	Total PeCDD	passed (1)	37.02	135	M	189	M	0.0185	0.046330	0.0463	9
42	Total HxCDF	passed (2)	41.54	787	M	858	M	0.0075	0.068410	0.1368	23
43	Total HxCDD	failed	41.73	0	M	0	A	—	—	--	---
44	Total HpCDD	failed	45.63	0	A	0	A	—	—	--	---
45	Total HpCDF	passed (3)	45.75	774	A	730	A	0.0078	0.042485	0.1275	15
46	AVG_Total PeCDF	passed (2)	0.00	871242		1377396		0.0656	183.141536	183.1415	9020
47	AVG_Total HxCDF	passed (4)	0.00	1342903		708288		0.0444	164.087475	164.0875	9133
48	AVG_Total HxCDD	passed (3)	0.00	711632		892172		0.0475	171.157589	171.1576	9069
49	AVG_Total HpCDF	passed (2)	0.00	1251616		562874		0.0555	178.062236	178.0622	8530
50	TEQ WHO 2005	passed (6)	0.00	2121		2191		0.0117	0.439573	0.4396	19
51	Single TCDF	failed	29.83	352	A	448	A	0.0108	0.084830	n.d.	22
52	Single TCDF	failed	26.08	15	A	127	A	0.0108	0.015121	n.d.	5
53	Single TCDF	failed	27.83	63	A	89	A	0.0108	0.016131	n.d.	7
54	Single TCDF	failed	30.54	75	A	88	A	0.0108	0.017175	n.d.	7
55	Single TCDF	failed	31.02	247	A	12	A	0.0108	0.027399	n.d.	10
56	Single TCDF	failed	31.14	38	A	84	A	0.0108	0.012944	n.d.	8
57	Single TCDF	failed	31.30	84	A	35	A	0.0108	0.012646	n.d.	4
58	Single TCDF	failed	31.45	123	A	4	A	0.0108	0.013441	n.d.	4
59	Single TCDF	failed	32.06	67	A	116	A	0.0108	0.019398	n.d.	10
60	Single TCDF	passed	32.85	79	A	61	A	0.0108	0.014892	0.0149	8
61	Single TCDF	failed	33.42	165	A	12	A	0.0108	0.018735	n.d.	6
62	Single TCDD	failed	30.94	119	A	280	A	0.0117	0.056098	n.d.	15
63	Single TCDD	failed	27.84	5	A	137	A	0.0117	0.020018	n.d.	5

TargetQuan3

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

ThermoFisher Scientific

1036   1081

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	Signal-to-Noise
64	Single TCDD	failed	28.08	1	A	97	A	0.0117	0.013897	n.d.	6
65	Single TCDD	passed	29.12	66	A	48	A	0.0117	0.015961	0.0160	7
66	Single TCDD	failed	29.67	41	A	61	A	0.0117	0.014332	n.d.	4
67	Single TCDD	failed	31.16	2	A	124	A	0.0117	0.017691	n.d.	6
68	Single TCDD	failed	33.14	40	A	84	A	0.0117	0.017418	n.d.	7
69	Single PeCDD	passed	38.16	135	A	189	A	0.0185	0.046330	0.0463	9
70	Single PeCDD	failed	35.36	38	M	132	M	0.0185	0.024324	n.d.	4
71	Single PeCDD	failed	38.09	75	A	67	A	0.0185	0.020389	n.d.	4
72	Single PeCDD	failed	38.70	73	A	85	A	0.0185	0.022658	n.d.	5
73	Single PeCDF	failed	36.55	327	A	706	A	0.0084	0.089705	n.d.	30
74	Single PeCDF	failed	33.38	88	A	42	A	0.0084	0.011294	n.d.	5
75	Single PeCDF	failed	36.42	66	A	31	A	0.0084	0.008381	n.d.	3
76	Single PeCDF	failed	36.64	52	A	46	A	0.0084	0.008490	n.d.	4
77	Single PeCDF	failed	36.75	61	A	52	A	0.0084	0.009802	n.d.	6
78	Single PeCDF	failed	36.99	115	A	16	A	0.0084	0.011305	n.d.	4
79	Single PeCDF	failed	37.53	78	A	66	A	0.0084	0.012517	n.d.	5
80	Single PeCDF	failed	37.66	75	A	65	A	0.0084	0.012105	n.d.	5
81	Single PeCDF	failed	37.76	228	A	450	A	0.0084	0.058872	n.d.	23
82	Single PeCDF	failed	38.03	103	A	46	A	0.0084	0.012922	n.d.	5
83	Single PeCDF	failed	38.41	84	A	40	A	0.0084	0.010694	n.d.	5
84	Single PeCDF	failed	38.60	125	A	4	A	0.0084	0.011218	n.d.	4
85	Single PeCDF	failed	38.74	152	A	6	A	0.0084	0.013738	n.d.	3
86	Single PeCDF	failed	39.00	124	A	119	M	0.0084	0.021029	n.d.	6
87	Single HpCDD	failed	46.04	254	A	347	A	0.0090	0.071606	n.d.	24
88	Single HpCDD	failed	45.21	186	A	86	A	0.0090	0.032468	n.d.	12
89	Single HxCDF	passed	43.16	604	A	646	A	0.0075	0.103941	0.1039	36
90	Single HxCDF	failed	40.10	60	A	32	A	0.0075	0.007701	n.d.	4
91	Single HxCDF	passed	41.36	183	A	213	A	0.0075	0.032880	0.0329	10
92	Single HxCDF	failed	41.49	179	A	367	A	0.0075	0.045433	n.d.	16
93	Single HxCDF	failed	42.18	84	A	496	A	0.0075	0.048208	n.d.	15
94	Single HxCDF	failed	42.81	11	A	131	A	0.0075	0.011824	n.d.	5
95	Single HxCDF	failed	42.90	18	A	105	A	0.0075	0.010226	n.d.	5
96	Single HxCDF	failed	43.04	4	A	110	A	0.0075	0.009465	n.d.	5
97	Single HxCDD	failed	41.33	224	A	365	A	0.0114	0.070489	n.d.	14
98	Single HxCDD	failed	40.56	131	A	50	A	0.0114	0.021745	n.d.	6
99	Single HxCDD	failed	41.48	98	A	572	A	0.0114	0.080145	n.d.	17
100	Single HxCDD	failed	42.14	164	A	460	A	0.0114	0.074577	n.d.	18
101	Single HxCDD	failed	42.20	65	A	32	A	0.0114	0.011514	n.d.	4
102	Single HxCDD	failed	42.35	51	M	183	A	0.0114	0.027899	n.d.	9
103	Single HxCDD	failed	42.47	85	A	348	A	0.0114	0.051741	n.d.	12
104	Single HxCDD	failed	42.65	41	A	150	A	0.0114	0.022932	n.d.	9
105	Single HxCDD	failed	42.78	220	A	198	A	0.0114	0.049952	n.d.	11
106	Single HpCDF	passed	44.86	450	A	404	A	0.0078	0.072337	0.0723	24
107	Single HpCDF	failed	44.97	4	A	107	A	0.0078	0.009366	n.d.	4
108	Single HpCDF	failed	45.07	20	A	75	A	0.0078	0.008081	n.d.	4
109	Single HpCDF	failed	45.22	45	A	50	A	0.0078	0.008017	n.d.	4
110	Single HpCDF	passed	45.39	49	A	56	A	0.0078	0.008886	0.0089	5
111	Single HpCDF	failed	45.44	3	A	574	A	0.0078	0.048822	n.d.	15
112	Single HpCDF	failed	46.05	2	A	93	A	0.0078	0.008060	n.d.	3
113	Single HpCDF	passed	46.60	275	A	270	A	0.0078	0.046230	0.0462	16

RT: 22.50 - 51.00

RT: 20.40 - 34.90

APPROVED
By umas at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/1708

File Name: Y:\17FEB07\17FEB07-17
Sample ID: BLK031003
Acq. Data: 2/8/2017 12:23:33 AM
Sample Name: 17031003
Chlorodiphenylether Interference Traces
Instrument ID: DF18471-17FEB07

RT: 34.50 - 39.80

NL:
1.29E2
m/z=
341.3567-
342.3567
MS ICIS
17FEB07-
17

NL:
2.12E2
m/z=
339.3597-
340.3597
MS ICIS
17FEB07-
17

NL:
2.22E5
m/z=
353.3970-
354.3970
MS ICIS
17FEB07-
17

NL:
5.20E1
m/z=
409.2974-
410.2974
MS ICIS
17FEB07-
17

Panel 1 (PeCDF Quan Mass):
- RT: 35.22 AA: 133
- RT: 35.50 AA: 63.81
- RT: 35.75 AA: 16.21
- RT: 36.32 AA: 75.77
- RT: 36.55 AA: 336
- RT: 36.64 AA: 59.14
- RT: 36.99 AA: 116
- RT: 37.66 AA: 74.44
- RT: 37.76 AA: 228
- RT: 37.83 AA: 55.51
- RT: 38.60 AA: 124
- RT: 39.21 AA: 123
- RT: 39.35 AA: 157

Panel 2 (PeCDF Ratio Mass):
- RT: 34.96 AA: 34.23
- RT: 35.76 AA: 26.84
- RT: 36.02 AA: 41.69
- RT: 36.38 AA: 30.73
- RT: 36.55 AA: 704
- RT: 36.72 AA: 51.32
- RT: 37.63 AA: 72.30
- RT: 37.78 AA: 448
- RT: 38.13 AA: 72.10
- RT: 38.94 AA: 135
- RT: 39.21 AA: 89.86

Panel 3 (PeCDF 13C12 Quan Mass):
- RT: 35.04 AA: 4937
- RT: 35.28 AA: 17639
- RT: 35.99 AA: 24655
- RT: 36.28 AA: 395
- RT: 36.53 AA: 914985
- RT: 36.85 AA: 4552
- RT: 37.63 AA: 13118
- RT: 37.75 AA: 826847
- RT: 37.92 AA: 730
- RT: 38.95 AA: 7883
- RT: 39.40 AA: 258

Panel 4 (HpCDPE Trace):
- RT: 34.71 AA: 87.30
- RT: 36.70 AA: 4.16
- RT: 37.15 AA: 34.20
- RT: 37.22 AA: 49.92
- RT: 37.29 AA: 3.24
- RT: 37.86 AA: 3.24
- RT: 38.35 AA: 18.98
- RT: 39.10 AA: 74.22
- RT: 39.21 AA: 200
- RT: 39.51 AA: 15.85

Time (min)

AIL01 Page 519 of 560

File Name: Y:\17FEB07\17FEB07-17
Sample ID: BLK031003

Acq. Data: 2/8/2017 12:23:33 AM
Sample Name: 17031003
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 39.20 - 44.50

NL:
2.30E2
m/z=
375.3178-
376.3178
MS ICIS
17FEB07-
17

NL:
1.99E2
m/z=
373.3208-
374.3208
MS ICIS
17FEB07-
17

NL:
4.47E5
m/z=
385.3610-
386.3610
MS ICIS
17FEB07-
17

NL:
5.80E1
m/z=
445.2555-
446.2555
MS ICIS
17FEB07-
17

APPROVED
By uma9 at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

Time (min)

File Name: Y:\17FEB07\17FEB07-17
Sample ID: BLK031003
Acq. Data: 2/8/2017 12:23:33 AM
Sample Name: 17031003
Chlorodiphenylether Interference Traces
Instrument ID: DF18471-17FEB07

RT: 44.10 - 48.20

NL:
1.72E2
m/z=
409.2789-
410.2789
MS ICIS
17FEB07-
17

NL:
1.93E2
m/z=
407.2818-
408.2818
MS ICIS
17FEB07-
17

NL:
4.86E5
m/z=
419.3220-
420.3220
MS ICIS
17FEB07-
17

NL:
5.10E1
m/z=
479.2165-
480.2165
MS ICIS
17FEB07-
17

File Name: Y:\17FEB07\17FEB07-17
Sample ID: BLK031003

Acq. Data: 2/8/2017 12:23:33 AM
Sample Name: 17031003
Chlorodiphenylether Interference Traces

Instrument ID: DF18471-17FEB07

RT: 47.90 - 51.20

NL:
1.26E2
m/z=
443.2399-
444.2399
MS ICIS
17FEB07-
17

NL:
1.73E2
m/z=
441.2428-
442.2428
MS ICIS
17FEB07-
17

NL:
5.74E5
m/z=
455.2802-
456.2802
MS ICIS
17FEB07-
17

NL:
1.61E2
m/z=
513.1775-
514.1775
MS ICIS
17FEB07-
17

APPROVED
By umjs at 12:02 pm, 2/9/17

REVIEWED
By UMJS at 12:42 pm, 2/9/17

AIL01 Page 522 of 560

Time (min)

*** file opened Wed Feb 08 00:29:00 2017 ***

Started by   - Xcalibur
Instrument Internet name - DFS MS
Instrument model   - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

  Analysis started at: 08-Feb-17 00:28:59

  Analysis will stop at user request

  Firmware Version: 2.02

  MCAL file name:

  Sequence : ef723472-e848-43e5-a9f2-e1bcce0ed473

  MID procedure: PFK16MAR24+MDT

  Mid Time Windows:
        Start   Measure   End   Cycletime

  # 1 11:30 min   9:30 min   21:00 min   1.00 sec
  # 2 21:00 min 13:36 min   34:36 min   1.00 sec
  # 3 34:36 min   4:53 min   39:30 min   0.90 sec
  # 4 39:30 min   4:45 min   44:15 min   0.80 sec
  # 5 44:15 min   3:45 min   48:00 min   0.80 sec
  # 6 48:00 min   3:00 min   51:00 min   0.80 sec

  Mid Masses:
   window # 1
      mass F   int gr   time (ms)
      218.0129   1   1   95
      218.9851 1 20   1   4
      220.0100   1   1   95
      230.0532   2   1   47
      232.0502   2   1   47
      251.9739   1   1   95
      253.9710   1   1   95
      264.0142   2   1   47
      266.0112   2   1   47
      285.9350   1   1   95
      287.9320   1   1   95
      292.9819 c 20   1   4
      297.9752   2   1   47
      299.9723   2   1   47
   window # 2
      mass F   int gr   time (ms)
      292.9819 1 20   1   5
      303.9011   1   1   118
      305.8981   1   1   118
      315.9413   5   1   23
      317.9384   5   1   23
      319.8960   1   1   118
      321.8930   1   1   118

                              Page 1

```
331.9363      5  1        23
333.9333      5  1        23
339.8592      1  1       118
341.8562      1  1       118
354.9787  c  20  1         5
375.8364      2  1        59
Window # 3
    mass F  int gr  time (ms)
330.9787 l   20  1         6
339.8592      1  1       133
341.8562      1  1       133
351.8994      3  1        44
353.8965      3  1        44
355.8541      1  1       133
357.8511      1  1       133
367.8943      3  1        44
369.8914      3  1        44
380.9755  c  20  1         6
409.7969      2  1        66
Window # 4
    mass F  int gr  time (ms)
373.8201      1  1       117
375.8172      1  1       117
380.9755 l   20  1         5
383.8634      3  1        39
385.8604      3  1        39
389.8151      1  1       117
391.8121      1  1       117
401.8554      3  1        39
403.8524      3  1        39
430.9723  c  20  1         5
445.7550      2  1        58
Window # 5
    mass F  int gr  time (ms)
404.9755 l   20  1         5
407.7812      1  1       117
409.7783      1  1       117
417.8244      3  1        39
419.8215      3  1        39
423.7761      1  1       117
425.7732      1  1       117
435.8164      3  1        39
437.8134      3  1        39
479.7160      2  1        58
480.9691  c  20  1         5
Window # 6
    mass F  int gr  time (ms)
441.7422      1  1        95
442.9723 l   20  1         4
443.7393      1  1        95
453.7825      1  1        95
455.7795      1  1        95
457.7372      1  1        95
459.7342      1  1        95
469.7774      3  1        31
471.7745      3  1        31
492.9691  c  20  1         4
513.6770      2  1        47
```

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.600000 minutes
MID Window end time was 34.600000 minutes

Page 2

MID Window terminated after 39.500000 minutes
MID Window end time was 39.500000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	97.0000
BQUAD	0.0500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	61.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	173.0000
ENSBR	0.0500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	172.0000	EXSBR	-0.4700
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	12.3500
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0175	FVINLET	0.0304	FVSRC	0.0292
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	714.0000
LENS_SYM	14.3000	LM	1050.0000	LMII	500.0000
LMASS	97.0000	LKM	442.9723	MASS	97.0000
MDAC	1448058.3899	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2525.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-9.0000	RECURR	0.8977	RELEN	0.0000
RES	12431.6550	RPUSHER	-8.6227	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	638.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0206	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	97.0000	XLENS_POT	896.0000
XLENS_SYM	-8.5000	YLENS_POT	568.0000	YLENS_SYM	0.0000

Source Gauge: 1.9e-005 mbar
Analyzer Penning: 5.1e-008 mbar
Pirani Analyse: 1.7e-002 mbar
Pirani Source: 2.9e-002 mbar
Pirani Inlet System: 3.0e-002 mbar

Scantype is magnetic

Sourcemode is EI POS

MID Time Window 1: Resolution is 11577.
MID Time Window 2: Resolution is 11839.
MID Time Window 3: Resolution is 12397.
MID Time Window 4: Resolution is 12163.

Page 3

MID Time Window 5: Resolution is 14112.
MID Time Window 6: Resolution is 12431.

Amplifier Offset: 87.

*** File closed Wed Feb 08 01:20:01 2017
***

∴ eurofins

Lancaster
Laboratories

Quantitation Settings

Data File Parameter

Acq. Data	2017/02/07 22:30
Number of Entries	140
Comment	LCS:11030:12937
Vial	101
Sample Name	17031003
Sample ID	OPR031003
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-15.quan
Data	y:\17feb07\17feb07-15.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

Entry Parameters

No.	Compound Name	QM Retention Time	Status Overview	Amount Status	RM1 Time Status	Ratio1 Status	Recovery Status	Native vs Labeled Time Status	Status Info
1	2378-TCDF	30.98	passed	passed	passed	passed	passed	passed	
2	2378-TCDD	32.02	passed	passed	passed	passed	passed	passed	
3	12378-PeCDF	36.54	passed	passed	passed	passed	passed	passed	
4	23478-PeCDF	37.76	passed	passed	passed	passed	passed	passed	
5	12378-PeCDD	38.14	passed	passed	passed	passed	passed	passed	
6	123478-HxCDF	41.33	passed	passed	passed	passed	passed	passed	
7	123678-HxCDF	41.48	passed	passed	passed	passed	passed	passed	
8	234678-HxCDF	42.17	passed	passed	passed	passed	passed	passed	
9	123478-HxCDD	42.36	passed	passed	passed	passed	passed	passed	
10	123678-HxCDD	42.47	passed	passed	passed	passed	passed	passed	
11	123789-HxCDD	42.78	passed	passed	passed	passed	passed	passed	
12	123789-HxCDF	43.17	passed	passed	passed	passed	passed	passed	
13	1234678-HpCDF	44.86	passed	passed	passed	passed	passed	passed	
14	1234678-HpCDD	46.04	passed	passed	passed	passed	passed	passed	
15	1234789-HpCDF	46.61	passed	passed	passed	passed	passed	passed	
16	OCDD	49.05	passed	passed	passed	passed	passed	passed	
17	OCDF	49.25	passed	passed	passed	passed	passed	passed	
18	13C12-1278-TCDD (CRS)	32.38	passed	passed	passed	passed	passed	passed	
19	13C12-1234-TCDD	31.24	passed	passed	passed	passed	passed	passed	
20	13C12-123468-HxCDD	41.23	passed	passed	passed	passed	passed	passed	
21	13C12-2378-TCDF	30.94	passed	passed	passed	passed	passed	passed	
22	13C12-2378-TCDD	31.99	passed	passed	passed	passed	passed	passed	
23	13C12-12378-PeCDF	36.52	passed	passed	passed	passed	passed	passed	
24	13C12-23478-PeCDF	37.74	passed	passed	passed	passed	passed	passed	
25	13C12-12378-PeCDD	38.13	passed	passed	passed	passed	passed	passed	
26	13C12-123478-HxCDF	41.32	passed	passed	passed	passed	passed	passed	
27	13C12-123678-HxCDF	41.47	passed	passed	passed	passed	passed	passed	
28	13C12-234678-HxCDF	42.16	passed	passed	passed	passed	passed	passed	
29	13C12-123478-HxCDD	42.33	passed	passed	passed	passed	passed	passed	
30	13C12-123678-HxCDD	42.45	passed	passed	passed	passed	passed	passed	
31	13C12-123789-HxCDD	42.76	passed	passed	passed	passed	passed	passed	
32	13C12-123789-HxCDF	43.15	passed	passed	passed	passed	passed	passed	
33	13C12-1234678-HpCDF	44.85	passed	passed	passed	passed	passed	passed	
34	13C12-1234678-HpCDD	46.03	passed	passed	passed	passed	passed	passed	
35	13C12-1234789-HpCDF	46.59	passed	passed	passed	passed	passed	passed	
36	13C12-OCDD	49.03	passed	passed	passed	passed	passed	passed	
37	13C12-OCDF	49.23	passed	passed	passed	passed	passed	passed	

Quantitation Settings

Data File Parameter

Acq. Data	2017/02/07 22:30
Number of Entries	140
Comment	LCS:11030:12937
Vial	101
Sample Name	17031003
Sample ID	OPR031003
Inst ID	DF18471-17FEB07
Client	
Analyst	jda02741
GC Column	DB5MS 60 M x 0.25um x 0.25mm
BatchNo	17031003
Barcode	

Files Parameter

Quan	y:\17feb07\17feb07-15.quan
Data	y:\17feb07\17feb07-15.raw
Response	y:\responsefiles\df18471-17jan31dfical.resp
Script	C:\XCALIBUR\SYSTEM\DFS\SCRIPTS\SCRIPT1.QSC
Mass Ref	

Quan Parameter

QualBrowser Compatibility	Compatibility off
Sum Area/Height	Sum QM RM1
Quantitation Status	Dependend on Area
Injection Volume [hIJV]	1.0
Sample Volume [hSV]	20.0
Sample Weight [hSWT]	10.0
Dilution Factor [hDF]	1.0
Det. Limit Factor [hDLF]	2.5
Response Factor Mode	Average RF
Fit Calc. Mode	Linear Fit
Regression Mode	Non weighted Regression
Weighted Regression Factor	1.0

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By UMJS at 12:42 pm, 2/9/17

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Chromatogram

RT: 29.98 - 31.98 SM: 3G

Entry Parameters

Compound Name	2378-TCDF
QM Retention Time	30.98
QM Area	120999
QM Integration Mode	A
RM1 Area	92121
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0187
Unqualified Amount (A)	19.425140
Adjusted Amount (A)	19.4251
Signal-to-Noise	2627
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 31.00 - 33.00 SM: 3G

Entry Parameters

Compound Name	2378-TCDD
QM Retention Time	32.02
QM Area	75184
QM Integration Mode	A
RM1 Area	61158
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0170
Unqualified Amount (A)	19.140032
Adjusted Amount (A)	19.1400
Signal-to-Noise	2850
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 35.56 - 37.56 SM: 3G

NL:
1.21E5
m/z=
341.85-
341.86 MS
17FEB07-15

NL:
1.90E5
m/z=
339.86-
339.86 MS
17FEB07-15

NL:
2.46E5
m/z=
353.90-
353.90 MS
17FEB07-15

NL:
3.91E5
m/z=
351.90-
351.90 MS
17FEB07-15

Entry Parameters

Compound Name	12378-PeCDF
QM Retention Time	36.54
QM Area	487104
QM Integration Mode	A
RM1 Area	766542
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0133
Unqualified Amount (A)	98.166210
Adjusted Amount (A)	98.1662
Signal-to-Noise	18876
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 36.76 - 38.76 SM: 3G

Entry Parameters

Compound Name	23478-PeCDF
QM Retention Time	37.76
QM Area	465524
QM Integration Mode	A
RM1 Area	731835
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0121
Unqualified Amount (A)	90.708808
Adjusted Amount (A)	90.7088
Signal-to-Noise	18265
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 37.16 - 39.16 SM: 3G

Entry Parameters

Compound Name	12378-PeCDD
QM Retention Time	38.14
QM Area	285664
QM Integration Mode	A
RM1 Area	465854
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0298
Unqualified Amount (A)	95.313482
Adjusted Amount (A)	95.3135
Signal-to-Noise	8202
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 40.33 - 42.33 SM: 3G

Entry Parameters

Compound Name	123478-HxCDF
QM Retention Time	41.33
QM Area	535694
QM Integration Mode	A
RM1 Area	675179
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0331
Unqualified Amount (A)	91.166926
Adjusted Amount (A)	91.1669
Signal-to-Noise	6702
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 40.48 - 42.48   SM: 3G

Entry Parameters

Compound Name	123678-HxCDF
QM Retention Time	41.48
QM Area	637501
QM Integration Mode	A
RM1 Area	782387
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0280
Unqualified Amount (A)	90.941355
Adjusted Amount (A)	90.9414
Signal-to-Noise	7994
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

ThermoFisher

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Chromatogram

RT: 41.17 - 43.17 SM: 3G

Entry Parameters

Compound Name	234678-HxCDF
QM Retention Time	42.17
QM Area	571029
QM Integration Mode	A
RM1 Area	725426
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0312
Unqualified Amount (A)	93.886365
Adjusted Amount (A)	93.8864
Signal-to-Noise	7645
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 41.34 - 43.34 SM: 3G

Entry Parameters

Compound Name	123478-HxCDD
QM Retention Time	42.36
QM Area	418196
QM Integration Mode	A
RM1 Area	529889
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0262
Unqualified Amount (A)	96.714784
Adjusted Amount (A)	96.7148
Signal-to-Noise	9466
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 41.47 - 43.47 SM: 3G

Entry Parameters

Compound Name	123678-HxCDD
QM Retention Time	42.47
QM Area	398716
QM Integration Mode	A
RM1 Area	496529
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0253
Unqualified Amount (A)	91.487348
Adjusted Amount (A)	91.4873
Signal-to-Noise	8898
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 41.78 - 43.78 SM: 3G

Entry Parameters

Compound Name	123789-HxCDD
QM Retention Time	42.78
QM Area	427286
QM Integration Mode	A
RM1 Area	531069
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0244
Unqualified Amount (A)	94.509525
Adjusted Amount (A)	94.5095
Signal-to-Noise	9445
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 42.17 - 44.17 SM: 3G

NL:
1.71E5
m/z=
375.82-
375.82 MS
17FEB07-15

NL:
2.18E5
m/z=
373.82-
373.82 MS
17FEB07-15

NL:
3.93E5
m/z=
385.86-
385.86 MS
17FEB07-15

NL:
2.04E5
m/z=
383.86-
383.87 MS
17FEB07-15

Entry Parameters

Compound Name	123789-HxCDF
QM Retention Time	43.17
QM Area	473741
QM Integration Mode	A
RM1 Area	591696
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0371
Unqualified Amount (A)	91.327557
Adjusted Amount (A)	91.3276
Signal-to-Noise	6072
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 43.86 - 45.86   SM: 3G

Entry Parameters

Compound Name	1234678-HpCDF
QM Retention Time	44.86
QM Area	780141
QM Integration Mode	A
RM1 Area	808043
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0292
Unqualified Amount (A)	96.125247
Adjusted Amount (A)	96.1252
Signal-to-Noise	8173
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.04 - 47.04   SM: 3G

NL:
1.37E5
m/z=
425.77-
425.78 MS
17FEB07-15

NL:
1.39E5
m/z=
423.77-
423.78 MS
17FEB07-15

NL:
2.71E5
m/z=
437.81-
437.82 MS
17FEB07-15

NL:
2.87E5
m/z=
435.81-
435.82 MS
17FEB07-15

Entry Parameters

Compound Name	1234678-HpCDD
QM Retention Time	46.04
QM Area	445792
QM Integration Mode	A
RM1 Area	462909
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0365
Unqualified Amount (A)	92.269425
Adjusted Amount (A)	92.2694
Signal-to-Noise	6398
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 45.61 - 47.61 SM: 3G

NL:
1.54E5
m/z=
409.78-
409.78 MS
17FEB07-15

NL:
1.59E5
m/z=
407.78-
407.78 MS
17FEB07-15

NL:
3.43E5
m/z=
419.82-
419.82 MS
17FEB07-15

NL:
1.49E5
m/z=
417.82-
417.83 MS
17FEB07-15

Entry Parameters

Compound Name	1234789-HpCDF
QM Retention Time	46.61
QM Area	505422
QM Integration Mode	A
RM1 Area	522727
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0465
Unqualified Amount (A)	95.433024
Adjusted Amount (A)	95.4330
Signal-to-Noise	5181
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.05 - 50.05 SM: 3G

NL:
2.84E5
m/z=
459.73-
459.74 MS
17FEB07-15

NL:
2.50E5
m/z=
457.74-
457.74 MS
17FEB07-15

NL:
5.68E5
m/z=
471.77-
471.78 MS
17FEB07-15

NL:
5.18E5
m/z=
469.78-
469.78 MS
17FEB07-15

Entry Parameters

Compound Name	OCDD
QM Retention Time	49.05
QM Area	876924
QM Integration Mode	A
RM1 Area	782932
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0375
Unqualified Amount (A)	188.314499
Adjusted Amount (A)	188.3145
Signal-to-Noise	12843
Client Flags	
Status Overview	passed
Status Info	

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Chromatogram

RT: 48.25 - 50.25 SM: 3G

QM
RT: 49.25
NL: 2.73E5
m/z= 443.74-443.74 MS 17FEB07-15
48.42 48.57 48.75 48.91 49.06 49.39 49.54 49.82 50.10

RM1
RT: 49.25
NL: 2.56E5
m/z= 441.74-441.75 MS 17FEB07-15
48.42 48.57 48.86 49.06 49.46 49.63 49.79 49.95 50.13

IS QM
RT: 49.23
NL: 6.66E5
m/z= 455.78-455.78 MS 17FEB07-15
48.47 48.71 48.87 49.06 49.38 49.51 49.71 49.94 50.13

IS RM1
RT: 49.23
NL: 5.98E5
m/z= 453.78-453.79 MS 17FEB07-15
48.58 48.79 49.05 49.38 49.54 49.67 49.95 50.13

Time (min): 48.4 48.6 48.8 49.0 49.2 49.4 49.6 49.8 50.0 50.2

Relative Abundance

Entry Parameters

Compound Name	OCDF
QM Retention Time	49.25
QM Area	886777
QM Integration Mode	A
RM1 Area	804095
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0253
Unqualified Amount (A)	181.350789
Adjusted Amount (A)	181.3508
Signal-to-Noise	17731
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Chromatogram

RT: 31.36 - 33.36 SM: 5G

Entry Parameters

Compound Name	13C12-1278-TCDD (CRS)
QM Retention Time	32.38
QM Area	190527
QM Integration Mode	A
RM1 Area	157519
RM1 Integration Mode	A
ManInt	0
Detection Limit (A)	0.0194
Unqualified Amount (A)	29.685138
Adjusted Amount (A)	29.6851
Signal-to-Noise	3668
Client Flags	
Status Overview	passed
Status Info	

TargetQuan3

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Entry Parameters

No.	Compound Name	Quan. Mass	Ratio Mass 1	Specified RT [min]	QM Retention Time	RM1 Retention Time	Labeled RT	RM1 Time Status	Native vs Labeled Time Status
1	2378-TCDF	305.8987 +/- 5 ppm	303.9016 +/- 5 ppm	30.98	30.98	30.98	30.94	passed	passed
2	2378-TCDD	321.8936 +/- 5 ppm	319.8965 +/- 5 ppm	32.01	32.02	32.02	31.99	passed	passed
3	12378-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	36.54	36.54	36.54	36.52	passed	passed
4	23478-PeCDF	341.8567 +/- 5 ppm	339.8597 +/- 5 ppm	37.76	37.76	37.76	37.74	passed	passed
5	12378-PeCDD	357.8516 +/- 5 ppm	355.8546 +/- 5 ppm	38.15	38.14	38.14	38.13	passed	passed
6	123478-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.34	41.33	41.35	41.32	passed	passed
7	123678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	41.49	41.48	41.48	41.47	passed	passed
8	234678-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	42.16	42.17	42.17	42.16	passed	passed
9	123478-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.35	42.36	42.36	42.33	passed	passed
10	123678-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.47	42.47	42.47	42.45	passed	passed
11	123789-HxCDD	391.8127 +/- 5 ppm	389.8157 +/- 5 ppm	42.78	42.78	42.79	42.76	passed	passed
12	123789-HxCDF	375.8178 +/- 5 ppm	373.8208 +/- 5 ppm	43.17	43.17	43.18	43.15	passed	passed
13	1234678-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	44.86	44.86	44.86	44.85	passed	passed
14	1234678-HpCDD	425.7737 +/- 5 ppm	423.7766 +/- 5 ppm	46.05	46.04	46.05	46.03	passed	passed
15	1234789-HpCDF	409.7789 +/- 5 ppm	407.7818 +/- 5 ppm	46.61	46.61	46.62	46.59	passed	passed
16	OCDD	459.7348 +/- 5 ppm	457.7377 +/- 5 ppm	49.05	49.05	49.05	49.03	passed	passed
17	OCDF	443.7399 +/- 5 ppm	441.7428 +/- 5 ppm	49.24	49.25	49.25	49.23	passed	passed
18	13C12-1278-TCDD (CRS)	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	32.37	32.38	32.38	32.38	passed	passed
19	13C12-1234-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.24	31.24	31.24	31.24	passed	passed
20	13C12-123468-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	41.23	41.23	41.23	41.23	passed	passed
21	13C12-2378-TCDF	317.9389 +/- 5 ppm	315.9419 +/- 5 ppm	30.95	30.94	30.94	31.10	passed	passed
22	13C12-2378-TCDD	333.9339 +/- 5 ppm	331.9368 +/- 5 ppm	31.99	31.99	31.99	31.99	passed	passed
23	13C12-12378-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	36.51	36.52	36.52	36.54	passed	passed
24	13C12-23478-PeCDF	353.8970 +/- 5 ppm	351.9000 +/- 5 ppm	37.75	37.74	37.74	37.79	passed	passed
25	13C12-12378-PeCDD	369.8919 +/- 5 ppm	367.8949 +/- 5 ppm	38.12	38.13	38.13	38.13	passed	passed
26	13C12-123478-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.32	41.32	41.32	41.27	passed	passed
27	13C12-123678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	41.47	41.47	41.47	41.52	passed	passed
28	13C12-234678-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	42.15	42.16	42.16	42.17	passed	passed
29	13C12-123478-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.33	42.33	42.34	42.34	passed	passed
30	13C12-123678-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.46	42.45	42.45	42.45	passed	passed
31	13C12-123789-HxCDD	403.8529 +/- 5 ppm	401.8559 +/- 5 ppm	42.77	42.76	42.76	42.76	passed	passed
32	13C12-123789-HxCDF	385.8610 +/- 5 ppm	383.8639 +/- 5 ppm	43.16	43.15	43.15	43.18	passed	passed
33	13C12-1234678-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	44.84	44.85	44.85	44.89	passed	passed
34	13C12-1234678-HpCDD	437.8140 +/- 5 ppm	435.8169 +/- 5 ppm	46.03	46.03	46.04	46.04	passed	passed
35	13C12-1234789-HpCDF	419.8220 +/- 5 ppm	417.8253 +/- 5 ppm	46.60	46.59	46.61	46.44	passed	passed
36	13C12-OCDD	471.7750 +/- 5 ppm	469.7779 +/- 5 ppm	49.04	49.03	49.05	49.05	passed	passed
37	13C12-OCDF	455.7802 +/- 5 ppm	453.7831 +/- 5 ppm	49.22	49.23	49.23	49.29	passed	passed

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Entry Parameters

No.	Compound Name	QM Retention Time	RM1 Ratio (A)	Ratio1 Limit		Ratio1 Status	Percent Recovery (A)	Recovery Limit		Recovery Status
1	2378-TCDF	30.98	0.7613	0.6450 -	0.8950	passed	97.13	75 -	158	passed
2	2378-TCDD	32.02	0.8134	0.6450 -	0.8950	passed	95.70	67 -	158	passed
3	12378-PeCDF	36.54	1.5737	1.3150 -	1.7850	passed	98.17	80 -	134	passed
4	23478-PeCDF	37.76	1.5721	1.3150 -	1.7850	passed	90.71	68 -	160	passed
5	12378-PeCDD	38.14	1.6308	1.3150 -	1.7850	passed	95.31	70 -	142	passed
6	123478-HxCDF	41.33	1.2604	1.0450 -	1.4350	passed	91.17	72 -	134	passed
7	123678-HxCDF	41.48	1.2273	1.0450 -	1.4350	passed	90.94	84 -	130	passed
8	234678-HxCDF	42.17	1.2704	1.0450 -	1.4350	passed	93.89	70 -	156	passed
9	123478-HxCDD	42.36	1.2671	1.0450 -	1.4350	passed	96.71	70 -	164	passed
10	123678-HxCDD	42.47	1.2453	1.0450 -	1.4350	passed	91.49	76 -	134	passed
11	123789-HxCDD	42.78	1.2429	1.0450 -	1.4350	passed	94.51	64 -	162	passed
12	123789-HxCDF	43.17	1.2490	1.0450 -	1.4350	passed	91.33	78 -	130	passed
13	1234678-HpCDF	44.86	1.0358	0.8750 -	1.2050	passed	96.13	82 -	122	passed
14	1234678-HpCDD	46.04	1.0384	0.8750 -	1.2050	passed	92.27	70 -	140	passed
15	1234789-HpCDF	46.61	1.0342	0.8750 -	1.2050	passed	95.43	78 -	138	passed
16	OCDD	49.05	0.8928	0.7550 -	1.0250	passed	94.16	78 -	144	passed
17	OCDF	49.25	0.9068	0.7550 -	1.0250	passed	90.68	63 -	170	passed
18	13C12-1278-TCDD (CRS)	32.38	0.8268	0.6450 -	0.8950	passed	37.11	31 -	191	passed
19	13C12-1234-TCDD	31.24	0.8170	0.6450 -	0.8950	passed	100.00	0 -	0	passed
20	13C12-123468-HxCDD	41.23	1.3144	1.0450 -	1.4350	passed	100.00	0 -	0	passed
21	13C12-2378-TCDF	30.94	0.7904	0.6450 -	0.8950	passed	62.16	40 -	135	passed
22	13C12-2378-TCDD	31.99	0.7879	0.6450 -	0.8950	passed	64.20	40 -	135	passed
23	13C12-12378-PeCDF	36.52	1.5982	1.3150 -	1.7850	passed	83.51	40 -	135	passed
24	13C12-23478-PeCDF	37.74	1.6077	1.3150 -	1.7850	passed	77.71	40 -	135	passed
25	13C12-12378-PeCDD	38.13	1.6184	1.3150 -	1.7850	passed	83.64	40 -	135	passed
26	13C12-123478-HxCDF	41.32	0.5321	0.4250 -	0.5950	passed	73.91	40 -	135	passed
27	13C12-123678-HxCDF	41.47	0.5310	0.4250 -	0.5950	passed	64.34	40 -	135	passed
28	13C12-234678-HxCDF	42.16	0.5222	0.4250 -	0.5950	passed	76.41	40 -	135	passed
29	13C12-123478-HxCDD	42.33	1.2642	1.0450 -	1.4350	passed	85.02	40 -	135	passed
30	13C12-123678-HxCDD	42.45	1.2705	1.0450 -	1.4350	passed	82.50	40 -	135	passed
31	13C12-123789-HxCDD	42.76	1.2621	1.0450 -	1.4350	passed	64.16	40 -	135	passed
32	13C12-123789-HxCDF	43.15	0.5243	0.4250 -	0.5950	passed	71.79	40 -	135	passed
33	13C12-1234678-HpCDF	44.85	0.4494	0.3650 -	0.5150	passed	98.01	40 -	135	passed
34	13C12-1234678-HpCDD	46.03	1.0720	0.8750 -	1.2050	passed	90.34	40 -	135	passed
35	13C12-1234789-HpCDF	46.59	0.4449	0.3650 -	0.5150	passed	72.51	40 -	135	passed
36	13C12-OCDD	49.03	0.9055	0.7550 -	1.0250	passed	93.04	40 -	135	passed
37	13C12-OCDF	49.23	0.8908	0.7550 -	1.0250	passed	73.13	40 -	135	passed

eurofins | Lancaster Laboratories

Entry Parameters

No.	Compound Name	Status Overview	QM Retention Time	QM Area	QM Mode	RM1 Area	RM1 Mode	Detection Limit (A)	Unqualified Amount (A)	Adjusted Amount (A)	AdjSpecAMT	Signel-to-Noise	Client Flags
1	2378-TCDF	passed	30.98	120999	A	92121	A	0.0187	19.425140	19.4251	20.000000	2627	
2	2378-TCDD	passed	32.02	75184	A	61158	A	0.0170	19.140032	19.1400	20.000000	2850	
3	12378-PeCDF	passed	36.54	487104	A	766542	A	0.0133	98.166210	98.1662	100.000000	18876	
4	23478-PeCDF	passed	37.76	465524	A	731835	A	0.0121	90.708808	90.7088	100.000000	18265	
5	12378-PeCDD	passed	38.14	285664	A	465854	A	0.0298	95.313482	95.3135	100.000000	8202	
6	123478-HxCDF	passed	41.33	535694	A	675179	A	0.0331	91.166926	91.1669	100.000000	6702	
7	123678-HxCDF	passed	41.48	637501	A	782387	A	0.0280	90.941355	90.9414	100.000000	7994	
8	234678-HxCDF	passed	42.17	571029	A	725426	A	0.0312	93.886365	93.8864	100.000000	7645	
9	123478-HxCDD	passed	42.36	418196	A	529889	A	0.0262	96.714784	96.7148	100.000000	9466	
10	123678-HxCDD	passed	42.47	398716	A	496529	A	0.0253	91.487348	91.4873	100.000000	8898	
11	123789-HxCDD	passed	42.78	427286	A	531069	A	0.0244	94.509525	94.5095	100.000000	9445	
12	123789-HxCDF	passed	43.17	473741	A	591696	A	0.0371	91.327557	91.3276	100.000000	6072	
13	123478-HpCDF	passed	44.86	780141	A	808043	A	0.0292	96.125247	96.1252	100.000000	8173	
14	1234678-HpCDD	passed	46.04	445792	A	462909	A	0.0365	92.269425	92.2694	100.000000	6398	
15	1234789-HpCDF	passed	46.61	505422	A	522727	A	0.0465	95.433024	95.4330	100.000000	5181	
16	OCDD	passed	49.05	876924	A	782932	A	0.0375	188.314499	188.3145	200.000000	12843	
17	OCDF	passed	49.25	886777	A	804095	A	0.0253	181.350789	181.3508	200.000000	17731	
18	13C12-1278-TCDD (CRS)	passed	32.38	190527	A	157519	A	0.0194	29.685138	29.6851	80.000000	3668	
19	13C12-1234-TCDD	passed	31.24	1004953	A	821056	A	0.0329	200.000000	200.0000	200.000000	15181	
20	13C12-123468-HxCDD	passed	41.23	1028385	A	1351669	A	0.0389	200.000000	200.0000	200.000000	12855	
21	13C12-2378-TCDD	passed	30.94	1184243	A	935984	A	0.0113	124.313837	124.3138	200.000000	26047	
22	13C12-2378-TCDD	passed	31.99	645832	A	508854	A	0.0334	128.399373	128.3994	200.000000	9806	
23	13C12-12378-PeCDF	passed	36.52	1013595	A	1619945	A	0.0591	167.016738	167.0167	200.000000	9008	
24	13C12-23478-PeCDF	passed	37.74	938626	A	1509051	A	0.0592	155.426213	155.4262	200.000000	8906	
25	13C12-12378-PeCDD	passed	38.13	568619	A	920267	A	0.0347	167.277891	167.2779	200.000000	16257	
26	13C12-123478-HxCDF	passed	41.32	1475681	A	785155	A	0.0420	147.829008	147.8290	200.000000	8648	
27	13C12-123678-HxCDF	passed	41.47	1772615	A	941266	A	0.0399	168.673501	168.6735	200.000000	10463	
28	13C12-234678-HxCDF	passed	42.16	1498636	A	782616	A	0.0430	152.819654	152.8197	200.000000	8904	
29	13C12-123478-HxCDD	passed	42.33	845559	A	1068919	A	0.0411	170.045298	170.0453	200.000000	10163	
30	13C12-123678-HxCDD	passed	42.45	844141	A	1072478	A	0.0398	165.006309	165.0063	200.000000	10551	
31	13C12-123789-HxCDD	passed	42.76	827193	A	1044035	A	0.0416	168.328525	168.3285	200.000000	10306	
32	13C12-123789-HxCDF	passed	43.15	1327281	A	695834	A	0.0456	143.581559	143.5816	200.000000	7872	
33	13C12-1234678-HpCDF	passed	44.85	1778248	A	799205	A	0.0511	196.012115	196.0121	200.000000	10181	
34	13C12-1234678-HpCDD	passed	46.03	897683	A	962331	A	0.0509	180.674580	180.6746	200.000000	9027	
35	13C12-1234789-HpCDF	passed	46.59	1127078	A	501396	A	0.0599	145.015592	145.0156	200.000000	6192	
36	13C12-OCDD	passed	49.03	1811526	A	1640403	A	0.0276	372.165778	372.1658	400.000000	36053	
37	13C12-OCDF	passed	49.23	2114334	A	1883376	A	0.0252	292.509401	292.5094	400.000000	31104	

TargetQuan3

APPROVED By uma9 at 12:02 pm, 2/9/17

REVIEWED By UMJS at 12:42 pm, 2/9/17

ThermoFisher Scientific

1071 of 1081

File Name: Y:\17FEB07\17FEB07-15
Sample ID: OPR031003

Acq. Data: 2/7/2017 10:30:26 PM
Sample Name: 17031003
PFK Reference Lock Mass Traces

Instrument ID: DF18471-17FEB07

RT: 22.50 - 51.00

```
*** file opened Tue Feb 07 22:35:54 2017 ***

Started by              - Xcalibur
Instrument Internet name  - DFS MS
Instrument model          - DFS MS
Instrument service number - SN0000XXXX
Workstation internet name - LX18470

   Analysis started at: 07-Feb-17 22:35:53


   Analysis will stop at user request


   Firmware Version: 2.02


   MCAL file name:


   Sequence : ef723472-e848-43e5-a9f2-e1bcce0ed473


   MID procedure: PFK16MAR24+MDT



   Mid Time Windows:
          Start         Measure      End        Cycletime

   # 1  11:30 min    9:30 min  21:00 min   1.00 sec
   # 2  21:00 min   13:36 min  34:36 min   1.00 sec
   # 3  34:36 min    4:53 min  39:30 min   0.90 sec
   # 4  39:30 min    4:45 min  44:15 min   0.80 sec
   # 5  44:15 min    3:45 min  48:00 min   0.80 sec
   # 6  48:00 min    3:00 min  51:00 min   0.80 sec

   Mid Masses:
    Window # 1
        mass F   int  gr   time (ms)
      218.0129    1   1        95
      218.9851 l  20  1         4
      220.0100    1   1        95
      230.0532    2   1        47
      232.0502    2   1        47
      251.9739    1   1        95
      253.9710    1   1        95
      264.0142    2   1        47
      266.0112    2   1        47
      285.9350    1   1        95
      287.9320    1   1        95
      292.9819 c  20  1         4
      297.9752    2   1        47
      299.9723    2   1        47
    Window # 2
        mass F   int  gr   time (ms)
      292.9819 l  20  1         5
      303.9011    1   1       118
      305.8981    1   1       118
      315.9413    5   1        23
      317.9384    5   1        23
      319.8960    1   1       118
      321.8930    1   1       118
```

Page 1

```
331.9363      5  1       23
333.9333      5  1       23
339.8592      1  1      118
341.8562      1  1      118
354.9787 c   20  1        5
375.8364      2  1       59
Window # 3
    mass F  int  gr  time (ms)
330.9787 ]   20  1        6
339.8592      1  1      133
341.8562      1  1      133
351.8994      3  1       44
353.8965      3  1       44
355.8541      1  1      133
357.8511      1  1      133
367.8943      3  1       44
369.8914      3  1       44
380.9755 c   20  1        6
409.7969      2  1       66
Window # 4
    mass F  int  gr  time (ms)
373.8201      1  1      117
375.8172      1  1      117
380.9755 ]   20  1        5
383.8634      3  1       39
385.8604      3  1       39
389.8151      1  1      117
391.8121      1  1      117
401.8554      3  1       39
403.8524      3  1       39
430.9723 c   20  1        5
445.7550      2  1       58
Window # 5
    mass F  int  gr  time (ms)
404.9755 ]   20  1        5
407.7812      1  1      117
409.7783      1  1      117
417.8244      3  1       39
419.8215      3  1       39
423.7761      1  1      117
425.7732      1  1      117
435.8164      3  1       39
437.8134      3  1       39
479.7160      2  1       58
480.9691 c   20  1        5
Window # 6
    mass F  int  gr  time (ms)
441.7422      1  1       95
442.9723 ]   20  1        4
443.7393      1  1       95
453.7825      1  1       95
455.7795      1  1       95
457.7372      1  1       95
459.7342      1  1       95
469.7774      3  1       31
471.7745      3  1       31
492.9691 c   20  1        4
513.6770      2  1       47

MID Window terminated after 21.000000 minutes
MID Window end time was 21.000000 minutes
MID Window terminated after 34.600000 minutes
MID Window end time was 34.600000 minutes
                              Page 2
```

```
MID Window terminated after 39.500000 minutes
MID Window end time was 39.500000 minutes
MID Window terminated after 44.250000 minutes
MID Window end time was 44.250000 minutes
MID Window terminated after 48.000000 minutes
MID Window end time was 48.000000 minutes
MID Window terminated after 51.000000 minutes
MID Window end time was 51.000000 minutes
```

Tune file name: C:\Xcalibur\System\DFS\MSI\17JAN26.DFSTune

DFS - Parameter

ACCU	1000.0000	BCORRS	0.0170	BMASS	98.0000
BQUAD	0.0500	CAPIL	0.0000	CAPTSET	0.0000
CCURR	0.0000	COUNTING	0.0000	DELAY	0.0000
DRAW	-25.0000	DRAWC	0.0000	DRAWS	0.0000
DYNVOLTAGE	20.0000	ECORR	0.9995	ECURR	1.0000
EDAC	7969177.0000	EDACG	1.0000	EDACZ	61.3333
ELEN	-45.0000	EMULT	1300.0000	ENS	173.0000
ENSBR	0.0500	ERATIO	1.0000	ESA	679.0600
ESIPAR	0.0000	EXS	172.0000	EXSBR	-0.4700
FDMA	18000000.0000	FILTER	100.0000	FLENS	1.0000
FM	10.0000	FMII	50.0000	FQUAD	12.3500
FQUADGAIN	1.0000	FREQ	400.0000	FSLOPE	36000000.0000
FVANAL	0.0171	FVINLET	0.0297	FVSRC	0.0286
FWIN	0.7000	HCURR	0.0000	HVANAL	0.0000
HVSRC	0.0000	ICAL0	0.0011	ICAL1	0.4030
ICAL2	0.5865	IONEN	0.0000	IST	0.0000
ISTC	260.0000	ISTS	260.0000	LENS_POT	714.0000
LENS_SYM	14.3000	LM	1050.0000	LMII	500.0000
LMASS	98.0000	LKM	442.9723	MASS	98.0000
MDAC	1460524.2399	MRANGE	1304.6486	NSAM	200.0000
NSCAN	2524.0000	NSMAX	8.0000	NSMIN	66.0000
NPEAK	11.0000	MULT	0.0000	PSAM	10.0000
PUSHER	-9.0000	RECURR	0.8952	RELEN	0.0000
RES	12191.3823	RPUSHER	-8.6960	RDRAW	0.0000
RDRAWC	0.0000	RWIN	2.0000	SCIDLE	0.0000
SHIELD_POT	638.0000	SHIELD_SYM	0.0000	SHIGH	1050.0000
SKIM	0.0000	SLOW	10.0000	SS	2.0000
SW	0.0206	TANAL	0.0000	TCURR	0.0000
TD	30.0000	TS	60.6748	THRESH	2.0000
TIS	0.2000	TREF	100.0000	TSAM	200.0000
TSET	0.0000	TUBEL	0.0000	UROT	0.0000
USERVAR	0.0000	UTQ1	150.0000	UTQ2	190.0000
UTQ3	80.0000	VMASS	98.0000	XLENS_POT	896.0000
XLENS_SYM	-8.5000	YLENS_POT	568.0000	YLENS_SYM	0.0000

```
Source Gauge:        1.9e-005 mbar
Analyzer Penning:    5.1e-008 mbar
Pirani Analyse:      1.7e-002 mbar
Pirani Source:       2.8e-002 mbar
Pirani Inlet System: 3.0e-002 mbar
```

Scantype is magnetic

Sourcemode is EI POS

```
MID Time Window 1: Resolution is 11751.
MID Time Window 2: Resolution is 11911.
MID Time Window 3: Resolution is 12493.
MID Time Window 4: Resolution is 12138.
```

Page 3

MID Time Window 5: Resolution is 12874.
MID Time Window 6: Resolution is 12191.

Amplifier Offset: 88.

*** File closed Tue Feb 07 23:26:55 2017
    ***

Extraction Logs

Dioxins/Furans by HRMS

Organic Extraction Batchlog

Assigned to: 0 **Reviewed by:** _(signature)_ **Start Date:** 1/31/17 **Start time:** 10:45

17031003 **Tech 1:** DM2 308 **Tech 2:** ___ **Sox Start:** 11:30 **Sox Stop:** ___

Dry Start: ___ **Dry Stop:** ___

Analyses on Batch: Dioxins/Furans in Solids-8290

Dept. 37 Prep Analysis: 11030 Dioxins/Furans in Solids - Sox

Solvent Used
	Lot No.
Quartz Sand	MKBW7349V
glass fiber thimble	9769 35101
hexane	
methylene chloride	
toluene	

Micro Temp 100? ☐ ✓

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	Filter (Y/N)	IS amt (uL)	BC	Comments
BLANKA	BLK031003	10.00	LCSDFX1737A	0.1			22	N	10		
LCSA	OPR031003	10.00	LCSDFX1737A	0.1	PARDFX1737A	0.1	22	✓	10		

Spike Solutions: **Witness:** ___

PARDFX1737A — DF Perform and Rec Spike **Instrument:** DF10471

LCSDFX1737A — DF Labeled Comp Spike **Sequence:** Y.117FEB07

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	Filter Y/N	IS amt (uL)	FV (uL)	BC	Filter (Y/N)	IS amt (uL)	BC	Comments @DM2 acs	Analyses	Due Date	Prio
8807304	-007-	10.30	LCSDFX1737A	0.1	22	N	10	22	34A	N	10		★ brown soil	12937	02/08/2017	Q
8807305	-004-	10.16	LCSDFX1737A	0.1	22		10	22	34A				dark gray sandy soil, wet	12937	02/08/2017	Q
8807306	-002-	10.05	LCSDFX1737A	0.1	22		10	22	34A				dark brown/tan soil, stones	12937	02/08/2017	Q
8810426	STARB	10.06	LCSDFX1737A	0.1	22		10		099a				★	12937	02/09/2017	Q
8810427	STARA	10.03	LCSDFX1737A	0.1	22		10		099a				★	12937	02/09/2017	Q
8810428	STARM	10.01	LCSDFX1737A	0.1	22		10		099a				★	12937	02/09/2017	Q
8810429	STARJ	10.03	LCSDFX1737A	0.1	22		10		099a				★	12937	02/09/2017	Q
8810430	JMESU	10.33	LCSDFX1737A	0.1	22	✓	10		099a				★	12937	02/09/2017	Q

All Page 1 of 1

★ bleaching earth : tan fine powder.

IS Added by: _(signature)_ **Date:** 2/2/17

Internal Standard	Balance #	S-bath ID		C|Micro Unit	M-vap	C
25Jan17 31A	1777A		+	C|Micro Unit	15a15	50

NA ese
7a2 0210117

Page 1 of 1   Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

17031003

CDD/CDF column cleanup

Prep: 11030 Dioxins/Furans in Solids - Sox

Batch: 17031003

	Sample #	Aliquot (mL) E=entire extract	Cleanup std CSTDxY6 3186	amt (mL)	Comments	Analyses
1	8807304	E	/	O.1		12937
2	8807305		/			12937
3	8807306		/			12937
4	8810426		/			12937
5	8810427		/			12937
6	8810428		/			12937
7	8810429		/			12937
8	8810430		/			12937
9	BLANKA		/			
10	LCSA	7	/	7		

Additional Comment: ___

Media Used	Lot No.	Solvent Used	Lot No.
sodium sulfate	3058025TD	hexane	167342
silica gel	887601301RE	5% methylene chloride:	308013117D
acid silica gel	2452011917D	hexane	
basic silica gel	2452011917A	methylene chloride	168104
AgNO3 silica gel	2452301091	2:1 Toluene:Hexane	—
alumina	06602173		

M-Evap 16615 | 40 C

DF = Dilution Factor   FV = Final Volume

Miscellaneous	Lot No.
13mm filter paper	T60524
Nonane	—

The documented temperatures are NIST corrected.

Page 1 of 1

Moisture Data

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8807304	-007-
8807305	-004-
8807306	-002-

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name		LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number:	17033820006A	Sample number(s):	8807304-8807306			
Moisture		100		99-101		

Sample Matrix Quality Control

Analysis Name		BKG Conc	DUP Conc	RPD	RPD Max
Batch number:	17033820006A	Sample number(s):	8807304-8807306		
Moisture		11.0	11.1	0	5

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 17033820006

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8807304	A	00111	1.1117	6.8375	7.1478	11.72	2/ 2/17 (1201/SWF)	2/ 3/17 (236/CW)
8807305	A	00111	1.1029	7.4271	5.4341	41.68	2/ 2/17 (1201/SWF)	2/ 3/17 (236/CW)
8807306	A	00111	1.1461	7.3436	7.6701	11.16	2/ 2/17 (1201/SWF)	2/ 3/17 (236/CW)
P807415BKG	A	00111	1.1268	8.5154	8.7034	11.02	2/ 2/17 (1201/SWF)	2/ 3/17 (236/CW)
P807415DUP	A	00111	1.1210	8.5683	8.7404	11.07	2/ 2/17 (1201/SWF)	2/ 3/17 (236/CW)
LCS 89.5% Std.		00111	1.1167	5.0223	1.6453	89.47	2/ 2/17 (1201/SWF)	2/ 3/17 (236/CW)

⚘ARS
INTERNATIONAL

ARS International, LLC

Laboratory Analysis Report

ARS1-17-00215

Prepared for:

Applied Sciences Company

Joel I. Cehn
4714 Windsor Blvd
Cambria, CA 93428

cehn@aol.com

Phone: (510) 863-1570

_____   _____
Project Manager Review   **Management Review**

LELAP Cert# 01949

INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277   FAX (225) 381-2996

Case Narrative

SDG# ARS1-17-00215

COC AQUEOUS SAMPLES

CASE NARRATIVE

Client:	Applied Sciences Company
Project:	BBI
SDG Number:	ARS1-17-00215
Received Date:	1/24/2017
Report Date:	2/22/2017

SAMPLE RECEIPT

The samples were received in good condition. The samples were screened for radioactive contamination as per procedure **ARS-062 "Sample Receiving"**.

ANALYTICAL DATA

This data package contains sample and QC results for four (4) aqueous samples (3 actual samples and 1 trip blank) requested for the above referenced project on 1/23/2017.

The analytical method utilized for the VOA analysis was **ARS-159/SW846 8260B.**

The analysis for Gross Alpha spectroscopy was performed using **SOP ARS-090/SM 7110C.**

The analysis for Strontium was performed using **SOP ARS-032/Eichrom SRW-01**.

The following analytical batches are associated with these samples: ARS1-B17-00152 for the VOA analysis, ARS1-B17-00214 for Gross Alpha and batch ARS1-B17-00188 for Strontium.

The result data that are flagged with "U" indicate that the activity is below the MDC.

Sample results are being reported on an "as is" basis (aqueous).

Sample OS-10 was collected on 1/16/2017 and received on 1/24/2017 exceeding the holding time for a non-preserved sample. Samples OS-3 and BB-17 expired on the day of receipt but all were analyzed after consulting with the client who authorized analysis. The samples were also above the 6 degree C limit and all were authorized for analysis by the client.

Some of the requested analytical results did not meet the required detection limits due to insufficient sample volume and possible matrix interference.

The Gross Alpha analysis was originally logged for analysis by GPC-A-001 (Gross Alpha/Beta Activity in Water; EPA 900.0) but was re-logged for analysis by GPC-A-028 (Gross Alpha Radioactivity in Water with High Dissolved Solids; Standard Methods 7110 C) to try to meet the requested detection limits.

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2609 North River Road │ Port Allen, Louisiana 70767 │ PH │ 225.381.2991 │ FX │ 225.381.2996
www.amrad.com

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American Radiation Services Project Manager/Laboratory Director's Comments:

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the company specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

Signature	Laboratory Manager, ARS International 2-22-17
Signature	**Title** **Date**

Technical Note Report

SDG **ARS1-17-00215**

#	SDG/ABatch	Date	Dept	Technical Note	User ID
1	ARS1-17-00215	01/24/2017 2:07 PM	MGMT	Samples received not preserved except for Trip Blank and OS-3 for VOA.	RVARNELL
2	ARS1-17-00215	01/31/2017 10:42 AM	SDG	User Deleted Analysis from SDG; Analysis: GPC-A-001 -- Reason: Wrong Method	RVARNELL
3	ARS1-17-00215	01/31/2017 11:31 AM	SDG	User Deleted Analysis from Sample; Fraction: 001; Analysis: GPC-A-028 -- Reason: Not Needed	RVARNELL
4	ARS1-17-00215	01/31/2017 11:32 AM	SDG	User Deleted Analysis from Sample; Fraction: 003; Analysis: GPC-A-028 -- Reason: Not Needed	RVARNELL
5	ARS1-17-00215	02/01/2017 10:46 AM	SDG	After obtaining client's approval, sample ARS1-17-00215 was filtered prior to analysis.	SLEESE
6	ARS1-17-00215	02/01/2017 10:47 AM	SDG	previous note referred to ARS1-17-00215-004 (BB-17)	SLEESE

Notes (Case Narrative):

Comments:

1.0) All MDA/MDC values are calculated on a sample specific basis.
2.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.
3.0) Data in this report are within the limits of uncertainty specified in the reference method unless otherwise specified.
4.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matrix. Modified analyses are indicated by the subsequent addition of "m" to the procedure number (i.e. 900.0M).
5.0) Total activity is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.
6.0) Ra-228 is determined via secular equilibrium with its daughter, Actinium 228 (Gamma Spectroscopy only).
7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234 (Gamma Spectroscopy only).
8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (**HPGe**).
9.0) ARS makes every attempt to match sample density to calibrated density; however, in some cases, it is not practical or possible to do so and data results may be affected (Gamma Spectroscopy only).
10.0) Gamma spectroscopy results are calculated values based on the **ORTEC**® GammaVision ENV32 Analysis Engine.
11.0) ACLASS DOD and ISO 17025 certification applies only to the following analytes and methods: Gross Alpha and Gross Beta (EPA 900, SM7110B&C, SW846 9310); Radium 226 (EPA 903, EPA 903.1, SM 7500 Ra-B, SW846 9315); Radium 228 (EPA 904, SM 7500 Ra-B SW846 9320); Iodine-131(EPA 901.1); Uranium by ICPMS (EPA 200.8); Strontium 89/90 (EPA 905, Eichrom SRW01, HASL 300 Sr-03-RC); Tritium (EPA 906, EPA 906M); Gamma Emitters (EPA 901.1, SM7120B, HASL 300 Ga-01-R); Americium-241, Curium 242/244, Plutonium 239/240 and 241, Thorium 228/230/232, Uranium 234/233 and 238 (Eichrom ACW03 VBS); Lead 210 (HASL 300 Pb-01-RC, Eichrom OTW01); Polonium 210 (HASL 300 Po-01-RC, HASL 300 Po-02-RC); Technetium-99 (Eichrom TCW02, Eichrom TCS01M).

Method References:

1.0) **EPA 600/4-80-032**; Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.
2.0) **Standard Methods for the Examination of Water and Wastewater** (On-Line Edition)
3.0) **EPA SW-846**; Test Methods for Evaluating Solid Waste, (On-Line edition)
4.0) **EPA 600/4/79-020**; Methods for Chemical Analysis of Water and Waste, March 1983.
5.0) **HASL 300**; The Procedures Manual of the Environmental Measurements Laboratory, Volume I, 28th Edition February, 1997.

Definitions:

CRDL	Contract Required Detection Limit
CSU	Combined Standard Uncertainty
DLC	Decision Level Concentration (ANSI N42.23) or critical level
DO	Duplicate Original
DUP	Method Duplicate
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MDC	(Minimum Detectable Concentration) minimum concentration of the analyte that ARS can detect utilizing the specific analysis
MBL	Method Blank
MS/MSD	Matrix Spike/Matrix Spike Duplicate
N/A	Not Applicable
NP	Not Provided
NR	Not Referenced

Data Qualifiers:

B	The analyte is found in both the associated method blank and the sample. This flag indicates probable blank contamination.
D	Sample analysis accomplished through dilution.
J	The reported result is an estimated value (e.g., matrix interference was observed or the analyte was detected at a concentration outside the quantitation range).
Q	One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery, or CCV recovery).
S	Spike
*SC	Subcontracted out to another qualified laboratory
U	Activity is below the MDC or MDL

ARS-059-010
Revision: 9
Revision Date: 05-02-16

Sample Identification

Cross Reference

SDG# ARS1-17-00215

COC AQUEOUS SAMPLES

SAMPLE IDENTIFICATION CROSS-REFERENCE

Applied Sciences Company SAMPLE ID(s)	ARS SAMPLE ID NUMBER(s)
OS-3	ARS1-17-00215-001
OS-10	ARS1-17-00215-002
Trip Blank	ARS1-17-00215-003
BB-17	ARS1-17-00215-004

INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

Chain of Custody

and Supporting Documentation

SDG# ARS1-17-00215

COC AQUEOUS SAMPLES

Chain of Custody Record

Page 1 of 2

Quote Number	161115 SL						LAB ADDRESS:

Project Name BBI
Project Manager Joel I. Cehn
Project Phone 510-863-1570

Project Fax
Req'd Report Date ASAP
Lab Contact Virgene Mulligan
Lab Phone 225.381.2991

BILLING ADDRESS:
Joel I. Cehn, CHP
4714 Windsor Blvd.
Cambria, CA 93428

SEND REPORT TO:
Joel I. Cehn, CHP
4714 Windsor Blvd.
Cambria, CA 93428
cehn@aol.com

LAB ADDRESS:
ARS International
2609 North River Rd.
Port Allen, LA 70767-3469

#	Sample ID# and Description	AQUEOUS	SOIL	CONTAINER TYPE (G, P)	VOLUME	NO. OF CONTAINERS	PRESERV-ATIVE	PCBs 8082	Dioxins 8290	Sr-90	Gamma 901.1	Gross alpha	TCE 8260B	PAH 8270	DATE & TIME COLLECTED	SPECIAL INSTRUCTIONS / NOTES
1	OS-3	x		VOA	40 ml	1	none						X		1/17/2017	
2	OS-10	x		VOA +	40ml + 1L	2	none			x		x	x		1/16/2017	
3	Trip blank	x		VOA	40ml	1	none						x		1/18/2017	
4	BB-16L		x	Poly bag+jar	1 gal + 4oz	2	none			x	x			x	1/18/2017	
5	BB-18		x	Poly bag + 3 jars	1 gal + 3x4oz	4	none	X	x	x	x			x	1/17/2017	
6	OS-2		x	2 jars	2x4oz	2	none	x	x					x	1/17/2017	
7	BB-19M		x	Poly bag + 3 jars	1 gal + 3x4oz	4	none		x	x	x			x	1/18/2017	
8	BB-16B		x	Jar	4oz	1	none							x	1/17/2017	

Sample TAT Req'd: 21d

Notes/Comments:

Sample Disposal: ☐ Archive for _____ Months. ☒ Disposal by Lab ☐ Return to origin   QC Requirements:

CUSTODY TRACKING

1) Relinquished By: [signature]   Date: 1/23/17   Time: 14:00   Received By: [signature]   Date: 1-24-17   Time: 1142
2) Relinquished By: _____   Date: _____   Time: _____   Received By: _____   Date: _____   Time: _____
3) Relinquished By: _____   Date: _____   Time: _____   Received By: _____   Date: _____   Time: _____

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Chain of Custody Record

Quote Number	161115 SL		Project Fax		BILLING ADDRESS:	SEND REPORT TO:	LAB ADDRESS:
Project Name	BBI		Req'd Report Date	ASAP	Joel I. Cehn, CHP	Joel I. Cehn, CHP	ARS International
Project Manager	Joel I. Cehn		Lab Contact	Virgene Mulligan	4714 Windsor Blvd.	4714 Windsor Blvd.	2609 North River Rd.
Project Phone	510-863-1570		Lab Phone	225.381.2991	Cambria, CA 93428	Cambria, CA 93428 cehn@aol.com	Port Allen, LA 70767-3469

#	Sample ID# and Description	MATRIX AQUEOUS	MATRIX SOIL	CONTAINER TYPE (G, P)	VOLUME	NO. OF CONTAINERS	PRESERVATIVE	PCBs 8082	Dioxins 8290	Sr-90	Gamma 901.1	Gross alpha	TCE 8260B	PAH 8270	DATE & TIME COLLECTED	SPECIAL INSTRUCTIONS / NOTES
9	BB-16A		x	Jar	4 oz	1	none							x	1/17/2017	
10	BB-17	X		Bottle	0.5L	1	none			x		x			1/17/2017	Limited to 0.5L
11	BB-17		x	Jars	4oz	2	none	x	x						1/17/2017	
12	BB-17		x	Bottle	~.25L	1	none			x					1/17/2017	Mud—do what you can with this
13							none									
14							none									
							none									
							none									

Sample TAT Req'd: 21d

Notes/Comments:

Sample Disposal: ☐ Archive for _____ Months. ☒ Disposal by Lab ☐ Return to origin   QC Requirements:

CUSTODY TRACKING

1)	Relinquished By: [signature]	Date: 1/23/17	Time: 16:00	Received By:	Date:	Time:
2)	Relinquished By:	Date:	Time:	Received By: [signature]	Date: 1-24-17	Time: 1142
3)	Relinquished By:	Date:	Time:	Received By:	Date:	Time:

COMPANY NAME: *Applied Science Co.*   **SDG:** *ARSI-17-00215*

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☐ Yes	☑ No
Seals Intact	☐ Yes ☐ No	☑ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☐ Yes	☑ No
Seal Intact	☐ Yes ☐ No	☑ N/A
Marked Radioactive	☐ Yes	☑ No
# Samples Rcv	5	

Matrix   [AF , (AQ) , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter:	M3 250816	Serial No.: RN 20034	Calibration Due Date: 5/23/17
Count Rate Meter:	M3 237983	Serial No.: PR165363	Calibration Due Date: 2/3/17

Background Exposure Rate (µR/hr)	20	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	20 µR/hr
Background Count Rate (cpm)	100	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	100 cpm
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	100 cpm

Acceptance Limits <500 µR/hr   <100 cpm/cm²

pH ≤ 2 is Acceptable

Sample Label/Comments/Notes	pH Orig	pH Final	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr	cpm
OS-3 (18.5°C)			☐		67	14	70
OS-10 (9.1°C)		MC	☐		77	15	80
↓ (15°C)	7	1	☐ 1-24-17	R6-00793	1000	16	100
Trip blank (15.7°C)			☐		67	15	80
BS-17 (9.8°C)	7	1	☐	R6-00793	550	15	80
			☐				
* OS-10 received in	HC 1-24-17		☐				
unpreserved 40ml vial			☐				
			☐				
			☐				
			☐				
			☐				
			☐				
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			☐				
			☐				

Surveyors' Name: _____   Date/Time Surveyed: 1-24-17 1742

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Baton Rouge Laboratory

DQO Report for SDG
ARS1-17-00215

Printed: 1/31/2017 11:18 AM
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Analysis Code	Prep Type	Units	Aliquot	Prep Code	Procedure	Count Time	MS LL/UL	RadY LL/UL	GravY LL/UL	RER	GravY LL/UL	RPD	Surr LL/UL
GCMS-8260B-AQ	WVOA	ug	L	5030B	ARS-159								
		Analyte		**RDL**	**LCS LL/UL**		**MS LL/UL**	**RadY LL/UL**	**GravY LL/UL**	**RER**		**RPD**	**Surr LL/UL**
Trichloroethene (79-01-6)				0.5 ug/L	79/123		60/140	30/110	40/110	1		25	N/A
1,2-Dichloroethane-d4 (Surr)					N/A		N/A	N/A	N/A	N/A		N/A	80/120
Bromofluorobenzene (Surr)					N/A		N/A	N/A	N/A	N/A		N/A	80/120
Dibromofluoromethane (Surr)					N/A		N/A	N/A	N/A	N/A		N/A	80/120
Toluene-d8 (Surr)					N/A		N/A	N/A	N/A	N/A		N/A	80/120
GPC-A-009	WRAD	pCi	L	N/A	ARS-032								
		Analyte		**RDL**	**LCS LL/UL**		**MS LL/UL**	**RadY LL/UL**	**GravY LL/UL**	**RER**		**RPD**	**Surr LL/UL**
Sr-90				1 pCi/L	75/125		60/140	30/110	40/110	1		25	N/A
GPC-A-028	WRAD	pCi	L	N/A	ARS-090								
		Analyte		**RDL**	**LCS LL/UL**		**MS LL/UL**	**RadY LL/UL**	**GravY LL/UL**	**RER**		**RPD**	**Surr LL/UL**
GROSS ALPHA				1 pCi/L	75/125		60/140	30/110	40/110	1		25	N/A

Legend: Blue - RDL source was client profile. Green - RDL source was analyte library.

ARS International
Baton Rouge Laboratory

DQO Report for SDG

ARS1-17-00215

Analysis Code	Fraction	Units		Aliquot		Conductivity		Analyte Count
GCMS-8260B-AQ	001	ug	Group	L		N/A	Analyte	1
		VOA (8260B) in Aqueous Waste and Wastewater			Trichloroethene			
GCMS-8260B-AQ	002	ug	Group	L		N/A	Analyte	1
		VOA (8260B) in Aqueous Waste and Wastewater			Trichloroethene			
GCMS-8260B-AQ	003	ug	Group	L		N/A	Analyte	1
		VOA (8260B) in Aqueous Waste and Wastewater			Trichloroethene			
GPC-A-009	002	pCi	Group	L		N/A	Analyte	1
		STD			Sr-90			
GPC-A-009	004	pCi	Group	L		N/A	Analyte	1
		STD			Sr-90			
GPC-A-028	002	pCi	Group	L		N/A	Analyte	1
		STD			GROSS ALPHA			
GPC-A-028	004	pCi	Group	L		N/A	Analyte	1
		STD			GROSS ALPHA			

Management Technical Notes

Date	User	Note
01/24/2017 2:07 PM	RVARNELL	Samples received not preserved except for Trip Blank and OS-3 for VOA.

SDG Report - Samples and Containers

SDG Specific Data

SDG	ARS1-17-00215	Project Type	Environmental
Sample Count	4	Rpt Level	4	COC Number	
Client	Applied Sciences Company	PO Number	Quote# 161115 SL - Will issue PO

		TAT Days	21
		Date Received	1/24/2017
		Client Deadline	2/23/2017

Client Code	971	Internal Deadline	2/21/2017	Job Number	
Profile Number	PN-00975	Lab Deadline	2/17/2017	Job Location	
Temperature (C)		Comments	

Samples and Containers Checked In Thus Far

FR	Name	Matrix	Start Date	End Date	Disp	pH Orig	pH Final	Hold	Arch	Storage	Conductivity	Comments
001	OS-3	AQ	1/17/2017 12:00 PM	1/17/2017 12:00 PM	H			30	5	AI-1	15.5*C	
002	OS-10	AQ	1/16/2017 12:00 PM	1/16/2017 12:00 PM	H			30	5	O5	9.1*C	
003	TRIP BLANK	AQ	1/18/2017 12:00 PM	1/18/2017 12:00 PM	H			30	5	AI-1	15.7*C	
004	BB-17	AQ	1/17/2017 12:00 PM	1/17/2017 12:00 PM	H			30	5	O5		

IC_ID	Cnt	Volume (mL)	Container Type	uR Hr	CPM	Stor	VOA	Head	AF Units	AF Rate	AF Mins	AF Vol
255878	1	40.00	VOA Vial	12	14		Y	N				
255879	1	40.00	VOA Vial	15	80		Y	N				
255882	2	1000.00	HDP Bottle	16	100		N	N/A				
255880	1	40.00	VOA Vial	15	80		Y	N				
255881	1	550.00	HDP Bottle	15	80		N	N/A				

SDG Report - Analysis Assignments

SDG	ARS1-17-00215	Sample Count	4
Client	Applied Sciences Company	Analysis Count	3-9

Sample Count Totals Per Analysis

Analysis Code	Analysis Description	Samples Count
GCMS-8260B-AQ	VOCs in Aqueous Waste	3
GPC-A-009	Strontium-90 in (Water [Aqueous, AQ])	2
GPC-A-028	Gross Alpha in (Aqueous [AQ])	4

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	GCMS-8260B-AQ	X
001	GPC-A-028	X
002	GCMS-8260B-AQ	X
002	GPC-A-009	X
002	GPC-A-028	X
003	GCMS-8260B-AQ	X
003	GPC-A-028	X
004	GPC-A-009	X
004	GPC-A-028	X

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Analytical Results

Sample Data Summary

SDG# ARS1-17-00215

COC AQUEOUS SAMPLES

ARS Sample Delivery Group: ARS1-17-00215	**Request or PO Number:** Quote# 161115 SL
Client Sample ID: OS-3	**ARS Sample ID:** ARS1-17-00215-001
Sample Collection Date: 01/17/17	**Date Received:** 01/24/17
Sample Matrix: Aqueous	**Report Date:** 02/16/17
Percent Solids: N/A	

Sample Volume (mL):	1	**GC Column:**	Elite-VMS
Purge Volume (mL):	5	**Level:**	
Soil Extract Volume (uL):		**Preparation Method:**	ARS-159/5030B
Soil Aliquot Volume (uL):		**Analysis Method:**	ARS-159/SW846 8260B

Volatile Organics

CAS#	Analyte	Analysis Result	MDL	PQL	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
79-01-6	Trichloroethene	<0.300	0.300	1.00	0.500	1	U	ug/L	01/26/17 19:14	APOLLARD

CAS#	Surrogate		Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
17060-07-0	1,2-Dichloroethane-d4		50.0	53.6	ug/L	107%	80/120
460-00-4	Bromofluorobenzene		50.0	53.1	ug/L	106%	80/120
1868-53-7	Dibromofluoromethane		50.0	41.3	ug/L	82.6%	80/120
2037-26-5	Toluene-d8		50.0	54.7	ug/L	109%	80/120

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 01949

eARS
INTERNATIONAL

ARS Sample Delivery Group:	ARS1-17-00215	Request or PO Number:	Quote# 161115 SL
Client Sample ID:	OS-10	ARS Sample ID:	ARS1-17-00215-002
Sample Collection Date:	01/16/17	Date Received:	01/24/17
Sample Matrix:	Aqueous	Report Date:	02/16/17
Percent Solids:	N/A		

Radiochemistry

Analysis Description	Analysis Results	CSU +/- 2 s	MDC	DLC	CRDL	Qual	Analysis Units	Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Sr-90	0.087	0.543	0.934	0.442	1	U	pCi/L	ARS-032/Eichrom SRW-01	02/03/17 13:40	CT	56%
GROSS ALPHA	0.679	0.736	1,074	0.374	1	U	pCi/L	ARS-090/SM 7110C	02/07/17 9:34	BSCHREITER	N/A

Sample Volume (mL):	1	GC Column:	Elite-VMS
Purge Volume (mL):	5	Level:	
Soil Extract Volume (uL):		Preparation Method:	ARS-159/5030B
Soil Aliquot Volume (uL):		Analysis Method:	ARS-159/SW846 8260B

Volatile Organics

CAS#	Analyte	Analysis Result	MDL	PQL	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
79-01-6	Trichloroethene	<0.300	0.300	1.00	0.500	1	U	ug/L	01/26/17 19:39	APOLLARD

CAS#	Surrogate		Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
17060-07-0	1,2-Dichloroethane-d4		50.0	53.3	ug/L	107%	80/120
460-00-4	Bromofluorobenzene		50.0	52.6	ug/L	105%	80/120
1868-53-7	Dibromofluoromethane		50.0	40.7	ug/L	81.3%	80/120
2037-26-5	Toluene-d8		50.0	54.6	ug/L	109%	80/120

Project Manager Review

LELAP Certificate# 01949

ARS Sample Delivery Group: ARS1-17-00215	**Request or PO Number:** Quote# 161115 SL
Client Sample ID: TRIP BLANK	**ARS Sample ID:** ARS1-17-00215-003
Sample Collection Date: 01/18/17	**Date Received:** 01/24/17
Sample Matrix: Aqueous	**Report Date:** 02/16/17
Percent Solids: N/A	

Sample Volume (mL):	1	**GC Column:** Elite-VMS
Purge Volume (mL):	5	**Level:**
Soil Extract Volume (uL):		**Preparation Method:** ARS-159/5030B
Soil Aliquot Volume (uL):		**Analysis Method:** ARS-159/SW846 8260B

Volatile Organics

CAS#	Analyte	Analysis Result	MDL	PQL	CRDL	Dilution Factor	Qual	Analysis Units	Analysis Date/Time	Analysis Technician
79-01-6	Trichloroethene	<0.300	0.300	1.00	0.500	1	U	ug/L	01/26/17 20:03	APOLLARD

CAS#	Surrogate			Spiked Amount	Analysis Result	Analysis Units	% Recovery	Recovery Limits
17060-07-0	1,2-Dichloroethane-d4			50.0	53.8	ug/L	108%	80/120
460-00-4	Bromofluorobenzene			50.0	52.7	ug/L	105%	80/120
1868-53-7	Dibromofluoromethane			50.0	41.8	ug/L	83.6%	80/120
2037-26-5	Toluene-d8			50.0	55.2	ug/L	110%	80/120

Project Manager Review

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LELAP Certificate# 01949

ARS Sample Delivery Group: ARS1-17-00215
Client Sample ID: BB-17
Sample Collection Date: 01/17/17
Sample Matrix: Aqueous
Percent Solids: N/A

Request or PO Number: Quote# 161115 SL
ARS Sample ID: ARS1-17-00215-004
Date Received: 01/24/17
Report Date: 02/16/17

Radiochemistry

Analysis Description	Analysis Results	CSU +/- 2 s	MDC	DLC	CRDL	Qual	Analysis Units	Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Sr-90	0.872	1.171	1.921	0.910	1	U	pCi/L	ARS-032/Eichrom SRW-01	02/03/17 13:40	CT	68%
GROSS ALPHA	16.209	6.856	4.105	1.406	1		pCi/L	ARS-090/SM 7110C	02/07/17 9:34	BSCHREITER	N/A

Project Manager Review

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LELAP Certificate# 01949

INTERNATIONAL

2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277   FAX (225) 381-2996

Radiological Analysis
Quality Control Results

SDG# ARS1-17-00215

COC AQUEOUS SAMPLES

ARS INTERNATIONAL

QC Results per Analytical Batch

Analytical Batch	**ARS1-B17-00188**
SDG	**ARS1-17-00215**
Analysis	**Strontium-90 (Aqueous)**
Analysis Test Method	**ARS-032/Gas Proportional Counter**
Analysis Code	**GPC-A-009**
Report Units	**pCi/L**

Acceptable QC Performance Ranges

QC Sample Type	Performance Items and Ranges		
Laboratory Control Sample	Recovery (%):	> 75	< 125
Matrix Spike	Recovery (%):	> 60	< 140
Duplicate	Replicate Error Ratio (RER):		< 1
	Duplicate Error Ratio (DER):		< 3
	Relative Percent Difference (RPD %):		≤ 25

Laboratory Control Sample

			Analysis Date	02/03/17 13:40	**Analysis Technician**	CT	

Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (2s)	Expected Value	LCS Rec (%)	MDC
ARS1-B17-00188-01	LCS	SR-90	20.615	3.164	19.413	106.2	0.391

Duplicate RER/DER/RPD

			Analysis Date	02/03/17 13:40	**Analysis Technician**	CT	

Analyte	Results LCS	CSU LCS (2s)	Results LCSD	CSU LCSD (2s)	RER	DER	RPD
SR-90	20.615	3.164	20.990	3.223	0.059	0.163	1.8

Method Blank

			Analysis Date	02/03/17 13:40	**Analysis Technician**	CT	

Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (2s)	MDC	Qual
ARS1-B17-00188-03	MBL	SR-90	-0.091	0.231	0.409	U

Project Manager Review

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LELAP Certificate# 01949

ARS INTERNATIONAL

QC Results per Analytical Batch

Analytical Batch	ARS1-B17-00214
SDG	ARS1-17-00215
Analysis	Gross Alpha (Water)
Analysis Test Method	ARS-090/SM 7110C
Analysis Code	GPC-A-028
Report Units	pCi/L

Acceptable QC Performance Ranges

QC Sample Type	Performance Items and Ranges		
Laboratory Control Sample	Recovery (%):	> 75	< 125
Matrix Spike	Recovery (%):	> 60	< 140
Duplicate	Replicate Error Ratio (RER):		< 1
	Duplicate Error Ratio (DER):		< 3
	Relative Percent Difference (RPD %):		≤ 25

Laboratory Control Sample

Analysis Date: 02/07/17 09:34 — Analysis Technician:

Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (2s)	Expected Value	LCS Rec (%)	MDC
ARS1-B17-00214-01	LCS	GROSS ALPHA	6.156	1.788	5.781	106.5	0.480

Duplicate RER/DER/RPD

Analysis Date: 02/07/17 09:34 — Analysis Technician:

Analyte	Results LCS	CSU LCS (2s)	Results LCSD	CSU LCSD (2s)	RER	DER	RPD
GROSS ALPHA	6.156	1.788	5.033	1.524	0.339	0.938	20.1

Duplicate RER/DER/RPD (Dup Sample)

Analysis Date: 02/07/17 09:34 — Analysis Technician:

Analyte	Results DO	CSU DO (2s)	Results DUP	CSU DUP (2s)	RER	DER	RPD
GROSS ALPHA	13.177	7.357	7.683	6.063	0.409	1.130	52.7

Method Blank

Analysis Date: 02/07/17 09:34 — Analysis Technician:

Analysis Batch Sample ID	QC Type	Analyte	Results	CSU (2s)	MDC	Qual
ARS1-B17-00214-03	MBL	GROSS ALPHA	0.252	0.270	0.384	U

Matrix Spike

Analysis Date: 02/07/17 09:34 — Analysis Technician:

Analysis Batch Sample ID	QC Type	Analyte	Results	Expected Value	MS Rec (%)	CSU (2s)	MDC
ARS1-B17-00214-09	MS	GROSS ALPHA	27.999	11.758	126.1	11.627	6.826
ARS1-B17-00214-04	TRG	GROSS ALPHA	13.177	N/A	N/A	7.357	5.904

Project Manager Review

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LELAP Certificate# 01949

INTERNATIONAL

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1 (800) 401-4277   FAX (225) 381-2996

Stable Chemistry Analysis
Quality Control Results

SDG# ARS1-17-00215
COC AQUEOUS SAMPLES

Analytical Batch	ARS1-B17-00152
SDG	ARS1-17-00215
Analysis	GCMS-8260B-AQ
Method	ARS-159/SW846 8260B
Analysis Code	GCMS-8260B-AQ
Report Units	ug/L

QC Results per Analytical Batch

Laboratory Control Sample

	Analysis Date	01/26/17 18:25	Analysis Technician			APOLLARD	

CAS #	Analyte	LCS Results	LCSD Results	Known Value	% Rec	Limits	RPD	Limits
79-01-6	Trichloroethene	51.4	52.9	50.0	103	79 - 123	2.88	25

Method Blank

	Analysis Date	01/26/17 18:01	Analysis Technician	APOLLARD

CAS #	Analyte	Blank Results	Qualifier	MDL	PQL
79-01-6	Trichloroethene	<0.300	U	0.300	1.00

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 01949

INTERNATIONAL

Radiological Analysis

EPA 905.0/SRW-01

SDG# ARS1-17-00215

COC AQUEOUS SAMPLES

Total Strontium (Sr-90) EPA 905.0

Procedures ARS-060 ARS-032

ARS File ID Number ARS1-17-00215

ARS Batch Number ARS1-B17-00188

Carrier ID	R16-00592
Carrier Concentration (mg Sr/mL)	5
Carrier volume (mL)	1
Carrier added (mg)	5
grav. Factor (mg Sr / mg Sr(NO3)2)	0.4141
Carrier expected mass (mg)	12.07

Instrument Used: C

systematic error: 7.43%
CF: 2

ID	Aliquot	Aliquot Units	Desired reporting units	Start of Y-90 ingrowth	Planchet tare (g)	Planchet + ppt (g)	net mass of Sr(NO3)2 (mg)	chemical yield	Chemical Yield for calculations	Beta Gross (counts)	Count duration (min)	Beta Bkg counts	Beta bkg count duration (min)	Count Finish Date and Time	Det. ID	Total Sr (Sr/Y-90) Beta Efficiency	Activity	Counting Uncert. (2s)	CSU (2s)	MDA	Lc	Units
B1700188-01	1	L	pCi	2/2/2017 13:08	7.5442	7.5514	7.2	60%	60%	3156	240	774	900	2/3/2017 13:40	A1	0.3702	20.615	0.792	3.164	0.391	0.186	pCi/L
B1700188-02	1	L	pCi	2/2/2017 13:45	7.5831	7.5907	7.6	63%	63%	3182	240	877	900	2/3/2017 13:40	A2	0.3458	20.990	0.811	3.223	0.422	0.202	pCi/L
B1700188-03	1	L	pCi	2/2/2017 13:45	7.4859	7.4932	7.3	60%	60%	188	240	751	900	2/3/2017 13:40	A4	0.3453	-0.091	0.231	0.231	0.409	0.194	pCi/L
B1700188-04	0.4	L	pCi	2/2/2017 13:08	7.5112	7.5180	6.8	56%	56%	170	240	620	900	2/3/2017 13:40	B1	0.3689	0.087	0.543	0.543	0.934	0.442	pCi/L
B1700188-05	0.18	L	pCi	2/2/2017 13:45	7.4745	7.4827	8.2	68%	68%	195	240	644	900	2/3/2017 13:40	B2	0.3380	0.872	1.164	1.171	1.921	0.910	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120		900	M/DD/YYYY HH:MM		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM		#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM		#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM		#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM		#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM		#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM		#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM		#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/L
B15-#####-##	#	L	pCi	M/DD/YYYY HH:MM			0.0	0%	0%		120			M/DD/YYYY HH:MM		#N/A	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	pCi/L

Calculations + Data Entry
SOM 2-6-17

AMRAD
AMERICAN RADIATION SERVICES, LLC

Recount / Reprep Form

Date Initiated: _1-31-17_

Initiated By: _[signature]_

Management Approval: _[signature]_

ARS Procedure(s): _GPC-A-009_

SDG & Aliquot #(s): _ARS1-17-00215 - 002 + 004_

Analytes: _Sr-90_

Reason for required action: | _Needs 1 pCi/L CRDL,_ |

Action Needed
(Check appropriate box)

Recount ☐

Reprep/Recount ☑

Reprep?   Yes ☑   No ☐

Action Recommended: | Cationic exchange |

Action Taken: | Cationic exchange |

Responsible Party: _Charlton Tramel_

Date Completed: ✗ CT 2-6-17 _2-6-17_   Signature: _CJ_

Recount?   Yes ☑   No ☐

Recount initiated in TRAX ☑

Action Recommended: | recount |

Action Taken: | recount |

Responsible Party: _WM_

Date Completed: _2-6-17_   Signature: _[signature]_

Recount/Reprep Form
Version 2
12-21-11

Analytical Batch Report

Analysis Batch ID ARS1-B17-00188

	Method	ARS-032		**Analysis**	GPC-A-009			**Matrix**	**AQ**		
	Description	Strontium-90 (Aqueous)									

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Prep Code		Client ID	Group Name	Lab Deadline
ARS1-B17-00188-01	LCS	B-23131										
ARS1-B17-00188-02	LCSD	B-23132										
ARS1-B17-00188-03	MBL											
ARS1-B17-00188-04	TRG				ARS1-17-00215	002	2		OS-10		STD	02/17/17
ARS1-B17-00188-05	TRG				ARS1-17-00215	004	2		BB-17		STD	02/17/17

ARS-032

Procedure Data

ABatch Sample ID	Client ID	Parent	ICOC ID	Aliquot Vol/Wt	Aliquot Units	Strontium Carrier (5mg/ml)	Y Ingrowth Date 1	Disk Wt (g)	Disk Wt 2 (g)	Y Ingrowth Date 2	User ID
ARS1-B17-00188-01				1.0000	L	R16-00592	2/2/2017 1:08:00 PM	7.5442	7.5514		CTRAMEL
ARS1-B17-00188-02				1.0000	L	R16-00592	2/2/2017 12:45:00 PM	7.5831	7.5907		CTRAMEL
ARS1-B17-00188-03				1.0000	L	R16-00592	2/2/2017 12:45:00 PM	7.4859	7.4932		CTRAMEL
ARS1-B17-00188-04	OS-10		256332	0.4000	L	R16-00592	2/2/2017 1:08:00 PM	7.5112	7.5180		CTRAMEL
ARS1-B17-00188-05	BB-17		256333	0.1800	L	R16-00592	2/2/2017 12:45:00 PM	7.4745	7.4827		CTRAMEL

Carrier Pipette Verification

Chemist: CT

Date/Time: 2/3/17 / 9:29 AM

Batch: B17-00188

Balance ID	Balance Calibration Date	Pipette ID	Nominal Weight (gm)	Measurement 1 (gm)	Measurement 2 (gm)	Measurement 3 (gm)	MEAN	Acceptance Limits ±2% Mean	STDEV	%CV	Acceptance Limits <2% RSD
12332599	1/6/17	1065305%	1.00	1.009	1.013	1.002	1.01	Pass	0.006	0.631	Pass

Page 1 of 1

Sr Yield Calculation Sheet 00188

CT

	Empty	Filled	Yield(mg)	% Recovery
1	7.5442	7.5514	7.2000	60
2	7.5831	7.5907	7.6000	63
3	7.4859	7.4932	7.3000	60
4	7.5112	7.5180	6.8000	56
5	7.4745	7.4827	8.2000	68

Analytical Batch Report

Analysis Batch ID **ARS1-B17-00188**

Method	ARS-032	**Analysis**	GPC-A-009	**Matrix**	**AQ**
Description	Strontium-90 (Aqueous)		

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Prep Code	Client ID	Group Name	Lab Deadline
ARS1-B17-00188-01	LCS	B-23131		13.08							
ARS1-B17-00188-02	LCSD	B-23132		12:45							
ARS1-B17-00188-03	MBL			12:45							
ARS1-B17-00188-04	TRG			13.09	ARS1-17-00215	002	2		OS-10	STD	02/17/17
ARS1-B17-00188-05	TRG			12.45	ARS1-17-00215	004	2		BB-17	STD	02/17/17

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ARS International
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B17-00188

Blind ID	ABatch Sample ID	Blind Group	Std ID	Isotope	Exp Addition (g)	Expected Value (pCI/g)	Empty Wt (g)	Gross Wt (g)	Net Wt (g)	Expected Value CT (pCI/g)	Mid Point Count Date	Known Value (pCI)	User ID	Mod Date
B-23131	ARS1-B17-00188-01	B-Sr90	S-0313	Sr-90	1	19.41333	17.2285	18.2268	0.9983				JBYRD	01/19/2017
B-23132	ARS1-B17-00188-02	B-Sr90	S-0313	Sr-90	1	19.41333	17.2186	18.2136	0.9950				JBYRD	01/19/2017

LB4100-C

\\Ars-f52mv91\LB4100\LB4100\GRAY\DATA\GENER709.XLD

Batch Sample ID

ARS1-B17-00188

LIMS Batch Sample ID	Detector ID	LB4110 Sample ID	Alpha Counts	Beta Counts	Count Mins	LB4110 Voltage	LB4110 Count Date	Analysis Batch	LIMS SDG	LIMS Run	LIMS Fraction	LIMS Analysis
ARS1-B17-00188-01	A1	17-00188-01	26.00	3156.00	240.00	1410.00	02/03/17 13:40	ARS1-B17-00188				
ARS1-B17-00188-02	A2	17-00188-02	10.00	3182.00	240.00	1410.00	02/03/17 13:40	ARS1-B17-00188				
ARS1-B17-00188-03	A4	17-00188-03	13.00	188.00	240.00	1410.00	02/03/17 13:40	ARS1-B17-00188				
ARS1-B17-00188-04	B1	17-00188-04	5.00	170.00	240.00	1410.00	02/03/17 13:40	ARS1-B17-00188	ARS1-17-00215	2	002	GPC-A-009
ARS1-B17-00188-05	B2	17-00188-05	10.00	195.00	240.00	1410.00	02/03/17 13:40	ARS1-B17-00188	ARS1-17-00215	2	004	GPC-A-009

Samples Transferred

5

Samples Eligible To Save

5

GEN 709
C 11160
Sr
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	17-00188-01	26	3156	240	1410	2/3/17 13:40
A2	17-00188-02	10	3182	240	1410	2/3/17 13:40
A4	17-00188-03	13	188	240	1410	2/3/17 13:40
B1	17-00188-04	5	170	240	1410	2/3/17 13:40
B2	17-00188-05	10	195	240	1410	2/3/17 13:40

Page 1

GEN 693
C 11160
LONG BKG
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	A1-01	58	774	900	1410	1/28/17 5:12
A2	A2-01	48	877	900	1410	1/28/17 5:12
A3	A3-01	50	784	900	1410	1/28/17 5:12
A4	A4-01	37	751	900	1410	1/28/17 5:12
C1	C1-01	56	1060	900	1410	1/28/17 5:12
C2	C2-01	39	749	900	1410	1/28/17 5:12
C3	C3-01	42	703	900	1410	1/28/17 5:12
C4	C4-01	47	771	900	1410	1/28/17 5:12
D1	D1-01	25	714	900	1410	1/28/17 5:12
D2	D2-01	26	678	900	1410	1/28/17 5:12
D3	D3-01	16	672	900	1410	1/28/17 5:12
D4	D4-01	20	707	900	1410	1/28/17 5:12
B1	B1-01	29	620	900	1410	1/28/17 5:13
B2	B2-01	28	644	900	1410	1/28/17 5:13
B3	B3-01	21	3756	900	1410	1/28/17 5:13
B4	B4-01	25	847	900	1410	1/28/17 5:13

Page 1

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/03/17
Average	0.2905	CPM/DPM	0.2874
Standard Deviation	0.0024		
+ 3-sigma value	0.2978	Date	
- 3-sigma value	0.2833	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR A1
Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.29	1
0.29	4
0.29	9
0.29	10
0.29	4
More	2

INTERNATIONAL

Statistical Process Control

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LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/03/17
Average	0.2913	CPM/DPM	0.2892
Standard Deviation	0.0026		
+ 3-sigma value	0.2991	Date	
- 3-sigma value	0.2835	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR A2
Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.29	1
0.29	3
0.29	8
0.29	8
0.29	6
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**	
		Date	02/03/17
		CPM/DPM	0.2871
Average	0.2880	
Standard Deviation	0.0019	
+ 3-sigma value	0.2938	Date
- 3-sigma value	0.2822	CPM
		Count Mins

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR A4
Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.28	1
0.29	0
0.29	8
0.29	8
0.29	10
More	3

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/03/17
Average	0.3250	CPM/DPM	0.3189
Standard Deviation	0.0031	Date	
+ 3-sigma value	0.3341	CPM	
- 3-sigma value	0.3158	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR B1
Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.32	1
0.32	1
0.32	7
0.33	15
0.33	4
More	2

INTERNATIONAL

Statistical Process Control

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LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**
Average	0.3141
Standard Deviation	0.0025
+ 3-sigma value	0.3216
- 3-sigma value	0.3065

	Date	02/03/17
	CPM/DPM	0.3173
	Date	
	CPM	
	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR B2
Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.31	1
0.31	6
0.31	8
0.32	6
0.32	5
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	29
Average	0.0652
Standard Deviation	0.0257
+ 3-sigma value	0.1423
- 3-sigma value	-0.0118

DER Analysis

DER Analysis	OK
DER	1.4060
Long B Date	01/28/17
Long B CPM	0.0644
Count Mins	900.00
Date	02/03/17
CPM	0.1083
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR A1

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.03	2
0.06	11
0.08	10
0.11	4
More	2

Statistical Process Control

INTERNATIONAL

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.0454
Standard Deviation	0.0196
+ 3-sigma value	0.1043
- 3-sigma value	-0.0135

DER Analysis

	OK
DER	1.0894
Long B Date	01/28/17
Long B CPM	0.0533
Count Mins	900.00
Date	02/03/17
CPM	0.0333
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR A2

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.03	6
0.05	10
0.06	7
0.08	5
More	1

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**29**
Average	0.0382
Standard Deviation	0.0157
+ 3-sigma value	0.0852
- 3-sigma value	-0.0088

DER Analysis

		OK
DER	1.0422	
Long B Date	01/28/17	
Long B CPM	0.0411	
Count Mins	900.00	
Date	02/03/17	
CPM	0.0667	
Count Mins	120.00	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR A4

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.00	1
0.01	1
0.03	5
0.04	7
0.05	12
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics		Trending Analysis	
Population Size	29	Most recent point outside of the 3-sigma values.	OK
		8 consecutive most recent points on one side of the mean.	OK
Average	0.0339	2 of 3 most recent points above 2 sigma.	OK
Standard Deviation	0.0146	4 of 5 most recents points beyond the 1-sigma.	OK
+ 3-sigma value	0.0777	7 trending most recent points in a row.	OK
- 3-sigma value	-0.0099	15 most recent points inside 1 sigma.	OK
		8 most recent points outside 1 sigma.	OK

DER Analysis	OK
DER	0.4622
Long B Date	01/28/17
Long B CPM	0.0322
Count Mins	900.00
Date	02/03/17
CPM	0.0250
Count Mins	120.00

LB4100-C - ALPHA BACKGROUND - DETECTOR B1

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	3
0.02	3
0.03	6
0.04	4
0.05	8
More	6

Statistical Process Control

INTERNATIONAL

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	29
Average	0.0328
Standard Deviation	0.0178
+ 3-sigma value	0.0862
- 3-sigma value	-0.0207

DER Analysis

	OK
DER	1.0967
Long B Date	01/28/17
Long B CPM	0.0311
Count Mins	900.00
Date	02/03/17
CPM	0.0167
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR B2

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.00	2
0.01	2
0.03	8
0.04	6
0.05	9
More	3

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.0703
Standard Deviation	0.0099
+ 3-sigma value	0.1000
- 3-sigma value	0.0406
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR A1
Process Date Range: 07/17/16 - 02/04/17

Control chart with lines: UCL (3 S), UWL (2 S), MEAN, LWL (2 S), LCL (3 S). Y-axis from 0.00 to 0.12. X-axis dates: 07/17, 09/05, 10/25, 12/14, 02/02.

Population Frequency Distribution (Histogram)

Bin	Frequency
0.05	1
0.06	2
0.06	3
0.07	12
0.08	7
More	5

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0462
Standard Deviation	0.0079
+ 3-sigma value	0.0699
− 3-sigma value	0.0226
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – ALPHA LONG BACKGROUND – DETECTOR A2

Process Date Range: 07/17/16 – 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.04	1
0.04	13
0.05	11
0.06	3
0.07	1
More	1

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0457
Standard Deviation	0.0089
+ 3-sigma value	0.0724
− 3-sigma value	0.0191
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – ALPHA LONG BACKGROUND – DETECTOR A4
Process Date Range: 07/17/16 – 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.03	1
0.04	6
0.05	12
0.05	6
0.06	3
More	2

INTERNATIONAL

Statistical Process Control

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Instrument Background Analysis

Population Statistics

Population Size	30
Average	0.0353
Standard Deviation	0.0079
+ 3-sigma value	0.0589
- 3-sigma value	0.0117
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR B1

Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.02	0
0.03	5
0.04	11
0.04	8
More	5

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.0337
Standard Deviation	0.0074
+ 3-sigma value	0.0558
− 3-sigma value	0.0116
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – ALPHA LONG BACKGROUND – DETECTOR B2

Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.02	1
0.02	2
0.03	8
0.04	12
0.04	4
More	3

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**
Average	0.4712
Standard Deviation	0.0029
+ 3-sigma value	0.4798
- 3-sigma value	0.4627

	Date	02/03/17
	CPM/DPM	0.4769
	Date	
	CPM	
	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR A1
Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.47	1
0.47	4
0.47	10
0.47	5
0.47	6
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**
Average	0.4610
Standard Deviation	0.0027
+ 3-sigma value	0.4691
− 3-sigma value	0.4528

Trending Analysis

	Date	02/03/17	OK
Most recent point outside of the 3-sigma values.			OK
8 consecutive most recent points on one side of the mean.			OK
2 of 3 most recent points above 2 sigma.	CPM/DPM	0.4622	OK
4 of 5 most recents points beyond the 1-sigma.			OK
7 trending most recent points in a row.	Date		OK
15 most recent points inside 1 sigma.	CPM		OK
8 most recent points outside 1 sigma.	Count Mins		OK

LB4100-C - BETA EFFICIENCY - DETECTOR A2
Process Date Range: 12/22/16 - 02/03/17

UCL (3 S)
UWL (2 S)
MEAN
LWL (2 S)
LCL (3 S)

CPM/DPM

0.47
0.47
0.47
0.46
0.46
0.46
0.46
0.46
0.46
0.45
0.45
0.45

12/21 12/26 12/31 01/05 01/10 01/15 01/20 01/25 01/30 02/04

Population Frequency Distribution (Histogram)

Bin	Frequency
0.45	1
0.45	1
0.46	7
0.46	11
0.46	6
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**
Average	0.4729
Standard Deviation	0.0024
+ 3-sigma value	0.4802
- 3-sigma value	0.4656

Trending Analysis

Most recent point outside of the 3-sigma values.			OK
8 consecutive most recent points on one side of the mean.			OK
2 of 3 most recent points above 2 sigma.			OK
4 of 5 most recents points beyond the 1-sigma.			OK
7 trending most recent points in a row.			OK
15 most recent points inside 1 sigma.			OK
8 most recent points outside 1 sigma.			OK

	Date	02/03/17
	CPM/DPM	0.4741
	Date	
	CPM	
	Count Mins	

LB4100-C - BETA EFFICIENCY - DETECTOR A4

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.47	1
0.47	5
0.47	8
0.47	8
0.48	6
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/03/17
Average	0.4623	CPM/DPM	0.4635
Standard Deviation	0.0021		
+ 3-sigma value	0.4686	Date	
- 3-sigma value	0.4560	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR B1
Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	2
0.46	7
0.46	11
0.46	6
More	3

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/03/17
Average	0.4406	CPM/DPM	0.4419
Standard Deviation	0.0022		
+ 3-sigma value	0.4471	Date	
- 3-sigma value	0.4341	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR B2

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.44	1
0.44	7
0.44	4
0.44	8
0.44	7
More	3

INTERNATIONAL

Statistical Process Control

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LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	29
Average	0.9299
Standard Deviation	0.1083
+ 3-sigma value	1.2546
− 3-sigma value	0.6051

DER Analysis

	OK
DER	0.9555
Long B Date	01/28/17
Long B CPM	0.8600
Count Mins	900.00
Date	02/03/17
CPM	0.9500
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR A1

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.74	1
0.83	4
0.91	9
1.00	9
1.08	3
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	29
Average	0.9210
Standard Deviation	0.0827
+ 3-sigma value	1.1690
- 3-sigma value	0.6730

DER Analysis

DER Analysis	OK
DER	0.6187
Long B Date	01/28/17
Long B CPM	0.9744
Count Mins	900.00
Date	02/03/17
CPM	0.9167
Count Mins	120.00

Trending Analysis

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR A2

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.78	1
0.84	5
0.90	6
0.96	9
1.02	4
More	5

Statistical Process Control

INTERNATIONAL

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.8529
Standard Deviation	0.0756
+ 3-sigma value	1.0796
− 3-sigma value	0.6262

DER Analysis

	OK
DER	1.5260
Long B Date	01/28/17
Long B CPM	0.8344
Count Mins	900.00
Date	02/03/17
CPM	0.7083
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR A4
Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.68	1
0.74	2
0.80	3
0.87	12
0.93	6
More	6

Statistical Process Control

INTERNATIONAL

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Population Statistics	
Population Size	**29**
Average	0.6770
Standard Deviation	0.0543
+ 3-sigma value	0.8398
- 3-sigma value	0.5142

DER Analysis	OK
DER	1.7736
Long B Date	01/28/17
Long B CPM	0.6889
Count Mins	900.00
Date	02/03/17
CPM	0.5583
Count Mins	120.00

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – BETA BACKGROUND – DETECTOR B1

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.56	1
0.60	4
0.65	4
0.69	6
0.73	11
More	4

Statistical Process Control

INTERNATIONAL

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.7546
Standard Deviation	0.0931
+ 3-sigma value	1.0338
- 3-sigma value	0.4754

DER Analysis

DER Analysis	OK
DER	0.6980
Long B Date	01/28/17
Long B CPM	0.7156
Count Mins	900.00
Date	02/03/17
CPM	0.7750
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR B2

Process Date Range: 12/22/16 - 02/03/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.64	2
0.71	8
0.77	9
0.84	4
0.90	5
More	2

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.9270
Standard Deviation	0.0594
+ 3-sigma value	1.1052
- 3-sigma value	0.7488
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR A1

Process Date Range: 07/17/16 - 02/04/17

UCL (3 S)
UWL (2 S)
MEAN
LWL (2 S)
LCL (3 S)

| 07/17 | 09/05 | 10/25 | 12/14 | 02/02 |

Population Frequency Distribution (Histogram)

Bin	Frequency
0.79	1
0.85	1
0.91	6
0.97	18
1.02	2
More	2

INTERNATIONAL

Statistical Process Control

75 of 292

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.9138
Standard Deviation	0.0400
+ 3-sigma value	1.0338
- 3-sigma value	0.7937
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR A2

Process Date Range: 07/17/16 - 02/04/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.84	1
0.87	4
0.90	3
0.92	9
0.95	8
More	5

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.8507
Standard Deviation	0.0366
+ 3-sigma value	0.9605
- 3-sigma value	0.7410
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR A4

Process Date Range: 07/17/16 - 02/04/17

Control chart with x-axis dates: 07/17, 09/05, 10/25, 12/14, 02/02
y-axis CPM: 0.00, 0.20, 0.40, 0.60, 0.80, 1.00, 1.20

UCL (3 S)
UWL (2 S)
MEAN
LWL (2 S)
LCL (3 S)

Population Frequency Distribution (Histogram)

Bin	Frequency
0.75	1
0.78	1
0.81	3
0.85	6
0.88	11
More	8

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.7087
Standard Deviation	0.0236
+ 3-sigma value	0.7794
- 3-sigma value	0.6380
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR B1

Process Date Range: 07/17/16 - 02/04/17

UCL (3 S)
MEAN
LWL (2 S)

0.90
0.80
0.70
0.60
0.50
M
0.40
0.30
0.20
0.10
0.00

07/17   09/05   10/25   12/14   02/02

Population Frequency Distribution (Histogram)

Bin	Frequency
0.66	1
0.68	2
0.70	4
0.71	10
0.73	10
More	3

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.7728
Standard Deviation	0.0272
+ 3-sigma value	0.8544
- 3-sigma value	0.6913
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR B2

Process Date Range: 07/17/16 - 02/04/17

Legend: UCL (3 S), UWL (2 S), MEAN, LWL (2 S), LCL (3 S)

CPM axis: 0.00, 0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90

Dates: 07/17, 09/05, 10/25, 12/14, 02/02

Population Frequency Distribution (Histogram)

Bin	Frequency
0.72	2
0.74	3
0.76	1
0.78	11
0.80	9
More	4

INTERNATIONAL

Statistical Process Control

Sr-90/Y90 Efficiency Calibrations 12/8/14

Tech: B Steffens
Pipet #   FJ40469
Scale ID   H113112173560P
Standard #   S-0121

Sample ID	Std weight g.	Sep. Date: 12/8/14
Sr_Y_Cal_1B	1.0114	12:12
Sr_Y_Cal_2B	1.0121	12:19
Sr_Y_Cal_3B	1.0063	12:17
Sr_Y_Cal_4B	1.0122	12:12
Sr_Y_Cal_5B	1.0127	12:16

Performed By: B Steffens

Sr. Planchett Weigts	Empty	Full
Sr_Cal_1B	7.591	7.603
Sr_Cal_2B	7.592	7.604
Sr_Cal_3B	7.594	7.606
Sr_Cal_4B	7.603	7.615
Sr_Cal_5B	7.599	7.611

Approved
JDT 12-10-14

Calibration

Updated: 12/10/2014

Detector	Sr-90 Eff	Y-90 Eff
A1	0.36363	0.40049
A2	0.34188	0.36412
A3	0.36654	0.3896
A4	0.3397	0.37163
B1	0.36065	0.40727
B2	0.33271	0.36326
B3	0.36741	0.38768
B4	0.33335	0.36834
C1	0.35984	0.39388
C2	0.33342	0.36578
C3	0.36303	0.3746
C4	0.3386	0.36872
D1	0.36109	0.39648
D2	0.34154	0.37102
D3	0.3671	0.381
D4	0.33457	0.37063

pCi	2.22
dpm	1
Bq	60

CM60 Calibrations

Sr-90

ID	Standard ID	Standard Specific Activity (dpm/g)	reference date	Mass added (g)	Total Activity Added (Sr-90 in DPM) on reference date	carrier added (mg as Sr)	g SrNO3/ g Sr	carrier expected (mg SrNO3)	planchet gross (g)	planchet tare (g)	planchet net (mg)	Chemical Yield	separation date/time	count date/time	count midpoint	Sr-90 half-life days
Sr Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 14:02	12/8/14 2:04 PM	10515.51
Sr Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.4153	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 14:02	12/8/14 2:04 PM	10515.51
Sr Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.4153	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 14:02	12/8/14 2:04 PM	10515.51
Sr Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.4153	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 14:02	12/8/14 2:04 PM	10515.51
Sr Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 14:09	12/8/14 2:11 PM	10515.51
Sr Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.4153	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 14:09	12/8/14 2:11 PM	10515.51
Sr Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.4153	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 14:09	12/8/14 2:11 PM	10515.51
Sr Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.4153	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 14:09	12/8/14 2:11 PM	10515.51
Sr Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 14:18	12/8/14 2:20 PM	10515.51
Sr Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.4153	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 14:18	12/8/14 2:20 PM	10515.51
Sr Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.4153	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 14:18	12/8/14 2:20 PM	10515.51
Sr Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.4153	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 14:18	12/8/14 2:20 PM	10515.51
Sr Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 14:25	12/8/14 2:27 PM	10515.51
Sr Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.4153	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 14:25	12/8/14 2:27 PM	10515.51
Sr Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.4153	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 14:25	12/8/14 2:27 PM	10515.51
Sr Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.4153	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 14:25	12/8/14 2:27 PM	10515.51
					11425.18	5.0000	2.4153	0.000			0.0	#DIV/0!			1/0/00 12:00 AM	10515.51
					11425.18	5.0000	2.4153	0.000			0.0	#DIV/0!			1/0/00 12:00 AM	10515.51

ID	Sr-90 decay days to count midpoint	Sr decay correction to count midpoint	Sr-90 activity at count midpoint (DPM)	Y-90 half-life days	Y-90 ingrowth days to count midpoint	Y-90 ingrowth	Y-90 Eff (from below)	sample counts	sample time	bkg counts	bkg time min	net CPM	Detector	Sr-90 Eff
Sr Cal 1B	3174.59	0.81119	9197.4	2.667	0.0781	0.02010	0.40049	17097	5.0	826	900.0	3418.4822	A1	0.36363
Sr Cal 2B	3174.59	0.81119	9203.7	2.667	0.0733	0.01886	0.36412	16054	5.0	889	900.0	3209.8122	A2	0.34188
Sr Cal 4B	3174.59	0.81119	9204.6	2.667	0.0781	0.02010	0.38960	17234	5.0	748	900.0	3445.9689	A3	0.36654
Sr Cal 5B	3174.59	0.81119	9209.2	2.667	0.0753	0.01939	0.37163	15979	5.0	952	900.0	3194.7422	A4	0.33970
Sr Cal 1B	3174.59	0.81119	9197.4	2.667	0.0830	0.02134	0.40727	16989	5.0	664	900.0	3397.0622	B1	0.36065
Sr Cal 2B	3174.59	0.81119	9203.7	2.667	0.0781	0.02010	0.36326	15651	5.0	755	900.0	3129.3611	B2	0.33271
Sr Cal 4B	3174.59	0.81119	9204.6	2.667	0.0830	0.02134	0.38768	17309	5.0	3442	900.0	3457.9756	B3	0.36741
Sr Cal 5B	3174.59	0.81119	9209.2	2.667	0.0802	0.02063	0.36834	15703	5.0	713	900.0	3139.8078	B4	0.33335
Sr Cal 1B	3174.60	0.81119	9197.4	2.667	0.0892	0.02293	0.39388	16968	5.0	833	900.0	3392.6744	C1	0.35984
Sr Cal 2B	3174.60	0.81119	9203.7	2.667	0.0844	0.02169	0.36578	15714	5.0	922	900.0	3141.7756	C2	0.33342
Sr Cal 4B	3174.60	0.81119	9204.6	2.667	0.0892	0.02293	0.37460	17107	5.0	793	900.0	3420.5189	C3	0.36303
Sr Cal 5B	3174.60	0.81118	9209.2	2.667	0.0865	0.02222	0.36872	15973	5.0	852	900.0	3193.6533	C4	0.33860
Sr Cal 1B	3174.60	0.81118	9197.3	2.667	0.0941	0.02416	0.39648	17050	5.0	703	900.0	3409.2189	D1	0.36109
Sr Cal 2B	3174.60	0.81118	9203.7	2.667	0.0892	0.02293	0.37102	16113	5.0	715	900.0	3221.8056	D2	0.34154
Sr Cal 4B	3174.60	0.81118	9204.6	2.667	0.0941	0.02416	0.38100	17322	5.0	647	900.0	3463.6811	D3	0.36710
Sr Cal 5B	3174.60	0.81118	9209.2	2.667	0.0913	0.02346	0.37063	15810	5.0	780	900.0	3161.1333	D4	0.33457
	0.00	1.00000	#DIV/0!	2.667	0.0000	0.00000	0.38100					#DIV/0!		#DIV/0!
	0.00	1.00000	#DIV/0!	2.667	0.0000	0.00000	0.37063					#DIV/0!		#DIV/0!

Sr-90

ID	Standard ID	Standard Specific Activity (dpm/g)	reference date	Mass added (g)	Total Activity Added (Sr-90 in DPM) on reference date	carrier added (mg as Sr)	g SrNO3/ g Sr	carrier expected (mg SrNO3)	planchet gross (g)	planchet tare (g)	planchet net (mg)	Chemical Yield	separation date/time	count date/time	count midpoint	Sr-90 half-life days

Y-90

ID	Standard ID	Standard Specific Activity (dpm/g)	collection date	Mass added (g)	Total Activity Added (Sr-90 in DPM)	carrier added (mg)	g SrNO3/ g Sr	carrier expected (mg)	planchet gross (g)	planchet tare (g)	planchet net (mg)	Yield	separation date	count date	Sr-90 half-life days	Sr-90 decay days
Y Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.4153	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 15:13	10515.51	3174.51
Y Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.415	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 15:13	10515.51	3174.51
Y Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.415	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 15:13	10515.51	3174.51
Y Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.415	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 15:13	10515.51	3174.51
Y Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.415	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 15:19	10515.51	3174.51
Y Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.415	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 15:19	10515.51	3174.51
Y Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.415	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 15:19	10515.51	3174.51
Y Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.415	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 15:19	10515.51	3174.51
Y Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.415	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 15:29	10515.51	3174.51
Y Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.415	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 15:29	10515.51	3174.51
Y Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.415	12.077	7.6030	7.6030	12.0	0.9937	12/8/2014 12:16	12/8/14 15:29	10515.51	3174.51
Y Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.415	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:12	12/8/14 15:29	10515.51	3174.51
Y Cal 1B	S-0121	11281.89593	3/31/2006	1.0114	11410.51	5.0000	2.415	12.077	7.6030	7.5910	12.0	0.9937	12/8/2014 12:12	12/8/14 15:35	10515.51	3174.51
Y Cal 2B	S-0121	11281.89593	3/31/2006	1.0121	11418.41	5.0000	2.415	12.077	7.6040	7.5920	12.0	0.9937	12/8/2014 12:19	12/8/14 15:35	10515.51	3174.51
Y Cal 4B	S-0121	11281.89593	3/31/2006	1.0122	11419.54	5.0000	2.415	12.077	7.6150	7.6030	12.0	0.9937	12/8/2014 12:12	12/8/14 15:35	10515.51	3174.51
Y Cal 5B	S-0121	11281.89593	3/31/2006	1.0127	11425.18	5.0000	2.415	12.077	7.6110	7.5990	12.0	0.9937	12/8/2014 12:16	12/8/14 15:35	10515.51	3174.51

Sr-90

Y-90

ID	Sr decay correction to separation	count midpoint	Sr-90 activity at count separation (DPM)	Y-90 decay days	Y-90 half-life days	Y-90 Decay	Y-90 Activity	sample counts	sample time	bkg counts	bkg time min	net CPM	Detector	Y-90 Eff
Y Cal 1B	0.81119	12/8/14 3:15 PM	9197.4	0.1274	2.667	0.967420	10968.760	21969	5.0	826	900.0	4392.8822	A1	0.40049
Y Cal 2B	0.81119	12/8/14 3:15 PM	9203.8	0.1226	2.667	0.968643	10990.230	20014	5.0	889	900.0	4001.8122	A2	0.36412
Y Cal 4B	0.81119	12/8/14 3:15 PM	9204.7	0.1274	2.667	0.967420	10977.437	21388	5.0	748	900.0	4276.7689	A3	0.38960
Y Cal 5B	0.81119	12/8/14 3:15 PM	9209.2	0.1247	2.667	0.968118	10990.792	20428	5.0	952	900.0	4084.5422	A4	0.37163
Y Cal 1B	0.81119	12/8/14 3:21 PM	9197.4	0.1316	2.667	0.966372	10956.887	22316	5.0	664	900.0	4462.4622	B1	0.40727
Y Cal 2B	0.81119	12/8/14 3:21 PM	9203.8	0.1267	2.667	0.967594	10978.333	19944	5.0	755	900.0	3987.9611	B2	0.36326
Y Cal 4B	0.81119	12/8/14 3:21 PM	9204.7	0.1316	2.667	0.966372	10965.554	21275	5.0	442	900.0	4251.1756	B3	0.38768
Y Cal 5B	0.81119	12/8/14 3:21 PM	9209.2	0.1288	2.667	0.967070	10978.895	20224	5.0	713	900.0	4044.0078	B4	0.36834
Y Cal 1B	0.81119	12/8/14 3:31 PM	9197.4	0.1385	2.667	0.964630	10937.127	21544	5.0	833	900.0	4307.8744	C1	0.39388
Y Cal 2B	0.81119	12/8/14 3:31 PM	9203.8	0.1337	2.667	0.965849	10958.535	20047	5.0	922	900.0	4008.3756	C2	0.36578
Y Cal 4B	0.81119	12/8/14 3:31 PM	9204.7	0.1385	2.667	0.964630	10945.778	20506	5.0	793	900.0	4100.3189	C3	0.37460
Y Cal 5B	0.81119	12/8/14 3:31 PM	9209.2	0.1358	2.667	0.965326	10959.095	20209	5.0	852	900.0	4040.8533	C4	0.36872
Y Cal 1B	0.81119	12/8/14 3:37 PM	9197.4	0.1427	2.667	0.963585	10925.288	21662	5.0	703	900.0	4331.6189	D1	0.39648
Y Cal 2B	0.81119	12/8/14 3:37 PM	9203.8	0.1378	2.667	0.964804	10946.673	20311	5.0	715	900.0	4061.4056	D2	0.37102
Y Cal 4B	0.81119	12/8/14 3:37 PM	9204.7	0.1427	2.667	0.963585	10933.930	20833	5.0	647	900.0	4165.8811	D3	0.38100
Y Cal 5B	0.81119	12/8/14 3:37 PM	9209.2	0.1399	2.667	0.964281	10947.232	20291	5.0	730	900.0	4057.3333	D4	0.37063

GEN 686
C 11160
Sr
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	SR_CAL_1B	2	17097	5	1410	12/8/14 14:02
A2	SR_CAL_2B	3	16054	5	1410	12/8/14 14:02
A3	SR_CAL_4B	4	17234	5	1410	12/8/14 14:02
A4	SR_CAL_5B	6	15979	5	1410	12/8/14 14:02

Page 1

GEN 687
C 11160
Sr
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
B1	SR_CAL_1B	18	16989	5	1410	12/8/14 14:09
B2	SR_CAL_2B	13	15651	5	1410	12/8/14 14:09
B3	SR_CAL_4B	9	17309	5	1410	12/8/14 14:09
B4	SR_CAL_5B	10	15703	5	1410	12/8/14 14:09

Page 1

GEN 688
C 11160
Sr
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	SR_CAL_1B	4	16968	5	1410	12/8/14 14:18
C2	SR_CAL_2B	8	15714	5	1410	12/8/14 14:18
C3	SR_CAL_4B	5	17107	5	1410	12/8/14 14:18
C4	SR_CAL_5B	3	15973	5	1410	12/8/14 14:18

Page 1

GEN 689
C 11160
Sr
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
D1	SR_CAL_1B	4	17050	5	1410	12/8/14 14:25
D2	SR_CAL_2B	8	16113	5	1410	12/8/14 14:25
D3	SR_CAL_4B	5	17322	5	1410	12/8/14 14:25
D4	SR_CAL_5B	8	15810	5	1410	12/8/14 14:25

GEN 690
C 11160
Y
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	Y_CAL_1B	2	21969	5	1410	12/8/14 15:13
A2	Y_CAL_2B	3	20014	5	1410	12/8/14 15:13
A3	Y_CAL_4B	4	21388	5	1410	12/8/14 15:13
A4	Y_CAL_5B	5	20428	5	1410	12/8/14 15:13

Page 1

GEN 691
C 11160
Y
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
B1	Y_CAL_1B	9	22316	5	1410	12/8/14 15:19
B2	Y_CAL_2B	5	19944	5	1410	12/8/14 15:19
B3	Y_CAL_4B	3	21275	5	1410	12/8/14 15:19
B4	Y_CAL_5B	6	20224	5	1410	12/8/14 15:19

GEN 692
C 11160
Y
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	Y_CAL_1B	4	21544	5	1410	12/8/14 15:29
C2	Y_CAL_2B	1	20047	5	1410	12/8/14 15:29
C3	Y_CAL_4B	2	20506	5	1410	12/8/14 15:29
C4	Y_CAL_5B	4	20209	5	1410	12/8/14 15:29

GEN 693
C 11160
Y
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
D1	Y_CAL_1B	3	21662	5	1410	12/8/14 15:35
D2	Y_CAL_2B	4	20311	5	1410	12/8/14 15:35
D3	Y_CAL_4B	2	20833	5	1410	12/8/14 15:35
D4	Y_CAL_5B	5	20291	5	1410	12/8/14 15:35

Page 1

GEN 683
C 11160
LONG BKG
BZF

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	A1-01	135	826	900	1410	12/6/14 7:15
A2	A2-01	116	889	900	1410	12/6/14 7:15
A3	A3-01	60	748	900	1410	12/6/14 7:15
A4	A4-01	126	952	900	1410	12/6/14 7:15
C1	C1-01	93	833	900	1410	12/6/14 7:15
C2	C2-01	123	922	900	1410	12/6/14 7:15
C3	C3-01	126	793	900	1410	12/6/14 7:15
C4	C4-01	182	852	900	1410	12/6/14 7:15
D1	D1-01	55	703	900	1410	12/6/14 7:15
D2	D2-01	59	715	900	1410	12/6/14 7:15
D3	D3-01	53	647	900	1410	12/6/14 7:15
D4	D4-01	63	780	900	1410	12/6/14 7:15
B1	B1-01	55	664	900	1410	12/6/14 7:16
B2	B2-01	63	755	900	1410	12/6/14 7:16
B3	B3-01	82	3442	900	1410	12/6/14 7:16
B4	B4-01	61	713	900	1410	12/6/14 7:16

Sr-90/Y90 Efficiency Calibrations

Tech: B Steffens
Pipet #   FJ40469
Scale ID   H113112173560P
Standard #   S-0121

Sample ID	Std weight g.	Sep. Date: 12-8-14
Sr_Y_Cal_1B	1.0114	12:12
Sr_Y_Cal_2B	1.0121	12:19
Sr_Y_Cal_3B	1.0063	12:17
Sr_Y_Cal_4B	1.0122	12:12
Sr_Y_Cal_5B	1.0127	12:16

Performed By: B Steffens

Sr Planchett Weigts

Sr Planchett Weigts	Empty	Full
Sr_Cal_1B	7.591g	7.603
Sr_Cal_2B	7.592g	7.604
Sr_Cal_3B	7.594g	7.606
Sr_Cal_4B	7.603g	7.615
Sr_Cal_5B	7.589g	7.611

Sr-90 Verification   1/5/2016

Tech: J P B   JB
         B Steffens 1-5-16
Pipet #   MU02055
Scale ID   12332539
Standard #   S-0300

Sample ID	Std weight g.
S-0300-V1A	1.0234g
S-0300-V2A	0.9938g
S-0300-V3A	1.0008g
S-0300-V4A	1.0046g
S-0300-V5A	1.0117g

Performed By: B Steffens

J. Byrd
      JB
      1-5-16

ARS INTERNATIONAL

Carrier Pipette Calibration Sheet

Chemist: _Van Vu_

Date/Time: _12-8-14   9:00_

Balance ID	Balance Calibration Date	Pipette ID	Nominal Weight	Weight #1	Weight#2	Weight#3	MEAN	Acceptance Limits ±2% Mean	STDEV	RSD%	Acceptance Limits <1% RSD
12332539	6/2/14	FJ40469	1.00	1.000	1.004	1.007	1.00	Pass	0.004	0.350	Pass

ARS
INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS
ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE	1/5/2016 16:31	*date counted*
STANDARD REFERENCE #	S-0300	

Principal Radionuclide		Half Life, Years		Half Life, Days
Sr-90	ENTER -->	2.880E+01	OR -->	1.0520E+04
		2.880E+01		1.0520E+04

Radionuclide	Sr-90		Dilution Reference Date	12/11/2014 12:05

Dilution Activity	21.73	pCi per gram ===> dpm/g	48.23
Verif. Date Decay Corrected	21.18	pCi per gram ===> dpm/g	47.01

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0300-V1A	2534.50	120	B1	0.4103	0.68	1.023	48.68	21.93
S-0300-V2A	2411.50	120	B2	0.4015	0.78	0.994	48.41	21.81
S-0300-V3A	2451.00	120	B4	0.4004	0.79	1.001	49.00	22.07
S-0300-V4A	2469.50	120	C1	0.4068	0.87	1.005	48.23	21.72
S-0300-V5A	2442.00	120	C2	0.4025	1.32	1.012	46.73	21.05

			Average	48.21	21.72
			Two Sigma Uncertainty	1.72	0.77
10% Max	PASS	Standard Deviation percent of known concentration		1.86%	1.86%
		Target Activity		47.01	21.18
	5% Max	PASS	% Diff	2.55%	2.55%

Verification Expiration Date: January 4, 2017

Prepared & Counted By		Date:	1/5/2016 16:31
Verified & Approved By		Date:	1-6-16
QC Approval		Date:	1-6-16

S-0300
Sr-90
SL

Verified	1/5/16
Expires	1/5/17

Manufactuer	Analytics
Sol Matrix	.1M HCL with 30 ug/g
Ref No	75186-526
Tech	BSteffens
Parent ID	S-0160

ARS
INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

Sr-90 Verification   1/5/2016

Tech: J Byrd
Pipet #   MU02055
Scale ID   12332539
Standard #   S-0300

Sample ID	Std weight g.
S-0300-V1A	1.0234
S-0300-V2A	0.9938
S-0300-V3A	1.0008
S-0300-V4A	1.0046
S-0300-V5A	1.0117

Performed By: J Byrd

Tech: J PB   *JB*
               ~~B Steffens~~ 1-5-16
Pipet #   MU02055
Scale ID   12332539
Standard #   S-0300

Sample ID	Std weight g.
S-0300-V1A	1.0234g
S-0300-V2A	0.9938g
S-0300-V3A	1.0008g
S-0300-V4A	1.0046g
S-0300-V5A	1.0117g

Performed By: ~~B Steffens~~

J. Byrd
JB
1-5-16

GEN 710
C 11160
Sr
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	S-0300-V4A	9	4939	120	1410	1/5/16 16:31
C2	S-0300-V5A	13	4884	120	1410	1/5/16 16:31
B1	S-0300-V1A	8	5069	120	1410	1/5/16 16:34
B2	S-0300-V2A	12	4823	120	1410	1/5/16 16:34
B4	S-0300-V3A	9	4902	120	1410	1/5/16 16:34

2 4269.5
2442
25345
2411.5
2451

Page 1

GEN 704
C 11160
LONG BKG
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	C1-01	68	784.87	900	1410	1/1/16 4:03
C2	C2-01	85	1191.32	900	1410	1/1/16 4:03
C3	C3-01	78	788	900	1410	1/1/16 4:03
C4	C4-01	99	902	900	1410	1/1/16 4:03
D1	D1-01	47	690	900	1410	1/1/16 4:03
D2	D2-01	43	747	900	1410	1/1/16 4:03
D3	D3-01	7	689	900	1410	1/1/16 4:03
D4	D4-01	29	725	900	1410	1/1/16 4:03
A1	A1-01	75	773	900	1410	1/1/16 4:06
A2	A2-01	45	804	900	1410	1/1/16 4:06
A3	A3-01	38	707	900	1410	1/1/16 4:06
A4	A4-01	56	743	900	1410	1/1/16 4:06
B1	B1-01	38	610.68	900	1410	1/1/16 4:06
B2	B2-01	30	705.78	900	1410	1/1/16 4:06
B3	B3-01	49	3102	900	1410	1/1/16 4:06
B4	B4-01	29	713.79	900	1410	1/1/16 4:06

Page 1

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

A1

Beta slope at beta voltage   1.59%
Alpha slope at beta voltage   0.37%
Alpha slope at alpha voltage   1.35%

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

	A2
Beta slope at beta voltage	2.37%
Alpha slope at beta voltage	-0.90%
Alpha slope at alpha voltage	1.90%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

A3

Beta slope at beta voltage   2.85%
Alpha slope at beta voltage   1.23%
Alpha slope at alpha voltage   0.98%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

A4

Beta slope at beta voltage   3.25%
Alpha slope at beta voltage   1.19%
Alpha slope at alpha voltage   0.55%

Printed 12/30/2011 09:35

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

B1

Beta slope at beta voltage	1.59%
Alpha slope at beta voltage	0.37%
Alpha slope at alpha voltage	1.35%

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

	B2
Beta slope at beta voltage	2.37%
Alpha slope at beta voltage	-0.90%
Alpha slope at alpha voltage	1.90%

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

B3

Beta slope at beta voltage   2.85%
Alpha slope at beta voltage   1.23%
Alpha slope at alpha voltage   0.98%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1380

Optimum alpha only operating voltage: 420

B4

Beta slope at beta voltage   3.25%
Alpha slope at beta voltage   1.19%
Alpha slope at alpha voltage   0.55%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Optimum alpha beta simultaneous operating voltage: 1440

Optimum alpha only operating voltage: 420

C1

Beta slope at beta voltage	1.59%
Alpha slope at beta voltage	0.37%
Alpha slope at alpha voltage	1.35%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1440

Optimum alpha only operating voltage: 420

C2

Beta slope at beta voltage | 2.37%
Alpha slope at beta voltage | -0.90%
Alpha slope at alpha voltage | 1.90%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1440

Optimum alpha only operating voltage: 420

C3

Beta slope at beta voltage   2.85%
Alpha slope at beta voltage   1.23%
Alpha slope at alpha voltage 0.98%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: **1440**

Optimum alpha only operating voltage: **420**

C4

Beta slope at beta voltage   3.25%
Alpha slope at beta voltage   1.19%
Alpha slope at alpha voltage   0.55%

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Optimum alpha beta simultaneous operating voltage: 1410

Optimum alpha only operating voltage: 420

D1

Beta slope at beta voltage 1.59%
Alpha slope at beta voltage 0.37%
Alpha slope at alpha voltage 1.35%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Optimum alpha beta simultaneous operating voltage: 1410

Optimum alpha only operating voltage: 420

D2
Beta slope at beta voltage   2.37%
Alpha slope at beta voltage   -0.90%
Alpha slope at alpha voltage   1.90%

Printed 12/30/2011 09:35

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Detector Bias (volts)

300 360 420 480 540 600 660 720 780 840 900 960 1020 1080 1140 1200 1260 1320 1380 1440 1500 1560 1620

1 0.8 0.6 0.4 0.2 0

Optimum alpha beta simultaneous operating voltage: 1410

Optimum alpha only operating voltage: 420

D3

Beta slope at beta voltage   2.85%
Alpha slope at beta voltage   1.23%
Alpha slope at alpha voltage   0.98%

Printed 12/30/2011 09:35

Unit Type: LB4100/W
Date Performed: 12/28/11 16:59
FileName: PLAT008
Batch ID:

Unit Id: Gray
Application Revision: 2
Application Version: Standard

Detector Bias (volts)

Optimum alpha beta simultaneous operating voltage: 1410

Optimum alpha only operating voltage: 420

D4

Beta slope at beta voltage	3.25%
Alpha slope at beta voltage	1.19%
Alpha slope at alpha voltage	0.55%

Printed 12/30/2011 09:35

Instrument A Calibration

Updated: 8/20/2013

	pCi	2.22
	dpm	1
	Bq	60

Detector	Sr-90 Eff	Y-90 Eff
A1	0.34747	0.44088
A2	0.34268	0.46189
A3	0.33064	0.37872
A4	0.34017	0.39108
B1	0.33657	0.40068
B2	0.34381	0.47164
B3	0.325	0.37161
B4	0.3364	0.40727
C1	0.34147	0.44304
C2	0.33671	0.46077
C3	0.31544	0.38068
C4	0.33585	0.42745
D1	0.30659	0.43397
D2	0.34063	0.4311
D3	0.33766	0.39466
D4	0.33677	0.41747

Instrument B Calibration

Updated: 8/20/2013

	pCi	2.22
	dpm	1
	Bq	60

Detector	Sr-90 Eff	Y-90 Eff
A1	0.32591	0.42792
A2	0.32756	0.44781
A3	0.31932	0.36974
A4	0.31867	0.40999
B1	0.33829	0.44404
B2	0.3468	0.46664
B3	0.33955	0.38256
B4	0.3387	0.41028
C1	0.32367	0.42418
C2	0.32359	0.4301
C3	0.32773	0.37433
C4	0.32479	0.41571
D1	0.31614	0.42698
D2	0.33614	0.45936
D3	0.32357	0.37431
D4	0.31993	0.41729

Instrument C Calibration

Updated: 12/10/2014

	pCi	2.22
	dpm	1
	Bq	60

Detector	Sr-90 Eff	Y-90 Eff
A1	0.36363	0.40049
A2	0.34188	0.36412
A3	0.36654	0.3896
A4	0.3397	0.37163
B1	0.36065	0.40727
B2	0.33271	0.36326
B3	0.36741	0.38768
B4	0.33335	0.36834
C1	0.35984	0.39388
C2	0.33342	0.36578
C3	0.36303	0.3746
C4	0.3386	0.36872
D1	0.36109	0.39648
D2	0.34154	0.37102
D3	0.3671	0.381
D4	0.33457	0.37063

QC Chart

American Radiation Services
Baton Rouge Laboratory

Sr-90 LCS

Average	STDEV	n	UCL	LCL
1.0898	0.0585	30	1.2500	0.7500

Sr-90 RER

	n	UCL	LCL
	30	1.0000	-1.0000

Sr-90 Blank

Average	STDEV	n	UCL	LCL
0.0732	0.2338	30	0.5408	-0.3944

Sr-90 DER

	n	UCL
	30	3.0000

Tennelec LB41-PF4 Low Background α/β Counter
(Instrument C)

Date	Time	ARS Batch Number	Batch Fraction	Type of Analysis	GEN Number	Detector	Analyst Initials
1-31-17	1402	17-00128	14	CACB	7W	C2	5
2-1-17	0510	Only	6A	Bkg	7W1	AN	5
2-1-17	0733	Only	6B	B/R	7W2	AN	5
2-1-17	1012	17-00157	C1	G	7W3	C1	5
			C2			C2	5
			C3			C3	5
			C4			C4	5
			C5			D1	5
			C6			D2	5
WO 2-1-17			C7			D3	5
2-1-17	1238	17-00157	C1	G	7W7	C1	5
			C2			C2	5
			C3			C3	5
			C4			C4	5
			C5			D1	5
			C6			D2	5
			C7			D3	5
2-2-17	0507	Only	6A	Bkg	7W5	AN	5
2-2-17	0728	Only	6B	B/R	7W3	AN	5
2-3-17	0511	Only	6A	Bkg	7W7	AN	5
2-4-17	0738	Only	6B	B/R	7W4	AN	5
2-3-17	0939	17-00177	C1	G	7W9	A1	5
			C2			A2	5
			C3			A3	5
			C4			A1	5
			C5			A2	5
2-4-17	0632	Lon Bkg	6B	Bkg	7W	AN	5

Reviewed _____ Initials   Date 2-21-17

Radiological Analysis

Standard Methods 7110C

SDG# ARS1-17-00215
COC AQUEOUS SAMPLES

Analytical Batch Report

Analysis Batch ID	**ARS1-B17-00214**
Method	**ARS-090**
Description	**Gross Alpha (Water)**

Analysis GPC-A-028   **Matrix** AQ

Blind Iso1   B-23158
Blind Iso2   B-23159
Blind Iso3

ABatch Sample ID	Type	SDG	FR	Run	Prep Code	Client ID	Group Name	Lab Deadline
ARS1-B17-00214-01	LCS							
ARS1-B17-00214-02	LCSD							
ARS1-B17-00214-03	MBL							
ARS1-B17-00214-04	TRG	ARS1-17-00184 001		1		IDW-WATER-01-011917-001	STD	02/14/17
ARS1-B17-00214-08	DUP	Parent: ARS1-17-00184-001						
ARS1-B17-00214-09	MS	Parent: ARS1-17-00184-001						
ARS1-B17-00214-05	TRG	ARS1-17-00213 001		1		5159-6461	STD	02/22/17
ARS1-B17-00214-06	TRG	ARS1-17-00215 002		1		OS-10	STD	02/17/17
ARS1-B17-00214-07	TRG	ARS1-17-00215 004		1		BB-17	STD	02/17/17

LCS Report

Analytical Batch: ARS1-B17-00214

Blind ID	ABatch Sample ID	Blind Group	Std ID	Isotope	Exp Addition (g)	Expected Value (pCi/g)	Empty Wt (g)	Gross Wt (g)	Net Wt (g)	Expected Value CT (pCi/g)	Mid Point Count Date	Known Value (pCi)	User ID	Mod Date
B-23158	ARS1-B17-00214-01	B-Th230	S-0315	Th-230	1	5.66980	17.1974	18.2171	1.0197	5.66980	02/07/2017	5.78150	JBYRD	02/02/2017
B-23159	ARS1-B17-00214-02	B-Th230	S-0315	Th-230	1	5.66980	17.2237	18.2451	1.0214	5.66980	02/07/2017	5.79114	JBYRD	02/02/2017

Matrix Spike Report
Analytical Batch: ARS1-B17-00214

ABatch Sample ID	Sample Type	Empty Wt 1	Filled Wt 1	Net Wt 1	Std ID1	Isotope 1	Empty Wt 2	Filled Wt 2	Net Wt 2	Std ID 2	Isotope 2	User ID
ARS1-B17-00214-09	MS	1.579	2.616	1.037	S-0315	Th-230						SCAUSEY

ARS-090 WorkSheet

(Method SM 7110/EERF 00-02)

INTERNATIONAL

Batch Number: B17-00214
# of samples: 9

Sample I.D.	ICOC	Aliquot(L)	Barium Carrier (5mg/mL)	Iron Carrier (5mg/mL)	Balance Serial Number	Empty Planchet	Planchet with filter	Planchette with filter and sample	Initial Filter Weight	Final Filter Weight	*Final Weight of sample*
B17-00214-01		1	R14-00184	R11-00427	12332539	7.5128	7.6029	7.6207	0.0901	0.1079	0.0178
B17-00214-02		1	R14-00184	R11-00427	12332539	7.5611	7.6496	7.6673	0.0885	0.1062	0.0177
B17-00214-03		1	R14-00184	R11-00427	12332539	7.5183	7.6065	7.6243	0.0882	0.1060	0.0178
B17-00214-04	255728	0.5	R14-00184	R11-00427	12332539	7.5019	7.5909	7.9043	0.0890	0.4024	0.3134
B17-00214-05	255855	0.5	R14-00184	R11-00427	12332539	7.5994	7.6894	7.7218	0.0900	0.1224	0.0324
B17-00214-06	255882	0.392	R14-00184	R11-00427	12332539	7.5435	7.6338	7.6533	0.0903	0.1098	0.0195
B17-00214-07	255881	0.18	R14-00184	R11-00427	12332539	7.5949	7.6859	7.7638	0.0910	0.1689	0.0779
B17-00214-08	255728	0.5	R14-00184	R11-00427	12332539	7.5618	7.6511	7.9714	0.0893	0.4096	0.3203
B17-00214-09	255727	0.5	R14-00184	R11-00427	12332539	7.5206	7.6097	7.9349	0.0891	0.4143	0.3252

LB4100-C

\\Ars-f52mv91\LB4100\LB4100\GRAY\DATA\GENER717.XLD

Batch Sample ID: ARS1-B17-00214

Samples Transferred: 9

Samples Eligible To Save: 9

LIMS Batch Sample ID	Detector ID	LB4110 Sample ID	Alpha Counts	Beta Counts	Count Mins	LB4110 Voltage	LB4110 Count Date	Analysis Batch	LIMS SDG	LIMS Run	LIMS Fraction	LIMS Analysis
ARS1-B17-00214-06	C1	17-00214-06	9.00	164.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214	ARS1-17-00215	1	002	GPC-A-028
ARS1-B17-00214-07	C2	17-00214-07	37.00	388.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214	ARS1-17-00215	1	004	GPC-A-028
ARS1-B17-00214-08	C3	17-00214-08	14.00	496.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214				
ARS1-B17-00214-09	C4	17-00214-09	39.00	528.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214				
ARS1-B17-00214-01	A1	17-00214-01	140.00	226.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214				
ARS1-B17-00214-02	A2	17-00214-02	109.00	190.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214				
ARS1-B17-00214-03	A4	17-00214-03	8.00	181.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214				
ARS1-B17-00214-04	B1	17-00214-04	20.00	541.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214	ARS1-17-00184	1	001	GPC-A-028
ARS1-B17-00214-05	B2	17-00214-05	94.00	225.00	60.00	1410.00	02/07/17 10:34	ARS1-B17-00214	ARS1-17-00213	1	001	GPC-A-028

INTERNATIONAL

Batch Result Verification Report

ABatchSampleID	SDG	Fraction	ClientID	Run	Isotope	ACT	TPU	TPU1s	TPU2s	MDA	DL	CU	CU1s	CU2s	ActivityReportUnits
ARS1-B17-00214-01					GROSS ALPHA	6.156470995	1.787677683	0.912080451	1.787677683	0.480328832	0.17822578	1.061611902	0.541638726	1.061611902	pCi
ARS1-B17-00214-02					GROSS ALPHA	5.032788251	1.523771822	0.777434603	1.523771822	0.387485483	0.129626688	0.969214728	0.49449731	0.969214728	pCi
ARS1-B17-00214-03					GROSS ALPHA	0.252022511	0.269827985	0.13766734	0.269827985	0.384171188	0.128517947	0.263325562	0.134349777	0.263325562	pCi
ARS1-B17-00214-04	ARS1-17-00184	001	IDW-WATER-01-011917-001	1	GROSS ALPHA	13.17742933	7.35728888	3.753718816	7.35728888	5.90432603	1.929842511	6.682203226	3.40928736	6.682203226	pCi
ARS1-B17-00214-05	ARS1-17-00213	001	5159-6461	1	GROSS ALPHA	9.791901255	3.060910411	1.561688985	3.060910411	0.844504854	0.2774106667	2.033662838	1.03758308	2.033662838	pCi
ARS1-B17-00214-06	ARS1-17-00215	002	OS-10	1	GROSS ALPHA	0.679292671	0.735578548	0.375295178	0.735578548	1.073959955	0.373723593	0.718254548	0.366456402	0.718254548	pCi
ARS1-B17-00214-07	ARS1-17-00215	004	BB-17	1	GROSS ALPHA	16.20926682	6.855600754	3.497755487	6.855600754	4.105453051	1.405527606	5.714751742	2.915689664	5.714751742	pCi
ARS1-B17-00214-08					GROSS ALPHA	7.683419521	6.062682834	3.093205527	6.062682834	7.45731066	2.67192529	5.79084471	2.954512607	5.79084471	pCi
ARS1-B17-00214-09					GROSS ALPHA	27.9989126	11.6268094	5.932045613	11.6268094	6.826174197	2.352939234	9.612168733	4.904167721	9.612168733	pCi

Batch Result Verification Report

ABatchSampleID	SDG	Fraction	AliquotReportUnits	ChemRecovery	TracerRecovery	SampleCounts	SampleCountMins	BKG_Counts	BKG_CountMins	EFF	ALIQ	SampleCollDate	MidPointCountDate	BP_DL
ARS1-B17-00214-01			L			140	60	79	900	0.164237918	1	2/7/2017		2/7/2017
ARS1-B17-00214-02			L			109	60	39	900	0.158660306	1	2/7/2017		2/7/2017
ARS1-B17-00214-03			L			8	60	39	900	0.160029089	1	2/7/2017		2/7/2017
ARS1-B17-00214-04	ARS1-17-00184	001	L			20	60	34	900	0.019901142	0.5	1/19/2017		2/7/2017
ARS1-B17-00214-05	ARS1-17-00213	001	L			94	60	35	900	0.140466018	0.5	1/19/2017		2/7/2017
ARS1-B17-00214-06	ARS1-17-00215	002	L			9	60	50	900	0.158956697	0.392	1/16/2017		2/7/2017
ARS1-B17-00214-07	ARS1-17-00215	004	L			37	60	45	900	0.087322223	0.18	1/17/2017		2/7/2017
ARS1-B17-00214-08			L			14	60	61	900	0.019253115	0.5	2/7/2017		2/7/2017
ARS1-B17-00214-09			L			39	60	47	900	0.019191045	0.5	2/7/2017		2/7/2017

Batch Result Verification Report

ABatchSampleID	SDG	Fraction	BP_MDA	Sb_Val	UCF	CF	GrossCountRate	BKGCountRate	NetCountRate	PlatingRecovery	InstFileName	DetectorID	InstrumentkeV	NuclideAbd	TracerMeasACT	TracerKnownACT
ARS1-B17-00214-01					2.22	1.96	2.333333333	0.087777778	2.244699677		GENER717.XLD	A1				
ARS1-B17-00214-02					2.22	1.96	1.816666667	0.043333333	1.772678271		GENER717.XLD	A2				
ARS1-B17-00214-03					2.22	1.96	0.133333333	0.043333333	0.089534671		GENER717.XLD	A4				
ARS1-B17-00214-04	ARS1-17-00184	001			2.22	1.96	0.333333333	0.037777778	0.291092938		GENER717.XLD	B1				
ARS1-B17-00214-05	ARS1-17-00213	001			2.22	1.96	1.566666667	0.038888889	1.526726612		GENER717.XLD	B2				
ARS1-B17-00214-06	ARS1-17-00215	002			2.22	1.96	0.15	0.055555556	0.093966878		GENER717.XLD	C1				
ARS1-B17-00214-07	ARS1-17-00215	004			2.22	1.96	0.616666667	0.05	0.565605511		GENER717.XLD	C2				
ARS1-B17-00214-08					2.22	1.96	0.233333333	0.067777778	0.164202036		GENER717.XLD	C3				
ARS1-B17-00214-09					2.22	1.96	0.65	0.052222222	0.596434514		GENER717.XLD	C4				

ABatchSampleID	SDG	Fraction	TracerIsotope	TracerRefDate	TracerRefACT	TracerKnown	Halflife1	Halflife2	Halflife3	TPUF_1	TPUF_2	TPUF_3	TPUF_4	TPUF_5	TPUF_6	DeltaT1	DeltaT2	DeltaT3	DeltaT4	DeltaT5
ARS1-B17-00214-01										0.06171	0.02	0	0	0.1	0					
ARS1-B17-00214-02										0.06171	0.02	0	0	0.1	0					
ARS1-B17-00214-03										0.06171	0.02	0	0	0.1	0					
ARS1-B17-00214-04	ARS1-17-00184	001								0.06171	0.02	0	0	0.1	0					
ARS1-B17-00214-05	ARS1-17-00213	001								0.06171	0.02	0	0	0.1	0					
ARS1-B17-00214-06	ARS1-17-00215	002								0.06171	0.02	0	0	0.1	0					
ARS1-B17-00214-07	ARS1-17-00215	004								0.06171	0.02	0	0	0.1	0					
ARS1-B17-00214-08										0.06171	0.02	0	0	0.1	0					
ARS1-B17-00214-09										0.06171	0.02	0	0	0.1	0					

American Radiation Services
Baton Rouge Laboratory

Batch Result Verification Report

ABatchSampleID	SDG	Fraction	DeltaT6	DF1	DF2	DF3	IF1	IF2	SysErr	K_Val	K_MDA	AnalysisCode	UserID	ModDate
ARS1-B17-00214-01									0.119197836	0.364608179	21.87649073	GPC-A-028	AMRAD\BSCHREITER	2/7/2017
ARS1-B17-00214-02									0.119197836	0.35222588	21.13355281	GPC-A-028	AMRAD\BSCHREITER	2/7/2017
ARS1-B17-00214-03									0.119197836	0.355264578	21.31587469	GPC-A-028	AMRAD\BSCHREITER	2/7/2017
ARS1-B17-00214-04	ARS1-17-00184	001							0.119197836	0.022090267	1.325416046	GPC-A-028	AMRAD\BSCHREITER	2/7/2017
ARS1-B17-00214-05	ARS1-17-00213	001							0.119197836	0.15591728	9.355036815	GPC-A-028	AMRAD\BSCHREITER	2/7/2017
ARS1-B17-00214-06	ARS1-17-00215	002							0.119197836	0.138330476	8.299828548	GPC-A-028	AMRAD\BSCHREITER	2/7/2017
ARS1-B17-00214-07	ARS1-17-00215	004							0.119197836	0.03489396	2.093637611	GPC-A-028	AMRAD\BSCHREITER	2/7/2017
ARS1-B17-00214-08									0.119197836	0.021370958	1.282257481	GPC-A-028	AMRAD\BSCHREITER	2/7/2017
ARS1-B17-00214-09									0.119197836	0.02130206	1.278123595	GPC-A-028	AMRAD\BSCHREITER	2/7/2017

GEN 717
C 11160
GA
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
C1	17-00214-06	9	164	60	1410	2/7/17 10:34
C2	17-00214-07	37	388	60	1410	2/7/17 10:34
C3	17-00214-08	14	496	60	1410	2/7/17 10:34
C4	17-00214-09	39	528	60	1410	2/7/17 10:34
A1	17-00214-01	140	226	60	1410	2/7/17 10:34
A2	17-00214-02	109	190	60	1410	2/7/17 10:34
A4	17-00214-03	8	181	60	1410	2/7/17 10:34
B1	17-00214-04	20	541	60	1410	2/7/17 10:34
B2	17-00214-05	94	225	60	1410	2/7/17 10:34

Page 1

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**	
		Date	02/07/17
Average	0.2901	CPM/DPM	0.2863
Standard Deviation	0.0024		
+ 3-sigma value	0.2973	Date	
- 3-sigma value	0.2829	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR A1

Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.29	1
0.29	6
0.29	9
0.29	9
0.29	4
More	1

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**

	Date	02/07/17
Average	CPM/DPM	0.2913
Standard Deviation		0.0026
+ 3-sigma value	Date	0.2992
- 3-sigma value	CPM	0.2833
	Count Mins	

	02/07/17
	0.2901

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR A2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.29	1
0.29	3
0.29	9
0.29	8
0.29	4
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**	
	Date	02/07/17
Average	0.2877	CPM/DPM	0.2837
Standard Deviation	0.0021	Date	
+ 3-sigma value	0.2941	CPM	
- 3-sigma value	0.2814	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR A4

Process Date Range: 12/28/16 - 02/07/17

UCL (3 S)
UWL (2 S)
MEAN
LWL (2 S)
LCL (3 S)

CPM/DPM

0.30
0.29
0.29
0.29
0.29
0.29
0.28
0.28
0.28

12/27 01/01 01/06 01/11 01/16 01/21 01/26 01/31 02/05

Population Frequency Distribution (Histogram)

Bin		Frequency
0.28		1
0.29		2
0.29		7
0.29		8
0.29		9
More		3

Statistical Process Control

INTERNATIONAL

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/07/17
Average	0.3250	CPM/DPM	0.3272
Standard Deviation	0.0031	Date	
+ 3-sigma value	0.3343	CPM	
− 3-sigma value	0.3158	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR B1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.32	1
0.32	1
0.32	7
0.33	13
0.33	6
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/07/17
Average	0.3140	CPM/DPM	0.3146
Standard Deviation	0.0026	Date	
+ 3-sigma value	0.3217	CPM	
− 3-sigma value	0.3064	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR B2

Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.31	1
0.31	7
0.31	7
0.32	6
0.32	5
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/07/17
		CPM/DPM	0.2908
Average	0.2850		
Standard Deviation	0.0022		
+ 3-sigma value	0.2917	Date	
- 3-sigma value	0.2783	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR C1

Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.28	1
0.28	3
0.28	8
0.29	11
0.29	6
More	1

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/07/17
Average	0.2875	CPM/DPM	0.2922
Standard Deviation	0.0023		
+ 3-sigma value	0.2943	Date	
- 3-sigma value	0.2807	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR C2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
	1
0.28	4
0.28	5
0.29	11
0.29	5
0.29	4
More	

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/07/17
Average	0.2707	CPM/DPM	0.2738
Standard Deviation	0.0024		
+ 3-sigma value	0.2779	Date	
- 3-sigma value	0.2634	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR C3
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.27	1
0.27	3
0.27	8
0.27	11
0.27	5
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - ALPHA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/07/17
		CPM/DPM	0.2810
Average	0.2819		
Standard Deviation	0.0022		
+ 3-sigma value	0.2886	Date	
- 3-sigma value	0.2753	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA EFFICIENCY - DETECTOR C4

Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.28	1
0.28	1
0.28	4
0.28	12
0.28	7
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	29
Average	0.0647
Standard Deviation	0.0252
+ 3-sigma value	0.1401
- 3-sigma value	-0.0108

DER Analysis

DER Analysis		OK
	DER	2.8103
Long B Date		02/04/17
Long B CPM		0.0878
Count Mins		900.00
	Date	02/07/17
	CPM	0.0333
Count Mins		120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside of 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR A1

Process Date Range: 12/28/16 - 02/07/17

- UCL (3 S)
- UWL (2 S)
- MEAN
- LWL (2 S)
- LCL (3 S)

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.03	3
0.06	12
0.08	9
0.11	4
More	1

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.0451
Standard Deviation	0.0197
+ 3-sigma value	0.1043
- 3-sigma value	-0.0141

DER Analysis	OK
DER	0.6490
Long B Date	02/04/17
Long B CPM	0.0433
Count Mins	900.00
Date	02/07/17
CPM	0.0583
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR A2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.03	6
0.05	9
0.06	8
0.08	5
More	1

Statistical Process Control

INTERNATIONAL

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Statistics	
Population Size	29
Average	0.0394
Standard Deviation	0.0165
+ 3-sigma value	0.0889
- 3-sigma value	-0.0101

DER Analysis

DER Analysis	
DER	OK
	0.5539
Long B Date	02/04/17
Long B CPM	0.0433
Count Mins	900.00
Date	02/07/17
CPM	0.0333
Count Mins	120.00

Trending Analysis

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR A4
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.00	1
0.01	1
0.03	5
0.04	7
0.05	12
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.0342
Standard Deviation	0.0138
+ 3-sigma value	0.0756
- 3-sigma value	-0.0072

DER Analysis

DER Analysis	OK
DER	0.8076
Long B Date	02/04/17
Long B CPM	0.0378
Count Mins	900.00
Date	02/07/17
CPM	0.0250
Count Mins	120.00

Trending Analysis

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR B1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	2
0.02	3
0.03	7
0.04	5
0.05	7
More	6

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.0330
Standard Deviation	0.0176
+ 3-sigma value	0.0859
- 3-sigma value	-0.0198

DER Analysis

	OK
DER	1.6468
Long B Date	02/04/17
Long B CPM	0.0389
Count Mins	900.00
Date	02/07/17
CPM	0.0167
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR B2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.00	2
0.01	2
0.03	8
0.04	6
0.05	9
More	3

INTERNATIONAL

Statistical Process Control

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LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**30**
Average	0.0564
Standard Deviation	0.0255
+ 3-sigma value	0.1329
- 3-sigma value	-0.0201

DER Analysis

	OK
DER	0.1187
Long B Date	02/04/17
Long B CPM	0.0556
Count Mins	900.00
Date	02/07/17
CPM	0.0583
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR C1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.03	2
0.05	10
0.07	8
0.09	7
0.11	1
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	29
Average	0.0592
Standard Deviation	0.0268
+ 3-sigma value	0.1395
- 3-sigma value	-0.0211

DER Analysis

	OK
DER	0.9129
Long B Date	02/04/17
Long B CPM	0.0500
Count Mins	900.00
Date	02/07/17
CPM	0.0333
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR C2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.00	1
0.03	1
0.05	13
0.08	11
0.10	2
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.0445
Standard Deviation	0.0158
+ 3-sigma value	0.0919
- 3-sigma value	-0.0028

DER Analysis

DER Analysis	OK
DER	1.2703
Long B Date	02/04/17
Long B CPM	0.0678
Count Mins	900.00
Date	02/07/17
CPM	0.0417
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – ALPHA BACKGROUND - DETECTOR C3

Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.02	3
0.03	2
0.04	4
0.05	13
0.06	4
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Alpha Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.0477
Standard Deviation	0.0200
+ 3-sigma value	0.1078
- 3-sigma value	-0.0124

DER Analysis

	OK
DER	0.2620
Long B Date	02/04/17
Long B CPM	0.0522
Count Mins	900.00
Date	02/07/17
CPM	0.0583
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA BACKGROUND - DETECTOR C4

Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.03	4
0.05	9
0.06	12
0.08	1
More	3

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0700
Standard Deviation	0.0098
+ 3-sigma value	0.0994
- 3-sigma value	0.0406
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR A1

Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.05	1
0.06	2
0.06	3
0.07	13
0.08	6
More	5

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0469
Standard Deviation	0.0084
+ 3-sigma value	0.0720
- 3-sigma value	0.0217
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR A2
Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.04	1
0.04	12
0.05	11
0.06	3
0.07	2
More	1

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.0452
Standard Deviation	0.0088
+ 3-sigma value	0.0715
- 3-sigma value	0.0190
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR A4

Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.03	1
0.04	6
0.05	13
0.05	6
0.06	2
More	2

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0347
Standard Deviation	0.0081
+ 3-sigma value	0.0591
− 3-sigma value	0.0104
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – ALPHA LONG BACKGROUND – DETECTOR B1

Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.01	1
0.02	0
0.03	6
0.04	11
0.04	7
More	5

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0339
Standard Deviation	0.0071
+ 3-sigma value	0.0553
- 3-sigma value	0.0125
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR B2
Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.02	1
0.02	1
0.03	9
0.04	12
0.04	4
More	3

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0592
Standard Deviation	0.0136
+ 3-sigma value	0.1001
- 3-sigma value	0.0183
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – ALPHA LONG BACKGROUND - DETECTOR C1

Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.04	1
0.05	9
0.07	16
0.08	3
0.10	0
More	1

INTERNATIONAL

Statistical Process Control

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Population Statistics

Population Size	**30**
Average	0.0526
Standard Deviation	0.0104
+ 3-sigma value	0.0838
− 3-sigma value	0.0214
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – ALPHA LONG BACKGROUND – DETECTOR C2
Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.04	1
0.04	6
0.05	8
0.06	7
0.07	5
More	3

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.0557
Standard Deviation	0.0130
+ 3-sigma value	0.0946
- 3-sigma value	0.0167
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR C3
Process Date Range: 07/17/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.04	1
0.05	5
0.06	12
0.07	5
0.08	5
More	2

Statistical Process Control

INTERNATIONAL

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.0523
Standard Deviation	0.0108
+ 3-sigma value	0.0849
- 3-sigma value	0.0198
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - ALPHA LONG BACKGROUND - DETECTOR C4

Process Date Range: 07/24/16 - 02/11/17

Control chart with lines: UCL (3 S), UWL (2 S), MEAN, LWL (2 S), LCL (3 S). Y-axis 0.00 to 0.09. X-axis dates: 07/23, 09/11, 10/31, 12/20, 02/08.

Population Frequency Distribution (Histogram)

Bin	Frequency
0.03	1
0.04	3
0.05	9
0.06	8
0.07	4
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/07/17
Average	0.4710	CPM/DPM	0.4694
Standard Deviation	0.0029		
+ 3-sigma value	0.4797	Date	
- 3-sigma value	0.4623	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR A1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.47	1
0.47	5
0.47	11
0.47	4
0.47	5
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**

		Date	02/07/17
Average	0.4607	CPM/DPM	0.4587
Standard Deviation	0.0027		
+ 3-sigma value	0.4687	Date	
- 3-sigma value	0.4527	CPM	
		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR A2

Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.45	1
0.46	1
0.46	8
0.46	11
0.46	6
More	3

Statistical Process Control

INTERNATIONAL

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**
Average	0.4728
Standard Deviation	0.0025
+ 3-sigma value	0.4802
- 3-sigma value	0.4654

	Date	02/07/17
	CPM/DPM	0.4699
	Date	
	CPM	
	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR A4

Process Date Range: 12/28/16 - 02/07/17

X-axis: 12/27, 01/01, 01/06, 01/11, 01/16, 01/21, 01/26, 01/31, 02/05

Y-axis (CPM/DPM): 0.48, 0.48, 0.48, 0.48, 0.47, 0.47, 0.47, 0.47, 0.47, 0.47, 0.46

Lines: UCL (3 S), UWL (2 S), MEAN, LWL (2 S), LCL (3 S)

Population Frequency Distribution (Histogram)

Bin	Frequency
0.47	1
0.47	6
0.47	8
0.47	8
0.48	5
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**

	Date	02/07/17
Average	CPM/DPM	0.4620
Standard Deviation		0.0022
+ 3-sigma value	Date	0.4686
- 3-sigma value	CPM	0.4555
	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR B1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	2
0.46	6
0.46	11
0.46	8
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**

	Date	02/07/17
Average	CPM/DPM	0.4408
Standard Deviation		0.0023
+ 3-sigma value	Date	0.4476
- 3-sigma value	CPM	0.4339
	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – BETA EFFICIENCY - DETECTOR B2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.44	1
0.44	7
0.44	3
0.44	8
0.44	7
More	4

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	30
Average	0.4625
Standard Deviation	0.0018
+ 3-sigma value	0.4680
- 3-sigma value	0.4570

	Date	02/07/17
	CPM/DPM	0.4642
	Date	
	CPM	
	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR C1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	2
0.46	2
0.46	15
0.46	7
More	3

INTERNATIONAL

Statistical Process Control

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LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**		
		Date	02/07/17
Average	0.4560	CPM/DPM	0.4573
Standard Deviation	0.0024	Date	
+ 3-sigma value	0.4634	CPM	
- 3-sigma value	0.4487	Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR C2

Process Date Range: 12/28/16 - 02/07/17

UCL (3 S)
UWL (2 S)
MEAN
LWL (2 S)
LCL (3 S)

CPM/DPM

12/27 01/01 01/06 01/11 01/16 01/21 01/26 01/31 02/05

Population Frequency Distribution (Histogram)

Bin	Frequency
0.45	1
0.45	2
0.45	9
0.46	6
0.46	7
More	5

INTERNATIONAL

Statistical Process Control

LB4100-C - BETA EFFICIENCY

Population Statistics

			Date	02/07/17
Population Size	**30**			
		CPM/DPM	0.4567
Average	0.4626			
Standard Deviation	0.0026		Date	
+ 3-sigma value	0.4703		CPM	
- 3-sigma value	0.4549		Count Mins	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR C3
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	2
0.46	4
0.46	9
0.46	6
More	8

Statistical Process Control

INTERNATIONAL

LB4100-C - BETA EFFICIENCY

Population Statistics

Population Size	**30**
Average	0.4668
Standard Deviation	0.0017
+ 3-sigma value	0.4720
- 3-sigma value	0.4616

Date	CPM/DPM	02/07/17
		0.4661
Date		
CPM		
Count Mins		

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA EFFICIENCY - DETECTOR C4
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.46	1
0.46	4
0.47	9
0.47	3
0.47	9
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	29
Average	0.9250
Standard Deviation	0.1044
+ 3-sigma value	1.2382
- 3-sigma value	0.6118

DER Analysis — OK

	DER
Long B Date	02/04/17
Long B CPM	0.8600
Count Mins	900.00
Date	02/07/17
CPM	0.9583
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR A1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.74	1
0.83	4
0.91	9
1.00	10
1.08	3
More	3

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	29
Average	0.9172
Standard Deviation	0.0851
+ 3-sigma value	1.1724
- 3-sigma value	0.6620

DER Analysis

	OK
DER	0.3036
Long B Date	02/04/17
Long B CPM	0.9111
Count Mins	900.00
Date	02/07/17
CPM	0.8833
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR A2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.78	1
0.84	6
0.90	6
0.96	8
1.02	4
More	5

Statistical Process Control

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LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	29
Average	0.8468
Standard Deviation	0.0807
+ 3-sigma value	1.0891
- 3-sigma value	0.6046

DER Analysis

		OK
	DER	0.6396
Long B Date	02/04/17	
Long B CPM	0.8644	
Count Mins	900.00	
Date	02/07/17	
CPM	0.8083	
Count Mins	120.00	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR A4
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.68	1
0.74	2
0.80	4
0.87	11
0.93	6
More	6

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**29**
Average	0.6733
Standard Deviation	0.0571
+ 3-sigma value	0.8445
- 3-sigma value	0.5021

DER Analysis

		OK
	DER	0.6088
Long B Date	02/04/17	
Long B CPM	0.6633	
Count Mins	900.00	
Date	02/07/17	
CPM	0.6167	
Count Mins	120.00	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR B1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.56	1
0.60	4
0.65	4
0.69	7
0.73	10
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.7555
Standard Deviation	0.0928
+ 3-sigma value	1.0339
- 3-sigma value	0.4770

DER Analysis

DER Analysis	OK
DER	1.1529
Long B Date	02/04/17
Long B CPM	0.7589
Count Mins	900.00
Date	02/07/17
CPM	0.6667
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR B2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.64	1
0.71	10
0.77	8
0.84	4
0.90	5
More	2

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	29
Average	1.2083
Standard Deviation	0.1236
+ 3-sigma value	1.5792
- 3-sigma value	0.8375

DER Analysis

DER Analysis	OK
DER	1.6264
Long B Date	02/04/17
Long B CPM	1.2144
Count Mins	900.00
Date	02/07/17
CPM	1.4000
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR C1
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.94	1
1.05	2
1.16	9
1.27	9
1.38	5
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.9023
Standard Deviation	0.0897
+ 3-sigma value	1.1714
- 3-sigma value	0.6332

DER Analysis	OK
DER	1.3596
Long B Date	02/04/17
Long B CPM	0.8689
Count Mins	900.00
Date	02/07/17
CPM	1.0000
Count Mins	120.00

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR C2
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.70	1
0.77	2
0.85	3
0.92	9
0.99	9
More	6

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics

Population Size	**29**
Average	0.8399
Standard Deviation	0.0736
+ 3-sigma value	1.0607
- 3-sigma value	0.6192

DER Analysis

DER	1.5517	OK
Long B Date	02/04/17	
Long B CPM	0.7967	
Count Mins	900.00	
Date	02/07/17	
CPM	0.9417	
Count Mins	120.00	

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR C3
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.71	1
0.76	5
0.82	4
0.87	10
0.93	6
More	4

INTERNATIONAL

Statistical Process Control

LB4100-C - Beta Daily BKG Check

Population Statistics	
Population Size	**29**
Average	0.8816
Standard Deviation	0.0739
+ 3-sigma value	1.1033
- 3-sigma value	0.6599

DER Analysis		OK
	DER	1.0872
Long B Date	02/04/17
Long B CPM	0.8556
Count Mins	900.00
	Date	02/07/17
	CPM	0.9583
Count Mins	120.00

Trending Analysis	
Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recent points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA BACKGROUND - DETECTOR C4
Process Date Range: 12/28/16 - 02/07/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.75	1
0.81	5
0.87	10
0.93	4
0.99	8
More	2

Statistical Process Control

INTERNATIONAL

Population Statistics

Population Size	**30**
Average	0.9235
Standard Deviation	0.0529
+ 3-sigma value	1.0820
- 3-sigma value	0.7649
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – BETA LONG BACKGROUND – DETECTOR A1

Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.79	1
0.84	1
0.89	4
0.93	10
0.98	11
More	3

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.9153
Standard Deviation	0.0411
+ 3-sigma value	1.0387
- 3-sigma value	0.7920
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – BETA LONG BACKGROUND - DETECTOR A2
Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.84	1
0.87	4
0.90	3
0.92	8
0.95	8
More	6

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	0.8487
Standard Deviation	0.0367
+ 3-sigma value	0.9587
- 3-sigma value	0.7387
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR A4
Process Date Range: 07/24/16 - 02/11/17

UCL (3 S)
MEAN
LWL (2 S)
LCL (3 S)

CPM

1.20
1.00
0.80
0.60
0.40
0.20
0.00

07/23   09/11   10/31   12/20   02/08

Population Frequency Distribution (Histogram)

Bin	Frequency
0.75	1
0.78	1
0.81	3
0.85	7
0.88	11
More	7

INTERNATIONAL

Statistical Process Control

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Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.7089
Standard Deviation	0.0238
+ 3-sigma value	0.7804
- 3-sigma value	0.6374
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C – BETA LONG BACKGROUND – DETECTOR B1

Process Date Range: 07/24/16 - 02/11/17

Control chart with values UCL (3 S), MEAN, LWL (2 S) plotted from 07/23 to 02/08 (dates: 07/23, 09/11, 10/31, 12/20, 02/08). Y-axis CPM ranging 0.00 to 0.90.

Population Frequency Distribution (Histogram)

Bin	Frequency
0.66	1
0.68	2
0.70	4
0.71	10
0.73	9
More	4

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.7708
Standard Deviation	0.0273
+ 3-sigma value	0.8526
− 3-sigma value	0.6889
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR B2
Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.72	2
0.74	3
0.76	2
0.78	11
0.80	9
More	3

INTERNATIONAL

Statistical Process Control

Population Statistics

Population Size	**30**
Average	1.1775
Standard Deviation	0.0337
+ 3-sigma value	1.2788
- 3-sigma value	1.0763
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR C1
Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
1.12	1
1.14	5
1.17	5
1.20	15
1.23	2
More	2

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.8899
Standard Deviation	0.0368
+ 3-sigma value	1.0002
- 3-sigma value	0.7796
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR C2

Process Date Range: 07/24/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.82	1
0.85	4
0.88	6
0.90	6
0.93	7
More	6

Statistical Process Control

INTERNATIONAL

Instrument Background Analysis

Population Statistics

Population Size	**30**
Average	0.8228
Standard Deviation	0.0314
+ 3-sigma value	0.9170
- 3-sigma value	0.7287
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR C3
Process Date Range: 07/17/16 - 02/11/17

Population Frequency Distribution (Histogram)

Bin	Frequency
0.76	1
0.79	3
0.82	12
0.85	11
0.89	1
More	2

INTERNATIONAL

Statistical Process Control

Instrument Background Analysis

Population Statistics

Population Size	30
Average	0.8761
Standard Deviation	0.0310
+ 3-sigma value	0.9692
- 3-sigma value	0.7831
	30.0000

Trending Analysis

Most recent point outside of the 3-sigma values.	OK
8 consecutive most recent points on one side of the mean.	OK
2 of 3 most recent points above 2 sigma.	OK
4 of 5 most recents points beyond the 1-sigma.	OK
7 trending most recent points in a row.	OK
15 most recent points inside 1 sigma.	OK
8 most recent points outside 1 sigma.	OK

LB4100-C - BETA LONG BACKGROUND - DETECTOR C4

Process Date Range: 07/24/16 - 02/11/17

UCL (3 S)
MEAN
LWL (2 S)

1.20
1.00
0.80
0.60
0.40
0.20
0.00

07/23   09/11   10/31   12/20   02/08

Population Frequency Distribution (Histogram)

Bin	Frequency
	1
0.82	4
0.85	9
0.87	8
0.89	4
0.92	4
More	

INTERNATIONAL

Statistical Process Control

Tennelec LB41-PF4 Low Background α/β Counter
(Instrument C)

Date	Time	ARS Batch Number	Batch Fraction	Type of Analysis	GEN Number	Detector	Analyst Initials
2-6-17	0709	Bnly	C4	Bkg	711	A4	S
2-6-17	0731	Bnly	CA	B/7	712	A4	S
2-6-17	1036	17-00218	C1	CB	713	A1	S
			C3			A2	S
			C4			A4	S
			C5			B1	S
			C6			B2	S
			C7			C1	S
			C9			C4	S
2-6-17	1357	17-00215	C1	CACD	714	A1	S
			C2			A2	S
			C3			A4	S
			C4			B1	S
			C5			B2	S
2-7-17	0701	Bnly	C4	Bkg	715	A4	S
2-7-17	0726	Bnly	CA	B/7	716	A4	S
2-7-17	0733	17-00 214	C1	CA	717	A1	S
			C2			A2	S
			C3			A4	S
			C4			B1	S
			C5			B2	S
			C6			C1	S
			C7			C2	S
			C8			C3	S
			C9			C4	S
2-8-17	0709	Bnly	C4	Bkg	718	A4	S
2-8-17	0730	Bnly	CA	B/7	719	A4	S

CE-17
Revision: 1
Revision Date: 031115

Reviewed _____ Initials   Date 2-21-17

Volatile Organics Analysis

SW 846 8260B

SDG# ARS1-17-00215
COC AQUEOUS SAMPLES

Analytical Batch Report

Analysis Batch ID   **ARS1-B17-00152**

	Method	Analysis	Matrix
	ARS-159	GCMS-8260B-AQ	AQ
Description	VOC's (Aqueous)		

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Prep Code	Client ID	Group Name	Lab Deadline
ARS1-B17-00152-01	LCS										
ARS1-B17-00152-02	LCSD										
ARS1-B17-00152-03	MBL										
ARS1-B17-00152-04	TRG				ARS1-17-00215	001	1	5030B	OS-3	VOA (8260B) in Aqueous Waste and Wastewater	02/17/17
ARS1-B17-00152-05	TRG				ARS1-17-00215	002	1	5030B	OS-10	VOA (8260B) in Aqueous Waste and Wastewater	02/17/17
ARS1-B17-00152-06	TRG				ARS1-17-00215	003	1	5030B	TRIP BLANK	VOA (8260B) in Aqueous Waste and Wastewater	02/17/17

Calculation Report

INTERNATIONAL

	Analytical Batch ID	ARS1-B17-00152
	Analysis Code	GCMS-8260B-AQ
	Procedure No	ARS-159
	Matrix	AQ

ABatch Sample ID	Analyte	SDG/Fraction	Analysis Date/Time	Instr Response (ug/L)	DF	Sample Result (ug/L)	Q	MDL (ug/L)	PQL (ug/L)	Spiked Amount (ug/L)	% Rec	RPD
01 - LCS	Trichloroethene		01/26/17 18:25	51.410	1.0	51.410		0.300	1.000	50.000	102.8%	
02 - LCSD	Trichloroethene		01/26/17 18:50	52.910	1.0	52.910		0.300	1.000	50.000	105.8%	2.9%
03 - MBL	Trichloroethene		01/26/17 18:01	0.000	1.0	0.000	U	0.300	1.000	0.000		
04 - TRG	Trichloroethene	ARS1-17-00215-001	01/26/17 19:14	0.000	1.0	0.000	U	0.300	1.000	0.000		
	1,2-Dichloroethane-d4 (Surr)	ARS1-17-00215-001	01/26/17 19:14	53.570	1.0	53.570		N/A	N/A	50.000	107.1%	
	Bromofluorobenzene (Surr)	ARS1-17-00215-001	01/26/17 19:14	53.120	1.0	53.120		N/A	N/A	50.000	106.2%	
	Dibromofluoromethane (Surr)	ARS1-17-00215-001	01/26/17 19:14	41.280	1.0	41.280		N/A	N/A	50.000	82.6%	
	Toluene-d8 (Surr)	ARS1-17-00215-001	01/26/17 19:14	54.720	1.0	54.720		N/A	N/A	50.000	109.4%	
05 - TRG	Trichloroethene	ARS1-17-00215-002	01/26/17 19:39	0.000	1.0	0.000	U	0.300	1.000	0.000		
	1,2-Dichloroethane-d4 (Surr)	ARS1-17-00215-002	01/26/17 19:39	53.340	1.0	53.340		N/A	N/A	50.000	106.7%	
	Bromofluorobenzene (Surr)	ARS1-17-00215-002	01/26/17 19:39	52.570	1.0	52.570		N/A	N/A	50.000	105.1%	
	Dibromofluoromethane (Surr)	ARS1-17-00215-002	01/26/17 19:39	40.650	1.0	40.650		N/A	N/A	50.000	81.3%	
	Toluene-d8 (Surr)	ARS1-17-00215-002	01/26/17 19:39	54.640	1.0	54.640		N/A	N/A	50.000	109.3%	
06 - TRG	Trichloroethene	ARS1-17-00215-003	01/26/17 20:03	0.000	1.0	0.000	U	0.300	1.000	0.000		
	1,2-Dichloroethane-d4 (Surr)	ARS1-17-00215-003	01/26/17 20:03	53.830	1.0	53.830		N/A	N/A	50.000	107.7%	
	Bromofluorobenzene (Surr)	ARS1-17-00215-003	01/26/17 20:03	52.730	1.0	52.730		N/A	N/A	50.000	105.5%	
	Dibromofluoromethane (Surr)	ARS1-17-00215-003	01/26/17 20:03	41.780	1.0	41.780		N/A	N/A	50.000	83.6%	
	Toluene-d8 (Surr)	ARS1-17-00215-003	01/26/17 20:03	55.170	1.0	55.170		N/A	N/A	50.000	110.3%	

Volatile Internal Standard Area and RT Summary

Lab Name:
File Name (Std): C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 ccv6 ars16-122007.raw
Sample ID: 01-26-17 ccv6 ars16-122007
Description: 01-26-17 ccv6 ars16-122007
Inject Date/Time: January 27, 2017 7:53:57 AM   Vial: 36
Instrument: Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS ID: 250 um   Heated Purge: N

	IS1 () Area	RT	IS2 (CBZ) Area	RT	IS3 () Area	RT
12 HOUR STD	1507867	4.10	1298681	7.37	753166	9.86
UPPER LIMIT	3015734	4.60	2597361	7.87	1506331	10.36
LOWER LIMIT	753933	3.60	649340	6.87	376583	9.36

	File Name	Area #	RT #	Area #	RT #	Area #	RT #
1	01-26-17 B17-00152 ccv ars16-122001	2277814	4.10	1757654	7.37	966856	9.86
2	01-26-17 B17-00152 LCS ars16-122001	2061660	4.11	1625488	7.37	898981	9.86
3	01-26-17 B17-00152 LCSD ars16-122001	2016164	4.11	1587090	7.38	888041	9.87
4	01-26-17 B17-00152 (001)	2041166	4.11	1563942	7.37	847077	9.86
5	01-26-17 B17-00152 (002)	1998331	4.11	1535095	7.38	823292	9.87
6	01-26-17 B17-00152 (003)	2051715	4.11	1562256	7.37	829630	9.86
7	01-26-17 B17-00152 iblk2	1968884	4.11	1504561	7.37	820649	9.86
8	01-26-17 B17-00152 ccv2 ars-16-122001	1910416	4.11	1497453	7.37	848023	9.86

IS1 () = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 () = 1,4-Dichlorobenzene-D4

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

\# Column used to flag values outside QC limits with an asterisk
* Values outside QC limits

Volatile Organic Instrument Performance Check

Bromofluorobenzene (BFB)

Lab Name: Contract:

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 iblk1.raw

Sample ID: 01-26-17 B17-00152 iblk1

Description: 01-26-17 B17-00152 iblk1

Inject Date/Time: January 26, 2017 6:01:21 PM

Instrument: Tune File: 010317.IPR

GC Method: 8260.mth   MS Method: 8260.EXP

GC Column: Elite-VMS ID: 250 um

Scans: COMBINE(1671:1674)-(1655:1661,1695:1699)

Test Name: BFB 624/8260 TEST   Result: PASS

m/z	Ion Abundance Criteria	% Relative Abundance	Result
50	15% - 40% of mass 95	18.7	Pass
75	30% - 60% of mass 95	45.6	Pass
95	Base Peak, 100% relative abundance	100.0	Pass
96	5% - 9% of mass 95	6.7	Pass
173	Less than 2% of mass 174	0.7	Pass
174	Greater than 50% of mass 95	64.6	Pass
175	5% - 9% of mass 174	7.6	Pass
176	Greater than 95% but less than 101% of 174	96.9	Pass
177	5% - 9% of mass 176	6.5	Pass

This check applies to the following samples, MS, MSD, blanks and standards:

	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	01-26-17 B17-00152 ccv ars16-122001	01-26-17 B17-00152 ccv ars16-122001	January 26, 2017	05:36:51 PM
2	ARS1-B17-00152-02	01-26-17 B17-00152 LCS ars16-122001	January 26, 2017	06:25:47 PM
3	ARS1-B17-00152-03	01-26-17 B17-00152 LCSD ars16-122001	January 26, 2017	06:50:17 PM
4	ARS1-B17-00152-04	01-26-17 B17-00152 (001)	January 26, 2017	07:14:47 PM
5	ARS1-B17-00152-05	01-26-17 B17-00152 (002)	January 26, 2017	07:39:16 PM
6	ARS1-B17-00152-06	01-26-17 B17-00152 (003)	January 26, 2017	08:03:47 PM
7	01-26-17 B17-00152 iblk2	01-26-17 B17-00152 iblk2	January 26, 2017	08:28:18 PM
8	01-26-17 B17-00152 ccv2 ars16-122001	01-26-17 B17-00152 ccv2 ars-16-122001	January 26, 2017	08:52:43 PM
9	01-26-17 ccv6 ars16-122007	01-26-17 ccv6 ars16-122007	January 27, 2017	07:53:57 AM

Schedule "8260 water 01-26-17 B17-00152, MDLs, new std cal" version 1

Instrument: PE CLARUS GCMS
Last Save Time: Thursday, January 26, 2017 at 5:19:26 PM
Creation Time: Thursday, January 26, 2017 at 5:19:26 PM

Comments: None

Line	Use?	Vial	Method	Type	STD 1	STD 2	STD 3	Dilution
1	Yes	1	8260 Water hi heat	Water	5	0	0	1:1
2	Yes	2	8260 Water hi heat	Water	5	0	0	1:1
3	Yes	3	8260 Water hi heat	Water	5	0	0	1:1
4	Yes	4	8260 Water hi heat	Water	5	0	0	1:1
5	Yes	5	8260 Water hi heat	Water	5	0	0	1:1
6	Yes	6	8260 Water hi heat	Water	5	0	0	1:1
7	Yes	7	8260 Water hi heat	Water	5	0	0	1:1
8	Yes	8	8260 Water hi heat	Water	5	0	0	1:1
9	Yes	9	8260 Water hi heat	Water	5	0	0	1:1
10	Yes	10	8260 Water hi heat	Water	5	0	0	1:1
11	Yes	11	8260 Water hi heat	Water	5	0	0	1:1
12	Yes	12	8260 Water hi heat	Water	5	0	0	1:1
13	Yes	13	8260 Water hi heat	Water	5	0	0	1:1
14	Yes	14	8260 Water hi heat	Water	5	0	0	1:1
15	Yes	15	8260 Water hi heat	Water	5	0	0	1:1
16	Yes	16	8260 Water hi heat	Water	5	0	0	1:1
17	Yes	17	8260 Water hi heat	Water	5	0	0	1:1
18	Yes	18	8260 Water hi heat	Water	5	0	0	1:1
19	Yes	19	8260 Water hi heat	Water	5	0	0	1:1
20	Yes	20	8260 Water hi heat	Water	5	0	0	1:1
21	Yes	21	8260 Water hi heat	Water	5	0	0	1:1
22	Yes	22	8260 Water hi heat	Water	5	0	0	1:1
23	Yes	23	8260 Water hi heat	Water	5	0	0	1:1
24	Yes	24	8260 Water hi heat	Water	5	0	0	1:1
25	Yes	25	8260 Water hi heat	Water	5	0	0	1:1
26	Yes	26	8260 Water hi heat	Water	5	0	0	1:1
27	Yes	27	8260 Water hi heat	Water	5	0	0	1:1
28	Yes	28	8260 Water hi heat	Water	5	0	0	1:1
29	Yes	29	8260 Water hi heat	Water	5	0	0	1:1
30	Yes	30	8260 Water hi heat	Water	5	0	0	1:1
31	Yes	31	8260 Water hi heat	Water	5	0	0	1:1
32	Yes	32	8260 Water hi heat	Water	5	0	0	1:1
33	Yes	33	8260 Water hi heat	Water	5	0	0	1:1
34	Yes	34	8260 Water hi heat	Water	5	0	0	1:1
35	Yes	35	8260 Water hi heat	Water	5	0	0	1:1
36	Yes	36	8260 Water hi heat	Water	5	0	0	1:1

Volatile Internal Standard Area and RT Summary

Lab Name:
Contract:
File Name (Std): C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 ccv6 ars16-122007.raw
Sample ID: 01-26-17 ccv6 ars16-122007
Description: 01-26-17 ccv6 ars16-122007
Inject Date/Time: January 27, 2017 7:53:57 AM   Vial: 36
Instrument: Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS ID: 250 um   Heated Purge: N

| | | IS1 () | | IS2 (CBZ) | | IS3 () | |
		Area	RT	Area	RT	Area	RT
	12 HOUR STD	1507867	4.10	1298681	7.37	753166	9.86
	UPPER LIMIT	3015734	4.60	2597361	7.87	1506331	10.36
	LOWER LIMIT	753933	3.60	649340	6.87	376583	9.36
	File Name	**Area #**	**RT #**	**Area #**	**RT #**	**Area #**	**RT #**
1	01-26-17 B17-00152 ccv ars16-122001	2277814	4.10	1757654	7.37	966856	9.86
2	01-26-17 B17-00152 LCS ars16-122001	2061660	4.11	1625488	7.37	898981	9.86
3	01-26-17 B17-00152 LCSD ars16-122001	2016164	4.11	1587090	7.38	888041	9.87
4	01-26-17 B17-00152 (001)	2041166	4.11	1563942	7.37	847077	9.86
5	01-26-17 B17-00152 (002)	1998331	4.11	1535095	7.38	823292	9.87
6	01-26-17 B17-00152 (003)	2051715	4.11	1562256	7.37	829630	9.86
7	01-26-17 B17-00152 iblk2	1968884	4.11	1504561	7.37	820649	9.86
8	01-26-17 B17-00152 ccv2 ars-16-122001	1910416	4.11	1497453	7.37	848023	9.86

IS1   ()   = Fluorobenzene
IS2   (CBZ)   = Chlorobenzene-d5
IS3   ()   = 1,4-Dichlorobenzene-D4

AREA UPPER LIMIT = + 100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Values outside QC limits

Volatile Organic Instrument Performance Check

Bromofluorobenzene (BFB)

Lab Name: Contract:

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 iblk1.raw

Sample ID: 01-26-17 B17-00152 iblk1

Description: 01-26-17 B17-00152 iblk1

Inject Date/Time: January 26, 2017 6:01:21 PM

Instrument: Tune File: 010317.IPR

GC Method: 8260.mth   MS Method: 8260.EXP

GC Column: Elite-VMS ID: 250 um

Scans: COMBINE(1671:1674)-(1655:1661,1695:1699)

Test Name: BFB 624/8260 TEST   Result: PASS

m/z	Ion Abundance Criteria	% Relative Abundance	Result
50	15% - 40% of mass 95	18.7	Pass
75	30% - 60% of mass 95	45.6	Pass
95	Base Peak, 100% relative abundance	100.0	Pass
96	5% - 9% of mass 95	6.7	Pass
173	Less than 2% of mass 174	0.7	Pass
174	Greater than 50% of mass 95	64.6	Pass
175	5% - 9% of mass 174	7.6	Pass
176	Greater than 95% but less than 101% of 174	96.9	Pass
177	5% - 9% of mass 176	6.5	Pass

This check applies to the following samples, MS, MSD, blanks and standards:

	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	01-26-17 B17-00152 ccv ars16-122001	01-26-17 B17-00152 ccv ars16-122001	January 26, 2017	05:36:51 PM
2	01-26-17 B17-00152 LCS ars16-122001	01-26-17 B17-00152 LCS ars16-122001	January 26, 2017	06:25:47 PM
3	01-26-17 B17-00152 LCSD ars16-122001	01-26-17 B17-00152 LCSD ars16-122001	January 26, 2017	06:50:17 PM
4	01-26-17 B17-00152 (001)	01-26-17 B17-00152 (001)	January 26, 2017	07:14:47 PM
5	01-26-17 B17-00152 (002)	01-26-17 B17-00152 (002)	January 26, 2017	07:39:16 PM
6	01-26-17 B17-00152 (003)	01-26-17 B17-00152 (003)	January 26, 2017	08:03:47 PM
7	01-26-17 B17-00152 iblk2	01-26-17 B17-00152 iblk2	January 26, 2017	08:28:18 PM
8	01-26-17 B17-00152 ccv2 ars16-122001	01-26-17 B17-00152 ccv2 ars-16-122001	January 26, 2017	08:52:43 PM
9	01-26-17 ccv6 ars16-122007	01-26-17 ccv6 ars16-122007	January 27, 2017	07:53:57 AM

Water Volatile System Monitoring Compound Recovery

Lab Name: Contract:

Project Path: C:\TurboMass\T020117 B1700152.PRO

Instrument: Tune File: 010317.IPR

GC Method: 8260.mth   MS Method: 8260.EXP

Quantify Method: 8260b water 01-26-2017 B17-00152 Last Updated: February 01, 2017 1:23:36 PM

Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM

GC Column: Elite-VMS ID: 250 um

	File Name	SMC 1 (BFM) #	SMC 2 (TD8) #	SMC 3 (BFB) #	SMC 4 (dced #	Tot Out
1	01-26-17 B17-00152 ccv ars16-122001	92	109	107	107	0
2	01-26-17 B17-00152 LCS ars16-122001	94	108	107	105	0
3	01-26-17 B17-00152 LCSD ars16-122001	94	107	106	106	0
4	01-26-17 B17-00152 (001)	83	109	106	107	0
5	01-26-17 B17-00152 (002)	81	109	105	107	0
6	01-26-17 B17-00152 (003)	84	110	105	108	0
7	01-26-17 B17-00152 iblk2	82	110	106	107	0
8	01-26-17 B17-00152 ccv2 ars-16-122001	94	108	106	105	0

QC LIMITS

SMC1	(BFM)	=	Dibromofluoromethane	(80 - 119)
SMC2	(TD8)	=	Toluene-d8	(89 - 112)
SMC3	(BFB)	=	Bromoflurorobenzene	(85 - 114)
SMC4	(dced)	=	1,2-Dichloroethane-d4	(81 - 118)

Column to be used to flag recovery values

* Values outside of required QC limits

Volatile Internal Standard Area and RT Summary

Lab Name: Contract:

File Name (Std):   C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 ccv6 ars16-122007.raw
Sample ID: 01-26-17 ccv6 ars16-122007
Description: 01-26-17 ccv6 ars16-122007
Inject Date/Time: January 27, 2017 7:53:57 AM   Vial: 36
Instrument: Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152 Last Updated: February 01, 2017 1:23:36 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS ID: 250 um   Heated Purge: N

	IS1 () Area	RT	IS2 (CBZ) Area	RT	IS3 () Area	RT
12 HOUR STD	1507867	4.10	1298681	7.37	753166	9.86
UPPER LIMIT	3015734	4.60	2597361	7.87	1506331	10.36
LOWER LIMIT	753933	3.60	649340	6.87	376583	9.36
File Name	**Area #**	**RT #**	**Area #**	**RT #**	**Area #**	**RT #**
1 01-26-17 B17-00152 ccv ars16-122001	2277814	4.10	1757654	7.37	966856	9.86
2 01-26-17 B17-00152 LCS ars16-122001	2061660	4.11	1625488	7.37	898981	9.86
3 01-26-17 B17-00152 LCSD ars16-122001	2016164	4.11	1587090	7.38	888041	9.87
4 01-26-17 B17-00152 (001)	2041166	4.11	1563942	7.37	847077	9.86
5 01-26-17 B17-00152 (002)	1998331	4.11	1535095	7.38	823292	9.87
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7 01-26-17 B17-00152 iblk2	1968884	4.11	1504561	7.37	820649	9.86
8 01-26-17 B17-00152 ccv2 ars-16-122001	1910416	4.11	1497453	7.37	848023	9.86

IS1   ()   = Fluorobenzene
IS2   (CBZ) = Chlorobenzene-d5
IS3   ()   = 1,4-Dichlorobenzene-D4

AREA UPPER LIMIT = + 100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk

* Values outside QC limits

Volatile Organics Initial Calibration Data

Lab Name:
Instrument:
GC Method: 8260.mth
Quantify Method: 8260b water 01-26-2017 B17-00152
Calibration File: 8260B water IC 01-24-17cal2
GC Column: Elite-VMS ID: 250 um
Project Path: C:\TurboMass\T020117 B1700152.PRO

Contract:
Tune File: 010317.IPR
MS Method: 8260.EXP
Last Updated: February 01, 2017 1:23:36 PM
Last Updated: January 24, 2017 4:48:29 PM
Heated Purge: N

	Concentration	File Name
1	0	IC0171701
2	0	IC0171702
3	1	IC0171703
4	2	IC0171704
5	5	IC0171705
6	10	IC0171706
7	20	IC0171707
8	40	IC0171708
9	50	IC0171709
10	80	IC0171710
11	100	IC0171711
12	120	IC0171712
13	160	IC0171713
14	200	IC0171714

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level	Level
Dichlorodifluoromethane	0.138	0.084	0.052	0.127	0.161	0.103	0.141	0.162	0.173	0.167	0.158
Chloromethane	0.866	0.638	0.513	0.431	0.422	0.363	0.353	0.349	0.349	0.351	0.337
Vinyl Chloride	0.313	0.273	0.281	0.270	0.310	0.245	0.293	0.310	0.322	0.329	0.302
Bromomethane	0.334	0.293	0.249	0.221	0.225	0.194	0.178	0.171	0.169	0.169	0.159
Chloroethane	0.194	0.187	0.171	0.150	0.163	0.141	0.148	0.155	0.151	0.147	0.141
Trichlorofluoromethane	0.303	0.156	0.150	0.198	0.268	0.184	0.224	0.182	0.172	0.159	0.151
1,1-Dichloroethene	0.156	0.139	0.155	0.153	0.177	0.139	0.160	0.167	0.170	0.166	0.155
Carbon disulfide	0.722	0.500	0.446	0.391	0.424	0.352	0.406	0.460	0.476	0.493	0.469
Iodomethane	0.040	0.047	0.038	0.054	0.076	0.096	0.170	0.219	0.210	0.222	0.213
Acrolein											
Allyl Chloride	0.066	0.065	0.095	0.092	0.111	0.105	0.111	0.116	0.115	0.116	0.112
Methyl Tert-butyl Ether											
Methylene Chloride	0.486	0.392	0.262	0.239	0.251	0.240	0.225	0.227	0.219	0.220	0.208

Volatile Organics Initial Calibration Data

Compound	Level	Level	Level	Avg RRF	% RSD	r²
Dichlorodifluoromethane	0.183					0.9931
Chloromethane	0.360	0.337	0.367			0.9975
Vinyl Chloride	0.328	0.264	0.317	0.297	8.9	
Bromomethane	0.177	0.162	0.170			0.9981
Chloroethane	0.150	0.133	0.146	0.156	11.3	
Trichlorofluoromethane	0.171					0.9914
1,1-Dichloroethene	0.169	0.132	0.150	0.156	8.5	
Carbon disulfide	0.511	0.432	0.483			0.9941
Iodomethane	0.211	0.225	0.205			0.9965
Acrolein		0.000	0.000	0.000	17.9	
Allyl Chloride	0.120	0.110	0.114			0.9984
Methyl Tert-butyl Ether						
Methylene Chloride	0.219	0.200	0.205			0.9980

Volatile Organics Initial Calibration Data

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level	Level
trans-1,2 Dichloroethene	0.244	0.259	0.215	0.221	0.222	0.203	0.213	0.219	0.217	0.216	0.204
Acetone	0.290	0.178	0.114	0.077	0.060	0.054	0.045	0.042	0.039	0.039	0.037
Acrylonitrile	0.511	0.135	0.128	0.131	0.143	0.142	0.130	0.132	0.123	0.127	0.122
1,1,-Dichloroethane	0.626	0.560	0.516	0.470	0.521	0.481	0.482	0.495	0.486	0.490	0.464
Chloroprene	0.511	0.401	0.406	0.382	0.421	0.349	0.396	0.419	0.425	0.422	0.399
cis-1,2,-Dichloroethene	0.295	0.275	0.257	0.260	0.285	0.272	0.262	0.270	0.260	0.261	0.248
2,2,-Dichloropropane	0.271	0.219	0.223	0.209	0.236	0.203	0.224	0.244	0.250	0.252	0.241
2-Butanone	0.016	0.016	0.018	0.020	0.036	0.041	0.040	0.043	0.039	0.038	0.039
Propionitrile	0.020	0.022	0.031	0.037	0.054	0.056	0.053	0.057	0.054	0.054	0.052
Bromochloromethane	0.053	0.066	0.085	0.103	0.119	0.119	0.118	0.122	0.116	0.119	0.116
Chloroform	0.544	0.504	0.425	0.402	0.436	0.420	0.412	0.425	0.412	0.413	0.396
Carbon tetrachloride	0.084	0.069	0.110	0.123	0.163	0.130	0.175	0.202	0.219	0.223	0.219
Vinyl Acetate											
1,1,1-Trichloroethane	0.234	0.243	0.264	0.247	0.301	0.256	0.295	0.322	0.330	0.330	0.315
1,1-Dichloropropene	0.436	0.331	0.310	0.312	0.353	0.289	0.325	0.347	0.352	0.350	0.333
Benzene	1.692	1.422	1.226	1.141	1.204	1.096	1.078	1.119	1.084	1.096	1.030
Methacrylonitrile	0.280	0.264	0.256	0.230	0.254	0.259	0.244	0.252	0.238	0.240	0.226
1,2-Dichloroethane	0.527	0.468	0.415	0.392	0.434	0.411	0.394	0.414	0.389	0.391	0.378
Trichloroethene	0.390	0.277	0.277	0.256	0.273	0.240	0.245	0.250	0.245	0.243	0.228
1,2-Dichloropropane	0.310	0.325	0.297	0.293	0.323	0.311	0.308	0.324	0.313	0.312	0.302
Bromodichloromethane	0.221	0.225	0.206	0.205	0.244	0.253	0.266	0.298	0.294	0.309	0.303
Methyl methacrylate	0.191	0.235	0.211	0.214	0.255	0.263	0.263	0.275	0.260	0.269	0.260
Dibromomethane	0.079	0.121	0.128	0.131	0.150	0.150	0.147	0.154	0.145	0.147	0.142
1,4-Dioxane	0.003	0.000	0.000	0.001	0.001	0.002	0.003	0.003	0.004	0.004	0.003
2-Chloroethyl Vinyl Ether	0.071	0.084	0.080	0.085	0.103	0.003	0.097	0.104	0.104	0.103	0.097
cis-1,3-Dichloropropene	0.319	0.382	0.286	0.277	0.328	0.338	0.354	0.402	0.392	0.414	0.409
Toluene	1.258	1.030	0.913	0.805	0.843	0.797	0.796	0.805	0.784	0.777	0.721
trans-1,3-Dichloropropene	0.324	0.293	0.271	0.266	0.330	0.355	0.381	0.445	0.437	0.458	0.448
1,1,2-Trichloroethane	0.220	0.232	0.238	0.231	0.255	0.259	0.246	0.259	0.244	0.245	0.233
Ethyl methacrylate	0.495	0.462	0.476	0.456	0.525	0.542	0.542	0.589	0.558	0.570	0.540
Tetrachloroethene	0.373	0.307	0.317	0.286	0.308	0.263	0.262	0.264	0.259	0.247	0.234
Chlorodibromomethane	0.053	0.101	0.141	0.142	0.177	0.193	0.208	0.247	0.242	0.260	0.256
1,3-Dichloropropane	0.751	0.710	0.624	0.581	0.640	0.628	0.600	0.629	0.595	0.592	0.563
1,2-Dibromoethane	0.208	0.262	0.240	0.254	0.295	0.307	0.300	0.318	0.303	0.302	0.288
Ethylbenzene	2.093	1.610	1.576	1.410	1.549	1.429	1.452	1.505	1.481	1.464	1.378
1,1,1,2-Tetrachloroethane	0.103	0.159	0.174	0.163	0.198	0.211	0.226	0.252	0.249	0.263	0.258
Chlorobenzene	1.443	1.207	1.044	0.956	1.013	0.961	0.920	0.942	0.914	0.906	0.860
m,p-Xylene	0.851	0.689	0.646	0.587	0.645	0.597	0.601	0.623	0.608	0.596	0.703
o-Xylene	0.739	0.661	0.616	0.578	0.629	0.597	0.597	0.621	0.603	0.599	0.565

Volatile Organics Initial Calibration Data

Compound	Level	Level	Level	Level	Avg RRF	% RSD	r²
trans-1,2 Dichloroethene	0.219	0.195	0.203		0.218	7.6	
Acetone	0.041	0.038	0.039				0.9979
Acrylonitrile	0.138	0.128	0.133				0.9976
1,1,-Dichloroethane	0.500	0.458	0.471		0.501	8.9	
Chloroprene	0.432	0.364	0.401		0.409	9.2	
cis-1,2,-Dichloroethene	0.264	0.244	0.250		0.265	5.2	
2,2,-Dichloropropane	0.265	0.235	0.250		0.237	8.4	
2-Butanone	0.046	0.042	0.044				0.9956
Propionitrile	0.062	0.058	0.061				0.9952
Bromochloromethane	0.125	0.116	0.120				0.9989
Chloroform	0.434	0.401	0.413		0.431	9.7	
Carbon tetrachloride	0.250						0.9924
Vinyl Acetate							
1,1,1-Trichloroethane	0.346	0.301	0.328		0.294	12.9	
1,1-Dichloropropene	0.367	0.312	0.351		0.341	10.3	
Benzene	1.120	1.038	1.083				0.9986
Methacrylonitrile	0.252	0.229	0.235		0.247	6.2	
1,2-Dichloroethane	0.413	0.380	0.389				0.9985
Trichloroethene	0.249	0.223	0.233				0.9976
1,2-Dichloropropane	0.325	0.298	0.308				0.9986
Bromodichloromethane	0.332	0.313	0.329				0.9981
Methyl methacrylate	0.296	0.278	0.293				0.9972
Dibromomethane	0.155	0.144	0.148				0.9988
1,4-Dioxane	0.004	0.004	0.005				0.9954
2-Chloroethyl Vinyl Ether	0.107	0.099	0.103				0.9970
cis-1,3-Dichloropropene	0.451	0.426	0.449				0.9977
Toluene	0.779	0.702	0.710				0.9970
trans-1,3-Dichloropropene	0.493	0.463	0.478				0.9985
1,1,2-Trichloroethane	0.254	0.236	0.244				0.9987
Ethyl methacrylate	0.612	0.567	0.591				0.9979
Tetrachloroethene	0.251	0.213	0.226				0.9937
Chlorodibromomethane	0.286	0.271	0.284				0.9973
1,3-Dichloropropane	0.613	0.570	0.584		0.620	8.5	
1,2-Dibromoethane	0.314	0.288	0.292				0.9984
Ethylbenzene	1.493	1.369	1.407		1.515	12.0	
1,1,1,2-Tetrachloroethane	0.282	0.268	0.280				0.9983
Chlorobenzene	0.924	0.850	0.868				0.9985
m,p-Xylene	0.722	0.547	0.560		0.641	12.4	
o-Xylene	0.603	0.556	0.564		0.609	7.7	

Volatile Organics Initial Calibration Data

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level	Level
Bromoform	0.021	0.029	0.051	0.066	0.097	0.105	0.116	0.143	0.143	0.162	0.167
4-Methyl-2-pentanone	0.015	0.019	0.030	0.040	0.059	0.064	0.063	0.066	0.064	0.064	0.061
2-Hexanone	0.245	0.347	0.274	0.270	0.315	0.336	0.309	0.325	0.312	0.316	0.297
Styrene	1.211	0.991	0.950	0.905	1.025	1.010	1.005	1.051	1.012	1.012	0.974
Isopropylbenzene	1.963	1.530	1.530	1.385	1.546	1.410	1.471	1.536	1.522	1.500	1.426
Bromobenzene	0.895	0.796	0.775	0.712	0.760	0.749	0.700	0.725	0.699	0.686	0.646
cis-1,4-dichloro-2-butene	0.014	0.009	0.106	0.050	0.077	0.096	0.109	0.144	0.150	0.177	0.176
trans-1,4-dichloro-2-butene	0.114	0.161	0.123	0.183	0.230	0.255	0.234	0.284	0.257	0.284	0.278
n-Propylbenzene	5.270	3.832	3.713	3.286	3.562	3.203	3.333	3.484	3.415	3.323	3.098
1,1,2,2-Tetrachloroethane	0.755	0.785	0.729	0.725	0.849	0.876	0.852	0.881	0.843	0.839	0.801
1,2,3-Trichloropropane	0.117	0.207	0.124	0.132	0.148	0.144	0.140	0.130	0.130	0.123	0.112
1,3,5-trimethylbenzene		3.036	2.898	2.654	2.873	2.692	2.708	2.764	2.707	2.637	2.466
2-Chlorotoluene	3.415	2.703	2.544	2.290	2.383	2.237	2.203	2.262	2.179	2.124	1.969
4-Chlorotoluene	3.672	3.014	2.617	2.355	2.425	2.326	2.253	2.290	2.226	2.292	2.053
tert-Butylbenzene	3.347	2.496	2.557	2.297	2.570	2.297	2.427	2.565	2.561	2.509	2.380
1,2,4-Trimethylbenzene	4.305	3.289	3.075	2.782	2.989	2.855	2.828	2.906	2.820	2.770	2.576
sec-Butylbenzene	4.748	3.391	3.476	3.046	3.438	2.939	3.190	3.339	3.304	3.190	2.964
4-Isopropyltoluene	4.274	3.071	2.974	2.663	2.913	2.600	2.758	2.921	2.856	2.810	2.646
1,3-Dichlorobenzene	2.875	2.126	1.722	1.504	1.535	1.464	1.390	1.447	1.387	1.404	1.339
1,4-Dichlorobenzene	2.875	2.126	1.722	1.504	1.535	1.464	1.390	1.447	1.387	1.404	1.339
n-Butylbenzene	4.136	2.765	2.491	2.193	2.402	2.149	2.306	2.472	2.468	2.418	2.279
1,2-Dichlorobenzene	1.989	1.678	1.508	1.412	1.450	1.415	1.359	1.414	1.358	1.360	1.306
1,2-Dibromo-3-chloropropane	0.052	0.062	0.071	0.082	0.120	0.143	0.145	0.171	0.172	0.187	0.182
1,2,4-Trichlorobenzene	2.019	1.441	1.137	1.028	1.075	1.030	1.000	1.074	1.024	1.046	1.015
Hexachlorobutadiene	0.447	0.326	0.383	0.301	0.354	0.314	0.354	0.382	0.381	0.378	0.362
Naphthalene	4.923	3.989	3.497	3.203	3.521	3.434	3.293	3.449	3.276	3.270	3.120
1,2,3-Trichlorobenzene	1.557	1.370	1.142	1.071	1.124	1.078	1.045	1.094	1.040	1.050	1.024

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level	Level
Dibromofluoromethane	0.216	0.215	0.213	0.215	0.218	0.220	0.222	0.226	0.227	0.231	0.231
Toluene-d8	1.238	1.224	1.249	1.246	1.249	1.248	1.249	1.256	1.266	1.253	1.225
Bromoflurorobenzene	0.518	0.522	0.521	0.524	0.532	0.532	0.539	0.544	0.540	0.539	0.543
1,2-Dichloroethane-d4	0.086	0.085	0.088	0.088	0.086	0.087	0.088	0.088	0.088	0.087	0.084

Volatile Organics Initial Calibration Data

Compound	Level	Level	Level	Avg RRF	% RSD	r²
Bromoform	0.193	0.192	0.211			0.9985
4-Methyl-2-pentanone	0.069	0.064	0.068			0.9974
2-Hexanone	0.349	0.328	0.344			0.9963
Styrene	1.041	0.972	0.993			0.9990
Isopropylbenzene	1.547	1.386	1.440	1.514	9.4	
Bromobenzene	0.688	0.613	0.599	0.717	10.7	
cis-1,4-dichloro-2-butene	0.210	0.211	0.217			0.9901
trans-1,4-dichloro-2-butene	0.316	0.290	0.294			0.9972
n-Propylbenzene	3.255	2.807	2.766			0.9905
1,1,2,2-Tetrachloroethane	0.892	0.839	0.839	0.822	6.6	
1,2,3-Trichloropropane	0.142	0.119	0.126			0.9923
1,3,5-trimethylbenzene	2.604	2.290	2.233			0.9921
2-Chlorotoluene	2.081	1.869	1.817			0.9938
4-Chlorotoluene	2.172	2.050	2.041			0.9978
tert-Butylbenzene	2.574	2.245	2.242	2.505	10.9	
1,2,4-Trimethylbenzene	2.711	2.427	2.401			0.9947
sec-Butylbenzene	3.205	2.670	2.757			0.9908
4-Isopropyltoluene	2.826	2.450	2.451			0.9935
1,3-Dichlorobenzene	1.425	1.313	1.337			0.9986
1,4-Dichlorobenzene	1.425	1.313	1.337			0.9986
n-Butylbenzene	2.427	2.088	2.207			0.9948
1,2-Dichlorobenzene	1.400	1.299	1.320	1.448	12.7	
1,2-Dibromo-3-chloropropane	0.210	0.199	0.199			0.9969
1,2,4-Trichlorobenzene	1.078	0.966	0.963			0.9968
Hexachlorobutadiene	0.402	0.336	0.353	0.362	10.4	
Naphthalene	3.381	3.052	2.990	3.457	14.1	
1,2,3-Trichlorobenzene	1.084	0.973	0.972			0.9969

Compound	Level	Level	Level	Avg RRF	% RSD	r²
Dibromofluoromethane	0.233	0.233	0.236	0.224	3.5	
Toluene-d8	1.222	1.196	1.181	1.236	1.9	
Bromoflurorobenzene	0.553	0.562	0.572	0.539	2.9	
1,2-Dichloroethane-d4	0.084	0.083	0.081	0.086	2.6	

Quantify Sample Summary Report

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 ccv ars16-122001   Sample ID: 01-26-17 B17-00152 ccv ars16-122001

Name	RT	Area	Height	ug/L!
Fluorobenzene	4.100	2277814	67691448	50.00
Chlorobenzene-d5	7.371	1757654	52970584	50.00
1,4-Dichlorobenzene-	9.862	966856	36538292	50.00
Dibromofluoromethane	3.395	468553	13806431	45.89
Toluene-d8	5.660	2371180	71502088	54.59
Bromoflurorobenzene	8.867	1015201	33762872	53.63
1,2-Dichloroethane-d	3.840	161720	4831969	53.60
Dichlorodifluorometh	0.859	319976	9998649	41.94
Chloromethane	0.954	703889	19052466	43.83
Vinyl Chloride	0.994	660705	21742572	48.84
Bromomethane	1.159	413062	13332967	53.56
Chloroethane	1.224	324250	10862979	45.74
Trichlorofluorometha	1.294	347995	11255016	45.63
1,1-Dichloroethene	1.589	402785	12757742	56.56
Carbon disulfide	1.589	1008120	32780606	47.12
Iodomethane	1.669	477372	13905125	50.06
Acrolein				
Allyl Chloride	1.909	235793	7224743	45.41
Methyl Tert-butyl Et	2.219	19	826	0.00
Methylene Chloride	1.984	505886	15220099	52.41
trans-1,2 Dichloroet	2.099	504584	14990661	50.84
Acetone	2.054	89284	2655520	48.75
Acrylonitrile	2.629	237530	7384831	40.15
1,1,-Dichloroethane	2.564	974601	27392780	42.66
Chloroprene	2.549	872166	26129672	46.79
cis-1,2,-Dichloroeth	2.999	604979	18196482	50.20
2,2,-Dichloropropane	3.079	452797	12054570	41.87
2-Butanone	3.540	73377	2083653	38.95
Propionitrile	3.775	99657	2994818	38.70
Bromochloromethane	3.154	248903	7406192	46.01
Chloroform	3.245	862282	25151692	43.90
Carbon tetrachloride	3.320	440367	12105014	43.12
Vinyl Acetate				
1,1,1-Trichloroethan	3.385	664367	18063156	49.65
1,1-Dichloropropene	3.495	710584	20485194	45.80
Benzene	3.710	2235900	65555996	45.47
Methacrylonitrile	3.785	458951	13289404	40.79
1,2-Dichloroethane	3.900	765030	22785760	42.73
Trichloroethene	4.250	555289	16512349	51.50
1,2-Dichloropropane	4.740	619376	18004636	43.86
Bromodichloromethane	4.835	624161	18483548	44.14
Methyl methacrylate	5.065	457239	13766160	36.56
Dibromomethane	4.635	318433	9596871	47.43
1,4-Dioxane	5.070	5708	190311	37.41

Quantify Sample Summary Report

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 ccv ars16-122001   Sample ID: 01-26-17 B17-00152 B17-00152 ccv ars16-122001

Name	RT	Area	Height	ug/Li
2-Chloroethyl Vinyl	5.715	201692	6124761	44.28
cis-1,3-Dichloroprop	5.475	748908	22760138	39.41
Toluene	5.715	1489170	44828740	57.17
trans-1,3-Dichloropr	6.196	673473	20821958	42.03
1,1,2-Trichloroethan	6.356	423165	12608647	49.38
Ethyl methacrylate	6.461	835908	25549360	41.53
Tetrachloroethene	6.101	512378	15327846	61.87
Chlorodibromomethane	6.526	445247	13356949	47.96
1,3-Dichloropropane	6.641	969182	29360156	44.48
1,2-Dibromoethane	6.746	511551	15157382	48.86
Ethylbenzene	7.476	2778847	83247768	52.16
1,1,1,2-Tetrachloroe	7.491	450950	13295636	48.41
Chlorobenzene	7.386	1598845	48626056	51.18
m,p-Xylene	7.661	2231571	67334000	99.04
o-Xylene	8.171	1070620	32482770	49.99
Bromoform	8.216	255686	7790285	48.53
4-Methyl-2-pentanone	6.191	99920	2927914	43.72
2-Hexanone	7.156	446372	12892407	39.14
Styrene	8.247	1838165	57061868	52.24
Isopropylbenzene	8.592	2729215	82686240	51.29
Bromobenzene	8.937	642360	21773226	46.31
cis-1,4-dichloro-2-b	8.987	107287	4085225	31.90
trans-1,4-dichloro-2	9.297	232480	8035058	42.22
n-Propylbenzene	9.047	3242692	112587072	54.81
1,1,2,2-Tetrachloroe	9.137	689026	23982124	43.36
1,2,3-Trichloropropa	9.222	92659	4228005	37.67
1,3,5-trimethylbenze	9.262	2438383	86652544	50.79
2-Chlorotoluene	9.152	2034263	70969560	52.78
4-Chlorotoluene	9.312	2081133	76297768	50.37
tert-Butylbenzene	9.517	2170327	75150208	44.81
1,2,4-Trimethylbenze	9.587	2509781	93337128	49.80
sec-Butylbenzene	9.672	2974447	108911104	51.67
4-Isopropyltoluene	9.802	2542375	94864152	49.62
1,3-Dichlorobenzene	9.872	1341345	50687832	50.60
1,4-Dichlorobenzene	9.872	1341345	50687832	50.60
n-Butylbenzene	10.122	2365051	88969952	53.52
1,2-Dichlorobenzene	10.177	1283872	48863928	45.86
1,2-Dibromo-3-chloro	10.742	119986	4584790	33.70
1,2,4-Trichlorobenze	11.173	915935	35539956	46.68
Hexachlorobutadiene	11.173	367125	14247987	52.38
Naphthalene	11.368	2652457	102309848	39.68
1,2,3-Trichlorobenze	11.478	896071	34982432	45.13

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 iblkl   Sample ID: 01-26-17 B17-00152 iblkl

Name	RT	Area	Height	ug/L!
Fluorobenzene	4.105	2114605	62437952	50.00
Chlorobenzene-d5	7.371	1602786	49002756	50.00
1,4-Dichlorobenzene-	9.857	865291	32336032	50.00
Dibromofluoromethane	3.400	397449	11744611	41.93
Toluene-d8	5.665	2174903	65791060	54.91
Bromoflurorobenzene	8.862	915723	30543558	53.05
1,2-Dichloroethane-d	3.845	147807	4418380	53.72
Dichlorodifluorometh	0.859	188	7598	1.62
Chloromethane	0.959	2414	65937	0.36
Vinyl Chloride	0.994	340	13424	0.03
Bromomethane	1.169	1158	39134	0.00
Chloroethane	1.229	83	3895	0.01
Trichlorofluorometha	1.299	210	8178	0.00
1,1-Dichloroethene	1.594	164	5848	0.02
Carbon disulfide	1.604	6779	228881	0.76
Iodomethane	1.684	196	4298	1.39
Acrolein				
Allyl Chloride	1.919	20	1068	0.00
Methyl Tert-butyl Et	2.254	19	923	0.00
Methylene Chloride	1.989	661	22491	0.00
trans-1,2 Dichloroet	2.104	835	30382	0.09
Acetone	2.059	689	21598	0.00
Acrylonitrile	2.649	55	2451	0.43
1,1-Dichloroethane	2.569	123	4821	0.01
Chloroprene	2.554	538	20731	0.03
cis-1,2,-Dichloroeth	2.999	246	8974	0.02
2,2,-Dichloropropane	3.089	10	526	0.00
2-Butanone	3.575	21	849	1.70
Propionitrile	3.785	46	2394	2.02
Bromochloromethane	3.169	34	886	0.15
Chloroform	3.244	50	2358	0.00
Carbon tetrachloride	3.349	19	679	2.55
Vinyl Acetate				
1,1,1-Trichloroethan	3.380	16	776	0.00
1,1-Dichloropropene	3.345	1545	46113	0.11
Benzene	3.710	788	28021	0.00
Methacrylonitrile	3.790	60	2451	0.01
1,2-Dichloroethane	3.905	161	5565	0.00
Trichloroethene	4.250	273	11778	0.00
1,2-Dichloropropane	4.760	27	1197	0.00
Bromodichloromethane	4.825	45	1543	1.98
Methyl methacrylate	5.080	28	1574	1.59
Dibromomethane	4.640	42	1873	0.00
1,4-Dioxane	5.045	8	474	1.80

Quantify Sample Summary Report

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 iblk1   Sample ID: 01-26-17 B17-00152 iblk1

Name	RT	Area	Height	ug/L1
2-Chloroethyl Vinyl	5.715	42	2005	1.14
cis-1,3-Dichloroprop	5.490	46	1839	2.24
Toluene	5.715	1592	55403	0.00
trans-1,3-Dichloropr	6.206	61	2631	1.86
1,1,2-Trichloroethan	6.306	51	1412	0.00
Ethyl methacrylate	6.486	15	955	0.81
Tetrachloroethene	6.101	348	12295	0.00
Chlorodibromomethane	6.516	2	165	2.85
1,3-Dichloropropane	6.631	19	1255	0.00
1,2-Dibromoethane	6.761	41	1378	0.00
Ethylbenzene	7.481	2086	63276	0.04
1,1,1,2-Tetrachloroe	7.506	7	214	2.10
Chlorobenzene	7.386	1768	63230	0.00
m,p-Xylene	7.666	1795	59363	0.09
o-Xylene	8.166	219	8062	0.01
Bromoform	8.241	2	337	1.63
4-Methyl-2-pentanone	6.186	6	394	1.08
2-Hexanone	7.146	94	2928	1.44
Styrene	8.256	863	28192	0.00
Isopropylbenzene	8.592	2177	73693	0.04
Bromobenzene	8.932	309	12195	0.02
cis-1,4-dichloro-2-b	8.862	415466	13834810	117.97
trans-1,4-dichloro-2	9.272	13	755	1.71
n-Propylbenzene	9.047	5662	196299	0.00
1,1,2,2-Tetrachloroe	9.132	38	1723	0.00
1,2,3-Trichloropropa	9.237	-8	0	0.00
1,3,5-trimethylbenze	9.262	3138	119162	0.00
2-Chlorotoluene	9.152	2743	101765	0.00
4-Chlorotoluene	9.317	4387	157369	0.00
tert-Butylbenzene	9.517	1887	72367	0.04
1,2,4-Trimethylbenze	9.587	3320	122685	0.00
sec-Butylbenzene	9.667	4969	184988	0.00
4-Isopropyltoluene	9.802	5638	214180	0.00
1,3-Dichlorobenzene	9.867	5350	203670	0.00
1,4-Dichlorobenzene	9.867	5350	203670	0.00
n-Butylbenzene	10.122	7214	266351	0.00
1,2-Dichlorobenzene	10.177	1675	66085	0.07
1,2-Dibromo-3-chloro	10.732	16	666	2.86
1,2,4-Trichlorobenze	11.168	4192	164305	0.00
Hexachlorobutadiene	11.168	1008	39642	0.16
Naphthalene	11.368	9226	350567	0.15
1,2,3-Trichlorobenze	11.473	3254	128221	0.00

Sample Name: 01-26-17 B17-00152 LCS ars16-122001   Sample ID: 01-26-17 B17-00152 LCS ars16-122001

Name	RT	Area	Height	ug/L!
Fluorobenzene	4.105	2061660	61244636	50.00
Chlorobenzene-d5	7.371	1625488	49612604	50.00
1,4-Dichlorobenzene-	9.862	898981	34074076	50.00
Dibromofluoromethane	3.400	432162	12736546	46.77
Toluene-d8	5.665	2162549	65756476	53.83
Bromoflurorobenzene	8.867	933372	31148796	53.31
1,2-Dichloroethane-d	3.845	147117	4419760	52.72
Dichlorodifluorometh	0.859	317310	10006612	45.80
Chloromethane	0.959	635743	16671139	43.73
Vinyl Chloride	0.999	614571	20285502	50.19
Bromomethane	1.164	371400	11907660	53.20
Chloroethane	1.229	300732	10258628	46.87
Trichlorofluorometha	1.294	314890	10482550	45.61
1,1-Dichloroethene	1.594	373367	11865414	57.93
Carbon disulfide	1.599	898947	29469888	46.43
Iodomethane	1.679	460264	13130337	53.24
Acrolein	1.919	1020	30247	104.08
Allyl Chloride	1.914	205310	6297805	43.69
Methyl Tert-butyl Et	2.239	41	1849	0.00
Methylene Chloride	1.994	469847	14190665	53.83
trans-1,2 Dichloroet	2.104	454665	13724389	50.61
Acetone	2.069	96855	2866900	58.91
Acrylonitrile	2.639	235727	7304257	43.98
1,1,-Dichloroethane	2.574	879515	25234614	42.53
Chloroprene	2.554	789565	23577344	46.80
cis-1,2,-Dichloroeth	3.004	539567	16162657	49.47
2,2,-Dichloropropane	3.089	407442	10873502	41.62
2-Butanone	3.545	77120	2236422	44.95
Propionitrile	3.780	97639	2964057	41.73
Bromochloromethane	3.164	229913	6891696	46.95
Chloroform	3.249	780966	22785166	43.93
Carbon tetrachloride	3.325	412383	11391136	44.52
Vinyl Acetate				
1,1,1-Trichloroethan	3.390	613133	16754649	50.62
1,1-Dichloropropene	3.500	649173	18914656	46.23
Benzene	3.715	2037554	60429584	45.79
Methacrylonitrile	3.790	429364	12328551	42.17
21,2-Dichloroethane	3.905	695804	20780500	42.94
Trichloroethene	4.255	501788	16057042	51.41
1,2-Dichloropropane	4.745	561350	16159250	43.91
Bromodichloromethane	4.835	556832	16647408	43.54
Methyl methacrylate	5.065	449175	13703428	39.54
Dibromomethane	4.640	290179	8871229	47.76
1,4-Dioxane	5.075	6856	199265	48.09

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 LCS arsl6-122001   Sample ID: 01-26-17 B17-00152 LCS arsl6-122001

Name	RT	Area	Height	ug/Ll
2-Chloroethyl Vinyl	5.715	180851	5465820	43.88
cis-1,3-Dichloroprop	5.480	682412	21131952	39.66
Toluene	5.715	1350219	40850076	56.01
trans-1,3-Dichloropr	6.201	615278	19156038	41.54
1,1,2-Trichloroethan	6.361	397729	11908379	50.19
Ethyl methacrylate	6.461	792837	24016558	42.57
Tetrachloroethene	6.101	493981	14480434	64.62
Chlorodibromomethane	6.531	408504	12466753	47.60
1,3-Dichloropropane	6.646	903768	26834218	44.85
1,2-Dibromoethane	6.746	480683	14499231	49.65
Ethylbenzene	7.476	2502658	75518976	50.80
1,1,1,2-Tetrachloroe	7.491	409765	11936825	47.60
Chlorobenzene	7.386	1442520	43464840	49.90
m,p-Xylene	7.661	1972369	59344932	94.65
o-Xylene	8.171	968096	29397862	48.87
Bromoform	8.216	241518	7356135	49.42
4-Methyl-2-pentanone	6.196	100583	2943533	47.49
2-Hexanone	7.161	472781	13673269	44.61
Styrene	8.247	1658830	51212904	50.97
Isopropylbenzene	8.592	2469621	74456456	50.18
Bromobenzene	8.937	594924	20134432	46.13
cis-1,4-dichloro-2-b	8.987	103866	3948909	32.97
trans-1,4-dichloro-2	9.297	220670	7620301	43.06
n-Propylbenzene	9.047	2900009	100766096	52.57
1,1,2,2-Tetrachloroe	9.137	663157	22937850	44.88
1,2,3-Trichloropropa	9.222	86568	4019546	37.86
1,3,5-trimethylbenze	9.262	2193979	78123464	49.01
2-Chlorotoluene	9.152	1820920	63725520	50.68
4-Chlorotoluene	9.312	1871225	68727376	48.65
tert-Butylbenzene	9.517	1958410	67822776	43.49
1,2,4-Trimethylbenze	9.587	2266219	84202488	48.28
sec-Butylbenzene	9.672	2707401	99380432	50.52
4-Isopropyltoluene	9.802	2299341	85571840	48.19
1,3-Dichlorobenzene	9.872	1220542	46324748	49.50
1,4-Dichlorobenzene	9.872	1220542	46324748	49.50
n-Butylbenzene	10.117	2119702	80134536	51.52
1,2-Dichlorobenzene	10.177	1195353	45740452	45.92
1,2-Dibromo-3-chloro	10.738	121679	4669493	36.50
1,2,4-Trichlorobenze	11.168	846987	32999310	46.41
Hexachlorobutadiene	11.168	338027	13103667	51.87
Naphthalene	11.368	2637666	103032952	42.44
1,2,3-Trichlorobenze	11.478	847757	32872848	45.95

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 LCSD ars16-122001   Sample ID: 01-26-17 B17-00152 LCSD ars16-122001

Name	RT	Area	Height	ug/L!
Fluorobenzene	4.105	2016164	59394800	50.00
Chlorobenzene-d5	7.376	1587090	48383508	50.00
1,4-Dichlorobenzene-	9.867	888041	33400048	50.00
Dibromofluoromethane	3.405	424291	12417209	46.95
Toluene-d8	5.670	2105247	63844120	53.67
Bromoflurorobenzene	8.872	907757	30402536	53.10
1,2-Dichloroethane-d	3.850	144044	4260670	52.87
Dichlorodifluorometh	0.859	312480	9636756	46.11
Chloromethane	0.959	632024	16252285	44.45
Vinyl Chloride	0.999	614896	20297678	51.35
Bromomethane	1.164	378121	11977199	55.42
Chloroethane	1.229	303667	10295886	48.39
Trichlorofluorometha	1.294	308931	10262855	45.77
1,1-Dichloroethene	1.594	374271	11882527	59.38
Carbon disulfide	1.599	924759	30097444	48.82
Iodomethane	1.674	492126	14124612	58.08
Acrolein				
Allyl Chloride	1.914	215024	6533377	46.79
Methyl Tert-butyl Et	2.224	43	1634	0.00
Methylene Chloride	1.994	473092	14192324	55.48
trans-1,2 Dichloroet	2.104	461998	13911095	52.59
Acetone	2.069	83553	2487295	51.68
Acrylonitrile	2.639	234759	7364905	44.78
1,1,-Dichloroethane	2.574	896822	25508750	44.35
Chloroprene	2.559	799680	23741638	48.46
cis-1,2,-Dichloroeth	3.009	548716	16356824	51.44
2,2,-Dichloropropane	3.089	420292	11349676	43.91
2-Butanone	3.545	70196	2061923	41.96
Propionitrile	3.785	99856	2963942	43.55
Bromochloromethane	3.164	234343	7097833	48.93
Chloroform	3.254	800524	23400920	46.05
Carbon tetrachloride	3.329	423427	11735660	46.62
Vinyl Acetate				
1,1,1-Trichloroethan	3.395	623024	16958590	52.60
1,1-Dichloropropene	3.505	654182	19261074	47.64
Benzene	3.720	2054089	60692872	47.21
Methacrylonitrile	3.795	434766	12660679	43.66
1,2-Dichloroethane	3.910	703758	20971832	44.43
Trichloroethene	4.260	504734	15091987	52.91
1,2-Dichloropropane	4.750	574151	16623603	45.95
Bromodichloromethane	4.840	572718	17140520	45.69
Methyl methacrylate	5.070	453547	13868150	40.78
Dibromomethane	4.645	293795	8965127	49.44
1,4-Dioxane	5.080	6198	185688	44.86

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 LCSD ars16-122001 Sample ID: 01-26-17 B17-00152 LCSD ars16-122001

Name	RT	Area	Height	ug/Li
2-Chloroethyl Vinyl	5.720	185560	5556653	45.98
cis-1,3-Dichloroprop	5.485	702443	21622190	41.63
Toluene	5.720	1379024	41605336	58.68
trans-1,3-Dichloropr	6.206	632441	19865118	43.63
1,1,2-Trichloroethan	6.366	399959	11966349	51.71
Ethyl methacrylate	6.471	812931	24990246	44.67
Tetrachloroethene	6.111	476242	14066105	63.77
Chlorodibromomethane	6.536	421052	12756502	50.09
1,3-Dichloropropane	6.651	911762	27554446	46.34
1,2-Dibromoethane	6.751	486457	14490614	51.49
Ethylbenzene	7.481	2556050	77647072	53.14
1,1,1,2-Tetrachloroe	7.501	424614	12529320	50.39
Chlorobenzene	7.396	1485349	45004332	52.70
m,p-Xylene	7.671	2015596	62090976	99.07
o-Xylene	8.176	990076	29699842	51.19
Bromoform	8.221	248422	7525494	51.70
4-Methyl-2-pentanone	6.201	100066	2953066	48.37
2-Hexanone	7.166	449884	13209985	43.52
Styrene	8.251	1712907	53118692	53.93
Isopropylbenzene	8.597	2506894	76270008	52.17
Bromobenzene	8.942	605814	20602628	47.55
cis-1,4-dichloro-2-b	8.992	112083	4265863	35.45
trans-1,4-dichloro-2	9.302	221427	7666975	43.72
n-Propylbenzene	9.052	2930752	101811656	53.87
1,1,2,2-Tetrachloroe	9.142	676416	23688726	46.34
1,2,3-Trichloropropa	9.227	90476	4127148	40.10
1,3,5-trimethylbenze	9.267	2240137	79600032	50.80
2-Chlorotoluene	9.157	1868314	65587020	52.77
4-Chlorotoluene	9.317	1897553	69769872	49.99
tert-Butylbenzene	9.522	2043361	71276712	45.93
1,2,4-Trimethylbenze	9.592	2321053	85983616	50.17
sec-Butylbenzene	9.677	2744825	99905248	51.93
4-Isopropyltoluene	9.807	2331555	87373568	49.54
1,3-Dichlorobenzene	9.877	1247367	47144804	51.25
1,4-Dichlorobenzene	9.877	1247367	47144804	51.25
n-Butylbenzene	10.122	2143945	81352520	52.80
1,2-Dichlorobenzene	10.182	1204963	45926904	46.86
21,2-Dibromo-3-chloro	10.742	121889	4701223	36.97
1,2,4-Trichlorobenze	11.173	859477	33491310	47.72
Hexachlorobutadiene	11.173	339088	13184555	52.68
Naphthalene	11.373	2633910	102554088	42.90
1,2,3-Trichlorobenze	11.478	855806	33183298	47.00

Quantify Sample Summary Report

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 (001)   Sample ID: 01-26-17 B17-00152 (001)

Name	RT	Area	Height	ug/L!
Fluorobenzene	4.105	2041166	61084036	50.00
Chlorobenzene-d5	7.371	1563942	47616844	50.00
1,4-Dichlorobenzene-	9.857	847077	31494920	50.00
Dibromofluoromethane	3.405	377641	11015986	41.28
Toluene-d8	5.665	2114857	64419268	54.72
Bromoflurorobenzene	8.862	894753	29534808	53.12
1,2-Dichloroethane-d	3.845	143834	4319896	53.57
Dichlorodifluorometh	0.859	705	27048	1.69
Chloromethane	0.964	1986	66454	0.34
Vinyl Chloride	0.994	626	24450	0.05
Bromomethane	1.169	1076	38459	0.00
Chloroethane	1.229	96	3874	0.02
Trichlorofluorometha	1.304	672	25766	0.00
1,1-Dichloroethene	1.589	268	10677	0.04
Carbon disulfide	1.604	9764	335052	0.92
Iodomethane	1.684	341	12294	1.41
Acrolein				
Allyl Chloride	1.904	8	320	0.00
Methyl Tert-butyl Et	2.224	28	1114	0.00
Methylene Chloride	1.989	717	28571	0.00
trans-1,2 Dichloroet	2.114	1493	55618	0.17
Acetone	2.069	20935	619442	10.96
Acrylonitrile	2.639	56	2159	0.43
1,1,-Dichloroethane	2.569	177	5845	0.01
Chloroprene	2.559	955	32860	0.06
cis-1,2,-Dichloroeth	3.009	373	14149	0.03
2,2,-Dichloropropane	3.094	20	889	0.00
2-Butanone	3.565	13	817	1.70
Propionitrile	3.780	1	268	2.00
Bromochloromethane	3.149	0	0	0.14
Chloroform	3.244	100	3211	0.01
Carbon tetrachloride	3.324	11	641	2.55
Vinyl Acetate				
1,1,1-Trichloroethan	3.389	47	1957	0.00
1,1-Dichloropropene	3.505	1749	58296	0.13
Benzene	3.720	1585	54710	0.00
Methacrylonitrile	3.820	119	2742	0.01
1,2-Dichloroethane	3.905	65	2487	0.00
Trichloroethene	4.260	1143	39932	0.00
1,2-Dichloropropane	4.755	27	1203	0.00
Bromodichloromethane	4.835	14	629	1.98
Methyl methacrylate	5.090	74	2488	1.59
Dibromomethane	4.610	3	0	0.00
1,4-Dioxane	5.065	13	535	1.84

Quantify Sample Summary Report

Sample List: C:\TurboMass\T020117 B1700117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 (001)   Sample ID: 01-26-17 B17-00152 (001)

Name	RT	Area	Height	ug/L!
2-Chloroethyl Vinyl	5.720	88	3378	1.15
cis-1,3-Dichloroprop	5.490	100	3375	2.24
Toluene	5.720	2897	93769	0.00
trans-1,3-Dichloropr	6.206	174	6696	1.87
1,1,2-Trichloroethan	6.376	15	761	0.00
Ethyl methacrylate	6.496	30	1209	0.81
Tetrachloroethene	6.106	1338	48500	0.00
Chlorodibromomethane	6.521	12	471	2.85
1,3-Dichloropropane	6.651	137	4388	0.01
1,2-Dibromoethane	6.761	93	3601	0.00
Ethylbenzene	7.481	5130	155847	0.11
1,1,1,2-Tetrachloroe	7.481	17	695	2.10
Chlorobenzene	7.391	3668	123245	0.00
m,p-Xylene	7.671	4648	149005	0.23
o-Xylene	8.176	627	22989	0.03
Bromoform	8.191	3	175	1.63
4-Methyl-2-pentanone	6.191	9	557	1.08
2-Hexanone	7.201	62	2008	1.44
Styrene	8.256	1954	61137	0.00
Isopropylbenzene	8.592	4849	154949	0.10
Bromobenzene	8.932	774	30300	0.06
cis-1,4-dichloro-2-b	8.867	404819	13391235	117.44
trans-1,4-dichloro-2	9.307	37	1408	1.71
n-Propylbenzene	9.047	10669	361422	0.00
1,1,2,2-Tetrachloroe	9.122	56	1562	0.00
1,2,3-Trichloropropa	9.242	-40	0	0.00
1,3,5-trimethylbenze	9.262	5838	205978	0.00
2-Chlorotoluene	9.152	5615	203535	0.00
4-Chlorotoluene	9.317	9059	309752	0.00
tert-Butylbenzene	9.517	4033	151332	0.10
1,2,4-Trimethylbenze	9.587	6652	247020	0.00
sec-Butylbenzene	9.667	9393	343269	0.00
4-Isopropyltoluene	9.802	9446	361062	0.00
1,3-Dichlorobenzene	9.872	9288	348400	0.00
1,4-Dichlorobenzene	9.872	9288	348400	0.00
n-Butylbenzene	10.122	12774	470962	0.00
1,2-Dichlorobenzene	10.177	3712	144310	0.15
1,2-Dibromo-3-chloro	10.712	36	1140	2.87
1,2,4-Trichlorobenze	11.168	7095	279663	0.00
Hexachlorobutadiene	11.168	2274	90378	0.37
Naphthalene	11.368	12920	481083	0.22
1,2,3-Trichlorobenze	11.473	5782	227707	0.00

Quantify Sample Summary Report

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Sample Name: 01-26-17 B17-00152 (002)   Sample ID: 01-26-17 B17-00152 (002)

Name	RT	Area	Height	ug/Ll
Fluorobenzene	4.105	1998331	58834820	50.00
Chlorobenzene-d5	7.376	1535095	46971256	50.00
1,4-Dichlorobenzene-	9.867	823292	30613572	50.00
Dibromofluoromethane	3.405	364074	10677928	40.65
Toluene-d8	5.670	2072782	62864344	54.64
Bromofluorobenzene	8.867	869165	28788840	52.57
1,2-Dichloroethane-d	3.850	140568	4206843	53.34
Dichlorodifluorometh	0.859	67	2987	1.60
Chloromethane	0.964	1551	45886	0.31
Vinyl Chloride	0.999	113	4158	0.01
Bromomethane	1.164	674	22998	0.00
Chloroethane	1.229	91	2118	0.01
Trichlorofluorometha	1.299	113	4484	0.00
1,1-Dichloroethene	1.604	123	4826	0.02
Carbon disulfide	1.604	4290	155861	0.64
Iodomethane	1.694	104	3995	1.38
Acrolein				
Allyl Chloride	1.904	13	464	0.00
Methyl Tert-butyl Et	2.244	20	841	0.00
Methylene Chloride	1.989	140	6072	0.00
trans-1,2 Dichloroet	2.109	354	13421	0.04
Acetone	2.069	3812	122421	0.06
Acrylonitrile	2.629	25	1167	0.42
1,1,-Dichloroethane	2.569	47	2225	0.00
Chloroprene	2.554	382	11926	0.02
cis-1,2,-Dichloroeth	2.999	155	4575	0.01
2,2,-Dichloropropane	3.049	26	1144	0.00
2-Butanone	3.580	6	446	1.70
Propionitrile	3.790	6	395	2.01
Bromochloromethane	3.164	9	358	0.15
Chloroform	3.249	26	1328	0.00
Carbon tetrachloride	3.284	6	377	2.55
Vinyl Acetate				
1,1,1-Trichloroethan	3.390	54	1981	0.00
1,1-Dichloropropene	3.349	2748	80853	0.20
Benzene	3.715	521	19606	0.00
Methacrylonitrile	3.810	10	769	0.00
1,2-Dichloroethane	3.915	27	1232	0.00
Trichloroethene	4.260	213	9266	0.00
1,2-Dichloropropane	4.765	15	724	0.00
Bromodichloromethane	4.850	38	1177	1.98
Methyl methacrylate	5.100	39	862	1.59
Dibromomethane	4.595	8	359	0.00
1,4-Dioxane	5.120	13	787	1.84

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

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Sample Name: 01-26-17 B17-00152 (002)   Sample ID: 01-26-17 B17-00152 (002)

Name	RT	Area	Height	ug/Li
2-Chloroethyl Vinyl	5.705	111	3538	1.16
cis-1,3-Dichloroprop	5.475	3	369	2.23
Toluene	5.720	1252	44392	0.00
trans-1,3-Dichloropr	6.231	46	1834	1.86
1,1,2-Trichloroethan	6.401	37	1364	0.00
Ethyl methacrylate	6.501	35	1584	0.81
Tetrachloroethene	6.106	327	11624	0.00
Chlorodibromomethane	6.546	24	802	2.85
1,3-Dichloropropane	6.656	21	1083	0.00
1,2-Dibromoethane	6.741	12	621	0.00
Ethylbenzene	7.486	2657	83181	0.06
1,1,1,2-Tetrachloroe	7.471	16	625	2.10
Chlorobenzene	7.396	1365	45197	0.00
m,p-Xylene	7.676	2072	68291	0.11
o-Xylene	8.186	224	7044	0.01
Bromoform	8.186	4	179	1.63
4-Methyl-2-pentanone	6.191	7	405	1.08
2-Hexanone	7.171	16	933	1.43
Styrene	8.256	591	20797	0.00
Isopropylbenzene	8.597	1845	61795	0.04
Bromobenzene	8.937	143	5697	0.01
cis-1,4-dichloro-2-b	8.867	396560	13115500	118.32
trans-1,4-dichloro-2	9.292	33	1637	1.71
n-Propylbenzene	9.052	5411	185617	0.00
1,1,2,2-Tetrachloroe	9.162	4	179	0.00
1,2,3-Trichloropropa	9.242	-5	0	0.00
1,3,5-trimethylbenze	9.267	2834	105837	0.00
2-Chlorotoluene	9.157	2686	98231	0.00
4-Chlorotoluene	9.322	4103	149161	0.00
tert-Butylbenzene	9.527	1193	46678	0.03
1,2,4-Trimethylbenze	9.592	3247	122006	0.00
sec-Butylbenzene	9.677	4533	168172	0.00
4-Isopropyltoluene	9.807	4062	154908	0.00
1,3-Dichlorobenzene	9.877	4992	193458	0.00
1,4-Dichlorobenzene	9.877	4992	193458	0.00
n-Butylbenzene	10.127	6590	248942	0.00
1,2-Dichlorobenzene	10.187	1294	50705	0.05
1,2-Dibromo-3-chloro	10.717	20	933	2.87
1,2,4-Trichlorobenze	11.178	3550	140491	0.00
Hexachlorobutadiene	11.168	644	25731	0.11
Naphthalene	11.378	3695	139894	0.06
1,2,3-Trichlorobenze	11.483	1826	72299	0.00

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

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Sample Name: 01-26-17 B17-00152 (003)   Sample ID: 01-26-17 B17-00152 (003)

Name	RT	Area	Height	ug/L
Fluorobenzene	4.105	2051715	60943856	50.00
Chlorobenzene-d5	7.371	1562256	47128160	50.00
1,4-Dichlorobenzene-	9.862	829630	31188220	50.00
Dibromofluoromethane	3.405	384206	11238699	41.78
Toluene-d8	5.670	2130040	64021000	55.17
Bromoflurorobenzene	8.867	887311	29762780	52.73
1,2-Dichloroethane-d	3.845	144371	4291829	53.83
Dichlorodifluorometh	0.849	46	1252	1.60
Chloromethane	0.959	1647	49253	0.31
Vinyl Chloride	0.989	81	3137	0.01
Bromomethane	1.164	642	24478	0.00
Chloroethane	1.234	95	3134	0.01
Trichlorofluorometha	1.299	105	4189	0.00
1,1-Dichloroethene	1.569	6	372	0.00
Carbon disulfide	1.604	2909	105434	0.57
Iodomethane	1.684	278	8349	1.40
Acrolein				
Allyl Chloride	1.914	4	222	0.00
Methyl Tert-butyl Et	2.249	10	627	0.00
Methylene Chloride	1.989	258	8562	0.00
trans-1,2 Dichloroet	2.104	154	5916	0.02
Acetone	2.069	2734	91827	0.00
Acrylonitrile	2.639	12	538	0.42
1,1,-Dichloroethane	2.569	7	657	0.00
Chloroprene	2.559	114	4488	0.01
cis-1,2,-Dichloroeth	3.009	47	998	0.00
2,2,-Dichloropropane	3.074	28	1182	0.00
2-Butanone	3.565	42	1707	1.72
Propionitrile	3.740	26	1418	2.01
Bromochloromethane	3.134	4	178	0.15
Chloroform	3.254	29941	878510	1.69
Carbon tetrachloride	3.279	2	0	2.55
Vinyl Acetate				
1,1,1-Trichloroethan	3.400	8	409	0.00
1,1-Dichloropropene	3.390	12	564	0.00
Benzene	3.715	248	7648	0.00
Methacrylonitrile	3.810	8	855	0.00
1,2-Dichloroethene	3.855	29	1749	0.00
Trichloroethene	4.255	82	3311	0.00
1,2-Dichloropropane	4.740	11	857	0.00
Bromodichloromethane	4.840	28968	868358	4.15
Methyl methacrylate	5.065	33	1436	1.59
Dibromomethane	4.650	14	788	0.00
1,4-Dioxane	5.065	1	0	1.75

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

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Sample Name: 01-26-17 B17-00152 (003)   Sample ID: 01-26-17 B17-00152 (003)

Name	RT	Area	Height	ug/L!
2-Chloroethyl Vinyl	5.725	77	2761	1.15
cis-1,3-Dichloroprop	5.460	57	1876	2.24
Toluene	5.720	860	29396	0.00
trans-1,3-Dichloropr	6.221	16	984	1.86
1,1,2-Trichloroethan	6.361	20	856	0.00
Ethyl methacrylate	6.446	26	1237	0.81
Tetrachloroethene	6.106	190	7045	0.00
Chlorodibromomethane	6.536	48543	1424620	8.38
1,3-Dichloropropane	6.656	35	905	0.00
1,2-Dibromoethane	6.756	18	794	0.00
Ethylbenzene	7.486	1449	45777	0.03
1,1,1,2-Tetrachloroe	7.456	9	422	2.10
Chlorobenzene	7.386	735	25351	0.00
m,p-Xylene	7.671	1196	38540	0.06
o-Xylene	8.181	60	2194	0.00
Bromoform	8.216	43504	1279718	11.51
4-Methyl-2-pentanone	6.201	22	1010	1.09
2-Hexanone	7.176	24	1004	1.43
Styrene	8.251	241	8618	0.00
Isopropylbenzene	8.597	1093	40564	0.02
Bromobenzene	8.937	131	5118	0.01
cis-1,4-dichloro-2-b	8.867	401379	13442513	118.82
trans-1,4-dichloro-2	9.302	107	2653	1.73
n-Propylbenzene	9.052	3883	139519	0.00
1,1,2,2-Tetrachloroe	9.197	17	857	0.00
1,2,3-Trichloropropa	9.222	1	307	0.00
1,3,5-trimethylbenze	9.262	1781	67442	0.00
2-Chlorotoluene	9.157	1640	61672	0.00
4-Chlorotoluene	9.317	2567	91369	0.00
tert-Butylbenzene	9.517	452	17807	0.01
1,2,4-Trimethylbenze	9.592	2238	83901	0.00
sec-Butylbenzene	9.672	3211	123994	0.00
4-Isopropyltoluene	9.807	3244	127337	0.00
1,3-Dichlorobenzene	9.872	4072	160755	0.00
1,4-Dichlorobenzene	9.872	4072	160755	0.00
n-Butylbenzene	10.122	4437	166041	0.00
1,2-Dichlorobenzene	10.177	627	24552	0.03
21,2-Dibromo-3-chloro	10.702	42	1480	2.87
1,2,4-Trichlorobenze	11.173	2336	93246	0.00
Hexachlorobutadiene	11.163	364	14576	0.06
Naphthalene	11.373	2017	79348	0.04
1,2,3-Trichlorobenze	11.483	1075	42435	0.00

Sample List: C:\TurboMass\T020117 B1700117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

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Sample Name: 01-26-17 B17-00152 iblk2   Sample ID: 01-26-17 B17-00152 iblk2

Name	RT	Area	Height	ug/Li
Fluorobenzene	4.105	1968884	59183708	50.00
Chlorobenzene-d5	7.371	1504561	46160640	50.00
1,4-Dichlorobenzene-	9.862	820649	30473256	50.00
Dibromofluoromethane	3.400	362215	10520053	41.05
Toluene-d8	5.665	2035889	61711704	54.75
Bromoflurorobenzene	8.867	860069	28817528	53.07
1,2-Dichloroethane-d	3.845	137805	4132442	53.35
Dichlorodifluorometh	0.864	110	3364	1.61
Chloromethane	0.964	1492	46447	0.31
Vinyl Chloride	0.984	14	551	0.00
Bromomethane	1.164	497	19419	0.00
Chloroethane	1.219	64	2311	0.01
Trichlorofluorometha	1.304	67	2566	0.00
1,1-Dichloroethene	1.594	11	581	0.00
Carbon disulfide	1.604	2453	90157	0.55
Iodomethane	1.684	60	1967	1.38
Acrolein				
Allyl Chloride	1.924	4	220	0.00
Methyl Tert-butyl Et	2.229	22	1091	0.00
Methylene Chloride	1.994	103	4269	0.00
trans-1,2 Dichloroet	2.109	89	3097	0.01
Acetone	2.064	444	16134	0.00
Acrylonitrile	2.624	17	784	0.42
1,1,-Dichloroethane	2.554	29	1099	0.00
Chloroprene	2.559	124	4897	0.01
cis-1,2,-Dichloroeth	3.034	1	0	0.00
2,2,-Dichloropropane	3.074	12	420	0.00
2-Butanone	3.530	3	272	1.70
Propionitrile	3.790	31	1384	2.02
Bromochloromethane	3.149	23	924	0.15
Chloroform	3.249	48	1730	0.00
Carbon tetrachloride	3.284	2	215	2.55
Vinyl Acetate				
1,1,1-Trichloroethan	3.420	18	630	0.00
1,1-Dichloropropene	3.345	328	9223	0.02
Benzene	3.715	185	7897	0.00
Methacrylonitrile	3.845	9	809	0.00
1,2-Dichloroethane	3.905	39	1787	0.00
Trichloroethene	4.260	65	3347	0.00
1,2-Dichloropropane	4.770	37	1405	0.00
Bromodichloromethane	4.815	28	1087	1.98
Methyl methacrylate	5.080	11	599	1.59
Dibromomethane	4.650	11	445	0.00
1,4-Dioxane	5.075	4	240	1.76

Quantify Sample Summary Report

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 iblk2   Sample ID: 01-26-17 B17-00152 iblk2

Name	RT	Area	Height	ug/Li
2-Chloroethyl Vinyl	5.720	71	2664	1.15
cis-1,3-Dichloroprop	5.465	13	581	2.23
Toluene	5.720	811	28302	0.00
trans-1,3-Dichloropr	6.216	19	748	1.86
1,1,2-Trichloroethan	6.301	36	1081	0.00
Ethyl methacrylate	6.451	3	210	0.81
Tetrachloroethene	6.101	70	2839	0.00
Chlorodibromomethane	6.496	33	1019	2.85
1,3-Dichloropropane	6.636	18	709	0.00
1,2-Dibromoethane	6.726	7	262	0.00
Ethylbenzene	7.481	1102	38013	0.02
1,1,1,2-Tetrachloroe	7.466	12	404	2.10
Chlorobenzene	7.386	542	20596	0.00
m,p-Xylene	7.661	737	26036	0.04
o-Xylene	8.166	93	2777	0.01
Bromoform	8.201	4	176	1.63
4-Methyl-2-pentanone	6.206	5	305	1.08
2-Hexanone	7.126	17	994	1.43
Styrene	8.256	149	4343	0.00
Isopropylbenzene	8.592	875	30436	0.02
Bromobenzene	8.927	24	962	0.00
cis-1,4-dichloro-2-b	8.867	386724	12943596	115.89
trans-1,4-dichloro-2	9.287	11	523	1.71
n-Propylbenzene	9.052	3410	122411	0.00
1,1,2,2-Tetrachloroe	9.167	1	284	0.00
1,2,3-Trichloropropa	9.222	0	0	0.00
1,3,5-trimethylbenze	9.262	1728	66391	0.00
2-Chlorotoluene	9.152	1016	36327	0.00
4-Chlorotoluene	9.317	2067	76147	0.00
tert-Butylbenzene	9.517	467	18856	0.01
1,2,4-Trimethylbenze	9.587	2023	78422	0.00
sec-Butylbenzene	9.672	2693	103113	0.00
4-Isopropyltoluene	9.807	2998	114220	0.00
1,3-Dichlorobenzene	9.872	2946	116305	0.00
1,4-Dichlorobenzene	9.872	2946	116305	0.00
n-Butylbenzene	10.122	4112	156103	0.00
1,2-Dichlorobenzene	10.172	412	16436	0.02
21,2-Dibromo-3-chloro	10.697	17	729	2.87
1,2,4-Trichlorobenze	11.173	1611	63817	0.00
Hexachlorobutadiene	11.158	272	10930	0.05
Naphthalene	11.373	2123	82136	0.04
1,2,3-Trichlorobenze	11.478	1013	40095	0.00

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

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Sample Name: 01-26-17 B17-00152 ccv2 ars-16-122001   Sample ID: 01-26-17 B17-00152 ccv2 ars16-122001

Name	RT	Area	Height	ug/L!
Fluorobenzene	4.105	1910416	56947276	50.00
Chlorobenzene-d5	7.371	1497453	45830304	50.00
1,4-Dichlorobenzene-	9.857	848023	31993450	50.00
Dibromofluoromethane	3.400	400637	11790923	46.79
Toluene-d8	5.665	1995292	61036548	53.92
Bromoflurorobenzene	8.862	854133	28716324	52.96
1,2-Dichloroethane-d	3.845	135534	4050175	52.72
Dichlorodifluorometh	0.859	278181	8789828	43.42
Chloromethane	0.959	613481	16249421	45.53
Vinyl Chloride	0.999	577853	19256102	50.93
Bromomethane	1.164	376177	12141882	58.22
Chloroethane	1.229	290799	9807860	48.91
Trichlorofluorometha	1.299	288418	9551860	45.06
1,1-Dichloroethene	1.599	356406	11144580	59.67
Carbon disulfide	1.599	836656	27640980	46.63
Iodomethane	1.679	450664	13031381	56.17
Acrolein	1.924	1381	40328	152.04
Allyl Chloride	1.919	200519	6188660	46.05
Methyl Tert-butyl Et	2.254	9	526	0.00
Methylene Chloride	1.994	462857	14121670	57.34
trans-1,2 Dichloroet	2.109	442660	13562903	53.17
Acetone	2.069	83600	2464112	54.71
Acrylonitrile	2.639	227908	7174650	45.87
1,1,-Dichloroethane	2.574	845438	24116940	44.12
Chloroprene	2.559	748248	22510190	47.86
cis-1,2,-Dichloroeth	3.009	532451	15765160	52.68
2,2,-Dichloropropane	3.089	359064	9698201	39.59
2-Butanone	3.545	64661	1974973	40.83
Propionitrile	3.780	95519	2879043	43.94
Bromochloromethane	3.164	226707	6878556	49.95
Chloroform	3.254	765855	22141966	46.49
Carbon tetrachloride	3.329	380622	10542535	44.36
Vinyl Acetate				
1,1,1-Trichloroethan	3.390	582117	15849470	51.87
1,1-Dichloropropene	3.505	612454	17973156	47.07
Benzene	3.715	1973107	57920220	47.87
Methacrylonitrile	3.790	413592	11809870	43.83
1,2-Dichloroethane	3.905	668730	19914146	44.56
Trichloroethene	4.255	491695	14695647	54.43
1,2-Dichloropropane	4.745	549536	16039124	46.42
Bromodichloromethane	4.835	541867	16177873	45.62
Methyl methacrylate	5.065	433447	13260809	41.11
Dibromomethane	4.640	286099	8697880	50.82
1,4-Dioxane	5.075	6094	181399	46.35

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 B17-00152 ccv2 ars-16-122001   Sample ID: 01-26-17 B17-00152 ccv2 ars16-122001

Name	RT	Area	Height	ug/Ll
2-Chloroethyl Vinyl	5.715	176602	5360852	46.18
cis-1,3-Dichloroprop	5.480	654865	20261116	41.00
Toluene	5.715	1330390	40330072	60.04
trans-1,3-Dichloropr	6.201	579948	18234184	42.46
1,1,2-Trichloroethan	6.361	389986	11704592	53.45
Ethyl methacrylate	6.466	772034	23403792	44.96
Tetrachloroethene	6.106	488468	14391906	69.58
Chlorodibromomethane	6.531	398467	12072073	50.23
1,3-Dichloropropane	6.646	873457	26165206	47.05
1,2-Dibromoethane	6.746	468647	14128561	52.59
Ethylbenzene	7.476	2450613	74170904	54.00
1,1,1,2-Tetrachloroe	7.491	402946	11921480	50.67
Chlorobenzene	7.386	1417831	42997060	53.33
m,p-Xylene	7.661	1928259	58727384	100.45
o-Xylene	8.171	943573	28700984	51.71
Bromoform	8.216	230658	7007104	50.99
4-Methyl-2-pentanone	6.196	96351	2838647	49.34
2-Hexanone	7.161	434050	12606825	44.47
Styrene	8.246	1635801	50099340	54.59
Isopropylbenzene	8.587	2380735	71627312	52.51
Bromobenzene	8.937	584112	19436448	48.01
cis-1,4-dichloro-2-b	8.982	91612	3415073	31.22
trans-1,4-dichloro-2	9.292	188970	6766438	39.25
n-Propylbenzene	9.042	2826101	96609608	54.44
1,1,2,2-Tetrachloroe	9.137	642660	22453618	46.11
1,2,3-Trichloropropa	9.217	95460	4291255	44.39
1,3,5-trimethylbenze	9.257	2148414	77317728	51.04
2-Chlorotoluene	9.147	1779385	62383556	52.62
4-Chlorotoluene	9.307	1838537	66277556	50.75
tert-Butylbenzene	9.517	1896990	67240840	44.66
1,2,4-Trimethylbenze	9.582	2243203	83665800	50.81
sec-Butylbenzene	9.667	2600758	95934568	51.50
4-Isopropyltoluene	9.802	2217197	83150520	49.32
1,3-Dichlorobenzene	9.867	1208964	45299516	52.03
1,4-Dichlorobenzene	9.867	1208964	45299516	52.03
n-Butylbenzene	10.117	2036638	77402824	52.51
1,2-Dichlorobenzene	10.172	1176297	44719056	47.91
1,2-Dibromo-3-chloro	10.732	116775	4445422	37.08
1,2,4-Trichlorobenze	11.163	833274	32338430	48.47
Hexachlorobutadiene	11.163	319797	12281649	52.03
Naphthalene	11.363	2588847	100882704	44.15
1,2,3-Trichlorobenze	11.473	837360	32542640	48.20

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 ccv6 ars16-122007   Sample ID: 01-26-17 ccv6 ars16-122007

Name	RT	Area	Height	ug/L!
Fluorobenzene	4.100	1507867	44378400	50.00
Chlorobenzene-d5	7.371	1298681	39583336	50.00
1,4-Dichlorobenzene-	9.857	753166	28302018	50.00
Dibromofluoromethane	3.405	272581	8106551	40.33
Toluene-d8	5.665	1605314	48660032	50.02
Bromoflurorobenzene	8.867	723784	23908768	51.74
1,2-Dichloroethane-d	3.845	108326	3272112	48.59
Dichlorodifluorometh	0.869	26	1028	1.60
Chloromethane	0.959	2382	73123	0.42
Vinyl Chloride	0.989	21	771	0.00
Bromomethane	1.164	2727	94962	0.00
Chloroethane	1.234	104	5035	0.02
Trichlorofluorometha	1.309	13	497	0.00
1,1-Dichloroethene	1.594	5	309	0.00
Carbon disulfide	1.519	1044	40823	0.49
Iodomethane	1.669	289	10500	1.42
Acrolein	1.849	170450	5157919	23782.94
Allyl Chloride	1.879	3	201	0.00
Methyl Tert-butyl Et	2.244	2152978	57396424	0.00
Methylene Chloride	1.989	199	7541	0.00
trans-1,2 Dichloroet	2.084	12	393	0.00
Acetone	2.244	32914	903650	26.07
Acrylonitrile	2.614	41	1671	0.43
1,1,-Dichloroethane	2.599	19	554	0.00
Chloroprene	2.549	7	496	0.00
cis-1,2,-Dichloroeth	2.989	2	0	0.00
2,2,-Dichloropropane	3.094	4	479	0.00
2-Butanone	3.570	1668	55192	2.97
Propionitrile	3.785	17	953	2.01
Bromochloromethane				
Chloroform	3.280	1	0	0.00
Carbon tetrachloride	3.314	8	349	2.55
Vinyl Acetate	2.829	1357487	42422292	0.00
1,1,1-Trichloroethan	3.405	18	616	0.00
1,1-Dichloropropene	3.390	200	5226	0.02
Benzene	3.710	182	5061	0.00
Methacrylonitrile	3.730	1334	40106	0.18
21,2-Dichloroethane	3.915	61	2507	0.00
Trichloroethene	4.260	5	594	0.00
1,2-Dichloropropane	4.760	12	719	0.00
Bromodichloromethane	4.810	18	1089	1.98
Methyl methacrylate	5.075	14	932	1.59
Dibromomethane	4.645	12	588	0.00
1,4-Dioxane	5.075	16	592	1.90

Sample List: C:\TurboMass\T020117 B1700152.PRO\SampleDB\8260 water 01-26-17 B17-00152
Last modified: Wed Feb 01 13:31:42 2017
Method: C:\TurboMass\T020117 B1700152.PRO\MethDB\8260b water 01-26-2017 B17-00152
Last modified: Wed Feb 01 13:23:36 2017
Job Code:

Printed: Thu Feb 02 07:54:45 2017

Sample Name: 01-26-17 ccv6 ars16-122007   Sample ID: 01-26-17 ccv6 ars16-122007

Name	RT	Area	Height	ug/L!
2-Chloroethyl Vinyl	5.715	55	1373	1.15
cis-1,3-Dichloroprop	5.490	33	992	2.24
Toluene	5.715	313	9525	0.00
trans-1,3-Dichloropr	6.201	39	1060	1.86
1,1,2-Trichloroethan	6.361	22	766	0.00
Ethyl methacrylate	6.431	36	1361	0.81
Tetrachloroethene	6.101	21	980	0.00
Chlorodibromomethane	6.511	0	0	2.85
1,3-Dichloropropane	6.646	20	1189	0.00
1,2-Dibromoethane	6.746	13	520	0.00
Ethylbenzene	7.371	1509	51548	0.04
1,1,1,2-Tetrachloroe	7.486	9	210	2.10
Chlorobenzene	7.381	87	3294	0.00
m,p-Xylene	7.671	217	7554	0.01
o-Xylene	8.171	23	1102	0.00
Bromoform	8.216	13	562	1.63
4-Methyl-2-pentanone	6.206	8	372	1.08
2-Hexanone	7.131	1151	25415	1.56
Styrene	8.261	19	675	0.00
Isopropylbenzene	8.597	115	4066	0.00
Bromobenzene	8.932	17	502	0.00
cis-1,4-dichloro-2-b	8.867	355085	11804748	115.94
trans-1,4-dichloro-2	9.297	7	386	1.71
n-Propylbenzene	9.052	740	27229	0.00
1,1,2,2-Tetrachloroe	9.117	19	929	0.00
1,2,3-Trichloropropa	9.237	-5	0	0.00
1,3,5-trimethylbenze	9.262	2642	96573	0.00
2-Chlorotoluene	9.152	234	8350	0.00
4-Chlorotoluene	9.312	257	8808	0.00
tert-Butylbenzene	9.527	86	2908	0.00
1,2,4-Trimethylbenze	9.587	7142	262960	0.00
sec-Butylbenzene	9.587	7142	262960	0.00
4-Isopropyltoluene	9.792	517	17430	0.00
1,3-Dichlorobenzene	9.862	935	36408	0.00
1,4-Dichlorobenzene	9.862	929	36348	0.00
n-Butylbenzene	10.122	1229	46506	0.00
1,2-Dichlorobenzene	10.167	63	2093	0.00
1,2-Dibromo-3-chloro	10.722	31	1243	2.87
1,2,4-Trichlorobenze	11.163	313	12360	0.00
Hexachlorobutadiene	11.143	0	0	0.00
Naphthalene	11.363	560	22061	0.01
1,2,3-Trichlorobenze	11.463	85	3150	0.00

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 ccv ars16-

Sample ID: 01-26-17 B17-00152 ccv ars16-122   Operator: ap

Description: 01-26-17 B17-00152 ccv ars16-122001

Inject Date/Time: January 26, 2017 5:36:51 PM

GC Method: 8260.mth   MS Method: 8260.EXP

Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM

Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM

GC Column: Elite-VMS   Level:

Dilution: 1.000   Sample Wt: 1.000

Soil Extract Vol: Purge Vol: 5.000

Soil Aliquot Vol:

Tune File: 010317.IPR

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.100	96	2,278,000	50.00	-0.01	
2	Chlorobenzene-d5	3114-55-4	7.371	117	1,758,000	50.00	0.00	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.862	152	966,900	50.00	0.01	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.395	113	468,600	50.00	45.89	91.79	-0.01	
5	Toluene-d8	2037-26-5	5.660	98	2,371,000	50.00	54.59	109.2	0.00	
6	Bromofluorobenzene	460-00-4	8.867	95	1,015,000	50.00	53.63	107.3	0.01	
7	1,2-Dichloroethane-d4	17060-	3.840	102	161,700	50.00	53.60	107.2	-0.01	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.859	85	320,000	0.00	41.94	1.00	
9	Chloromethane	74-87-3	0.954	50	703,900	0.00	43.83	1.00	
10	Vinyl Chloride	75-01-4	0.994	62	660,700	0.00	48.84	1.00	
11	Bromomethane	74-83-9	1.159	94	413,100	0.00	53.56	1.00	
12	Chloroethane	75-00-3	1.224	64	324,300	0.00	45.74	1.00	
13	Trichlorofluoromethane	75-69-4	1.294	101	348,000	0.00	45.63	1.00	
14	1,1-Dichloroethene	75-35-4	1.589	96	402,800	0.00	56.56	1.00	
15	Carbon disulfide	75-15-10	1.589	76	1,008,000	0.00	47.12	1.00	
16	Iodomethane	74-88-4	1.669	142	477,400	0.00	50.06	1.00	
18	Allyl Chloride	107-05-1	1.909	76	235,800	0.00	45.41	1.00	
19	Methyl Tert-butyl Ether	1634-04-4	2.219	73	18.52	0.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.984	84	505,900	0.00	52.41	1.00	
21	trans-1,2 Dichloroethene	156-60-5	2.099	96	504,600	0.00	50.84	1.00	
22	Acetone	67-64-1	2.054	58	89,280	0.00	48.75	5.00	
23	Acrylonitrile	75-34-3	2.629	53	237,500	0.00	40.15	1.00	
24	1,1,-Dichloroethane	75-34-3	2.564	63	974,600	0.00	42.66	1.00	
25	Chloroprene	107-13-1	2.549	53	872,200	0.00	46.79	1.00	
26	cis-1,2,-Dichloroethene	156-59-2	2.999	96	605,000	0.00	50.20	1.00	
27	2,2,-Dichloropropane	594-20-7	3.079	77	452,800	0.00	41.87	1.00	
28	2-Butanone	78-93-3	3.540	72	73,380	0.00	38.95	5.00	
29	Propionitrile	107-02-8	3.775	54	99,660	0.00	38.70	1.00	
30	Bromochloromethane	74-97-5	3.154	128	248,900	0.00	46.01	1.00	
31	Chloroform	67-66-3	3.245	83	862,300	0.00	43.90	1.00	
32	Carbon tetrachloride	56-23-5	3.320	117	440,400	0.00	43.12	1.00	
34	1,1,1-Trichloroethane	71-55-6	3.385	97	664,400	0.00	49.65	1.00	

Printed: February 02, 2017 1:00:52 PM

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
35	1,1-Dichloropropene	563-58-6	3.495	75	710,600	0.00	45.80	1.00	
36	Benzene	71-43-2	3.710	78	2,236,000	0.00	45.47	1.00	
37	Methacrylonitrile	126-98-7	3.785	41	459,000	0.00	40.79	1.00	
38	1,2-Dichloroethane	107-06-2	3.900	62	765,000	0.00	42.73	1.00	
39	Trichloroethene	79-01-6	4.250	95	555,300	0.00	51.50	1.00	
40	1,2-Dichloropropane	78-87-5	4.740	63	619,400	0.00	43.86	1.00	
41	Bromodichloromethane	75-27-4	4.835	83	624,200	0.00	44.14	1.00	
42	Methyl methacrylate	80-62-6	5.065	69	457,200	0.00	36.56	1.00	
43	Dibromomethane	79-95-3	4.635	93	318,400	0.00	47.43	1.00	
44	1,4-Dioxane	123-91-1	5.070	88	5,708	0.00	37.41	1.00	
45	2-Chloroethyl Vinyl Ether	110-75-8	5.715	63	201,700	0.00	44.28	1.00	
46	cis-1,3-Dichloropropene	10061-	5.475	75	748,900	0.00	39.41	1.00	
47	Toluene	108-88-3	5.715	92	1,489,000	0.00	57.17	1.00	
48	trans-1,3-	10061-	6.196	75	673,500	0.00	42.03	1.00	
49	1,1,2-Trichloroethane	79-00-5	6.356	83	423,200	0.00	49.38	1.00	
50	Ethyl methacrylate	97-63-2	6.461	69	835,900	0.00	41.53	1.00	
51	Tetrachloroethene	79-01-6	6.101	164	512,400	0.00	61.87	1.00	
52	Chlorodibromomethane	124-48-1	6.526	129	445,200	0.00	47.96	1.00	
53	1,3-Dichloropropane	142-28-9	6.641	76	969,200	0.00	44.48	1.00	
54	1,2-Dibromoethane	100-41-4	6.746	107	511,600	0.00	48.86	1.00	
55	Ethylbenzene	100-41-4	7.476	91	2,779,000	0.00	52.16	1.00	
56	1,1,1,2-	630-20-6	7.491	131	450,900	0.00	48.41	1.00	
57	Chlorobenzene	108-90-7	7.386	112	1,599,000	0.00	51.18	1.00	
58	m,p-Xylene	106-42-	7.661	106	2,232,000	0.00	99.04	2.00	
59	o-Xylene	95-47-6	8.171	106	1,071,000	0.00	49.99	1.00	
60	Bromoform	75-25-2	8.216	173	255,700	0.00	48.53	1.00	
61	4-Methyl-2-pentanone	108-10-1	6.191	100	99,920	0.00	43.72	5.00	
62	2-Hexanone	591-78-6	7.156	43	446,400	0.00	39.14	5.00	
63	Styrene	100-42-5	8.247	104	1,838,000	0.00	52.24	1.00	
64	Isopropylbenzene	98-82-8	8.592	105	2,729,000	0.00	51.29	1.00	
65	Bromobenzene	108-86-1	8.937	156	642,400	0.00	46.31	1.00	
66	cis-1,4-dichloro-2-	1476-11-5	8.987	75	107,300	0.00	31.90	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.297	53	232,500	0.00	42.22	1.00	
68	n-Propylbenzene	103-65-1	9.047	91	3,243,000	0.00	54.81	1.00	
69	1,1,2,2-	79-34-5	9.137	83	689,000	0.00	43.36	1.00	
70	1,2,3-Trichloropropane	96-18-4	9.222	77	92,660	0.00	37.67	1.00	
71	1,3,5-trimethylbenzene	108-67-8	9.262	105	2,438,000	0.00	50.79	1.00	
72	2-Chlorotoluene	95-49-8	9.152	91	2,034,000	0.00	52.78	1.00	
73	4-Chlorotoluene	106-43-4	9.312	91	2,081,000	0.00	50.37	1.00	
74	tert-Butylbenzene	98-06-6	9.517	119	2,170,000	0.00	44.81	1.00	
75	1,2,4-Trimethylbenzene	95-63-6	9.587	105	2,510,000	0.00	49.80	1.00	
76	sec-Butylbenzene	135-98-8	9.672	105	2,974,000	0.00	51.67	1.00	
77	4-Isopropyltoluene	99-87-6	9.802	119	2,542,000	0.00	49.62	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.872	146	1,341,000	0.00	50.60	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.872	146	1,341,000	0.00	50.60	1.00	
80	n-Butylbenzene	104-51-8	10.122	91	2,365,000	0.00	53.52	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.177	146	1,284,000	0.00	45.86	1.00	
82	1,2-Dibromo-3-	96-12-8	10.742	75	120,000	0.00	33.70	1.00	
83	1,2,4-Trichlorobenzene	120-82-1	11.173	180	915,900	0.00	46.68	1.00	
84	Hexachlorobutadiene	87-68-3	11.173	225	367,100	0.00	52.38	1.00	
85	Naphthalene	91-20-3	11.368	128	2,652,000	0.00	39.68	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.478	180	896,100	0.00	45.13	1.00	

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 iblk1.raw
Sample ID: 01-26-17 B17-00152 iblk1   Operator: ap
Description: 01-26-17 B17-00152 iblk1
Inject Date/Time: January 26, 2017 6:01:21 PM   Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS   Level:
Dilution: 1.000   Sample Wt: 1.000
Soil Extract Vol: Purge Vol: 5.000
Soil Aliquot Vol:

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.105	96	2,115,000	50.00	0.00	
2	Chlorobenzene-d5	3114-55-4	7.371	117	1,603,000	50.00	0.00	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.857	152	865,300	50.00	0.00	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.400	113	397,400	50.00	41.93	83.87	0.00	
5	Toluene-d8	2037-26-5	5.665	98	2,175,000	50.00	54.91	109.8	0.01	
6	Bromofluorobenzene	460-00-4	8.862	95	915,700	50.00	53.05	106.1	0.00	
7	1,2-Dichloroethane-d4	17060-	3.845	102	147,800	50.00	53.72	107.4	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.859	85	187.8	0.00	1.62	1.00	X
9	Chloromethane	74-87-3	0.959	50	2,414	0.00	0.36	1.00	
10	Vinyl Chloride	75-01-4	0.994	62	339.8	0.00	0.03	1.00	X
11	Bromomethane	74-83-9	1.169	94	1,158	0.00	0.00	1.00	
12	Chloroethane	75-00-3	1.229	64	82.75	0.00	0.01	1.00	X
13	Trichlorofluoromethane	75-69-4	1.299	101	210.2	0.00	0.00	1.00	X
14	1,1-Dichloroethene	75-35-4	1.594	96	164.4	0.00	0.02	1.00	X
15	Carbon disulfide	75-15-10	1.604	76	6,779	0.00	0.76	1.00	
16	Iodomethane	74-88-4	1.684	142	196.4	0.00	1.39	1.00	X
18	Allyl Chloride	107-05-1	1.919	76	20.03	0.00	0.00	1.00	X
19	Methyl Tert-butyl Ether	1634-04-4	2.254	73	19.22	0.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.989	84	661.2	0.00	0.00	1.00	X
21	trans-1,2 Dichloroethene	156-60-5	2.104	96	835.1	0.00	0.09	1.00	X
22	Acetone	67-64-1	2.059	58	688.8	0.00	0.00	5.00	X
23	Acrylonitrile	75-34-3	2.649	53	55.37	0.00	0.43	1.00	X
24	1,1,-Dichloroethane	75-34-3	2.569	63	123.2	0.00	0.01	1.00	X
25	Chloroprene	107-13-1	2.554	53	537.9	0.00	0.03	1.00	X
26	cis-1,2,-Dichloroethene	156-59-2	2.999	96	246.4	0.00	0.02	1.00	X
27	2,2,-Dichloropropane	594-20-7	3.089	77	10.46	0.00	0.00	1.00	X
28	2-Butanone	78-93-3	3.575	72	20.72	0.00	1.70	5.00	X
29	Propionitrile	107-02-8	3.785	54	46.39	0.00	2.02	1.00	X
30	Bromochloromethane	74-97-5	3.169	128	33.85	0.00	0.15	1.00	X
31	Chloroform	67-66-3	3.244	83	50.43	0.00	0.00	1.00	X
32	Carbon tetrachloride	56-23-5	3.349	117	18.69	0.00	2.55	1.00	X
34	1,1,1-Trichloroethane	71-55-6	3.380	97	16.09	0.00	0.00	1.00	X

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
35	1,1-Dichloropropene	563-58-6	3.345	75	1,545	0.00	0.11	1.00	
36	Benzene	71-43-2	3.710	78	787.9	0.00	0.00	1.00	X
37	Methacrylonitrile	126-98-7	3.790	41	59.83	0.00	0.01	1.00	X
38	1,2-Dichloroethane	107-06-2	3.905	62	160.7	0.00	0.00	1.00	X
39	Trichloroethene	79-01-6	4.250	95	272.7	0.00	0.00	1.00	X
40	1,2-Dichloropropane	78-87-5	4.760	63	27.03	0.00	0.00	1.00	X
41	Bromodichloromethane	75-27-4	4.825	83	45.18	0.00	1.98	1.00	X
42	Methyl methacrylate	80-62-6	5.080	69	28.47	0.00	1.59	1.00	X
43	Dibromomethane	79-95-3	4.640	93	42.38	0.00	0.00	1.00	X
44	1,4-Dioxane	123-91-1	5.045	88	8.133	0.00	1.80	1.00	X
45	2-Chloroethyl Vinyl Ether	110-75-8	5.715	63	41.65	0.00	1.14	1.00	X
46	cis-1,3-Dichloropropene	10061-	5.490	75	45.98	0.00	2.24	1.00	X
47	Toluene	108-88-3	5.715	92	1,592	0.00	0.00	1.00	
48	trans-1,3-	10061-	6.206	75	61.26	0.00	1.86	1.00	X
49	1,1,2-Trichloroethane	79-00-5	6.306	83	51.15	0.00	0.00	1.00	X
50	Ethyl methacrylate	97-63-2	6.486	69	14.85	0.00	0.81	1.00	X
51	Tetrachloroethene	79-01-6	6.101	164	348.4	0.00	0.00	1.00	X
52	Chlorodibromomethane	124-48-1	6.516	129	1.652	0.00	2.85	1.00	X
53	1,3-Dichloropropane	142-28-9	6.631	76	19.32	0.00	0.00	1.00	X
54	1,2-Dibromoethane	100-41-4	6.761	107	40.85	0.00	0.00	1.00	X
55	Ethylbenzene	100-41-4	7.481	91	2,086	0.00	0.04	1.00	
56	1,1,1,2-	630-20-6	7.506	131	6.652	0.00	2.10	1.00	X
57	Chlorobenzene	108-90-7	7.386	112	1,768	0.00	0.00	1.00	
58	m,p-Xylene	106-42-	7.666	106	1,795	0.00	0.09	2.00	
59	o-Xylene	95-47-6	8.166	106	218.6	0.00	0.01	1.00	X
60	Bromoform	75-25-2	8.241	173	1.689	0.00	1.63	1.00	X
61	4-Methyl-2-pentanone	108-10-1	6.186	100	6.241	0.00	1.08	5.00	X
62	2-Hexanone	591-78-6	7.146	43	93.76	0.00	1.44	5.00	X
63	Styrene	100-42-5	8.256	104	863.0	0.00	0.00	1.00	X
64	Isopropylbenzene	98-82-8	8.592	105	2,177	0.00	0.04	1.00	
65	Bromobenzene	108-86-1	8.932	156	309.2	0.00	0.02	1.00	X
66	cis-1,4-dichloro-2-	1476-11-5	8.862	75	415,500	0.00	117.97	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.272	53	12.74	0.00	1.71	1.00	X
68	n-Propylbenzene	103-65-1	9.047	91	5,662	0.00	0.00	1.00	
69	1,1,2,2-	79-34-5	9.132	83	38.08	0.00	0.00	1.00	X
70	1,2,3-Trichloropropane	96-18-4	9.237	77	-8.326	0.00	0.00	1.00	X
71	1,3,5-trimethylbenzene	108-67-8	9.262	105	3,138	0.00	0.00	1.00	
72	2-Chlorotoluene	95-49-8	9.152	91	2,743	0.00	0.00	1.00	
73	4-Chlorotoluene	106-43-4	9.317	91	4,387	0.00	0.00	1.00	
74	tert-Butylbenzene	98-06-6	9.517	119	1,887	0.00	0.04	1.00	
75	1,2,4-Trimethylbenzene	95-63-6	9.587	105	3,320	0.00	0.00	1.00	
76	sec-Butylbenzene	135-98-8	9.667	105	4,969	0.00	0.00	1.00	
77	4-Isopropyltoluene	99-87-6	9.802	119	5,638	0.00	0.00	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.867	146	5,350	0.00	0.00	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.867	146	5,350	0.00	0.00	1.00	
80	n-Butylbenzene	104-51-8	10.122	91	7,214	0.00	0.00	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.177	146	1,675	0.00	0.07	1.00	
82	1,2-Dibromo-3-	96-12-8	10.732	75	16.15	0.00	2.86	1.00	X
83	1,2,4-Trichlorobenzene	120-82-1	11.168	180	4,192	0.00	0.00	1.00	
84	Hexachlorobutadiene	87-68-3	11.168	225	1,008	0.00	0.16	1.00	
85	Naphthalene	91-20-3	11.368	128	9,226	0.00	0.15	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.473	180	3,254	0.00	0.00	1.00	

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 LCS ars16-
Sample ID: 01-26-17 B17-00152 LCS ars16-12   Operator: ap
Description: 01-26-17 B17-00152 LCS ars16-122001
Inject Date/Time: January 26, 2017 6:25:47 PM   Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS   Level:
Dilution: 1.000   Sample Wt: 1.000
Soil Extract Vol: Purge Vol: 5.000
Soil Aliquot Vol:

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.105	96	2,062,000	50.00	0.00	
2	Chlorobenzene-d5	3114-55-4	7.371	117	1,625,000	50.00	0.00	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.862	152	899,000	50.00	0.01	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.400	113	432,200	50.00	46.77	93.54	0.00	
5	Toluene-d8	2037-26-5	5.665	98	2,163,000	50.00	53.83	107.7	0.01	
6	Bromofluorobenzene	460-00-4	8.867	95	933,400	50.00	53.31	106.6	0.01	
7	1,2-Dichloroethane-d4	17060-	3.845	102	147,100	50.00	52.72	105.4	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.859	85	317,300	50.00	45.80	1.00	
9	Chloromethane	74-87-3	0.959	50	635,700	50.00	43.73	1.00	
10	Vinyl Chloride	75-01-4	0.999	62	614,600	50.00	50.19	1.00	
11	Bromomethane	74-83-9	1.164	94	371,400	50.00	53.20	1.00	
12	Chloroethane	75-00-3	1.229	64	300,700	50.00	46.87	1.00	
13	Trichlorofluoromethane	75-69-4	1.294	101	314,900	50.00	45.61	1.00	
14	1,1-Dichloroethene	75-35-4	1.594	96	373,400	50.00	57.93	1.00	
15	Carbon disulfide	75-15-10	1.599	76	898,900	50.00	46.43	1.00	
16	Iodomethane	74-88-4	1.679	142	460,300	50.00	53.24	1.00	
17	Acrolein	107-05-1	1.919	56	1,020	50.00	104.08	1.00	
18	Allyl Chloride	107-05-1	1.914	76	205,300	50.00	43.69	1.00	
19	Methyl Tert-butyl Ether	1634-04-4	2.239	73	40.74	50.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.994	84	469,800	50.00	53.83	1.00	
21	trans-1,2 Dichloroethene	156-60-5	2.104	96	454,700	50.00	50.61	1.00	
22	Acetone	67-64-1	2.069	58	96,850	50.00	58.91	5.00	
23	Acrylonitrile	75-34-3	2.639	53	235,700	50.00	43.98	1.00	
24	1,1,-Dichloroethane	75-34-3	2.574	63	879,500	50.00	42.53	1.00	
25	Chloroprene	107-13-1	2.554	53	789,600	50.00	46.80	1.00	
26	cis-1,2,-Dichloroethene	156-59-2	3.004	96	539,600	50.00	49.47	1.00	
27	2,2,-Dichloropropane	594-20-7	3.089	77	407,400	50.00	41.62	1.00	
28	2-Butanone	78-93-3	3.545	72	77,120	50.00	44.95	5.00	
29	Propionitrile	107-02-8	3.780	54	97,640	50.00	41.73	1.00	
30	Bromochloromethane	74-97-5	3.164	128	229,900	50.00	46.95	1.00	
31	Chloroform	67-66-3	3.249	83	781,000	50.00	43.93	1.00	
32	Carbon tetrachloride	56-23-5	3.325	117	412,400	50.00	44.52	1.00	

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Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
34	1,1,1-Trichloroethane	71-55-6	3.390	97	613,100	50.00	50.62	1.00	
35	1,1-Dichloropropene	563-58-6	3.500	75	649,200	50.00	46.23	1.00	
36	Benzene	71-43-2	3.715	78	2,038,000	50.00	45.79	1.00	
37	Methacrylonitrile	126-98-7	3.790	41	429,400	50.00	42.17	1.00	
38	1,2-Dichloroethane	107-06-2	3.905	62	695,800	50.00	42.94	1.00	
39	Trichloroethene	79-01-6	4.255	95	501,800	50.00	51.41	1.00	
40	1,2-Dichloropropane	78-87-5	4.745	63	561,400	50.00	43.91	1.00	
41	Bromodichloromethane	75-27-4	4.835	83	556,800	50.00	43.54	1.00	
42	Methyl methacrylate	80-62-6	5.065	69	449,200	50.00	39.54	1.00	
43	Dibromomethane	79-95-3	4.640	93	290,200	50.00	47.76	1.00	
44	1,4-Dioxane	123-91-1	5.075	88	6,856	50.00	48.09	1.00	
45	2-Chloroethyl Vinyl Ether	110-75-8	5.715	63	180,900	50.00	43.88	1.00	
46	cis-1,3-Dichloropropene	10061-	5.480	75	682,400	50.00	39.66	1.00	
47	Toluene	108-88-3	5.715	92	1,350,000	50.00	56.01	1.00	
48	trans-1,3-	10061-	6.201	75	615,300	50.00	41.54	1.00	
49	1,1,2-Trichloroethane	79-00-5	6.361	83	397,700	50.00	50.19	1.00	
50	Ethyl methacrylate	97-63-2	6.461	69	792,800	50.00	42.57	1.00	
51	Tetrachloroethene	79-01-6	6.101	164	494,000	50.00	64.62	1.00	
52	Chlorodibromomethane	124-48-1	6.531	129	408,500	50.00	47.60	1.00	
53	1,3-Dichloropropane	142-28-9	6.646	76	903,800	50.00	44.85	1.00	
54	1,2-Dibromoethane	100-41-4	6.746	107	480,700	50.00	49.65	1.00	
55	Ethylbenzene	100-41-4	7.476	91	2,503,000	50.00	50.80	1.00	
56	1,1,1,2-	630-20-6	7.491	131	409,800	50.00	47.60	1.00	
57	Chlorobenzene	108-90-7	7.386	112	1,443,000	50.00	49.90	1.00	
58	m,p-Xylene	106-42-	7.661	106	1,972,000	50.00	94.65	2.00	
59	o-Xylene	95-47-6	8.171	106	968,100	50.00	48.87	1.00	
60	Bromoform	75-25-2	8.216	173	241,500	50.00	49.42	1.00	
61	4-Methyl-2-pentanone	108-10-1	6.196	100	100,600	50.00	47.49	5.00	
62	2-Hexanone	591-78-6	7.161	43	472,800	50.00	44.61	5.00	
63	Styrene	100-42-5	8.247	104	1,659,000	50.00	50.97	1.00	
64	Isopropylbenzene	98-82-8	8.592	105	2,470,000	50.00	50.18	1.00	
65	Bromobenzene	108-86-1	8.937	156	594,900	50.00	46.13	1.00	
66	cis-1,4-dichloro-2-	1476-11-5	8.987	75	103,900	50.00	32.97	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.297	53	220,700	50.00	43.06	1.00	
68	n-Propylbenzene	103-65-1	9.047	91	2,900,000	50.00	52.57	1.00	
69	1,1,2,2-	79-34-5	9.137	83	663,200	50.00	44.88	1.00	
70	1,2,3-Trichloropropane	96-18-4	9.222	77	86,570	50.00	37.86	1.00	
71	1,3,5-trimethylbenzene	108-67-8	9.262	105	2,194,000	50.00	49.01	1.00	
72	2-Chlorotoluene	95-49-8	9.152	91	1,821,000	50.00	50.68	1.00	
73	4-Chlorotoluene	106-43-4	9.312	91	1,871,000	50.00	48.65	1.00	
74	tert-Butylbenzene	98-06-6	9.517	119	1,958,000	50.00	43.49	1.00	
75	1,2,4-Trimethylbenzene	95-63-6	9.587	105	2,266,000	50.00	48.28	1.00	
76	sec-Butylbenzene	135-98-8	9.672	105	2,707,000	50.00	50.52	1.00	
77	4-Isopropyltoluene	99-87-6	9.802	119	2,299,000	50.00	48.19	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.872	146	1,221,000	50.00	49.50	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.872	146	1,221,000	50.00	49.50	1.00	
80	n-Butylbenzene	104-51-8	10.117	91	2,120,000	50.00	51.52	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.177	146	1,195,000	50.00	45.92	1.00	
82	1,2-Dibromo-3-	96-12-8	10.738	75	121,700	50.00	36.50	1.00	
83	1,2,4-Trichlorobenzene	120-82-1	11.168	180	847,000	50.00	46.41	1.00	
84	Hexachlorobutadiene	87-68-3	11.168	225	338,000	50.00	51.87	1.00	
85	Naphthalene	91-20-3	11.368	128	2,638,000	50.00	42.44	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.478	180	847,800	50.00	45.95	1.00	

Printed: February 02, 2017 1:02:17 PM

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 LCSD ars16-
Sample ID: 01-26-17 B17-00152 LCSD ars16-1   Operator: ap
Description: 01-26-17 B17-00152 LCSD ars16-122001
Inject Date/Time: January 26, 2017 6:50:17 PM   Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS   Level:
Dilution: 1.000   Sample Wt: 1.000
Soil Extract Vol: Purge Vol: 5.000
Soil Aliquot Vol:

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.105	96	2,016,000	50.00	0.00	
2	Chlorobenzene-d5	3114-55-4	7.376	117	1,587,000	50.00	0.01	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.867	152	888,000	50.00	0.01	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.405	113	424,300	50.00	46.95	93.90	0.00	
5	Toluene-d8	2037-26-5	5.670	98	2,105,000	50.00	53.67	107.3	0.01	
6	Bromofluorobenzene	460-00-4	8.872	95	907,800	50.00	53.10	106.2	0.01	
7	1,2-Dichloroethane-d4	17060-	3.850	102	144,000	50.00	52.87	105.7	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.859	85	312,500	50.00	46.11	1.00	
9	Chloromethane	74-87-3	0.959	50	632,000	50.00	44.45	1.00	
10	Vinyl Chloride	75-01-4	0.999	62	614,900	50.00	51.35	1.00	
11	Bromomethane	74-83-9	1.164	94	378,100	50.00	55.42	1.00	
12	Chloroethane	75-00-3	1.229	64	303,700	50.00	48.39	1.00	
13	Trichlorofluoromethane	75-69-4	1.294	101	308,900	50.00	45.77	1.00	
14	1,1-Dichloroethene	75-35-4	1.594	96	374,300	50.00	59.38	1.00	
15	Carbon disulfide	75-15-10	1.599	76	924,800	50.00	48.82	1.00	
16	Iodomethane	74-88-4	1.674	142	492,100	50.00	58.08	1.00	
18	Allyl Chloride	107-05-1	1.914	76	215,000	50.00	46.79	1.00	
19	Methyl Tert-butyl Ether	1634-04-4	2.224	73	42.52	50.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.994	84	473,100	50.00	55.48	1.00	
21	trans-1,2 Dichloroethene	156-60-5	2.104	96	462,000	50.00	52.59	1.00	
22	Acetone	67-64-1	2.069	58	83,550	50.00	51.68	5.00	
23	Acrylonitrile	75-34-3	2.639	53	234,800	50.00	44.78	1.00	
24	1,1,-Dichloroethane	75-34-3	2.574	63	896,800	50.00	44.35	1.00	
25	Chloroprene	107-13-1	2.559	53	799,700	50.00	48.46	1.00	
26	cis-1,2,-Dichloroethene	156-59-2	3.009	96	548,700	50.00	51.44	1.00	
27	2,2,-Dichloropropane	594-20-7	3.089	77	420,300	50.00	43.91	1.00	
28	2-Butanone	78-93-3	3.545	72	70,200	50.00	41.96	5.00	
29	Propionitrile	107-02-8	3.785	54	99,860	50.00	43.55	1.00	
30	Bromochloromethane	74-97-5	3.164	128	234,300	50.00	48.93	1.00	
31	Chloroform	67-66-3	3.254	83	800,500	50.00	46.05	1.00	
32	Carbon tetrachloride	56-23-5	3.329	117	423,400	50.00	46.62	1.00	
34	1,1,1-Trichloroethane	71-55-6	3.395	97	623,000	50.00	52.60	1.00	

Printed: February 02, 2017 1:02:51 PM

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
35	1,1-Dichloropropene	563-58-6	3.505	75	654,200	50.00	47.64	1.00	
36	Benzene	71-43-2	3.720	78	2,054,000	50.00	47.21	1.00	
37	Methacrylonitrile	126-98-7	3.795	41	434,800	50.00	43.66	1.00	
38	1,2-Dichloroethane	107-06-2	3.910	62	703,800	50.00	44.43	1.00	
39	Trichloroethene	79-01-6	4.260	95	504,700	50.00	52.91	1.00	
40	1,2-Dichloropropane	78-87-5	4.750	63	574,200	50.00	45.95	1.00	
41	Bromodichloromethane	75-27-4	4.840	83	572,700	50.00	45.69	1.00	
42	Methyl methacrylate	80-62-6	5.070	69	453,500	50.00	40.78	1.00	
43	Dibromomethane	79-95-3	4.645	93	293,800	50.00	49.44	1.00	
44	1,4-Dioxane	123-91-1	5.080	88	6,198	50.00	44.86	1.00	
45	2-Chloroethyl Vinyl Ether	110-75-8	5.720	63	185,600	50.00	45.98	1.00	
46	cis-1,3-Dichloropropene	10061-	5.485	75	702,400	50.00	41.63	1.00	
47	Toluene	108-88-3	5.720	92	1,379,000	50.00	58.68	1.00	
48	trans-1,3-	10061-	6.206	75	632,400	50.00	43.63	1.00	
49	1,1,2-Trichloroethane	79-00-5	6.366	83	400,000	50.00	51.71	1.00	
50	Ethyl methacrylate	97-63-2	6.471	69	812,900	50.00	44.67	1.00	
51	Tetrachloroethene	79-01-6	6.111	164	476,200	50.00	63.77	1.00	
52	Chlorodibromomethane	124-48-1	6.536	129	421,100	50.00	50.09	1.00	
53	1,3-Dichloropropane	142-28-9	6.651	76	911,800	50.00	46.34	1.00	
54	1,2-Dibromoethane	100-41-4	6.751	107	486,500	50.00	51.49	1.00	
55	Ethylbenzene	100-41-4	7.481	91	2,556,000	50.00	53.14	1.00	
56	1,1,1,2-	630-20-6	7.501	131	424,600	50.00	50.39	1.00	
57	Chlorobenzene	108-90-7	7.396	112	1,485,000	50.00	52.70	1.00	
58	m,p-Xylene	106-42-	7.671	106	2,016,000	50.00	99.07	2.00	
59	o-Xylene	95-47-6	8.176	106	990,100	50.00	51.19	1.00	
60	Bromoform	75-25-2	8.221	173	248,400	50.00	51.70	1.00	
61	4-Methyl-2-pentanone	108-10-1	6.201	100	100,100	50.00	48.37	5.00	
62	2-Hexanone	591-78-6	7.166	43	449,900	50.00	43.52	5.00	
63	Styrene	100-42-5	8.251	104	1,713,000	50.00	53.93	1.00	
64	Isopropylbenzene	98-82-8	8.597	105	2,507,000	50.00	52.17	1.00	
65	Bromobenzene	108-86-1	8.942	156	605,800	50.00	47.55	1.00	
66	cis-1,4-dichloro-2-	1476-11-5	8.992	75	112,100	50.00	35.45	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.302	53	221,400	50.00	43.72	1.00	
68	n-Propylbenzene	103-65-1	9.052	91	2,931,000	50.00	53.87	1.00	
69	1,1,2,2-	79-34-5	9.142	83	676,400	50.00	46.34	1.00	
70	1,2,3-Trichloropropane	96-18-4	9.227	77	90,480	50.00	40.10	1.00	
71	1,3,5-trimethylbenzene	108-67-8	9.267	105	2,240,000	50.00	50.80	1.00	
72	2-Chlorotoluene	95-49-8	9.157	91	1,868,000	50.00	52.77	1.00	
73	4-Chlorotoluene	106-43-4	9.317	91	1,898,000	50.00	49.99	1.00	
74	tert-Butylbenzene	98-06-6	9.522	119	2,043,000	50.00	45.93	1.00	
75	1,2,4-Trimethylbenzene	95-63-6	9.592	105	2,321,000	50.00	50.17	1.00	
76	sec-Butylbenzene	135-98-8	9.677	105	2,745,000	50.00	51.93	1.00	
77	4-Isopropyltoluene	99-87-6	9.807	119	2,332,000	50.00	49.54	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.877	146	1,247,000	50.00	51.25	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.877	146	1,247,000	50.00	51.25	1.00	
80	n-Butylbenzene	104-51-8	10.122	91	2,144,000	50.00	52.80	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.182	146	1,205,000	50.00	46.86	1.00	
82	1,2-Dibromo-3-	96-12-8	10.742	75	121,900	50.00	36.97	1.00	
83	1,2,4-Trichlorobenzene	120-82-1	11.173	180	859,500	50.00	47.72	1.00	
84	Hexachlorobutadiene	87-68-3	11.173	225	339,100	50.00	52.68	1.00	
85	Naphthalene	91-20-3	11.373	128	2,634,000	50.00	42.90	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.478	180	855,800	50.00	47.00	1.00	

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 (001).raw
Sample ID: 01-26-17 B17-00152 (001)   Operator: ap
Description: 01-26-17 B17-00152 (001)
Inject Date/Time: January 26, 2017 7:14:47 PM   Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS   Level:
Dilution: 1.000   Sample Wt: 1.000
Soil Extract Vol: Purge Vol: 5.000
Soil Aliquot Vol:

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.105	96	2,041,000	50.00	0.00	
2	Chlorobenzene-d5	3114-55-4	7.371	117	1,564,000	50.00	0.00	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.857	152	847,100	50.00	0.00	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.405	113	377,600	50.00	41.28	82.56	0.00	
5	Toluene-d8	2037-26-5	5.665	98	2,115,000	50.00	54.72	109.4	0.01	
6	Bromofluorobenzene	460-00-4	8.862	95	894,800	50.00	53.12	106.2	0.00	
7	1,2-Dichloroethane-d4	17060-	3.845	102	143,800	50.00	53.57	107.1	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.859	85	705.2	0.00	1.69	1.00	X
9	Chloromethane	74-87-3	0.964	50	1,986	0.00	0.34	1.00	
10	Vinyl Chloride	75-01-4	0.994	62	626.4	0.00	0.05	1.00	X
11	Bromomethane	74-83-9	1.169	94	1,076	0.00	0.00	1.00	
12	Chloroethane	75-00-3	1.229	64	96.04	0.00	0.02	1.00	X
13	Trichlorofluoromethane	75-69-4	1.304	101	671.9	0.00	0.00	1.00	X
14	1,1-Dichloroethene	75-35-4	1.589	96	267.8	0.00	0.04	1.00	X
15	Carbon disulfide	75-15-10	1.604	76	9,764	0.00	0.92	1.00	
16	Iodomethane	74-88-4	1.684	142	341.0	0.00	1.41	1.00	X
18	Allyl Chloride	107-05-1	1.904	76	8.298	0.00	0.00	1.00	X
19	Methyl Tert-butyl Ether	1634-04-4	2.224	73	28.34	0.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.989	84	717.3	0.00	0.00	1.00	X
21	trans-1,2 Dichloroethene	156-60-5	2.114	96	1,493	0.00	0.17	1.00	
22	Acetone	67-64-1	2.069	58	20,940	0.00	10.96	5.00	
23	Acrylonitrile	75-34-3	2.639	53	56.27	0.00	0.43	1.00	X
24	1,1,-Dichloroethane	75-34-3	2.569	63	177.1	0.00	0.01	1.00	X
25	Chloroprene	107-13-1	2.559	53	955.3	0.00	0.06	1.00	X
26	cis-1,2,-Dichloroethene	156-59-2	3.009	96	373.1	0.00	0.03	1.00	X
27	2,2,-Dichloropropane	594-20-7	3.094	77	20.37	0.00	0.00	1.00	X
28	2-Butanone	78-93-3	3.565	72	12.63	0.00	1.70	5.00	X
29	Propionitrile	107-02-8	3.780	54	1.336	0.00	2.00	1.00	X
30	Bromochloromethane	74-97-5	3.149	128	0.00	0.00	0.14	1.00	X
31	Chloroform	67-66-3	3.244	83	99.81	0.00	0.01	1.00	X
32	Carbon tetrachloride	56-23-5	3.324	117	10.58	0.00	2.55	1.00	X
34	1,1,1-Trichloroethane	71-55-6	3.389	97	47.46	0.00	0.00	1.00	X

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
35	1,1-Dichloropropene	563-58-6	3.505	75	1,749	0.00	0.13	1.00	
36	Benzene	71-43-2	3.720	78	1,585	0.00	0.00	1.00	
37	Methacrylonitrile	126-98-7	3.820	41	118.7	0.00	0.01	1.00	X
38	1,2-Dichloroethane	107-06-2	3.905	62	64.70	0.00	0.00	1.00	X
39	Trichloroethene	79-01-6	4.260	95	1,143	0.00	0.00	1.00	
40	1,2-Dichloropropane	78-87-5	4.755	63	27.48	0.00	0.00	1.00	X
41	Bromodichloromethane	75-27-4	4.835	83	13.87	0.00	1.98	1.00	X
42	Methyl methacrylate	80-62-6	5.090	69	73.50	0.00	1.59	1.00	X
43	Dibromomethane	79-95-3	4.610	93	3.152	0.00	0.00	1.00	X
44	1,4-Dioxane	123-91-1	5.065	88	13.38	0.00	1.84	1.00	X
45	2-Chloroethyl Vinyl Ether	110-75-8	5.720	63	88.19	0.00	1.15	1.00	X
46	cis-1,3-Dichloropropene	10061-	5.490	75	99.94	0.00	2.24	1.00	X
47	Toluene	108-88-3	5.720	92	2,897	0.00	0.00	1.00	
48	trans-1,3-	10061-	6.206	75	174.2	0.00	1.87	1.00	X
49	1,1,2-Trichloroethane	79-00-5	6.376	83	15.31	0.00	0.00	1.00	X
50	Ethyl methacrylate	97-63-2	6.496	69	29.53	0.00	0.81	1.00	X
51	Tetrachloroethene	79-01-6	6.106	164	1,338	0.00	0.00	1.00	
52	Chlorodibromomethane	124-48-1	6.521	129	11.51	0.00	2.85	1.00	X
53	1,3-Dichloropropane	142-28-9	6.651	76	136.5	0.00	0.01	1.00	X
54	1,2-Dibromoethane	100-41-4	6.761	107	93.05	0.00	0.00	1.00	X
55	Ethylbenzene	100-41-4	7.481	91	5,130	0.00	0.11	1.00	
56	1,1,1,2-	630-20-6	7.481	131	17.39	0.00	2.10	1.00	X
57	Chlorobenzene	108-90-7	7.391	112	3,668	0.00	0.00	1.00	
58	m,p-Xylene	106-42-	7.671	106	4,648	0.00	0.23	2.00	
59	o-Xylene	95-47-6	8.176	106	627.0	0.00	0.03	1.00	X
60	Bromoform	75-25-2	8.191	173	2.622	0.00	1.63	1.00	X
61	4-Methyl-2-pentanone	108-10-1	6.191	100	8.798	0.00	1.08	5.00	X
62	2-Hexanone	591-78-6	7.201	43	62.40	0.00	1.44	5.00	X
63	Styrene	100-42-5	8.256	104	1,954	0.00	0.00	1.00	
64	Isopropylbenzene	98-82-8	8.592	105	4,849	0.00	0.10	1.00	
65	Bromobenzene	108-86-1	8.932	156	774.2	0.00	0.06	1.00	X
66	cis-1,4-dichloro-2-	1476-11-5	8.867	75	404,800	0.00	117.44	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.307	53	37.02	0.00	1.71	1.00	X
68	n-Propylbenzene	103-65-1	9.047	91	10,670	0.00	0.00	1.00	
69	1,1,2,2-	79-34-5	9.122	83	56.36	0.00	0.00	1.00	X
70	1,2,3-Trichloropropane	96-18-4	9.242	77	-39.89	0.00	0.00	1.00	X
71	1,3,5-trimethylbenzene	108-67-8	9.262	105	5,838	0.00	0.00	1.00	
72	2-Chlorotoluene	95-49-8	9.152	91	5,615	0.00	0.00	1.00	
73	4-Chlorotoluene	106-43-4	9.317	91	9,059	0.00	0.00	1.00	
74	tert-Butylbenzene	98-06-6	9.517	119	4,033	0.00	0.10	1.00	
75	1,2,4-Trimethylbenzene	95-63-6	9.587	105	6,652	0.00	0.00	1.00	
76	sec-Butylbenzene	135-98-8	9.667	105	9,393	0.00	0.00	1.00	
77	4-Isopropyltoluene	99-87-6	9.802	119	9,446	0.00	0.00	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.872	146	9,288	0.00	0.00	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.872	146	9,288	0.00	0.00	1.00	
80	n-Butylbenzene	104-51-8	10.122	91	12,770	0.00	0.00	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.177	146	3,712	0.00	0.15	1.00	
82	1,2-Dibromo-3-	96-12-8	10.712	75	35.93	0.00	2.87	1.00	X
83	1,2,4-Trichlorobenzene	120-82-1	11.168	180	7,095	0.00	0.00	1.00	
84	Hexachlorobutadiene	87-68-3	11.168	225	2,274	0.00	0.37	1.00	
85	Naphthalene	91-20-3	11.368	128	12,920	0.00	0.22	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.473	180	5,782	0.00	0.00	1.00	

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 (002).raw
Sample ID: 01-26-17 B17-00152 (002)   Operator: ap
Description: 01-26-17 B17-00152 (002)
Inject Date/Time: January 26, 2017 7:39:16 PM   Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS   Level:
Dilution: 1.000   Sample Wt: 1.000
Soil Extract Vol: Purge Vol: 5.000
Soil Aliquot Vol:

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.105	96	1,998,000	50.00	0.00	
2	Chlorobenzene-d5	3114-55-4	7.376	117	1,535,000	50.00	0.01	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.867	152	823,300	50.00	0.01	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.405	113	364,100	50.00	40.65	81.30	0.00	
5	Toluene-d8	2037-26-5	5.670	98	2,073,000	50.00	54.64	109.3	0.01	
6	Bromofluorobenzene	460-00-4	8.867	95	869,200	50.00	52.57	105.1	0.01	
7	1,2-Dichloroethane-d4	17060-	3.850	102	140,600	50.00	53.34	106.7	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.859	85	67.40	0.00	1.60	1.00	X
9	Chloromethane	74-87-3	0.964	50	1,551	0.00	0.31	1.00	
10	Vinyl Chloride	75-01-4	0.999	62	113.0	0.00	0.01	1.00	X
11	Bromomethane	74-83-9	1.164	94	674.1	0.00	0.00	1.00	X
12	Chloroethane	75-00-3	1.229	64	91.40	0.00	0.01	1.00	X
13	Trichlorofluoromethane	75-69-4	1.299	101	112.7	0.00	0.00	1.00	X
14	1,1-Dichloroethene	75-35-4	1.604	96	123.3	0.00	0.02	1.00	X
15	Carbon disulfide	75-15-10	1.604	76	4,290	0.00	0.64	1.00	
16	Iodomethane	74-88-4	1.694	142	103.5	0.00	1.38	1.00	X
18	Allyl Chloride	107-05-1	1.904	76	12.55	0.00	0.00	1.00	X
19	Methyl Tert-butyl Ether	1634-04-4	2.244	73	20.00	0.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.989	84	140.1	0.00	0.00	1.00	X
21	trans-1,2 Dichloroethene	156-60-5	2.109	96	353.6	0.00	0.04	1.00	X
22	Acetone	67-64-1	2.069	58	3,812	0.00	0.06	5.00	
23	Acrylonitrile	75-34-3	2.629	53	25.20	0.00	0.42	1.00	X
24	1,1,-Dichloroethane	75-34-3	2.569	63	46.93	0.00	0.00	1.00	X
25	Chloroprene	107-13-1	2.554	53	381.6	0.00	0.02	1.00	X
26	cis-1,2,-Dichloroethene	156-59-2	2.999	96	155.1	0.00	0.01	1.00	X
27	2,2,-Dichloropropane	594-20-7	3.049	77	25.94	0.00	0.00	1.00	X
28	2-Butanone	78-93-3	3.580	72	6.275	0.00	1.70	5.00	X
29	Propionitrile	107-02-8	3.790	54	6.422	0.00	2.01	1.00	X
30	Bromochloromethane	74-97-5	3.164	128	8.964	0.00	0.15	1.00	X
31	Chloroform	67-66-3	3.249	83	25.98	0.00	0.00	1.00	X
32	Carbon tetrachloride	56-23-5	3.284	117	6.413	0.00	2.55	1.00	X
34	1,1,1-Trichloroethane	71-55-6	3.390	97	54.45	0.00	0.00	1.00	X

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
35	1,1-Dichloropropene	563-58-6	3.349	75	2,748	0.00	0.20	1.00	
36	Benzene	71-43-2	3.715	78	521.4	0.00	0.00	1.00	X
37	Methacrylonitrile	126-98-7	3.810	41	10.28	0.00	0.00	1.00	X
38	1,2-Dichloroethane	107-06-2	3.915	62	26.91	0.00	0.00	1.00	X
39	Trichloroethene	79-01-6	4.260	95	213.3	0.00	0.00	1.00	X
40	1,2-Dichloropropane	78-87-5	4.765	63	15.20	0.00	0.00	1.00	X
41	Bromodichloromethane	75-27-4	4.850	83	37.87	0.00	1.98	1.00	X
42	Methyl methacrylate	80-62-6	5.100	69	39.12	0.00	1.59	1.00	X
43	Dibromomethane	79-95-3	4.595	93	8.071	0.00	0.00	1.00	X
44	1,4-Dioxane	123-91-1	5.120	88	13.19	0.00	1.84	1.00	X
45	2-Chloroethyl Vinyl Ether	110-75-8	5.705	63	111.0	0.00	1.16	1.00	X
46	cis-1,3-Dichloropropene	10061-	5.475	75	2.905	0.00	2.23	1.00	X
47	Toluene	108-88-3	5.720	92	1,252	0.00	0.00	1.00	
48	trans-1,3-	10061-	6.231	75	45.90	0.00	1.86	1.00	X
49	1,1,2-Trichloroethane	79-00-5	6.401	83	36.81	0.00	0.00	1.00	X
50	Ethyl methacrylate	97-63-2	6.501	69	35.18	0.00	0.81	1.00	X
51	Tetrachloroethene	79-01-6	6.106	164	327.4	0.00	0.00	1.00	X
52	Chlorodibromomethane	124-48-1	6.546	129	23.92	0.00	2.85	1.00	X
53	1,3-Dichloropropane	142-28-9	6.656	76	20.56	0.00	0.00	1.00	X
54	1,2-Dibromoethane	100-41-4	6.741	107	12.39	0.00	0.00	1.00	X
55	Ethylbenzene	100-41-4	7.486	91	2,657	0.00	0.06	1.00	
56	1,1,1,2-	630-20-6	7.471	131	15.63	0.00	2.10	1.00	X
57	Chlorobenzene	108-90-7	7.396	112	1,365	0.00	0.00	1.00	
58	m,p-Xylene	106-42-	7.676	106	2,072	0.00	0.11	2.00	
59	o-Xylene	95-47-6	8.186	106	224.5	0.00	0.01	1.00	X
60	Bromoform	75-25-2	8.186	173	4.480	0.00	1.63	1.00	X
61	4-Methyl-2-pentanone	108-10-1	6.191	100	6.551	0.00	1.08	5.00	X
62	2-Hexanone	591-78-6	7.171	43	16.19	0.00	1.43	5.00	X
63	Styrene	100-42-5	8.256	104	591.5	0.00	0.00	1.00	X
64	Isopropylbenzene	98-82-8	8.597	105	1,845	0.00	0.04	1.00	
65	Bromobenzene	108-86-1	8.937	156	142.8	0.00	0.01	1.00	X
66	cis-1,4-dichloro-2-	1476-11-5	8.867	75	396,600	0.00	118.32	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.292	53	32.95	0.00	1.71	1.00	X
68	n-Propylbenzene	103-65-1	9.052	91	5,411	0.00	0.00	1.00	
69	1,1,2,2-	79-34-5	9.162	83	4.485	0.00	0.00	1.00	X
70	1,2,3-Trichloropropane	96-18-4	9.242	77	-5.125	0.00	0.00	1.00	X
71	1,3,5-trimethylbenzene	108-67-8	9.267	105	2,834	0.00	0.00	1.00	
72	2-Chlorotoluene	95-49-8	9.157	91	2,686	0.00	0.00	1.00	
73	4-Chlorotoluene	106-43-4	9.322	91	4,103	0.00	0.00	1.00	
74	tert-Butylbenzene	98-06-6	9.527	119	1,193	0.00	0.03	1.00	
75	1,2,4-Trimethylbenzene	95-63-6	9.592	105	3,247	0.00	0.00	1.00	
76	sec-Butylbenzene	135-98-8	9.677	105	4,533	0.00	0.00	1.00	
77	4-Isopropyltoluene	99-87-6	9.807	119	4,062	0.00	0.00	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.877	146	4,992	0.00	0.00	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.877	146	4,992	0.00	0.00	1.00	
80	n-Butylbenzene	104-51-8	10.127	91	6,590	0.00	0.00	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.187	146	1,294	0.00	0.05	1.00	
82	1,2-Dibromo-3-	96-12-8	10.717	75	19.65	0.00	2.87	1.00	X
83	1,2,4-Trichlorobenzene	120-82-1	11.178	180	3,550	0.00	0.00	1.00	
84	Hexachlorobutadiene	87-68-3	11.168	225	643.6	0.00	0.11	1.00	X
85	Naphthalene	91-20-3	11.378	128	3,695	0.00	0.06	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.483	180	1,826	0.00	0.00	1.00	

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 (003).raw

Sample ID:	01-26-17 B17-00152 (003)	Operator:	ap
Description:	01-26-17 B17-00152 (003)		
Inject Date/Time:	January 26, 2017 8:03:47 PM	Tune File:	010317.IPR
GC Method:	8260.mth	MS Method:	8260.EXP
Quantify Method:	8260b water 01-26-2017 B17-00152	Last Updated:	February 02, 2017 12:58:57 PM
Calibration File:	8260B water IC 01-24-17cal2	Last Updated:	January 24, 2017 4:48:29 PM
GC Column:	Elite-VMS	Level:	
Dilution:	1.000	Sample Wt:	1.000
Soil Extract Vol:		Purge Vol:	5.000
Soil Aliquot Vol:			

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.105	96	2,052,000	50.00	0.00	
2	Chlorobenzene-d5	3114-55-4	7.371	117	1,562,000	50.00	0.00	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.862	152	829,600	50.00	0.01	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.405	113	384,200	50.00	41.78	83.56	0.00	
5	Toluene-d8	2037-26-5	5.670	98	2,130,000	50.00	55.17	110.3	0.01	
6	Bromofluorobenzene	460-00-4	8.867	95	887,300	50.00	52.73	105.5	0.01	
7	1,2-Dichloroethane-d4	17060-	3.845	102	144,400	50.00	53.83	107.7	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.849	85	46.37	0.00	1.60	1.00	X
9	Chloromethane	74-87-3	0.959	50	1,647	0.00	0.31	1.00	
10	Vinyl Chloride	75-01-4	0.989	62	81.02	0.00	0.01	1.00	X
11	Bromomethane	74-83-9	1.164	94	642.5	0.00	0.00	1.00	X
12	Chloroethane	75-00-3	1.234	64	94.79	0.00	0.01	1.00	X
13	Trichlorofluoromethane	75-69-4	1.299	101	104.9	0.00	0.00	1.00	X
14	1,1-Dichloroethene	75-35-4	1.569	96	5.520	0.00	0.00	1.00	X
15	Carbon disulfide	75-15-10	1.604	76	2,909	0.00	0.57	1.00	
16	Iodomethane	74-88-4	1.684	142	277.8	0.00	1.40	1.00	X
18	Allyl Chloride	107-05-1	1.914	76	4.003	0.00	0.00	1.00	X
19	Methyl Tert-butyl Ether	1634-04-4	2.249	73	9.562	0.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.989	84	258.2	0.00	0.00	1.00	X
21	trans-1,2 Dichloroethene	156-60-5	2.104	96	154.4	0.00	0.02	1.00	X
22	Acetone	67-64-1	2.069	58	2,734	0.00	0.00	5.00	
23	Acrylonitrile	75-34-3	2.639	53	11.52	0.00	0.42	1.00	X
24	1,1,-Dichloroethane	75-34-3	2.569	63	6.570	0.00	0.00	1.00	X
25	Chloroprene	107-13-1	2.559	53	114.4	0.00	0.01	1.00	X
26	cis-1,2,-Dichloroethene	156-59-2	3.009	96	47.38	0.00	0.00	1.00	X
27	2,2,-Dichloropropane	594-20-7	3.074	77	27.93	0.00	0.00	1.00	X
28	2-Butanone	78-93-3	3.565	72	42.07	0.00	1.72	5.00	X
29	Propionitrile	107-02-8	3.740	54	25.65	0.00	2.01	1.00	X
30	Bromochloromethane	74-97-5	3.134	128	4.446	0.00	0.15	1.00	X
31	Chloroform	67-66-3	3.254	83	29,940	0.00	1.69	1.00	
32	Carbon tetrachloride	56-23-5	3.279	117	1.656	0.00	2.55	1.00	X
34	1,1,1-Trichloroethane	71-55-6	3.400	97	8.450	0.00	0.00	1.00	X

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
35	1,1-Dichloropropene	563-58-6	3.390	75	12.14	0.00	0.00	1.00	X
36	Benzene	71-43-2	3.715	78	247.8	0.00	0.00	1.00	X
37	Methacrylonitrile	126-98-7	3.810	41	7.782	0.00	0.00	1.00	X
38	1,2-Dichloroethane	107-06-2	3.855	62	28.80	0.00	0.00	1.00	X
39	Trichloroethene	79-01-6	4.255	95	81.97	0.00	0.00	1.00	X
40	1,2-Dichloropropane	78-87-5	4.740	63	10.83	0.00	0.00	1.00	X
41	Bromodichloromethane	75-27-4	4.840	83	28,970	0.00	4.15	1.00	
42	Methyl methacrylate	80-62-6	5.065	69	33.08	0.00	1.59	1.00	X
43	Dibromomethane	79-95-3	4.650	93	14.38	0.00	0.00	1.00	X
44	1,4-Dioxane	123-91-1	5.065	88	1.333	0.00	1.75	1.00	X
45	2-Chloroethyl Vinyl Ether	110-75-8	5.725	63	76.64	0.00	1.15	1.00	X
46	cis-1,3-Dichloropropene	10061-	5.460	75	57.45	0.00	2.24	1.00	X
47	Toluene	108-88-3	5.720	92	860.1	0.00	0.00	1.00	X
48	trans-1,3-	10061-	6.221	75	16.16	0.00	1.86	1.00	X
49	1,1,2-Trichloroethane	79-00-5	6.361	83	20.31	0.00	0.00	1.00	X
50	Ethyl methacrylate	97-63-2	6.446	69	26.49	0.00	0.81	1.00	X
51	Tetrachloroethene	79-01-6	6.106	164	190.0	0.00	0.00	1.00	X
52	Chlorodibromomethane	124-48-1	6.536	129	48,540	0.00	8.38	1.00	
53	1,3-Dichloropropane	142-28-9	6.656	76	35.00	0.00	0.00	1.00	X
54	1,2-Dibromoethane	100-41-4	6.756	107	18.09	0.00	0.00	1.00	X
55	Ethylbenzene	100-41-4	7.486	91	1,449	0.00	0.03	1.00	
56	1,1,1,2-	630-20-6	7.456	131	8.659	0.00	2.10	1.00	X
57	Chlorobenzene	108-90-7	7.386	112	735.5	0.00	0.00	1.00	X
58	m,p-Xylene	106-42-	7.671	106	1,196	0.00	0.06	2.00	
59	o-Xylene	95-47-6	8.181	106	60.32	0.00	0.00	1.00	X
60	Bromoform	75-25-2	8.216	173	43,500	0.00	11.51	1.00	
61	4-Methyl-2-pentanone	108-10-1	6.201	100	22.36	0.00	1.09	5.00	X
62	2-Hexanone	591-78-6	7.176	43	23.89	0.00	1.43	5.00	X
63	Styrene	100-42-5	8.251	104	240.7	0.00	0.00	1.00	X
64	Isopropylbenzene	98-82-8	8.597	105	1,093	0.00	0.02	1.00	
65	Bromobenzene	108-86-1	8.937	156	130.9	0.00	0.01	1.00	X
66	cis-1,4-dichloro-2-	1476-11-5	8.867	75	401,400	0.00	118.82	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.302	53	106.6	0.00	1.73	1.00	X
68	n-Propylbenzene	103-65-1	9.052	91	3,883	0.00	0.00	1.00	
69	1,1,2,2-	79-34-5	9.197	83	16.84	0.00	0.00	1.00	X
70	1,2,3-Trichloropropane	96-18-4	9.222	77	1.297	0.00	0.00	1.00	X
71	1,3,5-trimethylbenzene	108-67-8	9.262	105	1,781	0.00	0.00	1.00	
72	2-Chlorotoluene	95-49-8	9.157	91	1,640	0.00	0.00	1.00	
73	4-Chlorotoluene	106-43-4	9.317	91	2,567	0.00	0.00	1.00	
74	tert-Butylbenzene	98-06-6	9.517	119	452.3	0.00	0.01	1.00	X
75	1,2,4-Trimethylbenzene	95-63-6	9.592	105	2,238	0.00	0.00	1.00	
76	sec-Butylbenzene	135-98-8	9.672	105	3,211	0.00	0.00	1.00	
77	4-Isopropyltoluene	99-87-6	9.807	119	3,244	0.00	0.00	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.872	146	4,072	0.00	0.00	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.872	146	4,072	0.00	0.00	1.00	
80	n-Butylbenzene	104-51-8	10.122	91	4,437	0.00	0.00	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.177	146	626.8	0.00	0.03	1.00	X
82	1,2-Dibromo-3-	96-12-8	10.702	75	42.07	0.00	2.87	1.00	X
83	1,2,4-Trichlorobenzene	120-82-1	11.173	180	2,336	0.00	0.00	1.00	
84	Hexachlorobutadiene	87-68-3	11.163	225	364.5	0.00	0.06	1.00	X
85	Naphthalene	91-20-3	11.373	128	2,017	0.00	0.04	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.483	180	1,075	0.00	0.00	1.00	

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 iblk2.raw
Sample ID: 01-26-17 B17-00152 iblk2   Operator: ap
Description: 01-26-17 B17-00152 iblk2
Inject Date/Time: January 26, 2017 8:28:18 PM   Tune File: 010317.IPR
GC Method: 8260.mth   MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS   Level:
Dilution: 1.000   Sample Wt: 1.000
Soil Extract Vol: Purge Vol: 5.000
Soil Aliquot Vol:

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.105	96	1,969,000	50.00	0.00	
2	Chlorobenzene-d5	3114-55-4	7.371	117	1,505,000	50.00	0.00	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.862	152	820,600	50.00	0.01	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.400	113	362,200	50.00	41.05	82.09	0.00	
5	Toluene-d8	2037-26-5	5.665	98	2,036,000	50.00	54.75	109.5	0.01	
6	Bromofluorobenzene	460-00-4	8.867	95	860,100	50.00	53.07	106.1	0.01	
7	1,2-Dichloroethane-d4	17060-	3.845	102	137,800	50.00	53.35	106.7	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.864	85	109.5	0.00	1.61	1.00	X
9	Chloromethane	74-87-3	0.964	50	1,492	0.00	0.31	1.00	
10	Vinyl Chloride	75-01-4	0.984	62	13.68	0.00	0.00	1.00	X
11	Bromomethane	74-83-9	1.164	94	496.6	0.00	0.00	1.00	X
12	Chloroethane	75-00-3	1.219	64	64.11	0.00	0.01	1.00	X
13	Trichlorofluoromethane	75-69-4	1.304	101	67.14	0.00	0.00	1.00	X
14	1,1-Dichloroethene	75-35-4	1.594	96	10.83	0.00	0.00	1.00	X
15	Carbon disulfide	75-15-10	1.604	76	2,453	0.00	0.55	1.00	
16	Iodomethane	74-88-4	1.684	142	60.40	0.00	1.38	1.00	X
18	Allyl Chloride	107-05-1	1.924	76	3.966	0.00	0.00	1.00	X
19	Methyl Tert-butyl Ether	1634-04-4	2.229	73	22.21	0.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.994	84	103.2	0.00	0.00	1.00	X
21	trans-1,2 Dichloroethene	156-60-5	2.109	96	89.48	0.00	0.01	1.00	X
22	Acetone	67-64-1	2.064	58	444.3	0.00	0.00	5.00	X
23	Acrylonitrile	75-34-3	2.624	53	16.84	0.00	0.42	1.00	X
24	1,1,-Dichloroethane	75-34-3	2.554	63	28.93	0.00	0.00	1.00	X
25	Chloroprene	107-13-1	2.559	53	124.2	0.00	0.01	1.00	X
26	cis-1,2,-Dichloroethene	156-59-2	3.034	96	1.323	0.00	0.00	1.00	X
27	2,2,-Dichloropropane	594-20-7	3.074	77	12.22	0.00	0.00	1.00	X
28	2-Butanone	78-93-3	3.530	72	3.267	0.00	1.70	5.00	X
29	Propionitrile	107-02-8	3.790	54	31.09	0.00	2.02	1.00	X
30	Bromochloromethane	74-97-5	3.149	128	23.10	0.00	0.15	1.00	X
31	Chloroform	67-66-3	3.249	83	48.31	0.00	0.00	1.00	X
32	Carbon tetrachloride	56-23-5	3.284	117	1.738	0.00	2.55	1.00	X
34	1,1,1-Trichloroethane	71-55-6	3.420	97	17.51	0.00	0.00	1.00	X

Printed: February 02, 2017 1:05:15 PM

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
35	1,1-Dichloropropene	563-58-6	3.345	75	328.4	0.00	0.02	1.00	X
36	Benzene	71-43-2	3.715	78	185.0	0.00	0.00	1.00	X
37	Methacrylonitrile	126-98-7	3.845	41	9.255	0.00	0.00	1.00	X
38	1,2-Dichloroethane	107-06-2	3.905	62	38.96	0.00	0.00	1.00	X
39	Trichloroethene	79-01-6	4.260	95	64.94	0.00	0.00	1.00	X
40	1,2-Dichloropropane	78-87-5	4.770	63	37.02	0.00	0.00	1.00	X
41	Bromodichloromethane	75-27-4	4.815	83	27.77	0.00	1.98	1.00	X
42	Methyl methacrylate	80-62-6	5.080	69	11.01	0.00	1.59	1.00	X
43	Dibromomethane	79-95-3	4.650	93	10.84	0.00	0.00	1.00	X
44	1,4-Dioxane	123-91-1	5.075	88	3.524	0.00	1.76	1.00	X
45	2-Chloroethyl Vinyl Ether	110-75-8	5.720	63	71.01	0.00	1.15	1.00	X
46	cis-1,3-Dichloropropene	10061-	5.465	75	12.78	0.00	2.23	1.00	X
47	Toluene	108-88-3	5.720	92	810.5	0.00	0.00	1.00	X
48	trans-1,3-	10061-	6.216	75	18.69	0.00	1.86	1.00	X
49	1,1,2-Trichloroethane	79-00-5	6.301	83	36.49	0.00	0.00	1.00	X
50	Ethyl methacrylate	97-63-2	6.451	69	3.495	0.00	0.81	1.00	X
51	Tetrachloroethene	79-01-6	6.101	164	69.98	0.00	0.00	1.00	X
52	Chlorodibromomethane	124-48-1	6.496	129	33.41	0.00	2.85	1.00	X
53	1,3-Dichloropropane	142-28-9	6.636	76	18.47	0.00	0.00	1.00	X
54	1,2-Dibromoethane	100-41-4	6.726	107	6.547	0.00	0.00	1.00	X
55	Ethylbenzene	100-41-4	7.481	91	1,102	0.00	0.02	1.00	
56	1,1,1,2-	630-20-6	7.466	131	11.92	0.00	2.10	1.00	X
57	Chlorobenzene	108-90-7	7.386	112	542.1	0.00	0.00	1.00	X
58	m,p-Xylene	106-42-	7.661	106	736.7	0.00	0.04	2.00	X
59	o-Xylene	95-47-6	8.166	106	93.27	0.00	0.01	1.00	X
60	Bromoform	75-25-2	8.201	173	4.406	0.00	1.63	1.00	X
61	4-Methyl-2-pentanone	108-10-1	6.206	100	4.985	0.00	1.08	5.00	X
62	2-Hexanone	591-78-6	7.126	43	17.29	0.00	1.43	5.00	X
63	Styrene	100-42-5	8.256	104	149.3	0.00	0.00	1.00	X
64	Isopropylbenzene	98-82-8	8.592	105	875.3	0.00	0.02	1.00	X
65	Bromobenzene	108-86-1	8.927	156	24.07	0.00	0.00	1.00	X
66	cis-1,4-dichloro-2-	1476-11-5	8.867	75	386,700	0.00	115.89	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.287	53	11.30	0.00	1.71	1.00	X
68	n-Propylbenzene	103-65-1	9.052	91	3,410	0.00	0.00	1.00	
69	1,1,2,2-	79-34-5	9.167	83	1.256	0.00	0.00	1.00	X
70	1,2,3-Trichloropropane	96-18-4	9.222	77	0.00	0.00	0.00	1.00	X
71	1,3,5-trimethylbenzene	108-67-8	9.262	105	1,728	0.00	0.00	1.00	
72	2-Chlorotoluene	95-49-8	9.152	91	1,016	0.00	0.00	1.00	
73	4-Chlorotoluene	106-43-4	9.317	91	2,067	0.00	0.00	1.00	
74	tert-Butylbenzene	98-06-6	9.517	119	466.8	0.00	0.01	1.00	X
75	1,2,4-Trimethylbenzene	95-63-6	9.587	105	2,023	0.00	0.00	1.00	
76	sec-Butylbenzene	135-98-8	9.672	105	2,693	0.00	0.00	1.00	
77	4-Isopropyltoluene	99-87-6	9.807	119	2,998	0.00	0.00	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.872	146	2,946	0.00	0.00	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.872	146	2,946	0.00	0.00	1.00	
80	n-Butylbenzene	104-51-8	10.122	91	4,112	0.00	0.00	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.172	146	411.9	0.00	0.02	1.00	X
82	1,2-Dibromo-3-	96-12-8	10.697	75	16.66	0.00	2.87	1.00	X
83	1,2,4-Trichlorobenzene	120-82-1	11.173	180	1,611	0.00	0.00	1.00	
84	Hexachlorobutadiene	87-68-3	11.158	225	272.1	0.00	0.05	1.00	X
85	Naphthalene	91-20-3	11.373	128	2,123	0.00	0.04	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.478	180	1,013	0.00	0.00	1.00	

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 B17-00152 ccv2 ars-16-

Sample ID: 01-26-17 B17-00152 ccv2 ars16-12   Operator: ap

Description: 01-26-17 B17-00152 ccv2 ars16-122001

Inject Date/Time: January 26, 2017 8:52:43 PM   Tune File: 010317.IPR

GC Method: 8260.mth   MS Method: 8260.EXP

Quantify Method: 8260b water 01-26-2017 B17-00152   Last Updated: February 02, 2017 12:58:57 PM

Calibration File: 8260B water IC 01-24-17cal2   Last Updated: January 24, 2017 4:48:29 PM

GC Column: Elite-VMS   Level:

Dilution: 1.000   Sample Wt: 1.000

Soil Extract Vol: Purge Vol: 5.000

Soil Aliquot Vol:

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.105	96	1,910,000	50.00	0.00	
2	Chlorobenzene-d5	3114-55-4	7.371	117	1,497,000	50.00	0.00	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.857	152	848,000	50.00	0.00	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.400	113	400,600	50.00	46.79	93.58	0.00	
5	Toluene-d8	2037-26-5	5.665	98	1,995,000	50.00	53.92	107.8	0.01	
6	Bromofluorobenzene	460-00-4	8.862	95	854,100	50.00	52.96	105.9	0.00	
7	1,2-Dichloroethane-d4	17060-	3.845	102	135,500	50.00	52.72	105.4	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.859	85	278,200	0.00	43.42	1.00	
9	Chloromethane	74-87-3	0.959	50	613,500	0.00	45.53	1.00	
10	Vinyl Chloride	75-01-4	0.999	62	577,900	0.00	50.93	1.00	
11	Bromomethane	74-83-9	1.164	94	376,200	0.00	58.22	1.00	
12	Chloroethane	75-00-3	1.229	64	290,800	0.00	48.91	1.00	
13	Trichlorofluoromethane	75-69-4	1.299	101	288,400	0.00	45.06	1.00	
14	1,1-Dichloroethene	75-35-4	1.599	96	356,400	0.00	59.67	1.00	
15	Carbon disulfide	75-15-10	1.599	76	836,700	0.00	46.63	1.00	
16	Iodomethane	74-88-4	1.679	142	450,700	0.00	56.17	1.00	
17	Acrolein	107-05-1	1.924	56	1,381	0.00	152.04	1.00	
18	Allyl Chloride	107-05-1	1.919	76	200,500	0.00	46.05	1.00	
19	Methyl Tert-butyl Ether	1634-04-4	2.254	73	9.316	0.00	0.00	1.00	X
20	Methylene Chloride	75-09-2	1.994	84	462,900	0.00	57.34	1.00	
21	trans-1,2 Dichloroethene	156-60-5	2.109	96	442,700	0.00	53.17	1.00	
22	Acetone	67-64-1	2.069	58	83,600	0.00	54.71	5.00	
23	Acrylonitrile	75-34-3	2.639	53	227,900	0.00	45.87	1.00	
24	1,1,-Dichloroethane	75-34-3	2.574	63	845,400	0.00	44.12	1.00	
25	Chloroprene	107-13-1	2.559	53	748,200	0.00	47.86	1.00	
26	cis-1,2,-Dichloroethene	156-59-2	3.009	96	532,500	0.00	52.68	1.00	
27	2,2,-Dichloropropane	594-20-7	3.089	77	359,100	0.00	39.59	1.00	
28	2-Butanone	78-93-3	3.545	72	64,660	0.00	40.83	5.00	
29	Propionitrile	107-02-8	3.780	54	95,520	0.00	43.94	1.00	
30	Bromochloromethane	74-97-5	3.164	128	226,700	0.00	49.95	1.00	
31	Chloroform	67-66-3	3.254	83	765,900	0.00	46.49	1.00	
32	Carbon tetrachloride	56-23-5	3.329	117	380,600	0.00	44.36	1.00	

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
34	1,1,1-Trichloroethane	71-55-6	3.390	97	582,100	0.00	51.87	1.00	
35	1,1-Dichloropropene	563-58-6	3.505	75	612,500	0.00	47.07	1.00	
36	Benzene	71-43-2	3.715	78	1,973,000	0.00	47.87	1.00	
37	Methacrylonitrile	126-98-7	3.790	41	413,600	0.00	43.83	1.00	
38	1,2-Dichloroethane	107-06-2	3.905	62	668,700	0.00	44.56	1.00	
39	Trichloroethene	79-01-6	4.255	95	491,700	0.00	54.43	1.00	
40	1,2-Dichloropropane	78-87-5	4.745	63	549,500	0.00	46.42	1.00	
41	Bromodichloromethane	75-27-4	4.835	83	541,900	0.00	45.62	1.00	
42	Methyl methacrylate	80-62-6	5.065	69	433,400	0.00	41.11	1.00	
43	Dibromomethane	79-95-3	4.640	93	286,100	0.00	50.82	1.00	
44	1,4-Dioxane	123-91-1	5.075	88	6,094	0.00	46.35	1.00	
45	2-Chloroethyl Vinyl Ether	110-75-8	5.715	63	176,600	0.00	46.18	1.00	
46	cis-1,3-Dichloropropene	10061-	5.480	75	654,900	0.00	41.00	1.00	
47	Toluene	108-88-3	5.715	92	1,330,000	0.00	60.04	1.00	
48	trans-1,3-	10061-	6.201	75	579,900	0.00	42.46	1.00	
49	1,1,2-Trichloroethane	79-00-5	6.361	83	390,000	0.00	53.45	1.00	
50	Ethyl methacrylate	97-63-2	6.466	69	772,000	0.00	44.96	1.00	
51	Tetrachloroethene	79-01-6	6.106	164	488,500	0.00	69.58	1.00	
52	Chlorodibromomethane	124-48-1	6.531	129	398,500	0.00	50.23	1.00	
53	1,3-Dichloropropane	142-28-9	6.646	76	873,500	0.00	47.05	1.00	
54	1,2-Dibromoethane	100-41-4	6.746	107	468,600	0.00	52.59	1.00	
55	Ethylbenzene	100-41-4	7.476	91	2,451,000	0.00	54.00	1.00	
56	1,1,1,2-	630-20-6	7.491	131	402,900	0.00	50.67	1.00	
57	Chlorobenzene	108-90-7	7.386	112	1,418,000	0.00	53.33	1.00	
58	m,p-Xylene	106-42-	7.661	106	1,928,000	0.00	100.45	2.00	
59	o-Xylene	95-47-6	8.171	106	943,600	0.00	51.71	1.00	
60	Bromoform	75-25-2	8.216	173	230,700	0.00	50.99	1.00	
61	4-Methyl-2-pentanone	108-10-1	6.196	100	96,350	0.00	49.34	5.00	
62	2-Hexanone	591-78-6	7.161	43	434,100	0.00	44.47	5.00	
63	Styrene	100-42-5	8.246	104	1,636,000	0.00	54.59	1.00	
64	Isopropylbenzene	98-82-8	8.587	105	2,381,000	0.00	52.51	1.00	
65	Bromobenzene	108-86-1	8.937	156	584,100	0.00	48.01	1.00	
66	cis-1,4-dichloro-2-	1476-11-5	8.982	75	91,610	0.00	31.22	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.292	53	189,000	0.00	39.25	1.00	
68	n-Propylbenzene	103-65-1	9.042	91	2,826,000	0.00	54.44	1.00	
69	1,1,2,2-	79-34-5	9.137	83	642,700	0.00	46.11	1.00	
70	1,2,3-Trichloropropane	96-18-4	9.217	77	95,460	0.00	44.39	1.00	
71	1,3,5-trimethylbenzene	108-67-8	9.257	105	2,148,000	0.00	51.04	1.00	
72	2-Chlorotoluene	95-49-8	9.147	91	1,779,000	0.00	52.62	1.00	
73	4-Chlorotoluene	106-43-4	9.307	91	1,839,000	0.00	50.75	1.00	
74	tert-Butylbenzene	98-06-6	9.517	119	1,897,000	0.00	44.66	1.00	
75	1,2,4-Trimethylbenzene	95-63-6	9.582	105	2,243,000	0.00	50.81	1.00	
76	sec-Butylbenzene	135-98-8	9.667	105	2,601,000	0.00	51.50	1.00	
77	4-Isopropyltoluene	99-87-6	9.802	119	2,217,000	0.00	49.32	1.00	
78	1,3-Dichlorobenzene	541-73-1	9.867	146	1,209,000	0.00	52.03	1.00	
79	1,4-Dichlorobenzene	106-46-7	9.867	146	1,209,000	0.00	52.03	1.00	
80	n-Butylbenzene	104-51-8	10.117	91	2,037,000	0.00	52.51	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.172	146	1,176,000	0.00	47.91	1.00	
82	1,2-Dibromo-3-	96-12-8	10.732	75	116,800	0.00	37.08	1.00	
83	1,2,4-Trichlorobenzene	120-82-1	11.163	180	833,300	0.00	48.47	1.00	
84	Hexachlorobutadiene	87-68-3	11.163	225	319,800	0.00	52.03	1.00	
85	Naphthalene	91-20-3	11.363	128	2,589,000	0.00	44.15	1.00	
86	1,2,3-Trichlorobenzene	87-61-6	11.473	180	837,400	0.00	48.20	1.00	

Printed: February 02, 2017 1:05:49 PM

Quantitation Report

File Name: C:\TurboMass\T020117 B1700152.PRO\Data\01-26-17 ccv6 ars16-122007.raw
Sample ID: 01-26-17 ccv6 ars16-122007 Operator: ap
Description: 01-26-17 ccv6 ars16-122007
Inject Date/Time: January 27, 2017 7:53:57 AM Tune File: 010317.IPR
GC Method: 8260.mth MS Method: 8260.EXP
Quantify Method: 8260b water 01-26-2017 B17-00152 Last Updated: February 02, 2017 12:58:57 PM
Calibration File: 8260B water IC 01-24-17cal2 Last Updated: January 24, 2017 4:48:29 PM
GC Column: Elite-VMS Level:
Dilution: 1.000 Sample Wt: 1.000
Soil Extract Vol: Purge Vol: 5.000
Soil Aliquot Vol:

#	Internal Standards	CAS	RT	m/z	Area	Spk Amt	RT Dv	Man
1	Fluorobenzene	363-72-4	4.100	96	1,508,000	50.00	-0.01	
2	Chlorobenzene-d5	3114-55-4	7.371	117	1,299,000	50.00	0.00	
3	1,4-Dichlorobenzene-D4	3855-82-1	9.857	152	753,200	50.00	0.00	

#	Surrogate Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	% Rec	RT Dv	Man
4	Dibromofluoromethane	1868-53-7	3.405	113	272,600	50.00	40.33	80.66	0.00	
5	Toluene-d8	2037-26-5	5.665	98	1,605,000	50.00	50.02	100.0	0.01	
6	Bromofluorobenzene	460-00-4	8.867	95	723,800	50.00	51.74	103.5	0.01	
7	1,2-Dichloroethane-d4	17060-	3.845	102	108,300	50.00	48.59	97.18	0.00	

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
8	Dichlorodifluoromethane	75-71-8	0.869	85	26.36	0.00	1.60	1.00	X
9	Chloromethane	74-87-3	0.959	50	2,382	0.00	0.42	1.00	
10	Vinyl Chloride	75-01-4	0.989	62	21.18	0.00	0.00	1.00	X
11	Bromomethane	74-83-9	1.164	94	2,727	0.00	0.00	1.00	
12	Chloroethane	75-00-3	1.234	64	104.4	0.00	0.02	1.00	X
13	Trichlorofluoromethane	75-69-4	1.309	101	13.47	0.00	0.00	1.00	X
14	1,1-Dichloroethene	75-35-4	1.594	96	5.128	0.00	0.00	1.00	X
15	Carbon disulfide	75-15-10	1.519	76	1,044	0.00	0.49	1.00	
16	Iodomethane	74-88-4	1.669	142	289.0	0.00	1.42	1.00	X
17	Acrolein	107-05-1	1.849	56	170,400	0.00	23782.94	1.00	
18	Allyl Chloride	107-05-1	1.879	76	2.929	0.00	0.00	1.00	X
19	Methyl Tert-butyl Ether	1634-04-4	2.244	73	2,153,000	0.00	0.00	1.00	
20	Methylene Chloride	75-09-2	1.989	84	198.5	0.00	0.00	1.00	X
21	trans-1,2 Dichloroethene	156-60-5	2.084	96	11.87	0.00	0.00	1.00	X
22	Acetone	67-64-1	2.244	58	32,910	0.00	26.07	5.00	
23	Acrylonitrile	75-34-3	2.614	53	40.99	0.00	0.43	1.00	X
24	1,1,-Dichloroethane	75-34-3	2.599	63	18.89	0.00	0.00	1.00	X
25	Chloroprene	107-13-1	2.549	53	6.781	0.00	0.00	1.00	X
26	cis-1,2,-Dichloroethene	156-59-2	2.989	96	1.968	0.00	0.00	1.00	X
27	2,2,-Dichloropropane	594-20-7	3.094	77	3.618	0.00	0.00	1.00	X
28	2-Butanone	78-93-3	3.570	72	1,668	0.00	2.97	5.00	
29	Propionitrile	107-02-8	3.785	54	16.99	0.00	2.01	1.00	X
31	Chloroform	67-66-3	3.280	83	1.327	0.00	0.00	1.00	X
32	Carbon tetrachloride	56-23-5	3.314	117	8.064	0.00	2.55	1.00	X
33	Vinyl Acetate	108-05-4	2.829	43	1,357,000	0.00	0.00	1.00	

Quantitation Report

#	Target Compounds	CAS	RT	m/z	Area	Spk Amt	ug/L	Report Limit	Man
34	1,1,1-Trichloroethane	71-55-6	3.405	97	18.10	0.00	0.00	1.00	X
35	1,1-Dichloropropene	563-58-6	3.390	75	199.7	0.00	0.02	1.00	X
36	Benzene	71-43-2	3.710	78	181.7	0.00	0.00	1.00	X
37	Methacrylonitrile	126-98-7	3.730	41	1,334	0.00	0.18	1.00	
38	1,2-Dichloroethane	107-06-2	3.915	62	60.58	0.00	0.00	1.00	X
39	Trichloroethene	79-01-6	4.260	95	4.767	0.00	0.00	1.00	X
40	1,2-Dichloropropane	78-87-5	4.760	63	12.42	0.00	0.00	1.00	X
41	Bromodichloromethane	75-27-4	4.810	83	17.90	0.00	1.98	1.00	X
42	Methyl methacrylate	80-62-6	5.075	69	13.77	0.00	1.59	1.00	X
43	Dibromomethane	79-95-3	4.645	93	12.42	0.00	0.00	1.00	X
44	1,4-Dioxane	123-91-1	5.075	88	16.47	0.00	1.90	1.00	X
45	2-Chloroethyl Vinyl Ether	110-75-8	5.715	63	55.43	0.00	1.15	1.00	X
46	cis-1,3-Dichloropropene	10061-	5.490	75	33.21	0.00	2.24	1.00	X
47	Toluene	108-88-3	5.715	92	313.3	0.00	0.00	1.00	X
48	trans-1,3-	10061-	6.201	75	39.08	0.00	1.86	1.00	X
49	1,1,2-Trichloroethane	79-00-5	6.361	83	22.34	0.00	0.00	1.00	X
50	Ethyl methacrylate	97-63-2	6.431	69	35.53	0.00	0.81	1.00	X
51	Tetrachloroethene	79-01-6	6.101	164	21.12	0.00	0.00	1.00	X
52	Chlorodibromomethane	124-48-1	6.511	129	0.00	0.00	2.85	1.00	X
53	1,3-Dichloropropane	142-28-9	6.646	76	19.94	0.00	0.00	1.00	X
54	1,2-Dibromoethane	100-41-4	6.746	107	13.10	0.00	0.00	1.00	X
55	Ethylbenzene	100-41-4	7.371	91	1,509	0.00	0.04	1.00	
56	1,1,1,2-	630-20-6	7.486	131	9.443	0.00	2.10	1.00	X
57	Chlorobenzene	108-90-7	7.381	112	86.97	0.00	0.00	1.00	X
58	m,p-Xylene	106-42-	7.671	106	216.7	0.00	0.01	2.00	X
59	o-Xylene	95-47-6	8.171	106	22.91	0.00	0.00	1.00	X
60	Bromoform	75-25-2	8.216	173	13.11	0.00	1.63	1.00	X
61	4-Methyl-2-pentanone	108-10-1	6.206	100	7.530	0.00	1.08	5.00	X
62	2-Hexanone	591-78-6	7.131	43	1,151	0.00	1.56	5.00	
63	Styrene	100-42-5	8.261	104	18.56	0.00	0.00	1.00	X
64	Isopropylbenzene	98-82-8	8.597	105	114.5	0.00	0.00	1.00	X
65	Bromobenzene	108-86-1	8.932	156	16.75	0.00	0.00	1.00	X
66	cis-1,4-dichloro-2-	1476-11-5	8.867	75	355,100	0.00	115.94	1.00	
67	trans-1,4-dichloro-2-	110-57-6	9.297	53	6.646	0.00	1.71	1.00	X
68	n-Propylbenzene	103-65-1	9.052	91	740.3	0.00	0.00	1.00	Man
69	1,1,2,2-	79-34-5	9.117	83	19.03	0.00	0.00	1.00	X
70	1,2,3-Trichloropropane	96-18-4	9.237	77	-5.480	0.00	0.00	1.00	X
71	1,3,5-trimethylbenzene	108-67-8	9.262	105	2,642	0.00	0.00	1.00	
72	2-Chlorotoluene	95-49-8	9.152	91	233.9	0.00	0.00	1.00	X
73	4-Chlorotoluene	106-43-4	9.312	91	257.1	0.00	0.00	1.00	X
74	tert-Butylbenzene	98-06-6	9.527	119	86.24	0.00	0.00	1.00	X
75	1,2,4-Trimethylbenzene	95-63-6	9.587	105	7,142	0.00	0.00	1.00	
76	sec-Butylbenzene	135-98-8	9.587	105	7,142	0.00	0.00	1.00	
77	4-Isopropyltoluene	99-87-6	9.792	119	516.9	0.00	0.00	1.00	X
78	1,3-Dichlorobenzene	541-73-1	9.862	146	934.7	0.00	0.00	1.00	X
79	1,4-Dichlorobenzene	106-46-7	9.862	146	929.3	0.00	0.00	1.00	X
80	n-Butylbenzene	104-51-8	10.122	91	1,229	0.00	0.00	1.00	
81	1,2-Dichlorobenzene	95-50-1	10.167	146	62.93	0.00	0.00	1.00	X
82	1,2-Dibromo-3-	96-12-8	10.722	75	31.08	0.00	2.87	1.00	X
83	1,2,4-Trichlorobenzene	120-82-1	11.163	180	313.5	0.00	0.00	1.00	X
84	Hexachlorobutadiene	87-68-3	11.143	225	0.00	0.00	0.00	1.00	X
85	Naphthalene	91-20-3	11.363	128	559.6	0.00	0.01	1.00	X
86	1,2,3-Trichlorobenzene	87-61-6	11.463	180	84.85	0.00	0.00	1.00	X

ICV/CCV Check Calculations
Water

Instrument:
Clarus 600T

VOAx

Project:

Compound	Analysis Date	ICAL Midpoint ug/L	ICV/LCS ug/L	%Drift REC	%	Range -	%	Pass/Fail
Fluorobenzene		50	50	100	80	-	120	pass
Chlorobenzene-d5		50	50	100	80	-	120	pass
1,4-Dichlorobenzene-D4		50	50	100	80	-	120	pass
Dibromofluoromethane		50	46.77	93.54	80	-	119	pass
Toluene-d8		50	53.83	107.66	89	-	112	pass
Bromoflurorobenzene		50	53.31	106.62	85	-	114	pass
1,2-Dichloroethane-d4		50	52.72	105.44	81	-	118	pass
Dichlorodifluoromethane		50	45.8	91.6	32	-	152	pass
Chloromethane		50	43.73	87.46	50	-	139	pass
Vinyl Chloride		50	50.19	100.38	58	-	137	pass
Bromomethane		50	53.2	106.4	53	-	141	pass
Chloroethane		50	46.87	93.74	60	-	138	pass
Trichlorofluoromethane		50	45.61	91.22	65	-	141	pass
1,1-Dichloroethene		50	57.93	115.86	71	-	131	pass
Carbon disulfide		50	46.43	92.86	64	-	133	pass
Iodomethane		50	53.24	106.48	69	-	131	pass
Acrolein		50	104.08	208.16	39	-	155	fail
Allyl Chloride		50	43.69	87.38	68	-	130	pass
Methyl Tert-butyl Ether		50	0	0	71	-	124	fail
Methylene Chloride		50	53.83	107.66	74	-	124	pass
trans-1,2 Dichloroethene		50	50.61	101.22	75	-	124	pass
Acetone		50	58.91	117.82	39	-	160	pass
Actylonitrile		50	43.98	87.96	63	-	135	pass
1,1,-Dichloroethane		50	42.53	85.06	77	-	125	pass

Chloroprene	50	46.8	93.6	80	-	120	pass
cis-1,2,-Dichloroethene	50	49.47	98.94	78	-	123	pass
2,2,-Dichloropropane	50	41.62	83.24	60	-	139	pass
2-Butanone	50	44.95	89.9	56	-	143	pass
Propionitrile	50	41.73	83.46	64	-	136	pass
Bromochloromethane	50	46.95	93.9	78	-	123	pass
Chloroform	50	43.93	87.86	79	-	124	pass
Carbon tetrachloride	50	44.52	89.04	72	-	136	pass
Vinyl Acetate	50		0	54	-	146	fail
1,1,1-Trichloroethane	50	50.62	101.24	74	-	131	pass
1,1-Dichloropropene	50	46.23	92.46	79	-	125	pass
Benzene	50	45.79	91.58	79	-	120	pass
Methacrylonitrile	50	42.17	84.34	63	-	133	pass
1,2-Dichloroethane	50	42.94	85.88	73	-	128	pass
Trichloroethene	50	51.41	102.82	79	-	123	pass
1,2-Dichloropropane	50	43.91	87.82	78	-	122	pass
Bromodichloromethane	50	43.54	87.08	79	-	125	pass
Methyl methacrylate	50	39.54	79.08	67	-	128	pass
Dibromomethane	50	47.76	95.52	79	-	123	pass
1,4-Dioxane	50	48.09	96.18	59	-	139	pass
2-Chloroethyl Vinyl Ether	50	43.88	87.76	51	-	139	pass
cis-1,3-Dichloropropene	50	39.66	79.32	75	-	124	pass
Toluene	50	56.01	112.02	80	-	121	pass
trans-1,3-Dichloropropene	50	41.54	83.08	73	-	127	pass
1,1,2-Trichloroethane	50	50.19	100.38	80	-	119	pass
Ethyl methacrylate	50	42.57	85.14	72	-	126	pass
Tetrachloroethene	50	64.62	129.24	74	-	129	fail
Chlorodibromomethane	50	47.6	95.2	74	-	126	pass
1,3-Dichloropropane	50	44.85	89.7	80	-	119	pass
1,2-Dibromoethane	50	49.65	99.3	77	-	121	pass
Ethylbenzene	50	50.8	101.6	79	-	121	pass
1,1,1,2-Tetrachloroethane	50	47.6	95.2	78	-	124	pass
Chlorobenzene	50	49.9	99.8	82	-	118	pass
m,p-Xylene	100	94.65	94.65	80	-	121	pass

o-Xylene	50	48.87	97.74	78	-	122	pass
Bromoform	50	49.42	98.84	66	-	130	pass
4-Methyl-2-pentanone	50	47.49	94.98	67	-	130	pass
2-Hexanone	50	44.61	89.22	57	-	139	pass
Styrene	50	50.97	101.94	78	-	123	pass
Isopropylbenzene	50	50.18	100.36	72	-	131	pass
Bromobenzene	50	46.13	92.26	80	-	120	pass
cis-1,4-dichloro-2-butene	50	32.97	65.94	57	-	146	pass
trans-1,4-dichloro-2-butene	50	43.06	86.12	43	-	140	pass
n-Propylbenzene	50	52.57	105.14	76	-	126	pass
1,1,2,2-Tetrachloroethane	50	44.88	89.76	71	-	121	pass
1,2,3-Trichloropropane	50	37.86	75.72	73	-	122	pass
1,3,5-trimethylbenzene	50	49.01	98.02	75	-	124	pass
2-Chlorotoluene	50	50.68	101.36	79	-	122	pass
4-Chlorotoluene	50	48.65	97.3	78	-	122	pass
tert-Butylbenzene	50	43.49	86.98	78	-	124	pass
1,2,4-Trimethylbenzene	50	48.28	96.56	76	-	124	pass
sec-Butylbenzene	50	50.52	101.04	77	-	126	pass
4-Isopropyltoluene	50	48.19	96.38	77	-	127	pass
1,3-Dichlorobenzene	50	49.5	99	80	-	119	pass
1,4-Dichlorobenzene	50	49.5	99	79	-	118	pass
n-Butylbenzene	50	51.52	103.04	75	-	128	pass
1,2-Dichlorobenzene	50	45.92	91.84	80	-	119	pass
1,2-Dibromo-3-chloropropane	50	36.5	73	62	-	128	pass
1,2,4-Trichlorobenzene	50	46.41	92.82	69	-	130	pass
Hexachlorobutadiene	50	51.87	103.74	66	-	134	pass
Naphthalene	50	42.44	84.88	61	-	128	pass
1,2,3-Trichlorobenzene	50	45.95	91.9	69	-	129	pass

ClosingCCV ug/L	%Drift REC	%	Range -	%	Pass/Fail
50	100	50	-	150	pass
50	100	50	-	150	pass
50	100	50	-	150	pass
46.79	93.58	50	-	150	pass
53.92	107.84	50	-	150	pass
52.96	105.92	50	-	150	pass
52.72	105.44	50	-	150	pass
43.42	86.84	50	-	150	pass
45.53	91.06	50	-	150	pass
50.93	101.86	50	-	150	pass
58.22	116.44	50	-	150	pass
48.91	97.82	50	-	150	pass
45.06	90.12	50	-	150	pass
59.67	119.34	50	-	150	pass
46.63	93.26	50	-	150	pass
56.17	112.34	50	-	150	pass
152.04	304.08	50	-	150	fail
46.05	92.1	50	-	150	pass
0	0	50	-	150	fail
57.34	114.68	50	-	150	pass
53.17	106.34	50	-	150	pass
54.71	109.42	50	-	150	pass
45.87	91.74	50	-	150	pass
44.12	88.24	50	-	150	pass

47.86	95.72	50	-	150	pass
52.68	105.36	50	-	150	pass
39.59	79.18	50	-	150	pass
40.83	81.66	50	-	150	pass
43.94	87.88	50	-	150	pass
49.95	99.9	50	-	150	pass
46.49	92.98	50	-	150	pass
44.36	88.72	50	-	150	pass
	0	50	-	150	fail
51.87	103.74	50	-	150	pass
47.07	94.14	50	-	150	pass
47.87	95.74	50	-	150	pass
43.83	87.66	50	-	150	pass
44.56	89.12	50	-	150	pass
54.43	108.86	50	-	150	pass
46.42	92.84	50	-	150	pass
45.62	91.24	50	-	150	pass
41.11	82.22	50	-	150	pass
50.82	101.64	50	-	150	pass
46.35	92.7	50	-	150	pass
46.18	92.36	50	-	150	pass
41	82	50	-	150	pass
60.04	120.08	50	-	150	pass
42.46	84.92	50	-	150	pass
53.45	106.9	50	-	150	pass
44.96	89.92	50	-	150	pass
69.58	139.16	50	-	150	pass
50.23	100.46	50	-	150	pass
47.05	94.1	50	-	150	pass
52.59	105.18	50	-	150	pass
54	108	50	-	150	pass
50.67	101.34	50	-	150	pass
53.33	106.66	50	-	150	pass
100.45	100.45	50	-	150	pass

51.71	103.42	50	-	150	pass
50.99	101.98	50	-	150	pass
49.34	98.68	50	-	150	pass
44.47	88.94	50	-	150	pass
54.59	109.18	50	-	150	pass
52.51	105.02	50	-	150	pass
48.01	96.02	50	-	150	pass
31.22	62.44	50	-	150	pass
39.25	78.5	50	-	150	pass
54.44	108.88	50	-	150	pass
46.11	92.22	50	-	150	pass
44.39	88.78	50	-	150	pass
51.04	102.08	50	-	150	pass
52.62	105.24	50	-	150	pass
50.75	101.5	50	-	150	pass
44.66	89.32	50	-	150	pass
50.81	101.62	50	-	150	pass
51.5	103	50	-	150	pass
49.32	98.64	50	-	150	pass
52.03	104.06	50	-	150	pass
52.03	104.06	50	-	150	pass
52.51	105.02	50	-	150	pass
47.91	95.82	50	-	150	pass
37.08	74.16	50	-	150	pass
48.47	96.94	50	-	150	pass
52.03	104.06	50	-	150	pass
44.15	88.3	50	-	150	pass
48.2	96.4	50	-	150	pass

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277   FAX (225) 381-2996

Standard Information

SDG# ARS1-17-00215
COC AQUEOUS SAMPLES

Certificate of Analysis

Rec 4/10/16
DM

VOC Mixture

Product Number: DWM-588

Page: 1 of 3

Lot Number: CP-0691   **Lot Issue Date:** 18-Feb-2016   **Expiration Date:** 31-Mar-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
bromochloromethane	000074-97-5	NT01833	2010 ± 10 µg/mL
bromodichloromethane	000075-27-4	RM06861	2009 ± 10 µg/mL
bromoform	000075-25-2	RM07516	2009 ± 10 µg/mL
carbon tetrachloride	000056-23-5	RM07576	2009 ± 10 µg/mL
chloroform	000067-66-3	RM09609	2009 ± 10 µg/mL
dibromochloromethane	000124-48-1	RM04265	2009 ± 10 µg/mL
dibromomethane	000074-95-3	NT00378	2008 ± 10 µg/mL
methylene chloride	000075-09-2	RM09575	2010 ± 10 µg/mL
trichlorofluoromethane	000075-69-4	RM00017	2009 ± 10 µg/mL
1,2-dibromoethane	000106-93-4	RM00018	2010 ± 10 µg/mL
1,1-dichloroethane	000075-34-3	RM09331	2010 ± 10 µg/mL
1,2-dichloroethane	000107-06-2	RM04655	2010 ± 10 µg/mL
1,1-dichloroethene	000075-35-4	RM09189	2009 ± 10 µg/mL
cis-1,2-dichloroethene	000156-59-2	RM09172	2008 ± 10 µg/mL
trans-1,2-dichloroethene	000156-60-5	RM07565	2008 ± 10 µg/mL
1,1,1,2-tetrachloroethane	000630-20-6	RM00024	2010 ± 10 µg/mL
1,1,2,2-tetrachloroethane	000079-34-5	RM02540	2008 ± 10 µg/mL
tetrachloroethene	000127-18-4	RM06491	2008 ± 10 µg/mL
1,1,1-trichloroethane	000071-55-6	RM00027	2008 ± 10 µg/mL
1,1,2-trichloroethane	000079-00-5	RM01175	2009 ± 10 µg/mL
trichloroethene	000079-01-6	RM06644	2008 ± 10 µg/mL
1,2-dibromo-3-chloropropane	000096-12-8	RM03703	2010 ± 10 µg/mL
1,2-dichloropropane	000078-87-5	RM06643	2008 ± 10 µg/mL
1,3-dichloropropane	000142-28-9	RM02080	2007 ± 10 µg/mL
2,2-dichloropropane	000594-20-7	NT01867	2008 ± 10 µg/mL
1,1-dichloropropene	000563-58-6	RM10945	2010 ± 10 µg/mL
cis-1,3-dichloropropene	010061-01-5	RM06629	2009 ± 10 µg/mL

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Initial Calibration Std.

ANAB ACCREDITED TESTING LABORATORY
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William J. Leary
Quality Assurance Manager

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Certificate of Analysis

VOC Mixture

Product Number:	DWM-588	**Page:**	2 of 3
Lot Number:	CP-0691	**Lot Issue Date:** 18-Feb-2016	**Expiration Date:** 31-Mar-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	RM/NT	Concentration
trans-1,3-dichloropropene	010061-02-6	RM01443	2006 ± 10 µg/mL
hexachlorobutadiene	000087-68-3	RM00438	2007 ± 10 µg/mL
1,2,3-trichloropropane	000096-18-4	NT00408	2010 ± 10 µg/mL
naphthalene	000091-20-3	RM02406	2009 ± 10 µg/mL
benzene	000071-43-2	RM03830	2010 ± 10 µg/mL
n-butylbenzene	000104-51-8	NT01633	2009 ± 10 µg/mL
sec-butylbenzene	000135-98-8	NT01548	2009 ± 10 µg/mL
tert-butylbenzene	000098-06-6	NT01547	2009 ± 10 µg/mL
ethylbenzene	000100-41-4	RM00783	2009 ± 10 µg/mL
isopropylbenzene	000098-82-8	RM00835	2010 ± 10 µg/mL
4-isopropyltoluene	000099-87-6	NT01494	2010 ± 10 µg/mL
n-propylbenzene	000103-65-1	NT02060	2010 ± 10 µg/mL
styrene	000100-42-5	RM04974	2009 ± 10 µg/mL
toluene	000108-88-3	RM10201	2010 ± 10 µg/mL
1,2,4-trimethylbenzene	000095-63-6	RM06731	2010 ± 10 µg/mL
1,3,5-trimethylbenzene	000108-67-8	NT01632	2006 ± 10 µg/mL
o-xylene	000095-47-6	NT00774	2009 ± 10 µg/mL
m-xylene	000108-38-3	RM00053	2009 ± 10 µg/mL
p-xylene	000106-42-3	RM02647	2009 ± 10 µg/mL
1,4-dichlorobenzene	000106-46-7	RM07548	2006 ± 10 µg/mL
bromobenzene	000108-86-1	NT00251	2005 ± 10 µg/mL
chlorobenzene	000108-90-7	NT01538	2000 ± 10 µg/mL
2-chlorotoluene	000095-49-8	RM03906	2008 ± 10 µg/mL
4-chlorotoluene	000106-43-4	RM01866	2009 ± 10 µg/mL
1,2-dichlorobenzene	000095-50-1	RM00060	2003 ± 10 µg/mL
1,3-dichlorobenzene	000541-73-1	NT00356	2004 ± 10 µg/mL
1,2,3-trichlorobenzene	000087-61-6	NT00358	2003 ± 10 µg/mL
1,2,4-trichlorobenzene	000120-82-1	RM00063	2008 ± 10 µg/mL

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

William J. Leary
Quality Assurance Manager

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Certificate of Analysis

ULTRA SCIENTIFIC
Analytical Solutions

VOC Mixture

Product Number:	DWM-588	**Page:**	3 of 3
Lot Number:	CP-0691	**Lot Issue Date:** 18-Feb-2016	**Expiration Date:** 31-Mar-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.

bromomethane	000074-83-9	RM00064	2000 ± 10 µg/mL
chloroethane	000075-00-3	RM00065	2006 ± 10 µg/mL
chloromethane	000074-87-3	RM05290	2010 ± 10 µg/mL
dichlorodifluoromethane	000075-71-8	RM09113	2010 ± 10 µg/mL
vinyl chloride	000075-01-4	RM05458	2010 ± 10 µg/mL

Matrix: methanol (methyl alcohol)

Storage: Store Frozen (-25° to -10°C).

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

ANAB
ACCREDITED
TESTING LABORATORY

ISO 9001
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William J. Leary
Quality Assurance Manager

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

Rec 4/10/16

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. : 30633   **Lot No.:** A0115742

Description : 8260B Calibration Mix #1

8260B MegaMix Calibration Mix 2000µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL   **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2018   **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)		Expanded Uncertainty (95% C.L.; K=2)		
1	Diethyl ether (ethyl ether)		2,016.7 µg/mL	+/-	14.3913	µg/mL	Gravimetric
	CAS # 60-29-7	(Lot SHBF3466V)		+/-	121.9622	µg/mL	Unstressed
	Purity 99%			+/-	122.2504	µg/mL	Stressed
2	1,1,2-Trichlorotrifluoroethane (CFC-113)		2,004.3 µg/mL	+/-	14.3028	µg/mL	Gravimetric
	CAS # 76-13-1	(Lot 00001135)		+/-	121.2123	µg/mL	Unstressed
	Purity 99%			+/-	121.4988	µg/mL	Stressed
3	1,1-dichloroethene		2,002.3 µg/mL	+/-	14.2204	µg/mL	Gravimetric
	CAS # 75-35-4	(Lot SHBD6170V)		+/-	121.0822	µg/mL	Unstressed
	Purity 99%			+/-	121.3683	µg/mL	Stressed
4	Acetonitrile		2,005.2 µg/mL	+/-	14.3093	µg/mL	Gravimetric
	CAS # 75-05-8	(Lot SHBB3177V)		+/-	121.2668	µg/mL	Unstressed
	Purity 99%			+/-	121.5533	µg/mL	Stressed
5	Iodomethane (methyl iodide)		2,010.5 µg/mL	+/-	14.3471	µg/mL	Gravimetric
	CAS # 74-88-4	(Lot SHBF2149V)		+/-	121.5873	µg/mL	Unstressed
	Purity 99%			+/-	121.8746	µg/mL	Stressed
6	Allyl chloride (3-chloropropene)		2,000.0 µg/mL	+/-	17.4997	µg/mL	Gravimetric
	CAS # 107-05-1	(Lot MKBG5777V)		+/-	121.3755	µg/mL	Unstressed
	Purity 99%			+/-	121.6603	µg/mL	Stressed
7	Carbon disulfide		2,014.0 µg/mL	+/-	14.3724	µg/mL	Gravimetric
	CAS # 75-15-0	(Lot C30Y997)		+/-	121.8018	µg/mL	Unstressed
	Purity 98%			+/-	122.0896	µg/mL	Stressed

Second Source (QA/QC std.)

No.	Compound	Lot	Concentration			+/-	Uncertainty		Method
24	carbon tetrachloride CAS # 56-23-5 Purity 99%	(Lot SHBC1410V)	2,004.2	µg/mL		+/- +/- +/-	14.2341 121.1983 121.4847	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	1,2-Dichloroethane CAS # 107-06-2 Purity 99%	(Lot SHBC6595V)	2,001.3	µg/mL		+/- +/- +/-	14.2138 121.0253 121.3113	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	Benzene CAS # 71-43-2 Purity 99%	(Lot SHBF0424V)	2,000.2	µg/mL		+/- +/- +/-	14.2063 120.9580 121.2438	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	2-Chloroethanol CAS # 107-07-3 Purity 99%	(Lot STBC2079V)	2,000.5	µg/mL		+/- +/- +/-	14.2757 120.9825 121.2684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6 Purity 99%	(Lot SHBF0943V)	2,011.8	µg/mL		+/- +/- +/-	14.2883 121.6603 121.9478	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	1,2-Dichloropropane CAS # 78-87-5 Purity 99%	(Lot 01113D0V)	2,003.5	µg/mL		+/- +/- +/-	14.2288 121.1535 121.4399	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	Methyl methacrylate CAS # 80-62-6 Purity 99%	(Lot MKBN8882V)	2,008.4	µg/mL		+/- +/- +/-	14.3321 121.4603 121.7473	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	bromodichloromethane CAS # 75-27-4 Purity 99%	(Lot 150916JLM)	2,000.5	µg/mL		+/- +/- +/-	14.2078 120.9745 121.2604	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	1,4-Dioxane CAS # 123-91-1 Purity 99%	(Lot SHBF2002V)	2,001.9	µg/mL		+/- +/- +/-	14.2857 121.0672 121.3533	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	Dibromomethane CAS # 74-95-3 Purity 99%	(Lot 10169264)	2,001.1	µg/mL		+/- +/- +/-	14.2124 121.0094 121.2953	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	2-Nitropropane CAS # 79-46-9 Purity 97%	(Lot BCBJ4343V)	2,004.6	µg/mL		+/- +/- +/-	14.3050 121.2306 121.5171	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	cis-1,3-Dichloropropene CAS # 10061-01-5 Purity 99%	(Lot 22119)	2,005.0	µg/mL		+/- +/- +/-	14.2400 121.2491 121.5356	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	Toluene CAS # 108-88-3 Purity 99%	(Lot SHBF7904V)	2,001.2	µg/mL		+/- +/- +/-	14.2133 121.0169 121.3029	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	Ethyl methacrylate CAS # 97-63-2 Purity 99%	(Lot SHBD9190V)	2,004.3	µg/mL		+/- +/- +/-	14.3028 121.2123 121.4988	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	trans-1,3-Dichloropropene CAS # 10061-02-6 Purity 99%	(Lot C579534)	2,002.8	µg/mL		+/- +/- +/-	14.2243 121.1148 121.4011	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	1,1,2-Trichloroethane CAS # 79-00-5 Purity 99%	(Lot FGB01)	2,005.0	µg/mL		+/- +/- +/-	14.2396 121.2454 121.5320	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	trans-1,4-dichloro-2-butene **CAS #** 110-57-6 **Purity** 94%	(Lot MKBK0511V) 4% cis; 96% trans	1,986.4 µg/mL	+/- +/- +/-	14.1752 120.1303 120.4142	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
7	n-Propylbenzene **CAS #** 103-65-1 **Purity** 99%	(Lot MKBQ8049V)	2,000.3 µg/mL	+/- +/- +/-	14.2069 120.9625 121.2484	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
58	Bromobenzene **CAS #** 108-86-1 **Purity** 99%	(Lot MKBD4032V)	2,001.3 µg/mL	+/- +/- +/-	14.2138 121.0214 121.3075	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
59	1,3,5-Trimethylbenzene **CAS #** 108-67-8 **Purity** 99%	(Lot BCBJ3305V)	2,000.6 µg/mL	+/- +/- +/-	14.2092 120.9821 121.2681	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
60	2-Chlorotoluene **CAS #** 95-49-8 **Purity** 99%	(Lot MKBH8892V)	2,000.9 µg/mL	+/- +/- +/-	14.2108 120.9957 121.2817	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
61	4-Chlorotoluene **CAS #** 106-43-4 **Purity** 99%	(Lot MKBB7205V)	2,000.5 µg/mL	+/- +/- +/-	14.2085 120.9761 121.2620	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
62	tert-Butylbenzene **CAS #** 98-06-6 **Purity** 99%	(Lot S52237V)	2,001.1 µg/mL	+/- +/- +/-	14.2124 121.0094 121.2953	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
63	1,2,4-Trimethylbenzene **CAS #** 95-63-6 **Purity** 98%	(Lot MKBJ6229V)	2,000.4 µg/mL	+/- +/- +/-	14.2078 120.9700 121.2559	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	Pentachloroethane **CAS #** 76-01-7 **Purity** 99%	(Lot 7GHYB)	2,001.6 µg/mL	+/- +/- +/-	14.2832 121.0460 121.3321	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
65	sec-Butylbenzene **CAS #** 135-98-8 **Purity** 99%	(Lot MKBK3151V)	2,000.1 µg/mL	+/- +/- +/-	14.2056 120.9519 121.2378	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
66	p-Isopropyltoluene (p-Cymene) **CAS #** 99-87-6 **Purity** 99%	(Lot MKBK4439V)	2,000.7 µg/mL	+/- +/- +/-	14.2095 120.9852 121.2711	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
67	1,3-Dichlorobenzene **CAS #** 541-73-1 **Purity** 99%	(Lot BCBC1891V)	2,002.7 µg/mL	+/- +/- +/-	14.2233 121.1064 121.3926	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
68	1,4-Dichlorobenzene **CAS #** 106-46-7 **Purity** 99%	(Lot MKBS1350V)	2,002.6 µg/mL	+/- +/- +/-	14.2224 121.0991 121.3853	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
69	n-Butylbenzene **CAS #** 104-51-8 **Purity** 99%	(Lot 09418JJV)	2,000.3 µg/mL	+/- +/- +/-	14.2070 120.9640 121.2499	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
70	1,2-Dichlorobenzene **CAS #** 95-50-1 **Purity** 99%	(Lot SHBD7331V)	2,002.9 µg/mL	+/- +/- +/-	14.2248 121.1197 121.4059	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
71	1,2-Dibromo-3-chloropropane **CAS #** 96-12-8 **Purity** 99%	(Lot 150618JLM)	2,000.8 µg/mL	+/- +/- +/-	14.2106 120.9942 121.2802	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Column:
x 0.25mm x 1.4μm
Rtx-502.2 (cat.#10916)

Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min. (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD

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.

Cheryl Graham - Mix Technician

Date Mixed: 02-Dec-2015   **Balance:** 1125113331

Jennifer L. Pollino - QC Analyst

Date Passed: 04-Dec-2015

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

ARS INTERNATIONAL	Add/Edit *Secondary Stds*	Parent Standard Data		
Planning		Parent Solution Reference #	75186-526	
Planning Comments	**Create a Sr-90 LCS Standard**	Parent Solution #	S-0160	
Target dpm/g (on dil. date)	46.66	Parent Principal Radionuclide	Sr-90	Half Life (Days) 10409.6250000
Target Final volume mL	1000	Parent Reference Date	06/01/2007 12:00	
Appx mass g of Parent Sol'n	12.82144356	Parent Certified Act	4321.643783	Certi Act/Vol Units dpm g
Appx vol ml of Parent Sol'n		Parent Cert Act Uncert 1 Sigma	0.017	
Expected Addition for Analysis g	1	Parent Sp. Gravity G/Ml		
Standards Preparation / Dilution		Parent Supplier	Analytics	
Secondary Solution #	S-0313	Parent Date Recvd	05/21/07	
Dilution Date (New Ref Date)	05/05/2016 00:00	Parent Received By	AGuerrero	
Ampoule, Empty (g)		Parent Cert Exp Date		
Ampoule /Solution Gross (g)		Parent Matrix	.1M HCL with 30 ug/g Sr carrier	
Net Wt Removed (g)		Certified dpm/g At Ref Date	4321.643783	
Transfer Container, empty (g)	17.2513	Certified dpm/g on 05/05/2016 00:00	3639.215802	
Container Plus Solution (g)	29.2848		Intermediate standard for creating LCS standards. Dilution performed as stated above by BSteffens. -BJS 6/1/2007	
Net Wt Transferred (g)	12.0335	Parent Comments		
DPM Xferred on 05/05/2016 00:00	43792.50335			
Diluent/matrix	.1M HCL	Parent Tech	BSteffens	
Diluent Density Cont, empty (g)		Is_Primary	FALSE	
Test Mass of 5 ml of Diluent (g)		Is_LCS	FALSE	
Diluent Density Test - (g/mL)		Is_Tracer	FALSE	
Dilution Empty Container Mass (g)	258.23	Is_Calib	FALSE	
Dilution Full Cont g (if measured)	1256.98			
Dilution Final Volume ml (if measured)	1000			
Final Dilution Density (g/mL)	0.99875			
Final Dilution Measured Mass g	998.75			
Comments	1L of standard to be used as Sr-90 LCS diluted as stated above by Jacob Byrd - JPB 5/5/2016			
Final Dilution dpm/g	43.84731249			
Final Dil New Ref Date/Time	05/05/2016 00:00			

S-0313		
Sr-90	Verified	5/9/16
S	**Expires**	**5/9/17**
Manufactuer	Analytics	
Sol Matrix	.1M HCL with 30 ug/g	
Ref No	75186-526	
Tech	BSteffens	
Parent ID	S-0160	

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

ARS
INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS
ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE | 5/9/2016 16:52 | *date counted*
STANDARD REFERENCE # | S-0313

Principal Radionuclide		Half Life, Years		Half Life, Days
Sr-90	ENTER -->	2.880E+01	OR -->	1.0520E+04
		2.880E+01		1.0520E+04

Radionuclide Sr-90   **Dilution Reference Date** 5/5/2016 0:00

Dilution Activity	19.75	pCi per gram ===> dpm/g	43.85
Verif. Date Decay Corrected	19.74	pCi per gram ===> dpm/g	43.83

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0313-V1	2347.00	120	A2	0.4153	1.26	1.005	43.82	19.74
S-0313-V2	2336.00	120	A3	0.4145	0.99	1.009	44.17	19.90
S-0313-V3	2335.00	120	A4	0.4147	1.05	1.008	44.01	19.82
S-0313-V4	2329.50	120	B1	0.4033	0.83	1.011	45.58	20.53
S-0313-V5	2363.00	120	B2	0.4193	0.80	1.009	44.65	20.11

			Average	44.44	20.02
			Two Sigma Uncertainty	1.38	0.62
10% Max	**PASS**	Standard Deviation percent of known concentration	1.60%	1.60%
		Target Activity	43.83	19.74
	5% Max	**PASS**	% Diff	1.39%	1.40%

Verification Expiration Date: May 9, 2017

Prepared & Counted By _Jacob Byrd_   Date: ___5/9/2016 16:52___

Verified & Approved By _____   Date: _____

QC Approval _DLM_   Date: _5-12-16_

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

Instrument	LB4100-A	Detector	A2
		Current Wt.	0.4153
Slope		Eff	
Intercept		Δ2	
Eff Poly 2nd		Δ3	
Eff Poly 3rd			

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur	BKG Dur	Measured CPM	Count Date	Decay Corr DPM	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	13	110	50208	1130	4.00	900	6275.37	5/24/2013	15112.16	0.4153
2	J590	23574.00	9/1/1999	19.90	21	110	59771	1130	4.00	900	7470.75	5/24/2013	16882.48	0.4425
3	J591	22242.00	9/1/1999	39.00	11	110	55300	1130	4.00	900	6911.87	5/24/2013	15928.57	0.4339
4	J592	21480.00	9/1/1999	61.40	12	110	50445	1130	4.00	900	6305.00	5/24/2013	15382.87	0.4099
5	J593	23886.00	9/1/1999	78.20	20	110	53376	1130	4.00	900	6671.37	5/24/2013	17105.92	0.3900
6	J594	23130.00	9/1/1999	103.60	9	110	51422	1130	4.00	900	6427.12	5/24/2013	16564.51	0.3880
7	J595	22446.00	9/1/1999	269.00	7	110	44050	1130	4.00	900	5505.62	5/24/2013	16074.67	0.3425
8														
9														
10														
11														
12														

$y = 3.9365E\text{-}07x^2 - 4.5300E\text{-}04x + 4.3478E\text{-}01$
$R^2 = 8.4105E\text{-}01$

0.00, 0.4153

American Radiation Services
Baton Rouge Laboratory

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

Detector	**A3**
Instrument	LB4100-A

Current Wt.

	Eff	0.4145
	Δ 2	
	Δ 3	

	Slope	
	Intercept	
	Eff Poly 2nd	
	Eff Poly 3rd	

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur.	BKG Dur.	Measured CPM	Count Date	Decay Corr DPM	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	41	97	50116	915	4.00	900	6263.99	5/24/2013	15112.16	0.4145
2	J590	23574.00	9/1/1999	19.90	37	97	59844	915	4.00	900	7479.99	5/24/2013	16882.48	0.4431
3	J591	22242.00	9/1/1999	39.00	39	97	56115	915	4.00	900	7013.87	5/24/2013	15928.57	0.4403
4	J592	21480.00	9/1/1999	61.40	29	97	50564	915	4.00	900	6319.99	5/24/2013	15382.87	0.4108
5	J593	23886.00	9/1/1999	78.20	43	97	54201	915	4.00	900	6774.62	5/24/2013	17105.92	0.3960
6	J594	23130.00	9/1/1999	103.60	46	97	51625	915	4.00	900	6452.62	5/24/2013	16564.51	0.3895
7	J595	22446.00	9/1/1999	269.00	29	97	44746	915	4.00	900	5592.74	5/24/2013	16074.67	0.3479
8														
9														
10														
11														
12														

$y = 2.8911E\text{-}07x^2 - 4.0771E\text{-}04x + 4.3538E\text{-}01$
$R^2 = 8.0771E\text{-}01$

0.00, 0.4145

0.414

Eff — Delta

Linear   Poly 2   Poly 3

0.000   0.000   0.000

0.50, 0.45, 0.40, 0.35, 0.30, 0.25, 0.20, 0.15, 0.10, 0.05, 0.00

0.00, 50.00, 100.00, 150.00, 200.00, 250.00, 300.00

0.45, 0.40, 0.35, 0.30, 0.25, 0.20, 0.15, 0.10, 0.05, 0.00

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

INTERNATIONAL

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur	BKG Dur	Measured CPM	Decay Corr DPM	Count Date	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	10	118	50140	814	4.00	900	6267.05	15112.16	5/24/2013	0.4147
2	J590	23574.00	9/1/1999	19.90	9	118	59951	814	4.00	900	7493.42	16882.48	5/24/2013	0.4439
3	J591	22242.00	9/1/1999	39.00	8	118	56448	814	4.00	900	7055.55	15928.57	5/24/2013	0.4429
4	J592	21480.00	9/1/1999	61.40	6	118	50626	814	4.00	900	6327.80	15382.87	5/24/2013	0.4114
5	J593	23886.00	9/1/1999	78.20	13	118	53603	814	4.00	900	6699.92	17105.92	5/24/2013	0.3917
6	J594	23130.00	9/1/1999	103.60	8	118	52248	814	4.00	900	6530.55	16564.51	5/24/2013	0.3942
7	J595	22446.00	9/1/1999	269.00	7	118	45031	814	4.00	900	5628.42	16074.67	5/24/2013	0.3501
8														
9														
10														
11														
12														

Instrument   LB4100-A   Detector   A4

Slope
Intercept
Eff Poly 2nd
Eff Poly 3rd

Current Wt.
Eff   0.4147
$\Delta 2$
$\Delta 3$

$$y = 2.9707E\text{-}07x^2 - 4.0276E\text{-}04x + 4.3583E\text{-}01$$
$$R^2 = 7.7672E\text{-}01$$

0.00, 0.4147

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur.	BKG Dur.	Measured CPM	Decay Corr DPM	Count Date	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	11	73	48756	708	4.00	900	6094.11	15112.16	5/24/2013	0.4033
2	J590	23574.00	9/1/1999	19.90	4	73	58777	708	4.00	900	7346.73	16882.48	5/24/2013	0.4352
3	J591	22242.00	9/1/1999	39.00	2	73	55335	708	4.00	900	6916.48	15928.57	5/24/2013	0.4342
4	J592	21480.00	9/1/1999	61.40	7	73	48912	708	4.00	900	6113.61	15382.87	5/24/2013	0.3974
5	J593	23886.00	9/1/1999	78.20	8	73	54816	708	4.00	900	6851.61	17105.92	5/24/2013	0.4005
6	J594	23130.00	9/1/1999	103.60	3	73	51545	708	4.00	900	6442.73	16564.51	5/24/2013	0.3889
7	J595	22446.00	9/1/1999	269.00	4	73	43723	708	4.00	900	5464.98	16074.67	5/24/2013	0.3400
8														
9														
10														
11														
12														

Instrument	LB4100-A	Detector	B1
		Current Wt.	
Slope		Eff	0.4033
Intercept		Δ 2	
Eff Poly 2nd		Δ 3	
Eff Poly 3rd			

$$y = -2.6119E\text{-}07x^2 - 2.4396E\text{-}04x + 4.2338E\text{-}01$$
$$R^2 = 7.9497E\text{-}01$$

0.00, 0.4033

LB4100-A Instrument EFF

LB Eff Calculation Report

SR-90

INTERNATIONAL

Instrument	LB4100-A	Detector	B2

Current Wt.
Eff 0.4193

Slope
Intercept
Eff Poly 2nd
Eff Poly 3rd

Current Wt.
Eff
Δ2
Δ3

Point	Source ID	Certified DPM	Reference Date	mg	Alpha Counts	Alpha BKG	Beta Counts	Beta BKG	Count Dur	BKG Dur	Measured CPM	Decay Corr DPM	Count Date	Instrument Eff
1	J589	21102.00	9/1/1999	0.10	34	102	50695	804	4.00	900	6336.43	15112.16	5/24/2013	0.4193
2	J590	23574.00	9/1/1999	19.90	34	102	60840	804	4.00	900	7604.55	16882.48	5/24/2013	0.4504
3	J591	22242.00	9/1/1999	39.00	37	102	57052	804	4.00	900	7131.05	15928.57	5/24/2013	0.4477
4	J592	21480.00	9/1/1999	61.40	28	102	50868	804	4.00	900	6358.05	15382.87	5/24/2013	0.4133
5	J593	23886.00	9/1/1999	78.20	30	102	54390	804	4.00	900	6798.30	17105.92	5/24/2013	0.3974
6	J594	23130.00	9/1/1999	103.60	34	102	52636	804	4.00	900	6579.05	16564.51	5/24/2013	0.3972
7	J595	22446.00	9/1/1999	269.00	27	102	45484	804	4.00	900	5685.05	16074.67	5/24/2013	0.3537
8														
9														
10														
11														
12														

$$y = -3.6876E\text{-}07x^2 - 4.2953E\text{-}04x + 4.4134E\text{-}01$$
$$R^2 = 7.7695E\text{-}01$$

0.00, 0.4193

0.419

Eff — Delta

Linear   Poly 2   Poly 3

Tech: J Byrd
Pipet #
Scale ID   12332539
Standard #   S-0313

Sample ID	Std weight g.
S-0313-V1	1.0053
S-0313-V2	1.0091
S-0313-V3	1.0084
S-0313-V4	1.0109
S-0313-V5	1.0091

Performed By: J Byrd

GEN 239
A 35723
Sr
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A2	S-0313-V1	12	4694	120	1402.5	5/9/16 16:52
A3	S-0313-V2	5	4672	120	1402.5	5/9/16 16:52
A4	S-0313-V3	14	4670	120	1402.5	5/9/16 16:52
B1	S-0313-V4	5	4659	120	1402.5	5/9/16 16:52
B2	S-0313-V5	18	4726	120	1402.5	5/9/16 16:52

GEN 233
A 35723
LONG BKG
WJS

Detector ID	Sample ID	Alpha	Beta	Count Time	Voltage	TOD
A1	A1-01	61	1641	900	1402.5	5/7/16 5:59
A2	A2-01	86	1137	900	1402.5	5/7/16 5:59
A3	A3-01	86	893	900	1402.5	5/7/16 5:59
A4	A4-01	77	949	900	1402.5	5/7/16 5:59
C1	C1-01	46	763	900	1402.5	5/7/16 5:59
C2	C2-01	88	767	900	1402.5	5/7/16 5:59
C3	C3-01	32	1701	900	1402.5	5/7/16 5:59
C4	C4-01	59	727	900	1402.5	5/7/16 5:59
B1	B1-01	43	748	900	1402.5	5/7/16 6:00
B2	B2-01	46	720	900	1402.5	5/7/16 6:00
B3	B3-01	55	736	900	1402.5	5/7/16 6:00
B4	B4-01	105	884	900	1402.5	5/7/16 6:00
D1	D1-01	41	792	900	1402.5	5/7/16 6:00
D2	D2-01	65	1429	900	1402.5	5/7/16 6:00
D3	D3-01	30	688	900	1402.5	5/7/16 6:00
D4	D4-01	54	1254	900	1402.5	5/7/16 6:00

Page 1

Tech: J Byrd
Pipet #
Scale ID   12332539
Standard #   S-0313

Sample ID	Std weight g.
S-0313-V1	1.0053
S-0313-V2	1.0091
S-0313-V3	1.0084
S-0313-V4	1.0109
S-0313-V5	1.0091

Performed By: J Byrd

ARS INTERNATIONAL	Add/Edit *Secondary Stds*	Parent Standard Data	
Planning		Parent Solution Reference #	75186-526
Planning Comments	Create a Sr90 LCS standard.	Parent Solution #	S-0160
Target dpm/g (on dil. date)	46.66	Parent Principal Radionuclide	Sr-90 / Half Life (Days) 10409.6250000
Target Final volume mL	1000	Parent Reference Date	06/01/2007 12:00
Appx mass g of Parent Sol'n	12.80817542	Parent Certified Act	4521.643783 / Certi Act/Vol. Units dpm g
Appx vol ml of Parent Sol'n		Parent Cert Act Uncert 1 Sigma	0.017
Expected Addition for Analysis g	1	Parent Sp. Gravity G/Ml	
Standards Preparation / Dilution		Parent Supplier	**Analytics**
Secondary Solution #	S-0313	Parent Date Recvd	05/21/07
Dilution Date (New Ref Date)	5-5-16	Parent Received By	**AGuerrero**
~~Ampoule, Empty (g)~~		Parent Cert Exp Date	
~~Ampoule/Solution Gross (g)~~		Parent Matrix	**.1M HCL with 30 ug/g Sr carrier**
Net Wt Removed (g)		Certified dpm/g At Ref Date	4521.643783
Transfer Container, empty (g)	17.2513	Certified dpm/g on 04/19/2016 10:49	3642.985708
Container Plus Solution (g)	29.2848		Intermediate standard for creating LCS standards. Dilution performed as stated above by BSteffens. -BJS 6/1/2007
Net Wt Transferred (g)		Parent Comments	
DPM Xferred on 04/19/2016 10:49			
~~Diluent/matrix~~		Parent Tech	**BSteffens**
~~Diluent Density Cont, empty (g)~~		Is_Primary	**FALSE**
~~Test Mass of 5 ml of Diluent (g)~~		Is_LCS	**FALSE**
Diluent Density Test - (g/mL)		Is_Tracer	**FALSE**
Dilution Empty Container Mass (g)	258.23	Is_Calib	**FALSE**
Dilution Full Cont g (if measured)	1256.98		
Dilution Final Volume ml (if measured)	1000 mL		
Final Dilution Density (g/mL)			
Final Dilution Measured Mass g			
Comments			
Final Dilution dpm/g			
Final Dil New Ref Date/Time	04/19/2016 10:49		

Eckert & Ziegler

Isotope Products

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661·309·1010
Fax 661·257·8303

COPY

CERTIFICATE OF CALIBRATION
MULTINUCLIDE STANDARD SOURCE

Customer:	AMERICAN RADIATION SERVICE	**Source No.:**	1559-72-6	
P.O. No.:	11-0530	**Reference Date:**	1-Feb-12 12:00 PST	
Catalog No.:	EG-ML	**Contained Radioactivity:**	2.549 µCi 94.31 kBq	

Physical Description:

- A. Capsule type: Customer supplied tuna can
- B. Nature of active deposit: Multinuclide distributed in 1.5 g/cc epoxy matrix
- C. Active diameter/volume: Approximately 250mL (375.2 grams)
- D. Backing: Steel
- E. Cover: Steel

Gamma-Ray Energy (keV)	Nuclide	Half-life	Branching Ratio (%)	Activity (µCi)	Gammas per second	Total Uncert.
47	Pb-210	22.3 ± 0.2 years	4.18	0.5834	902.3	7.0 %
60	Am-241	432.17 ± 0.66 years	36.0	0.05866	781.4	3.0 %
88	Cd-109	462.6 ± 0.7 days	3.63	0.5345	717.9	3.1 %
122	Co-57	271.79 ± 0.09 days	85.6	0.02013	637.6	3.1 %
159	Te-123m	119.7 ± 0.1 days	84.0	0.02758	857.2	3.0 %
320	Cr-51	27.706 ± 0.007 days	9.86	0.6881	2510	3.0 %
392	Sn-113	115.09 ± 0.04 days	64.9	0.1048	2517	3.0 %
514	Sr-85	64.849 ± 0.004 days	98.4	0.1282	4668	3.0 %
662	Cs-137	30.17 ± 0.16 years	85.1	0.08881	2796	3.0 %
898	Y-88	106.630 ± 0.025 days	94.0	0.2068	7193	3.0 %
1173	Co-60	5.272 ± 0.001 years	99.86	0.1077	3979	3.0 %
1333	Co-60	5.272 ± 0.001 years	99.98	0.1077	3984	3.0 %
1836	Y-88	106.630 ± 0.025 days	99.4	0.2068	7606	3.0 %

Method of Calibration:

This source was prepared from weighed aliquots of solutions whose concentrations in µCi/g were determined by gamma spectrometry.

Notes:

- See reverse side for leak test(s) performed on this source.
- EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA-TECDOC-619, 1991.
- Overall uncertainty is calculated at the 99% confidence level.
- This source has a working life of 1 year.

Daniel James Van Dalsem
Quality Control

5-Jan-12
Date

EZIP Ref. No.:   1559-72

━━━ **ISO 9001 CERTIFIED** ━━━

Medical Imaging Laboratory
24937 Avenue Tibbitts   Valencia, California 91355

Industrial Gauging Laboratory
1800 North Keystone Street   Burbank, California 91504

THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO DETERMINE THE INTEGRITY OF THE SOURCE DESCRIBED ON THE FRONT SIDE. THE LEAK TESTS INDICATED BELOW WERE EITHER TAKEN DIRECTLY FROM ISO 9978:1992 OR DERIVED FROM THE LEAK TEST METHODS LISTED IN ISO 9978:1992. THE REGULATORY LIMIT FOR LEAK TEST RESULTS IS <5 nCi (185 Bq) FOR BOTH ALPHA AND BETA-GAMMA ACTIVITY. LEAK TEST RESULTS MARKED BELOW CONTAINED <5 nCi (185 Bq) OF REMOVABLE ACTIVITY UNLESS OTHERWISE STATED ON THIS CERTIFICATE.

☑ Standard Wipe Test

The source was wiped over its entire surface with a moistened filter paper disk. After drying, the disk was checked for activity using a scintillation detector.

☐ Special Wipe Test

The source was wiped over its entire surface with moistened polystyrene. The polystyrene was then dissolved in a liquid scintillation cocktail and counted in a liquid scintillation counter.

☐ Distilled Water Soak Test

The source was immersed in distilled water and maintained at (50 ± 5)°C for a minimum of four hours or room temperature (20 ± 5)°C for 24 hours. After removal of the source, the liquid was a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue checked for activity using a windowless proportional counter or end-window G.M. tube.

☐ Liquid Scintillation Soak Test

The source was immersed for a minimum of 3 hours at room temperature(20 ± 5)°C in a liquid scintillation cocktail, which does not attack the source's outer surface material. The source was stored away from light to avoid photolumi-nescence. The sealed source was then removed and the activity of the liquid scintillation cocktail was measured.

☐ Gas Source Test

The source was placed in a vacuum desiccator and maintained at a pressure of <10 mm Hg for not less than 12 hours. The activity was checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube.

☐ Ampoule Leak Test

The ampoule was kept in an inverted position on a filter paper disk or polystyrene wipe for a minimum of 16 hours. The wipe was then checked for activity using a scintillation detector or liquid scintillation counter.

☐ Bubble Leak Test

The container was pressurized to its fill pressure; then soapy water was applied over its valve and neck or, the valve and neck of the vessel were immersed in water. If no growing bubbles were observed, the container was considered leak free.

☐ Wipe Test for Industrial Ni-63 Sources

The sources were wipe tested by an approved sampling plan, which called for either 100% of the batch to be individually wipe tested, or, a subset thereof. The wipe test(s) used to test for removable contamination and the results of those tests are recorded on the front of this form.

☐ Pressure Test for Triotech Kr-85 Sources

Prior to filling the vessel with Kr-85 gas, the vessel was evacuated to <5 mm Hg, the gas manifold system shut off and the system allowed to stand for a minimum of 30 minutes. A vacuum difference not greater than the known vacuum loss of the manifold system itself signified the vessel did not leak.

☐ Leak Test Not Applicable

The active area of the source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test or special wipe test depending on the nuclide.

☐ Other Leak Test

Eckert & Ziegler

Isotope Products

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661·309·1010
Fax 661·257·8303

CERTIFICATE OF CALIBRATION
MULTINUCLIDE STANDARD SOURCE

Customer:	AMERICAN RADIATION SERVICE	**Source No.:**	1748-90-1
P.O. No.:	14-0236	**Reference Date:**	1-Oct-14 12:00 PST
Catalog No.:	EG-ML	**Contained Radioactivity:**	0.9342 µCi 34.57 kBq

Physical Description:

    A. Capsule type: Customer supplied tuna can
    B. Nature of active deposit: Multinuclide distributed in 1.5 g/cc epoxy matrix
    C. Active diameter/volume: Approximately 250mL (377.6 grams)
    D. Backing: Steel
    E. Cover: Steel

Gamma-Ray Energy (keV)	Nuclide	Half-life	Branching Ratio (%)	Activity (µCi)	Gammas per second	Total Uncert.
47	Pb-210	22.3 ± 0.2 years	4.18	0.2133	329.9	4.1 %
60	Am-241	432.17 ± 0.66 years	36.0	0.02113	281.5	3.1 %
88	Cd-109	462.6 ± 0.7 days	3.63	0.2039	273.9	3.1 %
122	Co-57	271.79 ± 0.09 days	85.6	0.007394	234.2	3.1 %
159	Te-123m	119.7 ± 0.1 days	84.0	0.01066	331.3	3.1 %
320	Cr-51	27.706 ± 0.007 days	9.86	0.2517	918.3	3.0 %
392	Sn-113	115.09 ± 0.04 days	64.9	0.03574	858.2	3.0 %
514	Sr-85	64.849 ± 0.004 days	98.4	0.04568	1663	3.0 %
662	Cs-137	30.17 ± 0.16 years	85.1	0.03171	998.5	3.1 %
898	Y-88	106.630 ± 0.025 days	94.0	0.07337	2552	3.0 %
1173	Co-60	5.272 ± 0.001 years	99.86	0.03965	1465	3.0 %
1333	Co-60	5.272 ± 0.001 years	99.98	0.03965	1467	3.0 %
1836	Y-88	106.630 ± 0.025 days	99.4	0.07337	2698	3.0 %

Method of Calibration:

    This source was prepared from weighed aliquots of solutions whose concentrations in µCi/g were determined by gamma spectrometry.

Notes:

    - See reverse side for leak test(s) performed on this source.
    - EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
    - Nuclear data was taken from IAEA-TECDOC-619, 1991.
    - Overall uncertainty is calculated at the 99% confidence level.
    - This source has a working life of 1 year.

Daniel James Van Dalsem
_____
Quality Control

18-Sep-14
_____
Date

EZIP Ref. No.:   1748-90

THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO DETERMINE THE INTEGRITY OF SOURCE DESCRIBED ON THE FRONT SIDE. THE LEAK TESTS INDICATED BELOW WERE EITHER TAKEN DIRECTLY OF ISO 9978:1992 OR DERIVED FROM THE LEAK TEST METHODS LISTED IN ISO 9978:1992. THE REGULATORY LIMIT LEAK TEST RESULTS IS <5 nCi (185 Bq) FOR BOTH ALPHA AND BETA-GAMMA ACTIVITY. LEAK TEST RESULTS BELOW CONTAINED <5 nCi (185 Bq) OF REMOVABLE ACTIVITY UNLESS OTHERWISE STATED ON THIS CERTIFIC

☑ Standard Wipe Test

The source was wiped over its entire surface with a moistened filter paper disk. After drying, the disk was checked for activity using a scintillation detector.

☐ Special Wipe Test

The source was wiped over its entire surface with moistened polystyrene. The polystyrene was then dissolved in a liquid scintillation cocktail and counted in a liquid scintillation counter.

☐ Distilled Water Soak Test

The source was immersed in distilled water and maintained at $(50 \pm 5)°C$ for a minimum of four hours or room temperature $(20 \pm 5)°C$ for 24 hours. After removal of the source, the liquid was a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue checked for activity using a windowless proportional counter or end-window G.M. tube.

☐ Liquid Scintillation Soak Test

The source was immersed for a minimum of 3 hours at room temperature $(20 \pm 5)°C$ in a liquid scintillation cocktail, which does not attack the source's outer surface material. The source was stored away from light to avoid photolumi-nescence. The sealed source was then removed and the activity of the liquid scintillation cocktail was measured.

☐ Gas Source Test

The source was placed in a vacuum desiccator and maintained at a pressure of <10 mm Hg for not less than 12 hours. The activity was checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube.

☐ Ampoule Leak Test

The ampoule was kept in an inverted position on a filter paper disk or polystyrene wipe for a minimum of 16 hours. The wipe was then checked for activity using a scintillation detector or liquid scintillation counter.

☐ Bubble Leak Test

The container was pressurized to its fill pressure; then soapy water was applied over its valve and neck or, the valve and neck of the vessel were immersed in water. If no growing bubbles were observed, the container was considered leak free.

☐ Wipe Test for Industrial Ni-63 Sources

The sources were wipe tested by an approved sampling plan, which called for either 100% of the batch to be individually wipe tested, or, a subset thereof. The wipe test(s) used to test for removable contamination and the results of those tests are recorded on the front of this form.

☐ Pressure Test for Triotech Kr-85 Sources

Prior to filling the vessel with Kr-85 gas, the vessel was evacuated to <5 mm Hg, the gas manifold system shut off and the system allowed to stand for a minimum of 30 minutes. A vacuum difference not greater than the known vacuum loss of the manifold system itself signified the vessel did not leak.

☐ Leak Test Not Applicable

The active area of the source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test or special wipe test depending on the nuclide.

☐ Other Leak Test

E&Z 1748-90-1 250ml Tuna Can 1.5g/cc

Nuclide	Energy	GPS	BRatio	Bq	DPM	pCi
PB-210	47	329.9	0.0418	7892.344	473540.7	213306.4
AM-241	60	281.5	0.36	781.9444	46916.67	21133.61
CD-109	88	273.9	0.0363	7545.455	452727.3	203931
CO-57	122	234.2	0.856	273.5981	16415.89	7394.537
TE-123m	159	331.3	0.84	394.4048	23664.29	10659.58
CR-51	320	918.3	0.0986	9313.387	558803.2	251712.9
SN-113	392	858.2	0.649	1322.342	79340.52	35738.94
SR-85	514	1663	0.984	1690.041	101402.4	45676.73
CS-137	662	998.5	0.851	1173.325	70399.53	31711.47
Y-88	898	2552	0.94	2714.894	162893.6	73375.43
CO-60	1173	1465	0.9986	1467.054	88023.23	39650.07
CO-60	1333	1467	0.9998	1467.293	88037.61	39656.54
Y-88	1836	2698	0.994	2714.286	162857.1	73359

Eckert & Ziegler
Isotope Products

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661·309·1010
Fax 661·257·8303

CERTIFICATE OF CALIBRATION
MULTINUCLIDE STANDARD SOURCE

Customer:	AMERICAN RADIATION SERVICE	**Source No.:**	1595-98-4
P.O. No.:	12-0210 / R5197	**Reference Date:**	1-Jul-12 12:00 PST
Catalog No.:	EG-ML	**Contained Radioactivity:**	1.024 µCi 37.89 kBq

Physical Description:

   A. Capsule type: Customer supplied tuna can
   B. Nature of active deposit: Multinuclide distributed in 1.5 g/cc epoxy matrix
   C. Active diameter/volume: Approximately 250mL (376.2 grams)
   D. Backing: Plastic
   E. Cover: Plastic

Gamma-Ray Energy (keV)	Nuclide	Half-life	Branching Ratio (%)	Activity (µCi)	Gammas per second	Total Uncert.
47	Pb-210	22.3 ± 0.2 years	4.18	0.2320	358.8	7.0 %
60	Am-241	432.17 ± 0.66 years	36.0	0.02273	302.8	3.0 %
88	Cd-109	462.6 ± 0.7 days	3.63	0.2223	298.6	3.2 %
122	Co-57	271.79 ± 0.09 days	85.6	0.008038	254.6	3.1 %
159	Te-123m	119.7 ± 0.1 days	84.0	0.01098	341.3	3.1 %
320	Cr-51	27.706 ± 0.007 days	9.86	0.2766	1009	3.0 %
392	Sn-113	115.09 ± 0.04 days	64.9	0.04358	1046	3.0 %
514	Sr-85	64.849 ± 0.004 days	98.4	0.05122	1865	3.0 %
662	Cs-137	30.17 ± 0.16 years	85.1	0.03546	1117	3.0 %
898	Y-88	106.630 ± 0.025 days	94.0	0.07866	2736	3.0 %
1173	Co-60	5.272 ± 0.001 years	99.86	0.04279	1581	3.0 %
1333	Co-60	5.272 ± 0.001 years	99.98	0.04279	1583	3.0 %
1836	Y-88	106.630 ± 0.025 days	99.4	0.07866	2893	3.0 %

Method of Calibration:
This source was prepared from weighed aliquots of solutions whose concentrations in µCi/g were determined by gamma spectrometry.

Notes:
- See reverse side for leak test(s) performed on this source.
- EZIP participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (as in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA-TECDOC-619, 1991.
- Overall uncertainty is calculated at the 99% confidence level.
- This source has a working life of 1 year.

Daniel James Van Dalsem
Quality Control

5-Jul-12
Date

EZIP Ref. No.:   1595-98

ISO 9001 CERTIFIED

Medical Imaging Laboratory
24937 Avenue Tibbitts   Valencia, California 91355

Industrial Gauging Laboratory
1800 North Keystone Street   Burbank, California 91504

1595-98-4 - Tuna Can 1.5g/cc - 7-1-12

Nuclide	Energy	GPS	BRatio	Bq	DPM	pCi
PB-210	47	358.8	0.0418	8583.73	515023.92	231992.53
AM-241	60	302.8	0.36	841.11	50466.67	22732.71
CD-109	88	298.6	0.0363	8225.90	493553.72	222321.27
CO-57	122	254.6	0.856	297.43	17845.79	8038.64
TE-123M	159	341.3	0.84	406.31	24378.57	10981.33
CR-51	320	1009	0.0986	10233.27	613995.94	276574.47
SN-113	392	1046	0.649	1611.71	96702.62	43559.69
SR-85	514	1865	0.984	1895.33	113719.51	51224.95
CS-137	662	1117	0.851	1312.57	78754.41	35474.92
Y-88	898	2736	0.94	2910.64	174638.30	78665.82
CO-60	1173	1581	0.9986	1583.22	94992.99	42789.59
CO-60	1333	1583	0.9998	1583.32	94999.00	42792.30
Y-88	1836	2893	0.994	2910.46	174627.77	78661.08

ANALYTICS
An Isotope Products Laboratories Company

COPY

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73518-526

Th-230 47 mm Diameter x 0.9 mm Thick Stainless Steel Disk in Stainless Steel Planchet

This standard radionuclide source was prepared by electro-deposition of Th-230 onto a stainless steel disk. Th-230 activity was determined with a ZnS scintillation detector. The calibration was checked by alpha spectroscopy after source preparation.

Analytics maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Regulatory Guide 4.15, Rev. 1.

ISOTOPE:	Th-230
ACTIVITY (dps):	1.888 E2
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	September 11, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.0%

Diameter of Active Area: 33 mm. Low Ringed Bottom Planchet.

CAUTION: Active material deposited on the unmarked surface. Handle carefully to prevent scratching or damaging the active surface of this source (i.e., use Teflon coated forceps). Store in the container provided when not in use.

P O NUMBER   06-0431, Item 1

SOURCE CALIBRATED BY: _Daniel M. Montgomery, Radiochemist_

Q A APPROVED: _09-12-2006_

ANALYTICS
An Isotope Products Laboratories Company

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73519-526

Th-230 47 mm Diameter x 0.9 mm Thick Stainless Steel Disk in Stainless Steel Planchet

This standard radionuclide source was prepared by electro-deposition of Th-230 onto a stainless steel disk. Th-230 activity was determined with a ZnS scintillation detector. The calibration was checked by alpha spectroscopy after source preparation.

Analytics maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Regulatory Guide 4.15, Rev. 1.

ISOTOPE:	Th-230
ACTIVITY (dps):	1.851 E2
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	September 11, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.0%

Diameter of Active Area: 33 mm. Low Ringed Bottom Planchet.

CAUTION: Active material deposited on the unmarked surface. Handle carefully to prevent scratching or damaging the active surface of this source (i.e., use Teflon coated forceps). Store in the container provided when not in use.

P O NUMBER   06-0431, Item 1

SOURCE CALIBRATED BY: Daniel M. Montgomery, Radiochemist

Q A APPROVED: 09-11-2006

ANALYTICS
An Isotope Products Laboratories Company

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CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73520-526

Th-230 47 mm Diameter x 0.9 mm Thick Stainless Steel Disk in Stainless Steel Planchet

This standard radionuclide source was prepared by electro-deposition of Th-230 onto a stainless steel disk. Th-230 activity was determined with a ZnS scintillation detector. The calibration was checked by alpha spectroscopy after source preparation.

Analytics maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Regulatory Guide 4.15, Rev. 1.

ISOTOPE:	Th-230
ACTIVITY (dps):	1.907 E2
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	September 11, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.0%

Diameter of Active Area: 33 mm. Low Ringed Bottom Planchet.

CAUTION: Active material deposited on the unmarked surface. Handle carefully to prevent scratching or damaging the active surface of this source (i.e., use Teflon coated forceps). Store in the container provided when not in use.

P O NUMBER   06-0431, Item 1

SOURCE CALIBRATED BY: _____
Daniel M. Montgomery, Radiochemist

Q A APPROVED: _____ 09-11-2006

ANALYTICS
An Isotope Products Laboratories Company

COPY

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73521-526

Th-230 47 mm Diameter x 0.9 mm Thick Stainless Steel Disk in Stainless Steel Planchet

This standard radionuclide source was prepared by electro-deposition of Th-230 onto a stainless steel disk. Th-230 activity was determined with a ZnS scintillation detector. The calibration was checked by alpha spectroscopy after source preparation.

Analytics maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Regulatory Guide 4.15, Rev. 1.

ISOTOPE:	Th-230
ACTIVITY (dps):	1.916 E2
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	September 11, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.0%

Diameter of Active Area: 33 mm. Low Ringed Bottom Planchet.

CAUTION: Active material deposited on the unmarked surface. Handle carefully to prevent scratching or damaging the active surface of this source (i.e., use Teflon coated forceps). Store in the container provided when not in use.

P O NUMBER   06-0431, Item 1

SOURCE CALIBRATED BY: _____
Daniel M. Montgomery, Radiochemist

Q A APPROVED: _____ 09-11-2006

ANALYTICS
An Isotope Products Laboratories Company

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CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73522-526

Sr-90 in Aluminized Mylar on 47 mm Diameter Aluminum Ring

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. The calibration was checked by beta counting after source preparation.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Sr-90
ACTIVITY (dps):	1.826 E2
HALF-LIFE:	28.79 years
CALIBRATION DATE:	October 9, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ-impurities <0.1%

Diameter of active area: 33 mm. 0.8 mg/cm^2 aluminized mylar.

No expiration date has been given for this source due to the fragile nature of the mylar covering. This source should be carefully tested for leakage at least every six months. If leakage is detected this source should be disposed of by approved radioactive waste disposal procedures.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

P O NUMBER   06-0422, Item 1

SOURCE PREPARED BY: _M. Dimitrova_
                       M. Dimitrova, Radiochemist

Q A APPROVED: _M. M____ 10-10-06_

![ANALYTICS logo] **ANALYTICS**
An Isotope Products Laboratories Company

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Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73523-526

Sr-90 in Aluminized Mylar on 47 mm Diameter Aluminum Ring

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. The calibration was checked by beta counting after source preparation.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Sr-90
ACTIVITY (dps):	1.837 E2
HALF-LIFE:	28.79 years
CALIBRATION DATE:	October 9, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ-impurities <0.1%

Diameter of active area: 33 mm. 0.8 mg/cm^2 aluminized mylar.

No expiration date has been given for this source due to the fragile nature of the mylar covering. This source should be carefully tested for leakage at least every six months. If leakage is detected this source should be disposed of by approved radioactive waste disposal procedures.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

P O NUMBER   06-0422, Item 1

SOURCE PREPARED BY: _M. Dimitrov_
                     M. Dimitrova, Radiochemist

Q A APPROVED: _____ 10-10-06

Corporate Office

Laboratory

ANALYTICS
An Isotope Products Laboratories Company

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1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73524-526

Sr-90 in Aluminized Mylar on 47 mm Diameter Aluminum Ring

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. The calibration was checked by beta counting after source preparation.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Sr-90
ACTIVITY (dps):	1.833 E2
HALF-LIFE:	28.79 years
CALIBRATION DATE:	October 9, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ-impurities <0.1%

Diameter of active area: 33 mm. 0.8 mg/cm^2 aluminized mylar.

No expiration date has been given for this source due to the fragile nature of the mylar covering. This source should be carefully tested for leakage at least every six months. If leakage is detected this source should be disposed of by approved radioactive waste disposal procedures.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

P O NUMBER   06-0422, Item 1

SOURCE PREPARED BY: _M. Dimitrov_
                    M. Dimitrova, Radiochemist

Q A APPROVED: _____ 10-10-06

COPY

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

73525-526

Sr-90 in Aluminized Mylar on 47 mm Diameter Aluminum Ring

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. The calibration was checked by beta counting after source preparation.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Sr-90
ACTIVITY (dps):	1.811 E2
HALF-LIFE:	28.79 years
CALIBRATION DATE:	October 9, 2006 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ-impurities <0.1%

Diameter of active area: 33 mm. 0.8 mg/cm^2 aluminized mylar.

No expiration date has been given for this source due to the fragile nature of the mylar covering. This source should be carefully tested for leakage at least every six months. If leakage is detected this source should be disposed of by approved radioactive waste disposal procedures.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

P O NUMBER   06-0422, Item 1

SOURCE PREPARED BY: _M. Dimitrova_
M. Dimitrova, Radiochemist

Q A APPROVED: _____ 10-10-06

Th-230 Standard verification

Unverified Std S-0315
Verified Std   S-0172

Std ID	Gr CPM	Bkg CPM	Net CPM	Std DPM/g	To	T1	T 1/2	Std DPM/g decayed	grams added	STD DPM at count	Mean CPM/DPM	Stdev of CPM/DPM	%RSD of CPM/DPM
Bkg	41.13												
S-0315-V1	53.91	41.13	12.78	12.587	7/12/2016	7/19/2016	27530000	12.59	1.0179	12.81	0.9975		
S-0315-V2	55.38	41.13	14.25	12.587	7/12/2016	7/19/2016	27530000	12.59	1.0128	12.75	1.1178		
S-0315-V3	54.79	41.13	13.66	12.587	7/12/2016	7/19/2016	27530000	12.59	1.0146	12.77	1.0696		
S-0315-V4	54.42	41.13	13.29	12.587	7/12/2016	7/19/2016	27530000	12.59	1.0172	12.80	1.0380		
S-0315-V5	53.61	41.13	12.48	12.587	7/12/2016	7/19/2016	27530000	12.59	1.0178	12.81	0.9742	1.0394	0.0572	5.5%
S-0172-V1	4888.79	41.13	4847.66	4704	2/5/2008	7/19/2016	27530000	4703.63	1.0304	4846.62	1.0002		
S-0172-V2	4877.03	41.13	4835.9	4704	2/5/2008	7/19/2016	27530000	4703.63	1.0299	4844.2731	0.9983		
S-0172-V3	4863.92	41.13	4822.79	4704	2/5/2008	7/19/2016	27530000	4703.63	1.076	4786.4184	1.0076		
S-0172-V4	4954.37	41.13	4913.24	4704	2/5/2008	7/19/2016	27530000	4703.63	1.0387	4885.6651	1.0056		
S-0172-V5	4859.05	41.13	4817.92	4704	2/5/2008	7/19/2016	27530000	4703.63	1.0211	4802.8811	1.0031	1.0030	-0.0038	-0.38%

Std Known DPM   12.587
Avg Calculated DPM   12.59
% Difference   -0.000002%
2-sigma C.L.   0.055812101
STD criteria   0.44%

Deviation between stds Acceptance Criteria			
-4%	<5%	Passes	
1.0030	-0.0038	-0.38%	<10% Passes

Reviewed by: _[signature]_ 2-20-16

QA approval: _[signature]_ 7-20-16

S-0315	Th-230		
	SL	Expires	7/19/17
		Verified	7/19/16

Manufactuer	Analytics
Sol Matrix	0.5M HNO3
Ref No	75861-526
Tech	B Steffens
Parent ID	S-0172

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

ARS INTERNATIONAL

STD ID: S-0315

ARS INTERNATIONAL	**Add/Edit Secondary Stds**	**Parent Standard Data**		
Planning		Parent Solution Reference #	75861-526	
Planning Comments	Create a Th-230 LCS Standard	Parent Solution #	S-0172	
Target dpm/g (on dil. date)	12.5	Parent Principal Radionuclide	Th-230	Half Life (Days) 27534722.2222222
Target Final volume mL	1000	Parent Reference Date	02/05/2008 12:00	
Appx mass g of Parent Sol'n	2.657469047	Parent Certified Act	4704.088304	Certi Act/Vol Units dpm g
Appx vol ml of Parent Sol'n		Parent Cert Act Uncert 1 Sigma	0.02	
Expected Addition for Analysis g		Parent Sp. Gravity G/Ml		
Standards Preparation / Dilution		Parent Supplier	Analytics	
Secondary Solution #	S-0315	Parent Date Recvd	09/11/07	
Dilution Date (New Ref Date)	07/12/2016 00:00	Parent Received By	S Clayton	
Ampoule, Empty (g)		Parent Cert Exp Date		
Ampoule /Solution Gross (g)		Parent Matrix	0.5M HNO3	
Net Wt Removed (g)		Certified dpm/g At Ref Date	4704.088304	
Transfer Container, empty (g)	17.2581	Certified dpm/g on 07/12/2016 00:00	4703.723648	
Container Plus Solution (g)	19.9691	Parent Comments	Intermediate level Th-230 standard for use in creating LCS stock solutions. Dilution performed as stated above by B Steffens on 2/5/08. -BJS 2/5/08	
Net Wt Transferred (g)	2.711			
DPM Xferred on 07/12/2016 00:00	12751.79481			
Diluent/matrix	.5 HNO3	Parent Tech	B Steffens	
Diluent Density Cont, empty (g)		Is_Primary	FALSE	
Test Mass of 5 ml of Diluent (g)		Is_LCS	TRUE	
Diluent Density Test - (g/mL)		Is_Tracer	FALSE	
Dilution Empty Container Mass (g)	275.41	Is_Calib	FALSE	
Dilution Full Cont g (if measured)	1288.5			
Dilution Final Volume ml (if measured)	1000			
Final Dilution Density (g/mL)	1.01309			
Final Dilution Measured Mass g	1013.09			
Comments	Th-230 LCS standard. Dilution performed as stated above by Jacob Byrd -JPB 07/12/2016			
Final Dilution dpm/g	12.58703058			
Final Dil New Ref Date/Time	07/12/2016 00:00			

ARS INTERNATIONAL	**Add/Edit *Secondary Stds***	**Parent Standard Data**			
Planning		Parent Solution Reference #	75861-526		
Planning Comments	**LCS solution used to make blinds**	Parent Solution #	**S-0172**		
Target dpm/g (on dil. date)	**12.5**	Parent Principal Radionuclide	**Th-230**	Half Life (Days)	27534722.2222222
Target Final volume mL	**1000**	Parent Reference Date	**02/05/2008 12:00**		
Appx mass g of Parent Sol'n	**2.657469026**	Parent Certified Act	**4704.088304**	Certi Act/Vol Units	dpm / g
Appx vol ml of Parent Sol'n		Parent Cert Act Uncert 1 Sigma	**0.02**		
Expected Addition for Analysis g	**1**	Parent Sp. Gravity G/Ml			
Standards Preparation / Dilution		Parent Supplier	**Analytics**		
Secondary Solution #	**S-0315**	Parent Date Recvd	**09/11/07**		
Dilution Date (New Ref Date)		Parent Received By	**S Clayton**		
Ampoule, Empty (g)		Parent Cert Exp Date			
Ampoule /Solution Gross (g)		Parent Matrix	**0.5M HNO3**		
Net Wt Removed (g)		Certified dpm/g At Ref Date	**4704.088304**		
Transfer Container, empty (g)	17.2581	Certified dpm/g on 07/11/2016 16:31	**4703.723685**		
Container Plus Solution (g)	19.9691		Intermediate level Th-230 standard for use in creating LCS stock solutions. Dilution performed as stated above by B Steffens on 2/5/08. -BJS 2/5/08		
Net Wt Transferred (g)		Parent Comments			
DPM Xferred on 07/11/2016 16:31					
Diluent/matrix	**.5M HNO3**	Parent Tech	**B Steffens**		
Diluent Density Cont, empty (g)		Is_Primary	**FALSE**		
Test Mass of 5 ml of Diluent (g)		Is_LCS	**TRUE**		
Diluent Density Test - (g/mL)	7-12-16	Is_Tracer	**FALSE**		
Dilution Empty Container Mass (g)	~~2.7541~~ 275.41 JB	Is_Calib	**FALSE**		
Dilution Full Cont g (if measured)	1288.50				
Dilution Final Volume ml (if measured)	1000 mL				
Final Dilution Density (g/mL)					
Final Dilution Measured Mass g					
Comments					
Final Dilution dpm/g					
Final Dil New Ref Date/Time	**07/11/2016 16:31**				

Assay Definition-

Assay Description:
AB Widw Window assay

Assay Type: CPM
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\AB WIDE WINDOW 2\20160719_1149
Raw Results Path: C:\Packard\Tricarb\Results\ARS\AB WIDE WINDOW 2\20160719_1149\20160719_1149.results
Assay File Name: C:\Packard\TriCarb\Assays\AB WIDE WINDOW 2.lsa

Count Conditions-

Nuclide: Wide Window
    Quench Indicator: tSIE
    External Std Terminator (sec): 0.5 2s%
    Pre-Count Delay (min): 0.00
Quench Set: n/a
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1   Repeat Sample Count: 1
#Vials/Sample: 1   Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions   LL   UL   2Sigma % Terminator
A   0.0   2000.0   0.50
B   0.0   2000.0   0.50
C   0.0   2000.0   0.50

Count Corrections-

Static Controller: On   Luminescence Correction: n/a
Colored Samples: n/a   Heterogeneity Monitor: n/a
Coincidence Time (nsec): 18   Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off
Regions   Half Life   Units   Reference Date   Reference Time
A
B
C

7/20/2016 3:03:58 AM   QuantaSmart (TM) - 2.03 - Serial# 421926

Protocol# 6 - AB WIDE WINDOW 2.lsa

Cycle 1 Results

S#	SMPL_ID	Count Time	CPMA	tSIE	LUM	DATE	TIME	MESSAGES
1	BACKGROUND	120.00	41.13	367.33	1	7/19/2016	11:50:38 AM	
2	S-0172-V1	120.00	53.91	342.90	1	7/19/2016	1:53:16 PM	
3	S-0172-V2	120.00	55.38	341.59	1	7/19/2016	3:56:47 PM	
4	S-0172-V3	120.00	54.79	341.24	1	7/19/2016	6:00:15 PM	
5	S-0172-V4	120.00	54.42	344.10	1	7/19/2016	8:03:45 PM	
6	S-0172-V5	120.00	53.61	340.81	1	7/19/2016	10:07:17 PM	
7	S-0315-V1	32.74	4888.79	342.54	0	7/20/2016	12:10:46 AM	
8	S-0315-V2	32.82	4877.03	343.04	0	7/20/2016	12:44:55 AM	
9	S-0315-V3	32.90	4863.92	343.84	0	7/20/2016	1:19:08 AM	
10	S-0315-V4	32.30	4954.37	342.81	0	7/20/2016	1:53:26 AM	
11	S-0315-V5	32.94	4859.05	342.91	0	7/20/2016	2:27:06 AM	

S-0315

S-0172

S-0315 Verification Weights	
Tech:	JPB
Pippete:	LH63076
Scale ID:	12332539
Standard 1 ID:	S-0315
Standard 2 ID:	S-0172
Sample ID	Std. Weight(g)
S-0315-V1	1.0179
S-0315-V2	1.0128
S-0315-V3	1.0146
S-0315-V4	1.0172
S-0315-V5	1.0178
S-0172-V1	1.0304
S-0172-V2	1.0299
S-0172-V3	1.0176
S-0172-V4	1.0387
S-0172-V5	1.0211

S-0315 Verification Weights

Tech:	JPB
Pippete:	LH63076
Scale ID:	12332539
Standard 1 ID:	S-0315
Standard 2 ID:	S-0172

Sample ID	Std. Weight(g)
S-0315-V1	1.0179
S-0315-V2	1.0128
S-0315-V3	1.0146
S-0315-V4	1.0172
S-0315-V5	1.0178
S-0172-V1	1.0304
S-0172-V2	1.0299
S-0172-V3	1.0176
S-0172-V4	1.0387
S-0172-V5	1.0211

March 24, 2017

TRITIUM LABORATORY

Data Release #17-024
Job # 3491

JOEL I. CEHN, CHP
TRITIUM SAMPLES

_____
Dr. James D. Happell
Assistant Research Professor

Distribution:
    Joel I. Cehn, CHP
    4714 Windsor Blvd.
    Cambria, CA 93428

COMMENTS ON TRITIUM RESULTS (revision date 29 November 2016)

Tritium Scale New Half-life

   Tritium concentrations are normally expressed in TU, where 1 TU indicates a T/H
abundance ratio of 10^{-18}. The values refer to the tritium scale recommended by U.S.
National Institute of Science and Technology (NIST, formerly NBS), and International
Atomic Energy Agency (IAEA). The TU-numbers are based on the NIST tritium water standard
#4926E. Age corrections and conversions are made using the recommended half-life of **12.32
years**, i.e., a decay rate of λ = 5.626% $year^{-1}$. In this scale, 1 TU is equivalent to 7.151
dpm/kg H_2O, or 3.222 pCi/kg H_2O, (equivalent to pCi/L in freshwater) or 0.1192 Bq/kg H_2O
(Bq = disint/sec). We can also express tritium concentrations in pCi/L upon client
request.
   Tritium concentrations in TU or pCi/L are calculated for date of sample collection,
REFDATE in the table, as provided by the submitter. If no such date is available, date of
sample arrival at our laboratory is used.
   The stated errors, eTU or err, are one standard deviation (1 sigma) including all
conceivable contributions. In the table, QUANT is quantity of sample received, and ELYS
is the amount of water taken for electrolytic enrichment. DIR means direct run (no
enrichment).

Very low tritium values

   In some cases, negative tritium values are listed. Such numbers can occur because the
net tritium count rate is, in principle the difference between the count rate of the
sample and that of a tritium-free sample (background count or blank sample). Given a set
of "unknown" samples with no tritium, the distribution of net results should become
symmetrical around 0 TU or pCi/L. The negative values are reported as such for the
benefit of allowing the user unbiased statistical treatment of sets of the data. For
other applications, 0 TU or pCi/L should be used.

Additional information

   Refer to Services Rendered (Tritium), Section II.8, in the "Tritium Laboratory Price
Schedule; Procedures and Standards; Advice on Sampling", and our Web-site
www.rsmas.miami.edu/groups/tritium.
   Tritium efficiencies and background values are somewhat different in each of the nine
counters and values are corrected for cosmic intensity, gas pressure and other parameters.
For tritium, the efficiency is typically 1.00 cpm per 100 TU (direct counting). At 50×
enrichment, the efficiency is equivalent to 1.00 cpm per 2.4 TU. The background is
typically 0.3 cpm, known to about ± 0.02 cpm. Our reported results include not only the
Poisson statistics, but also other experimental uncertainties such as enrichment error,
etc.

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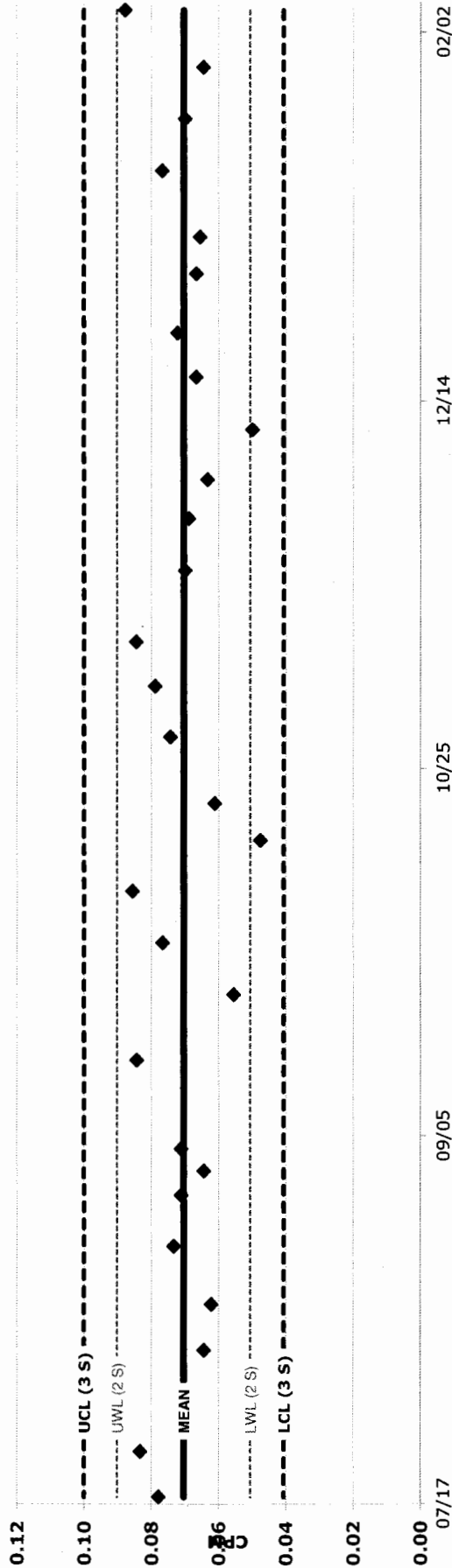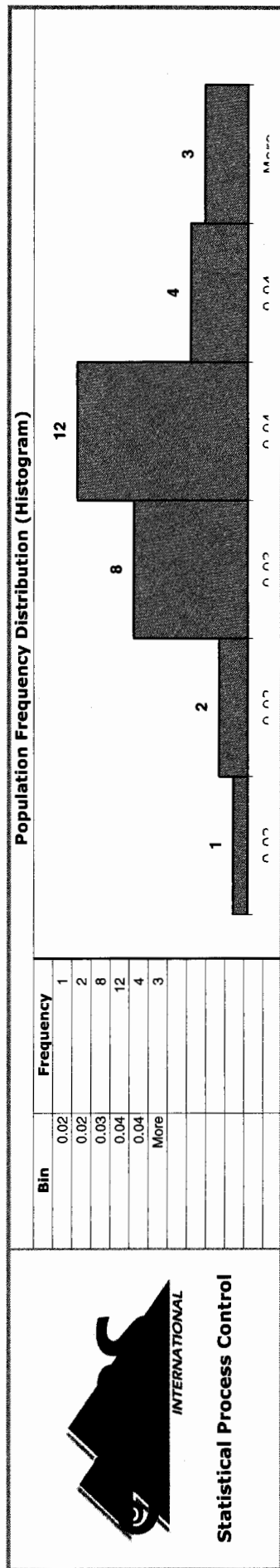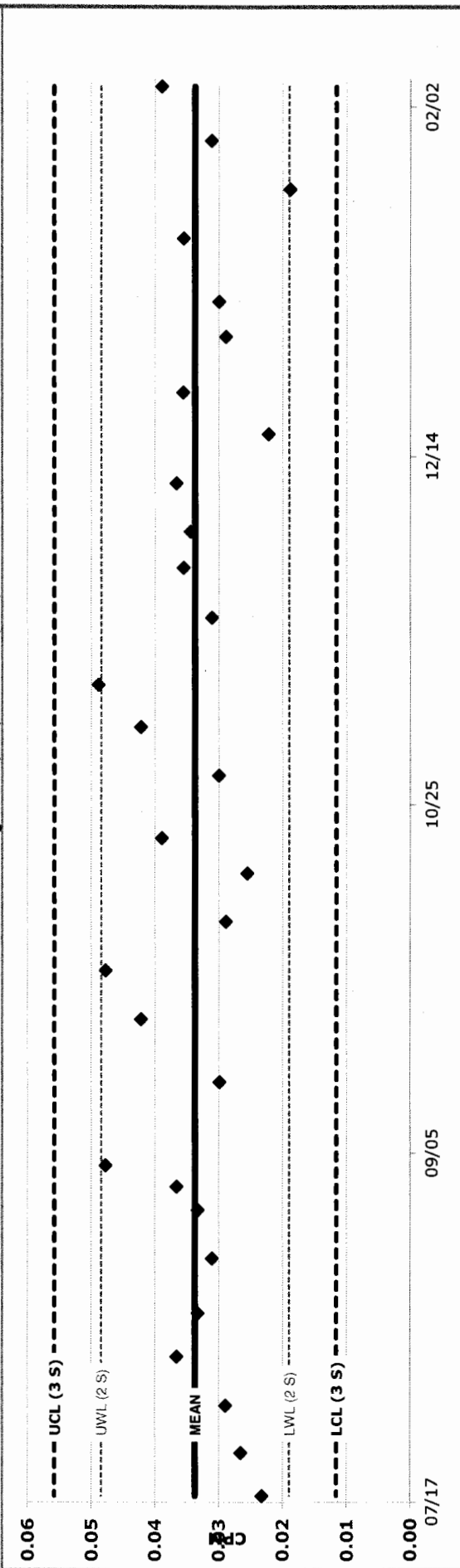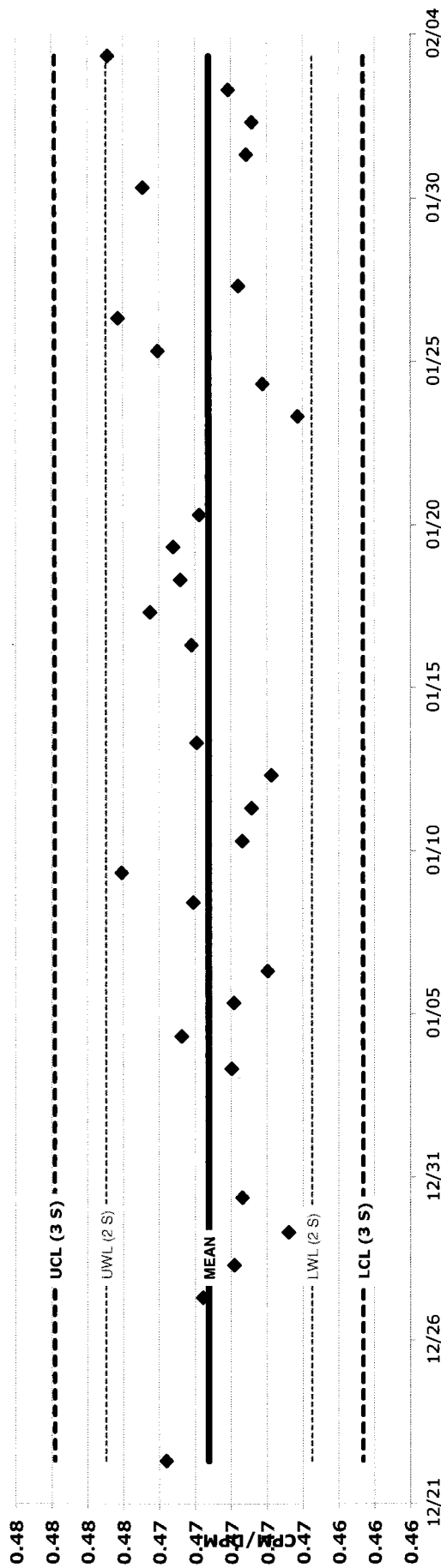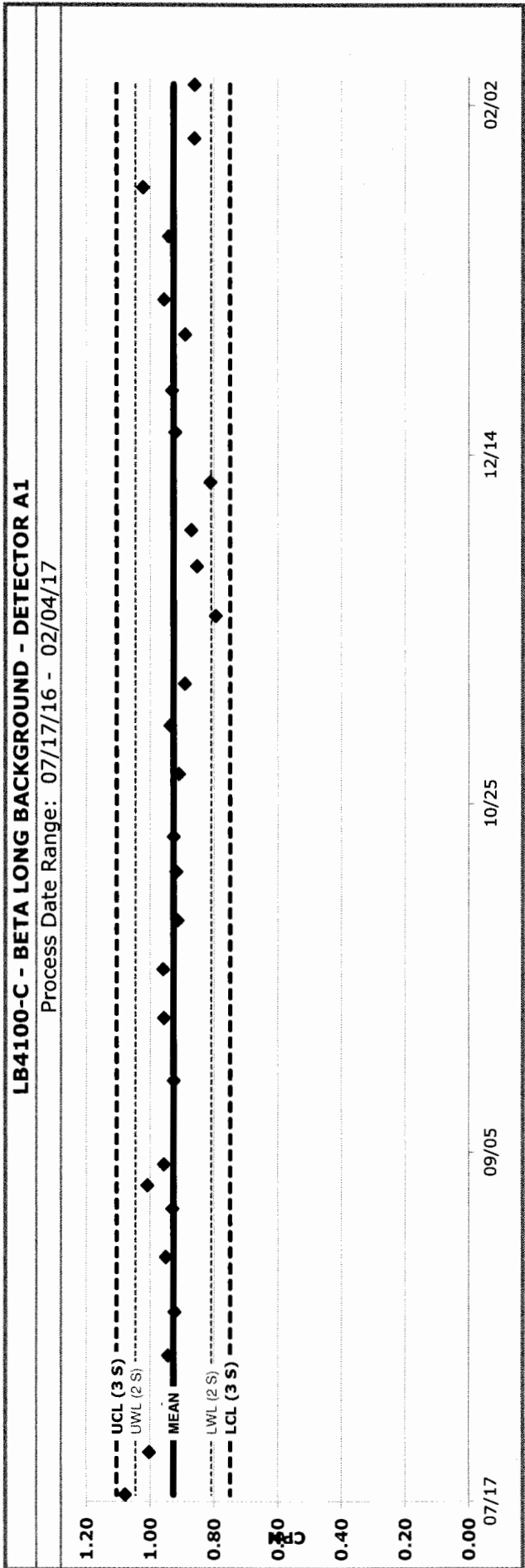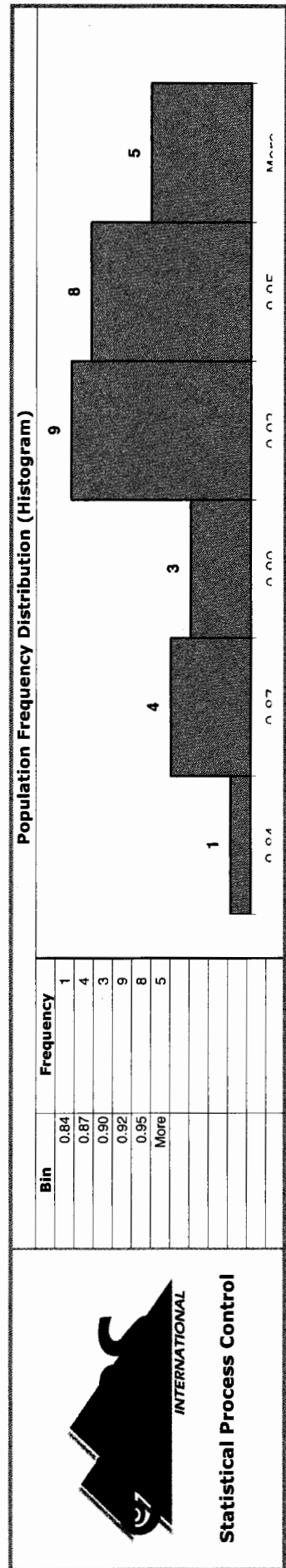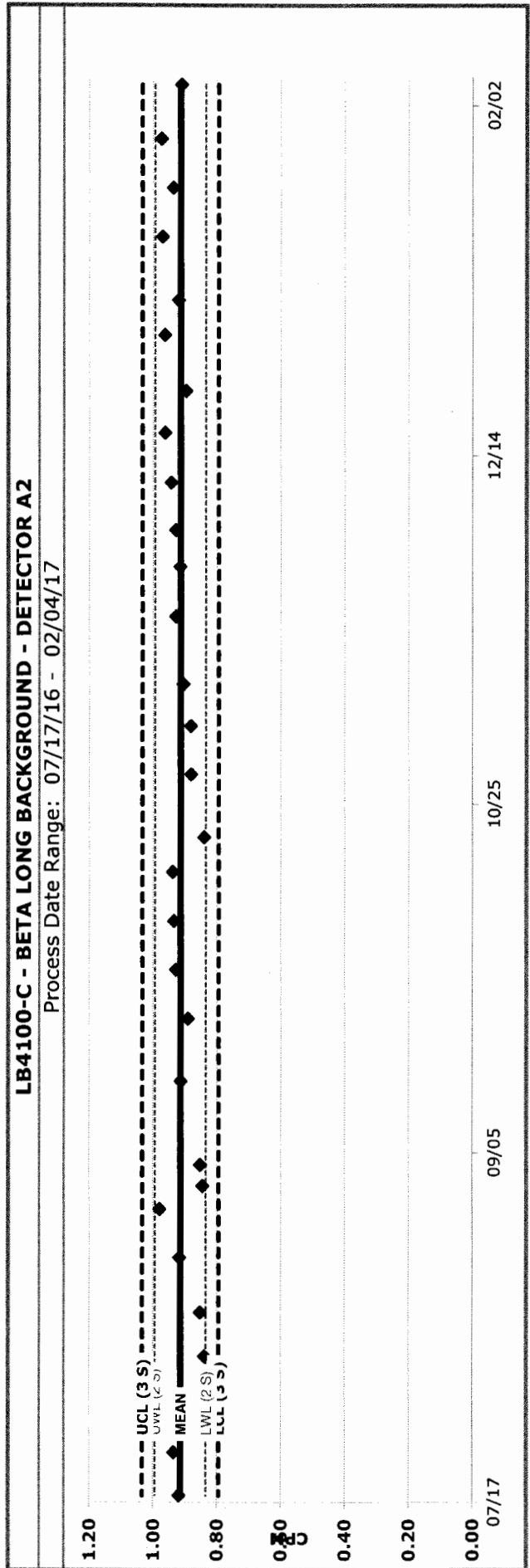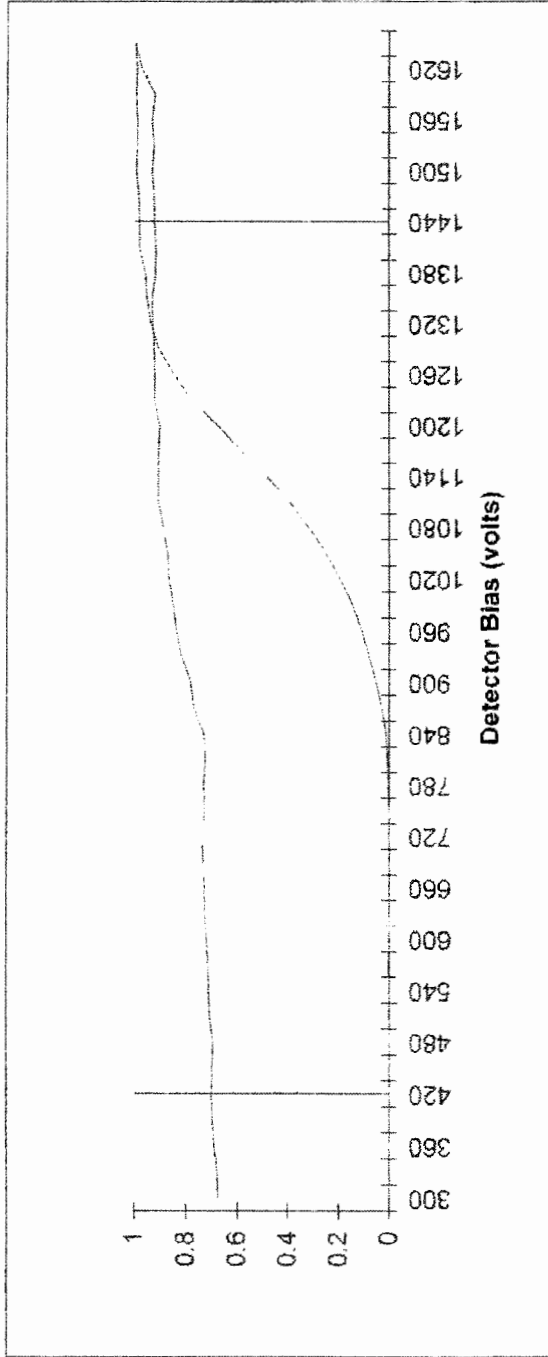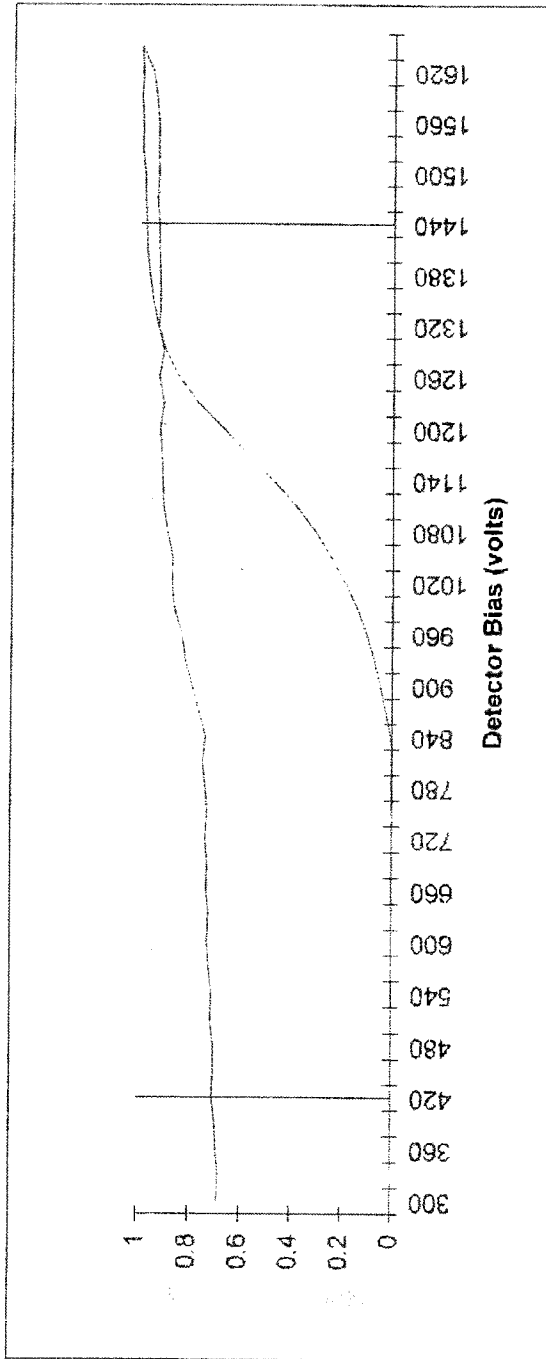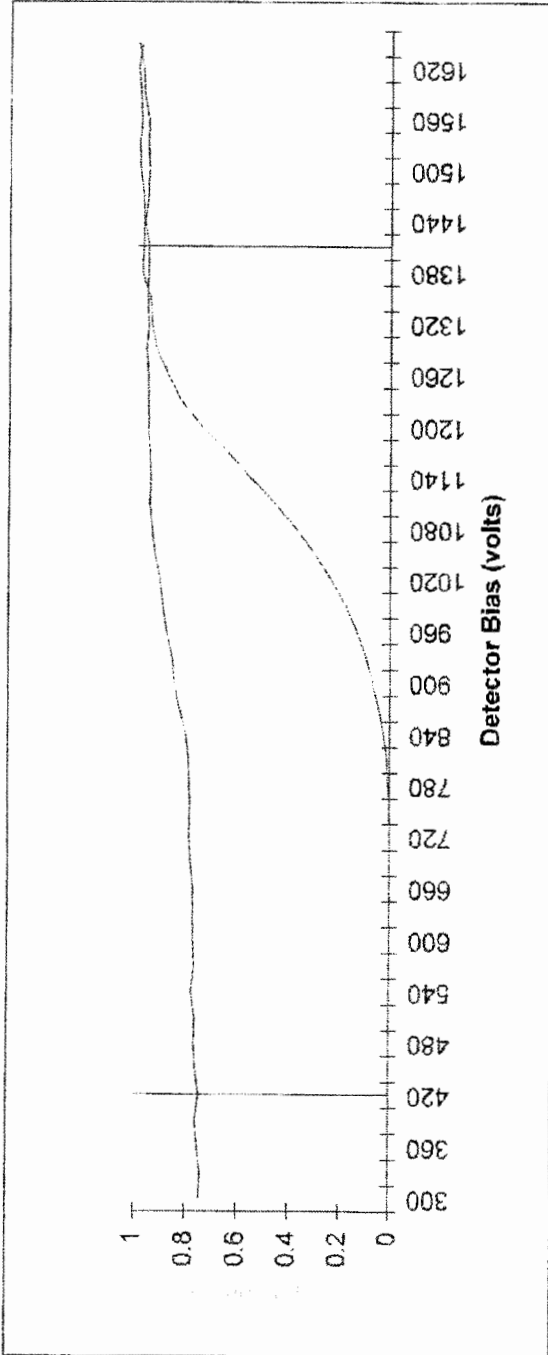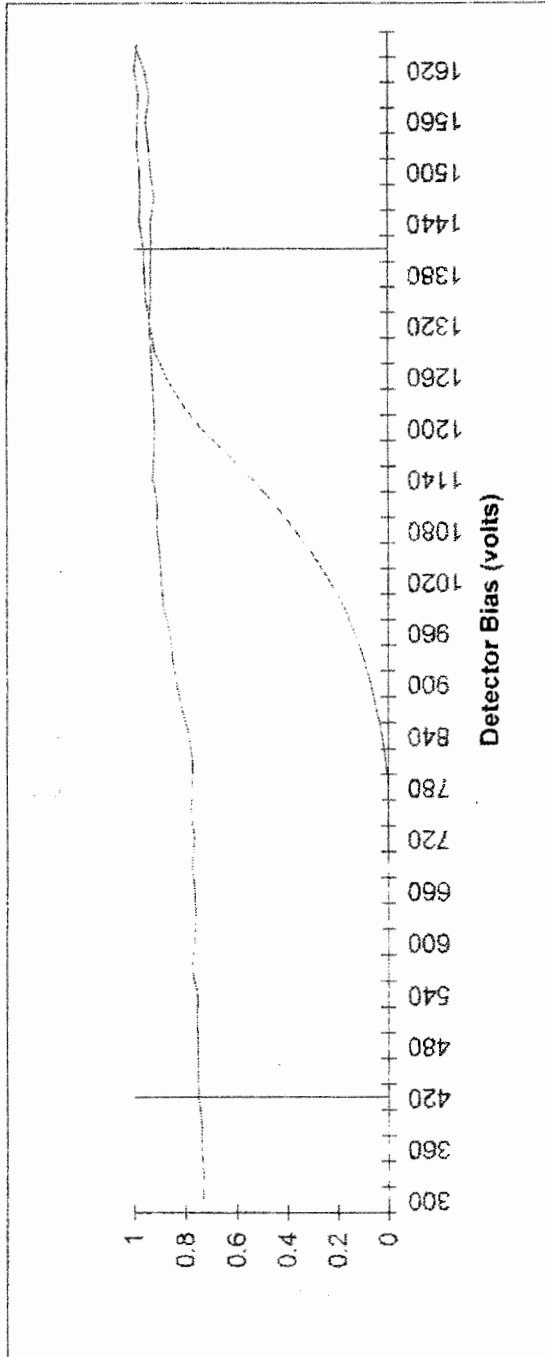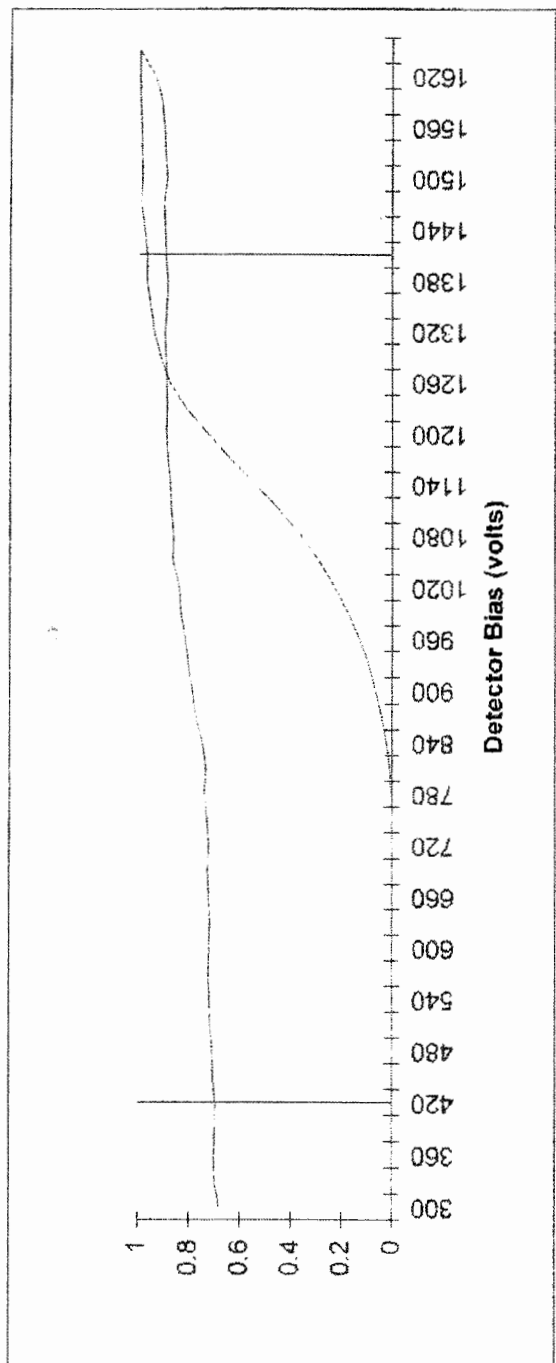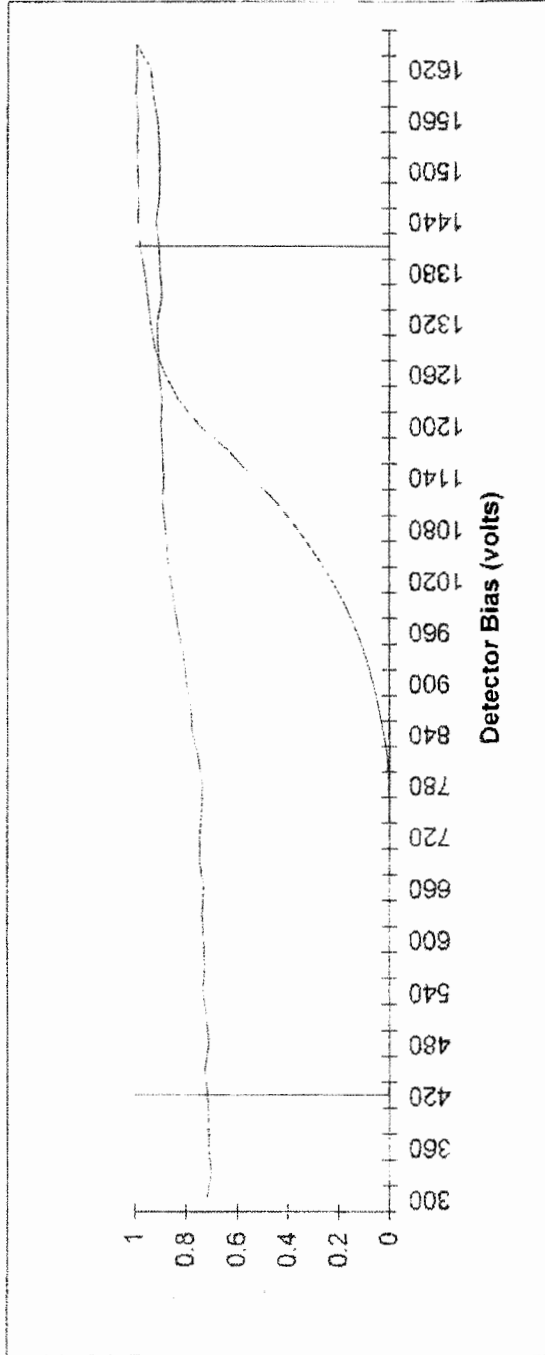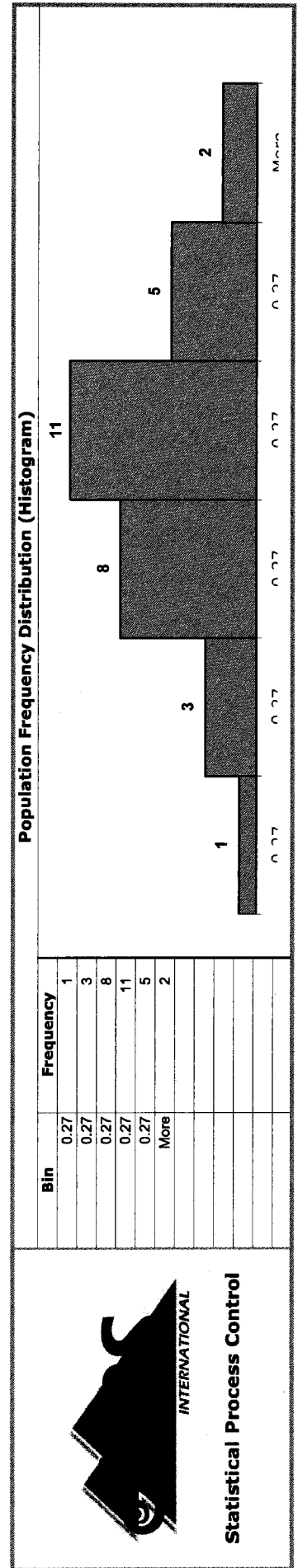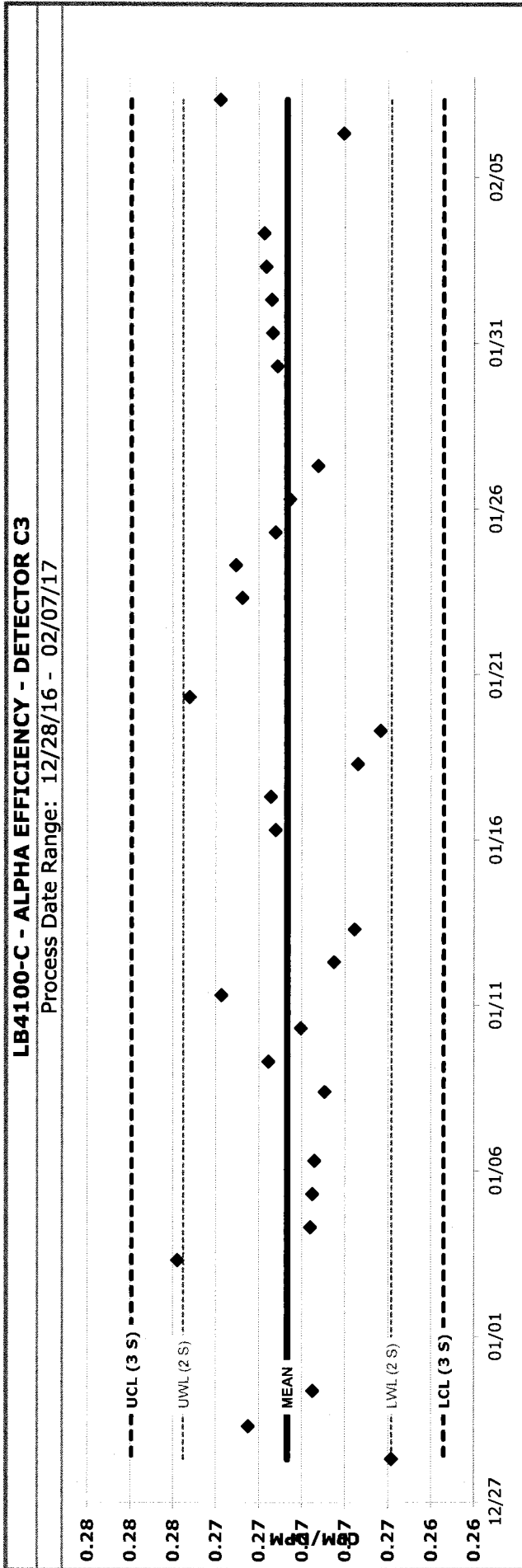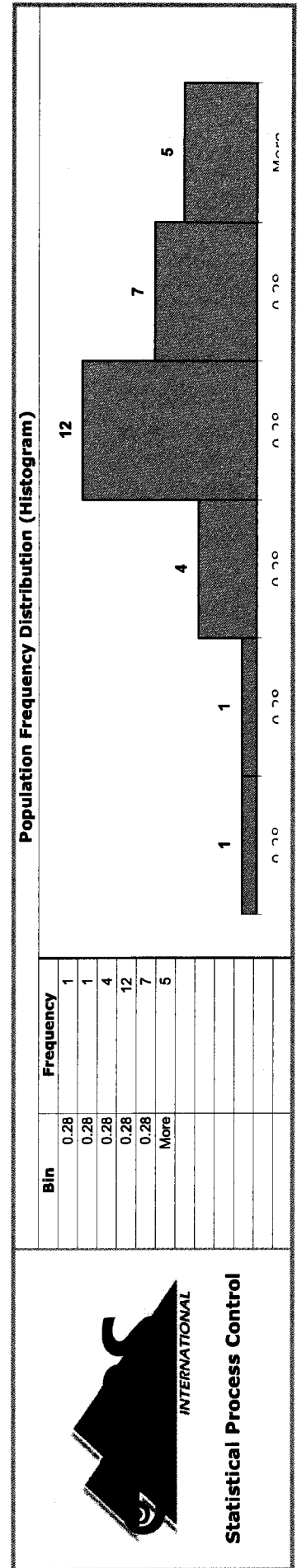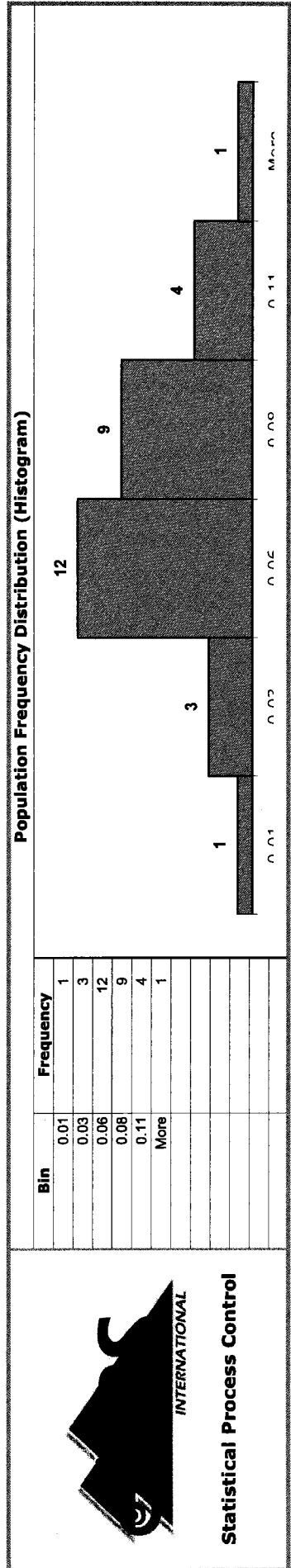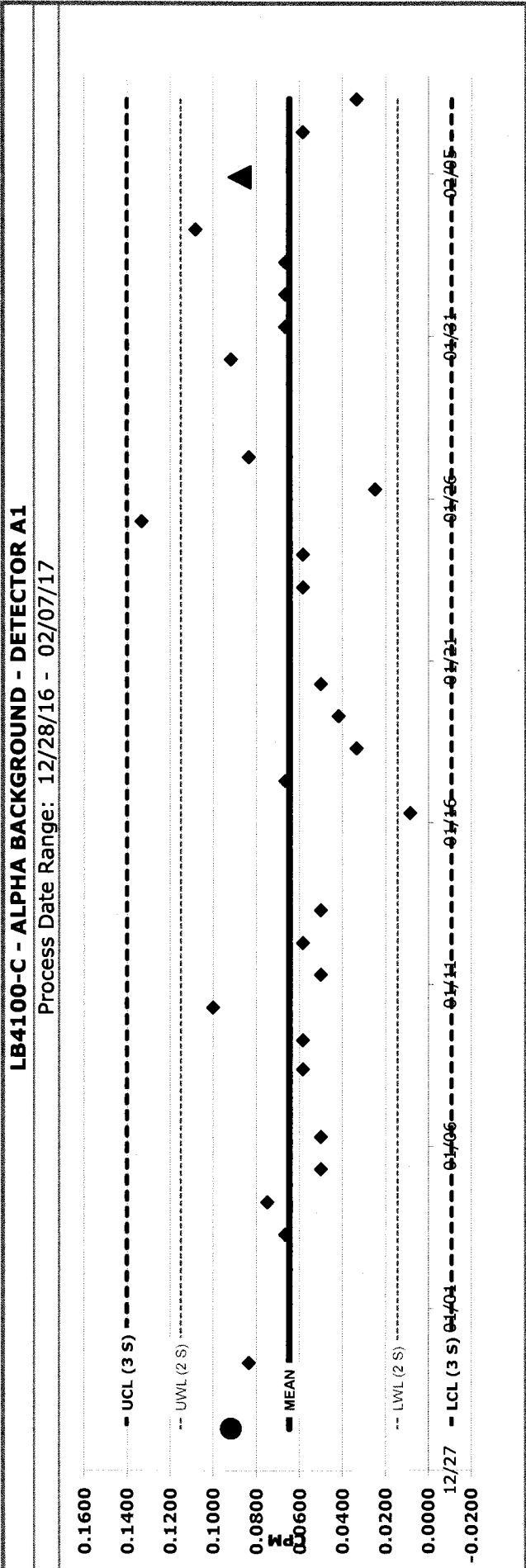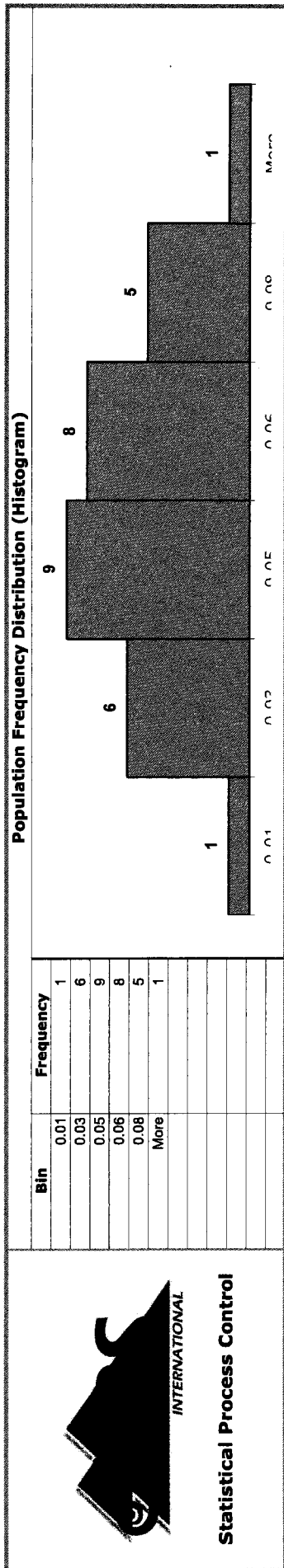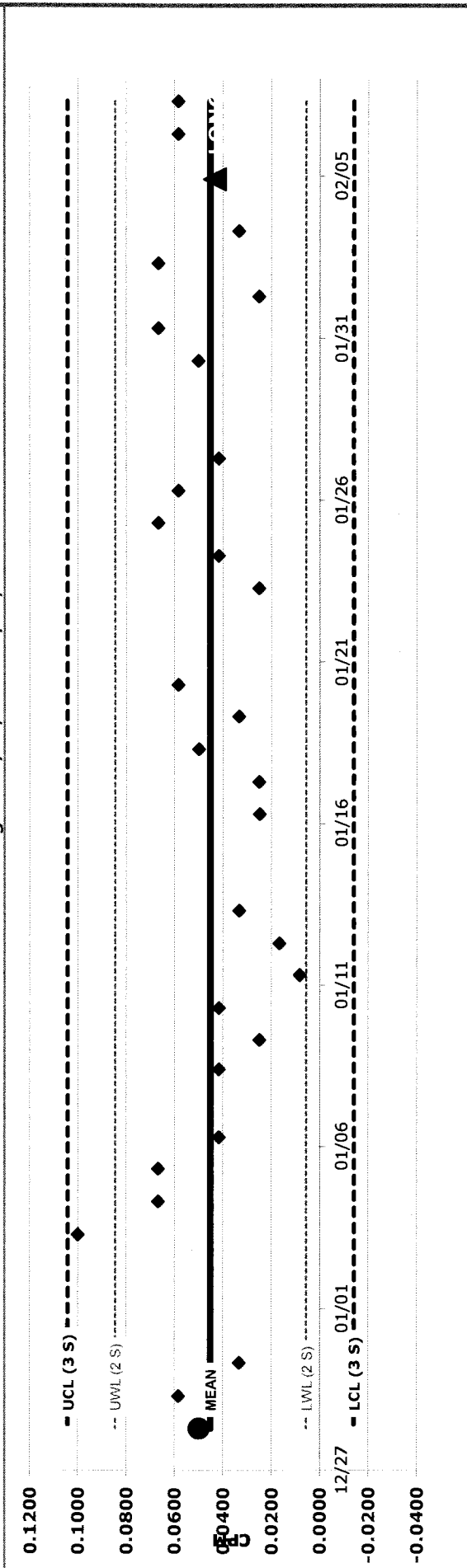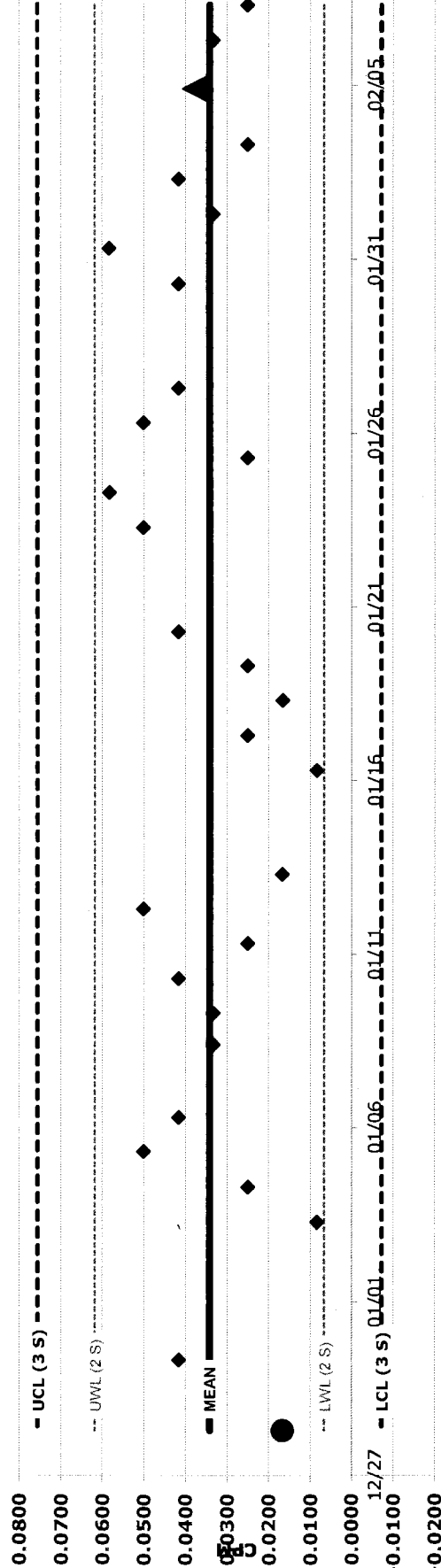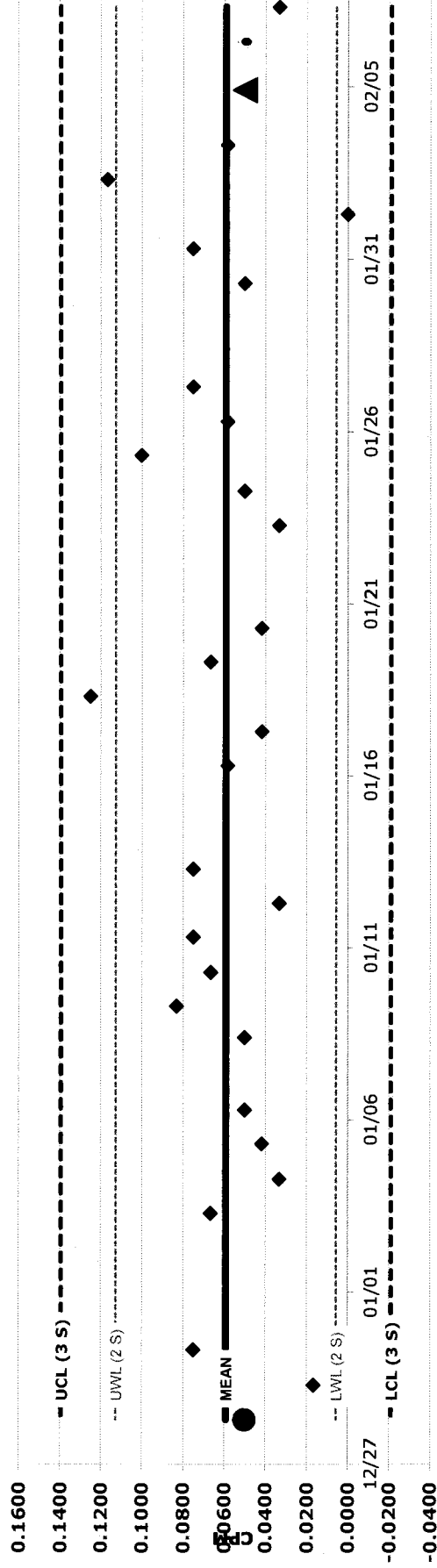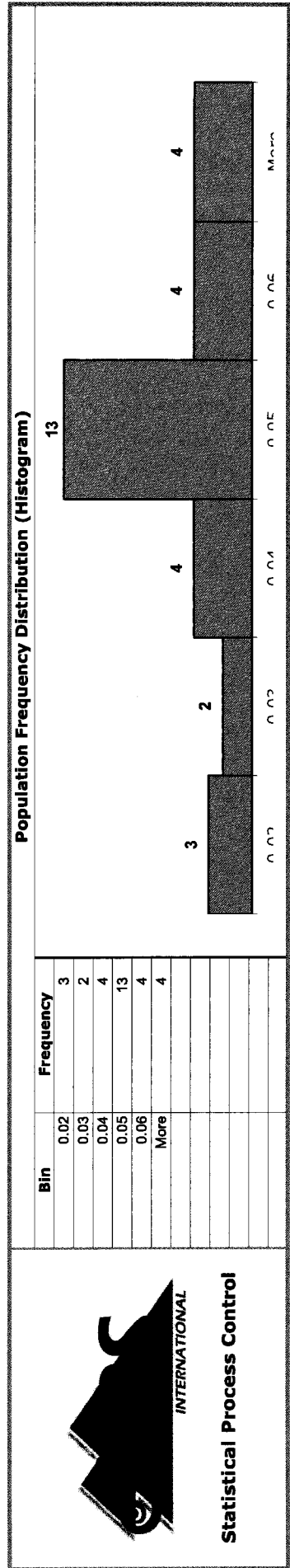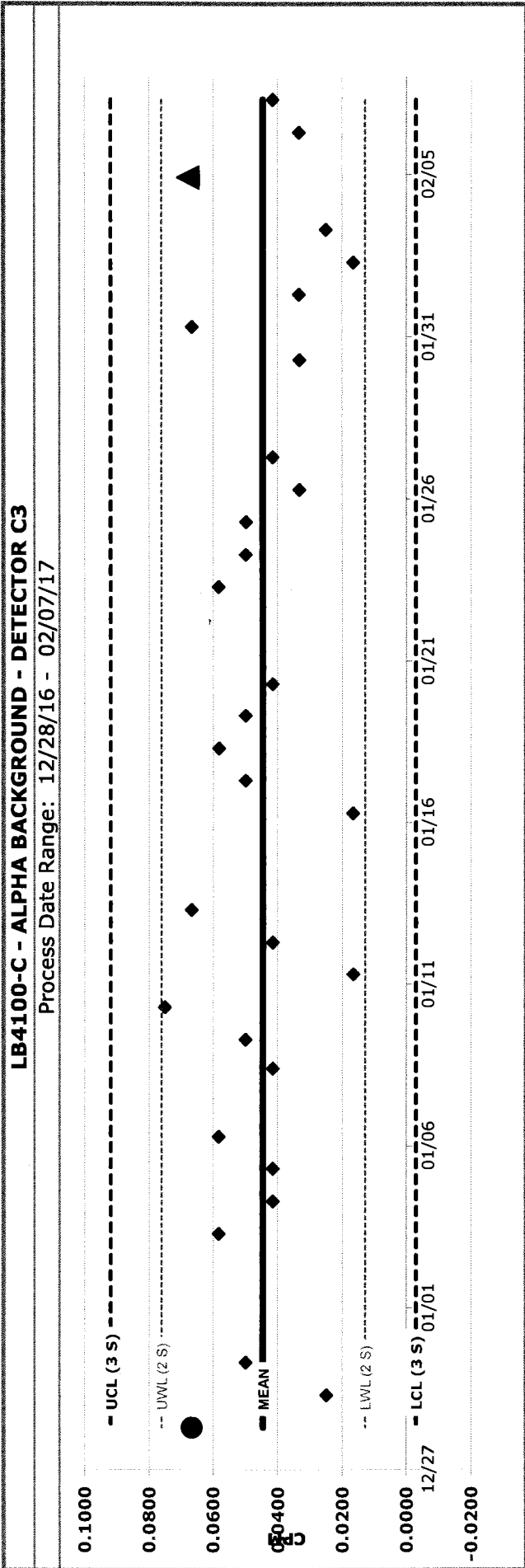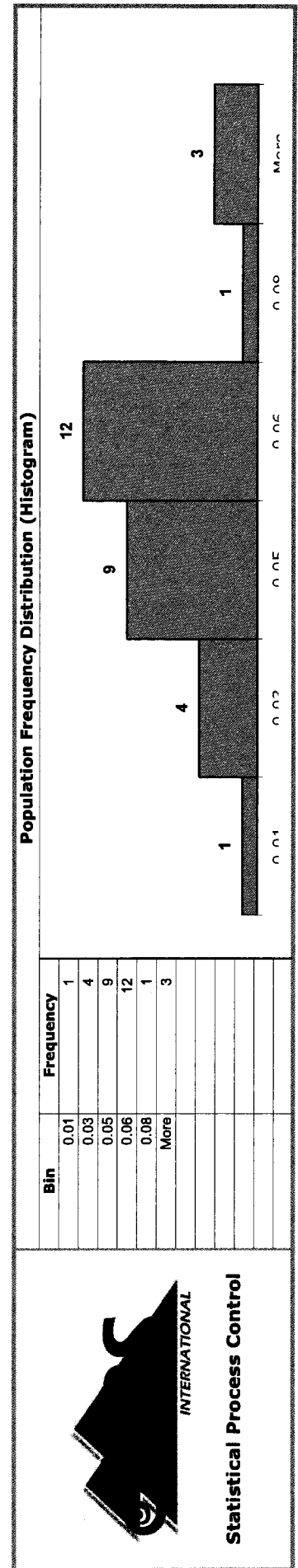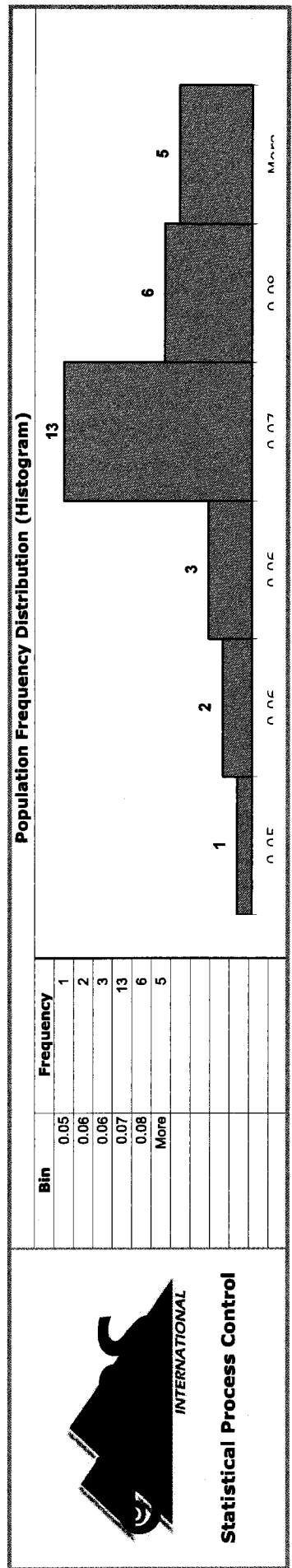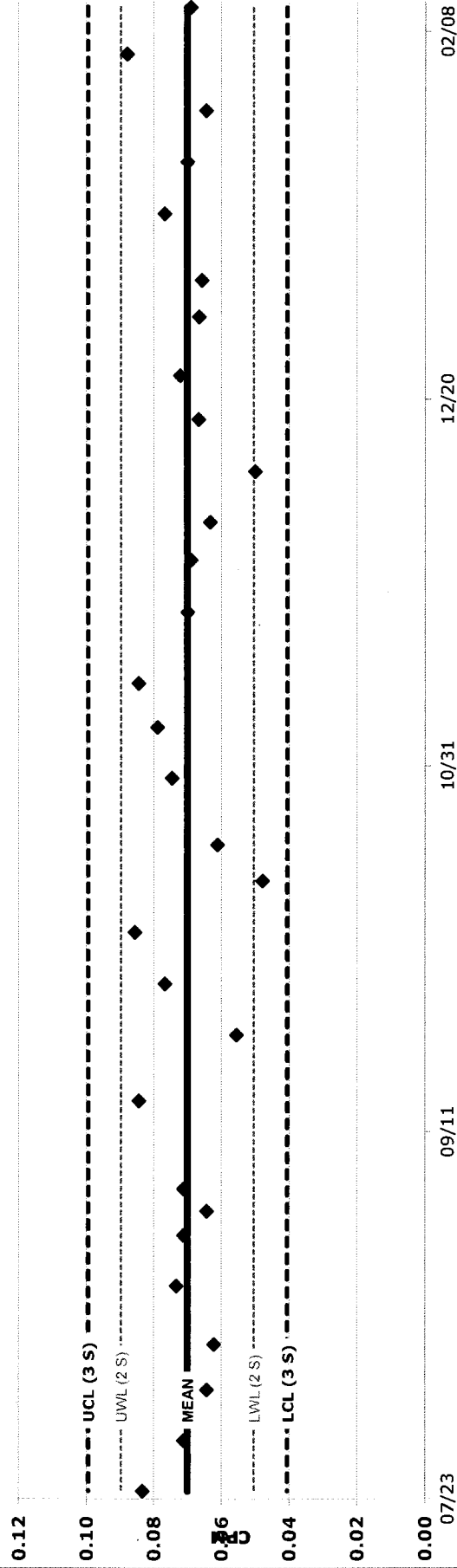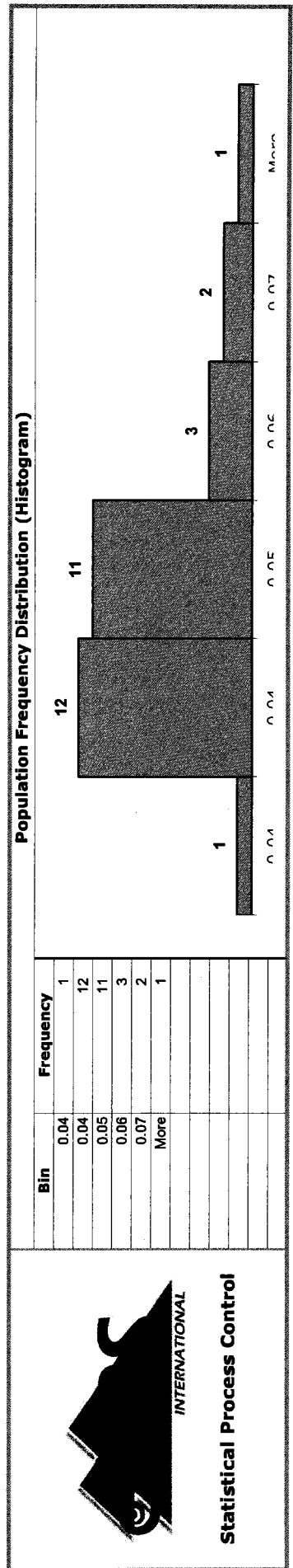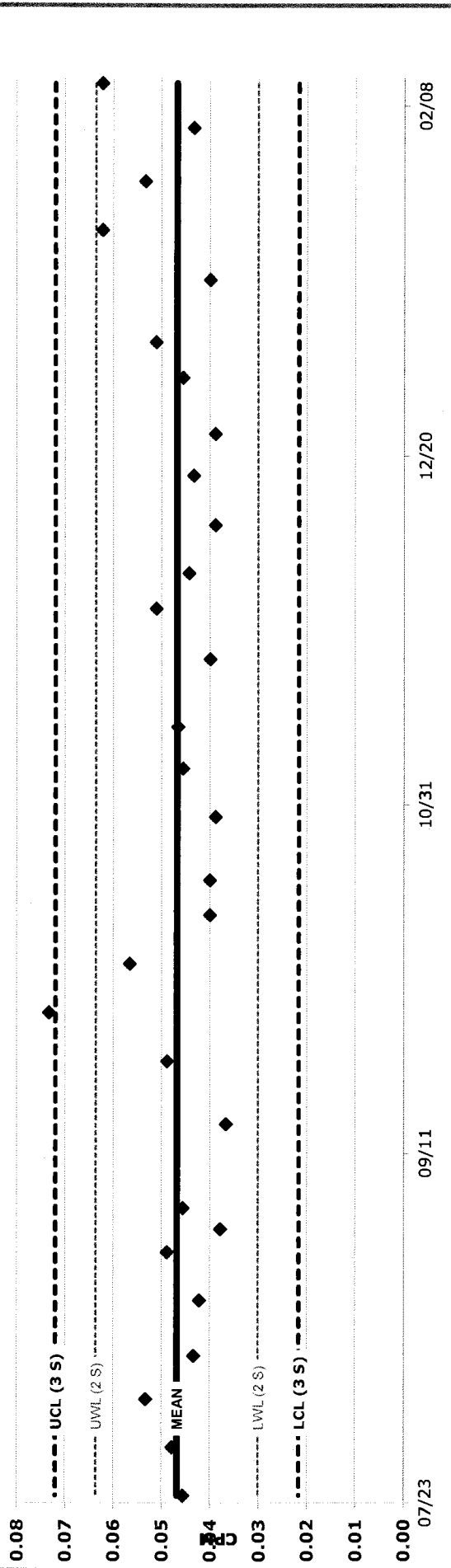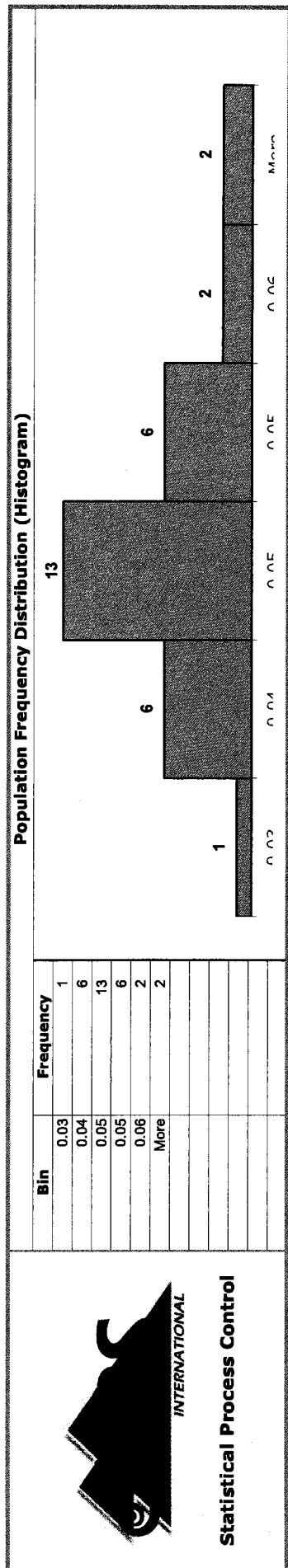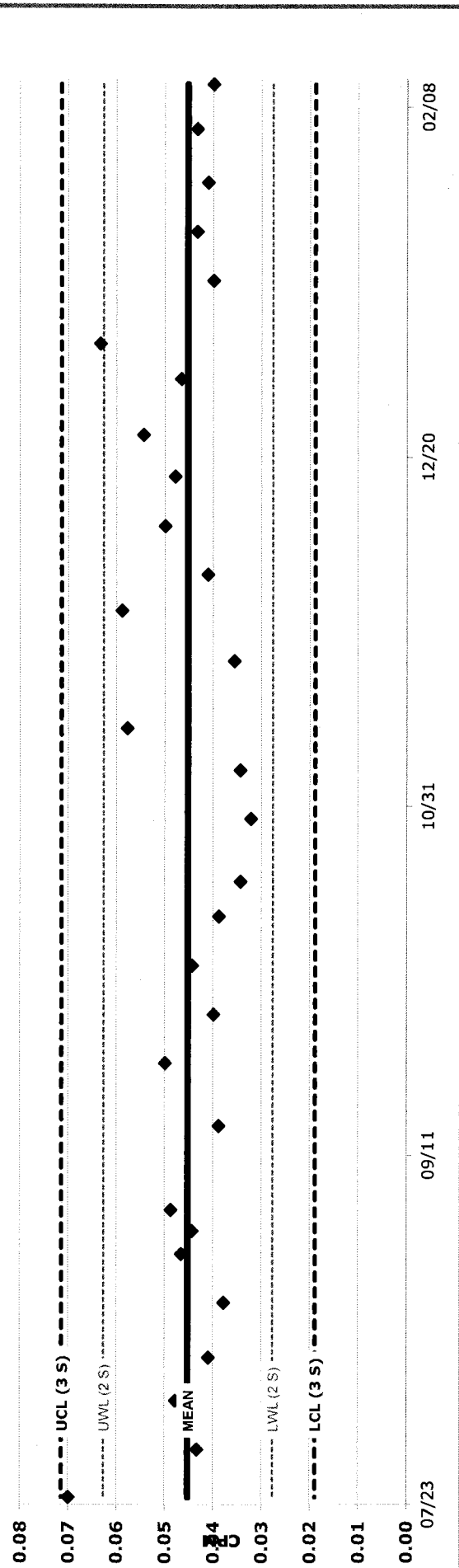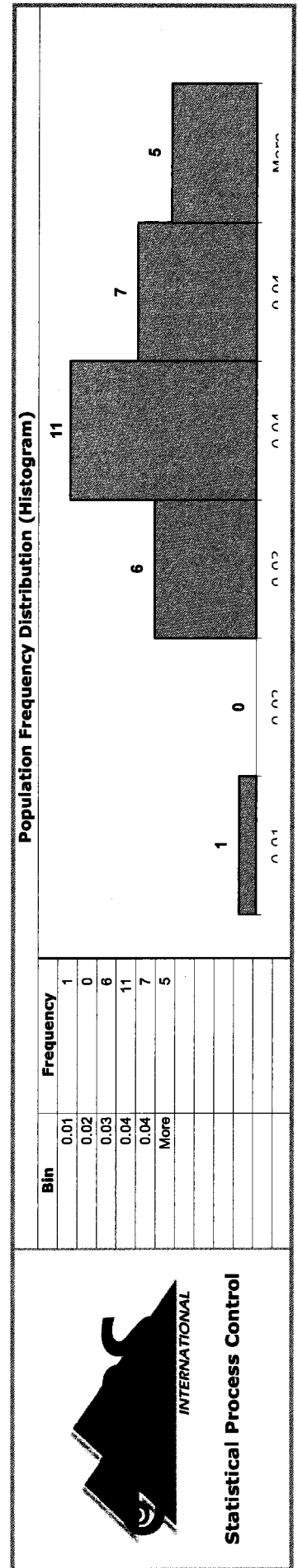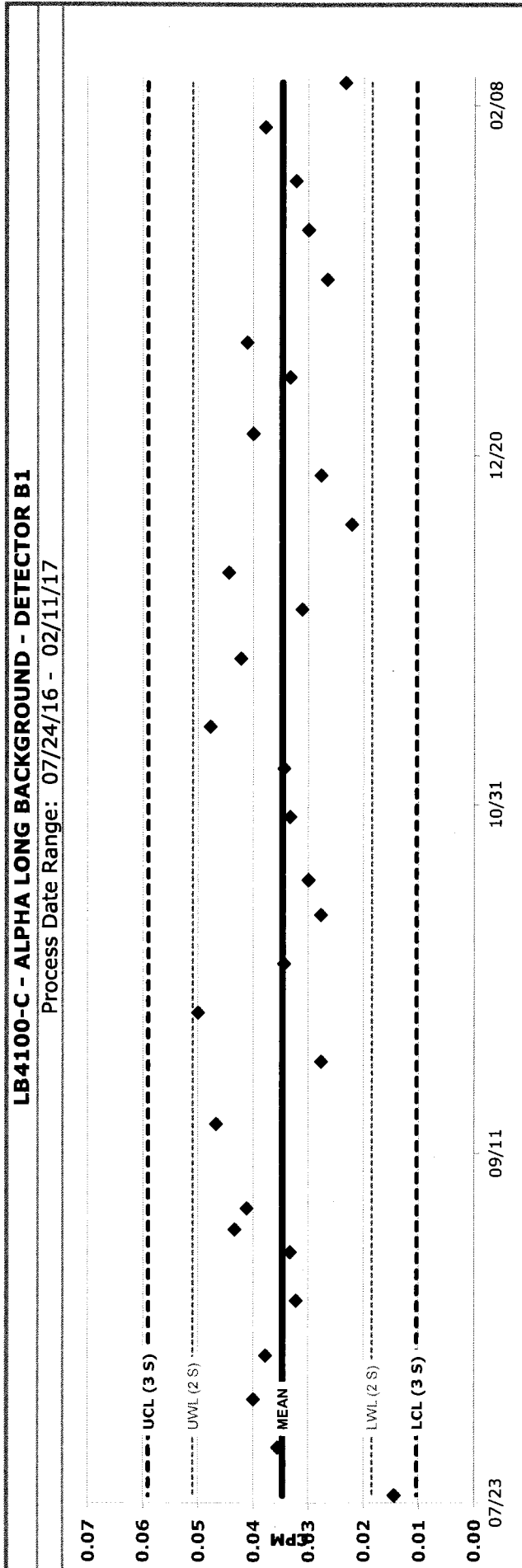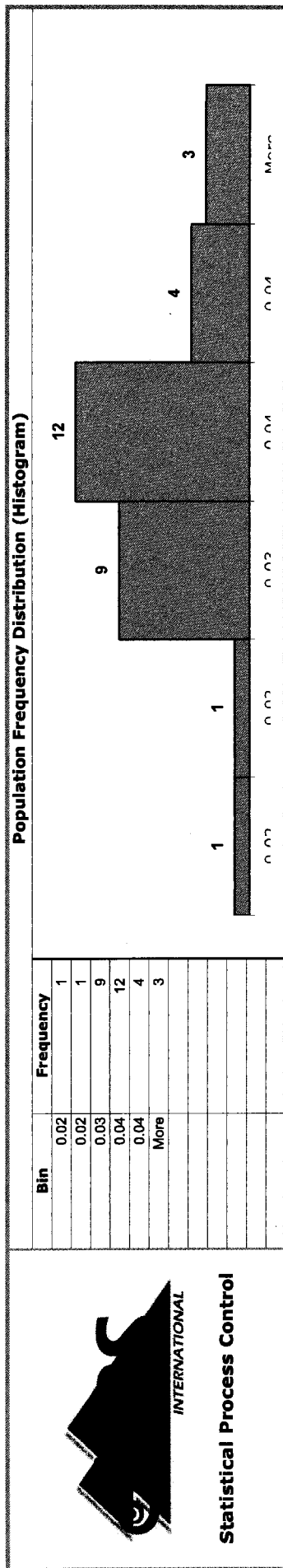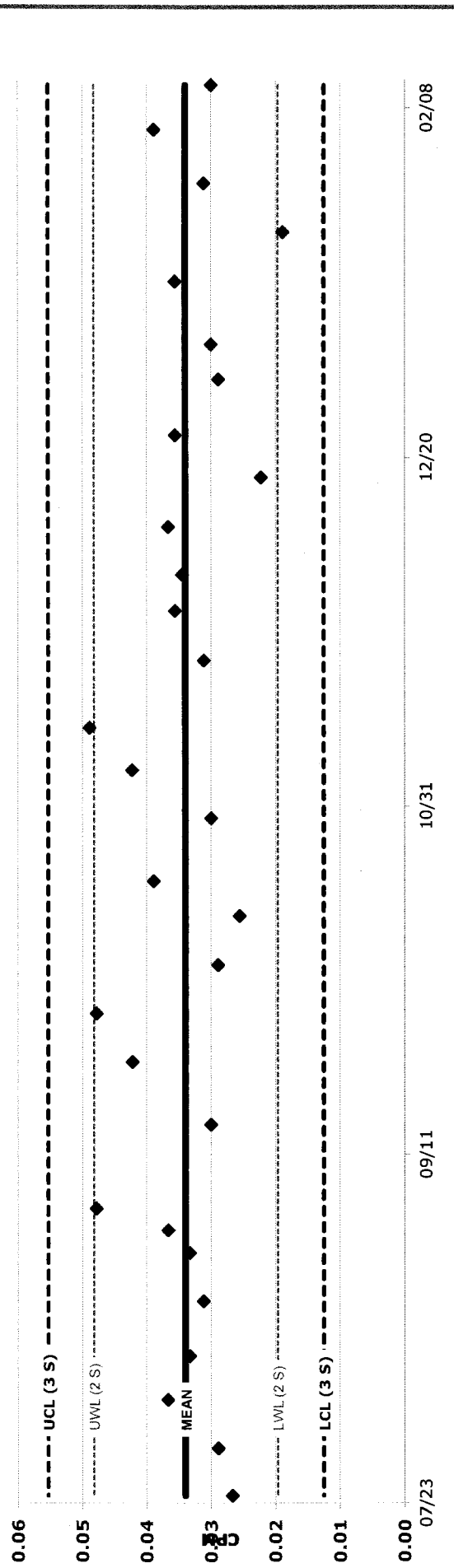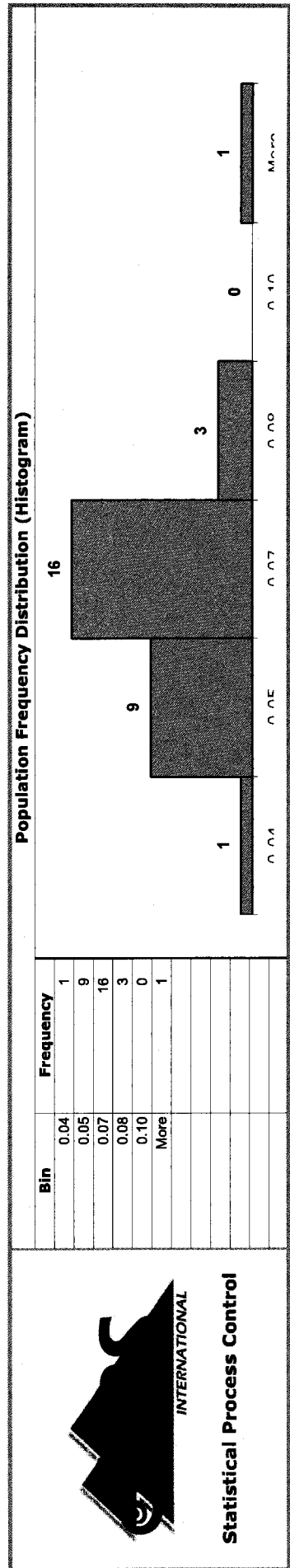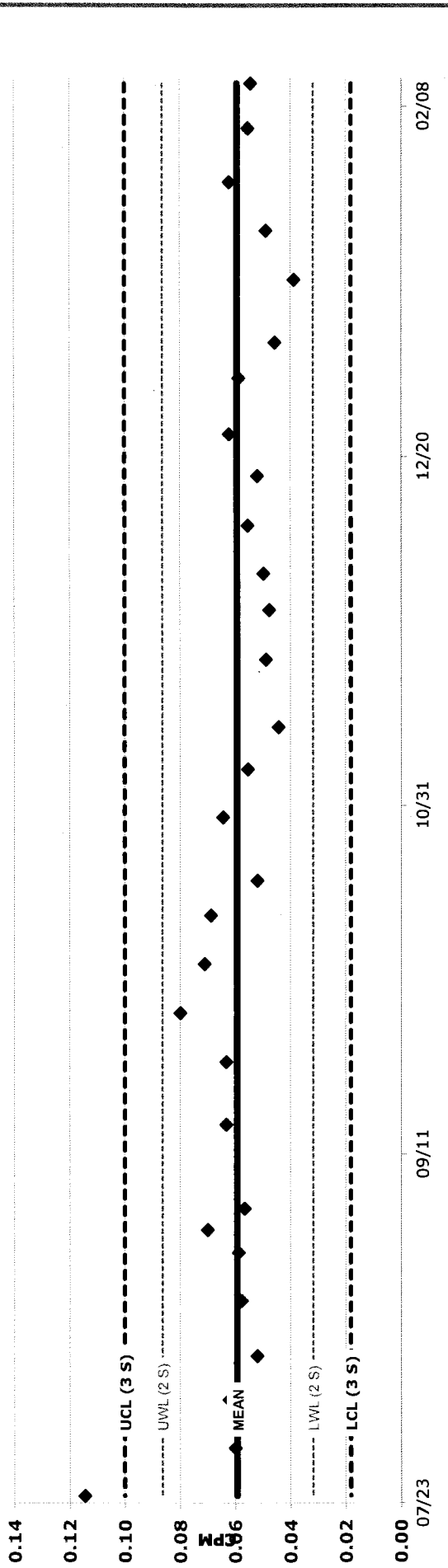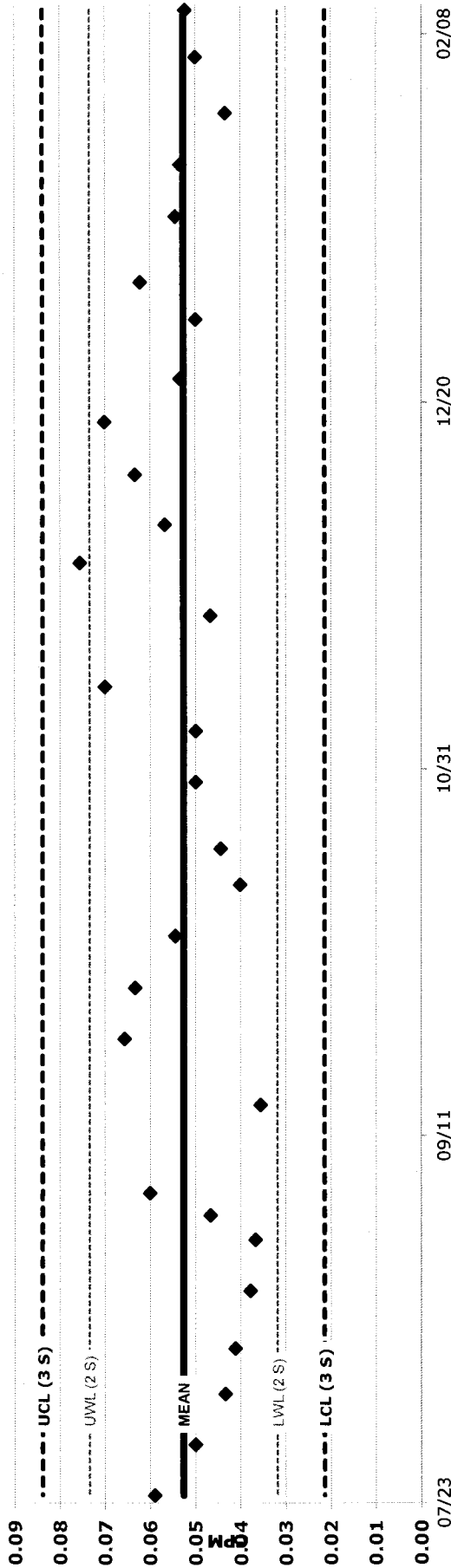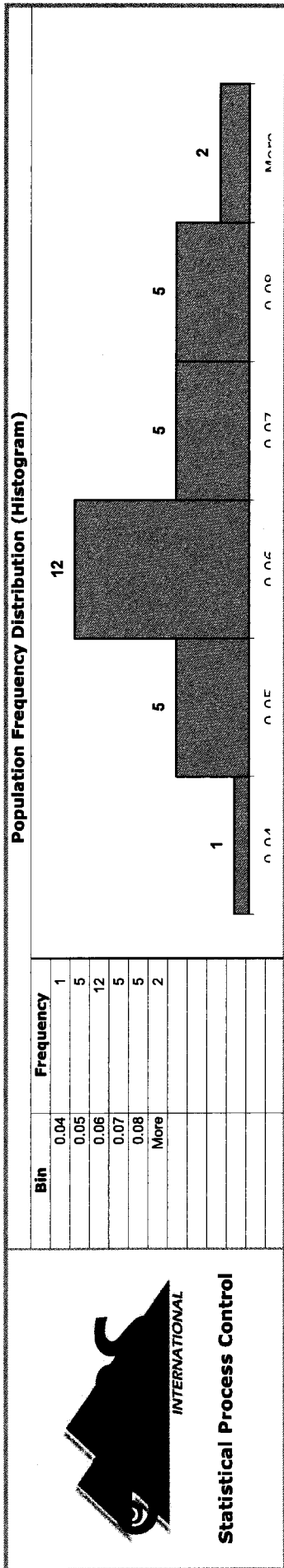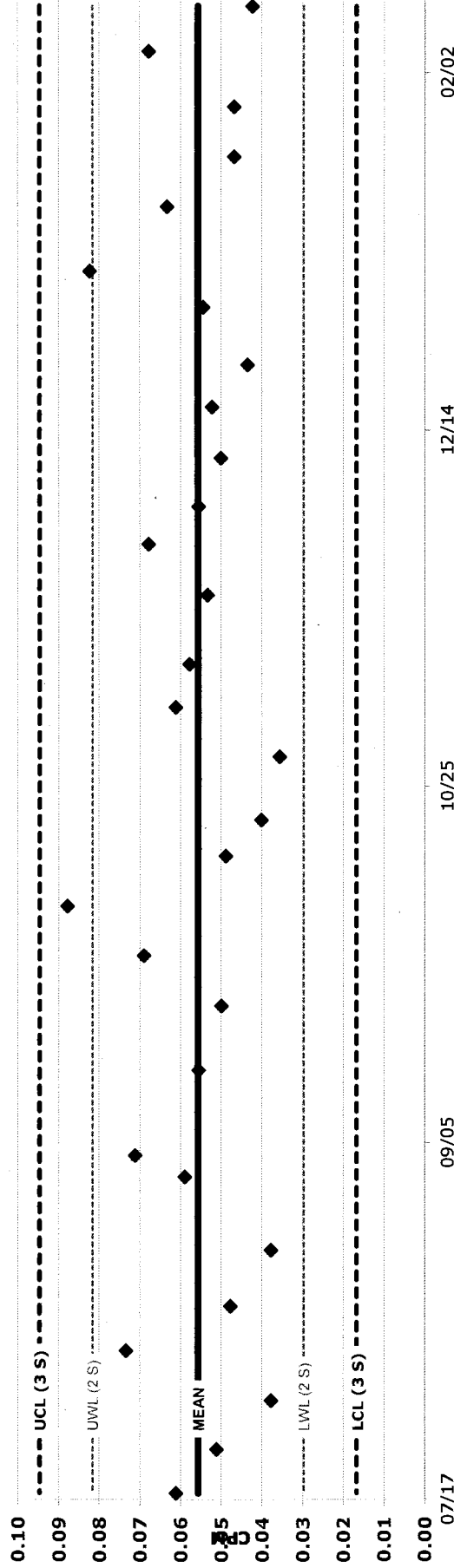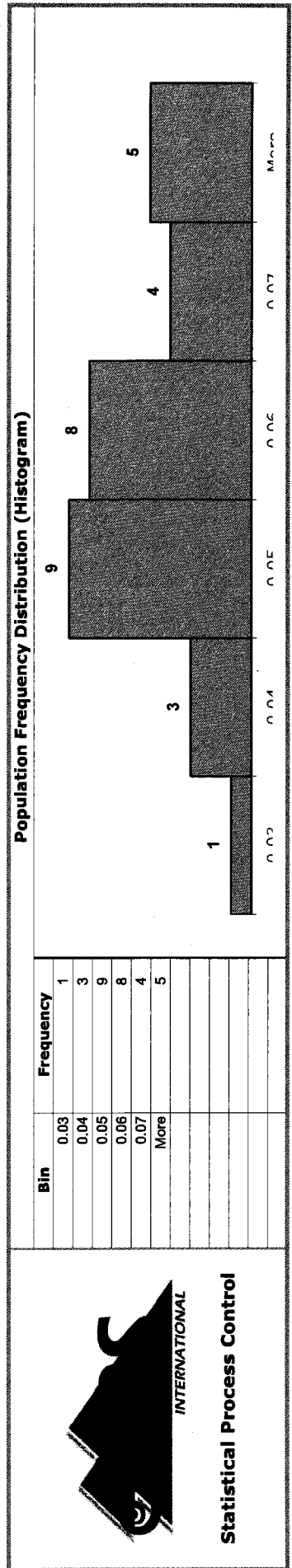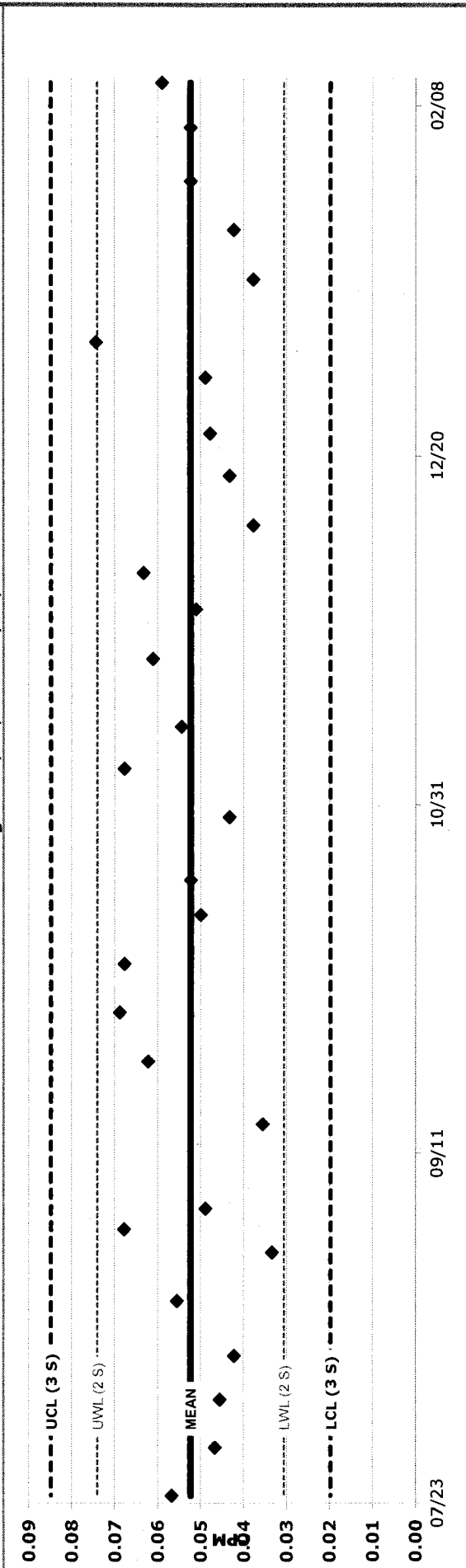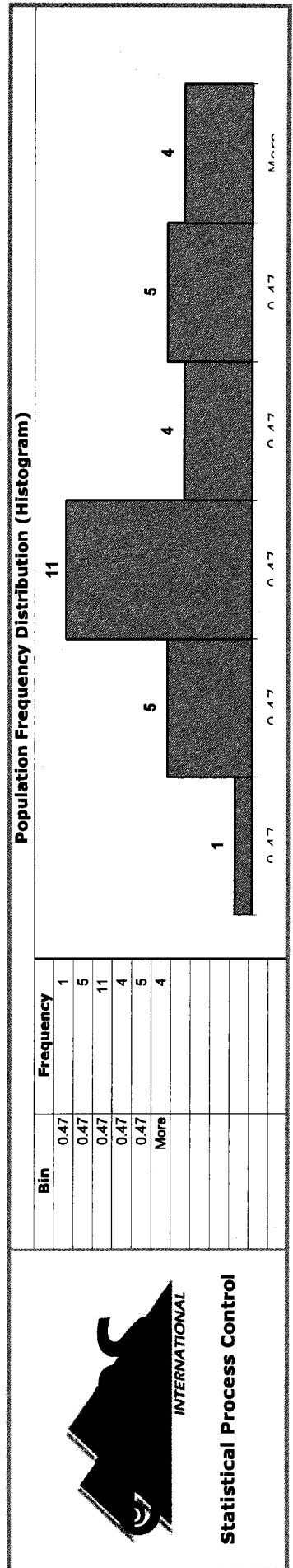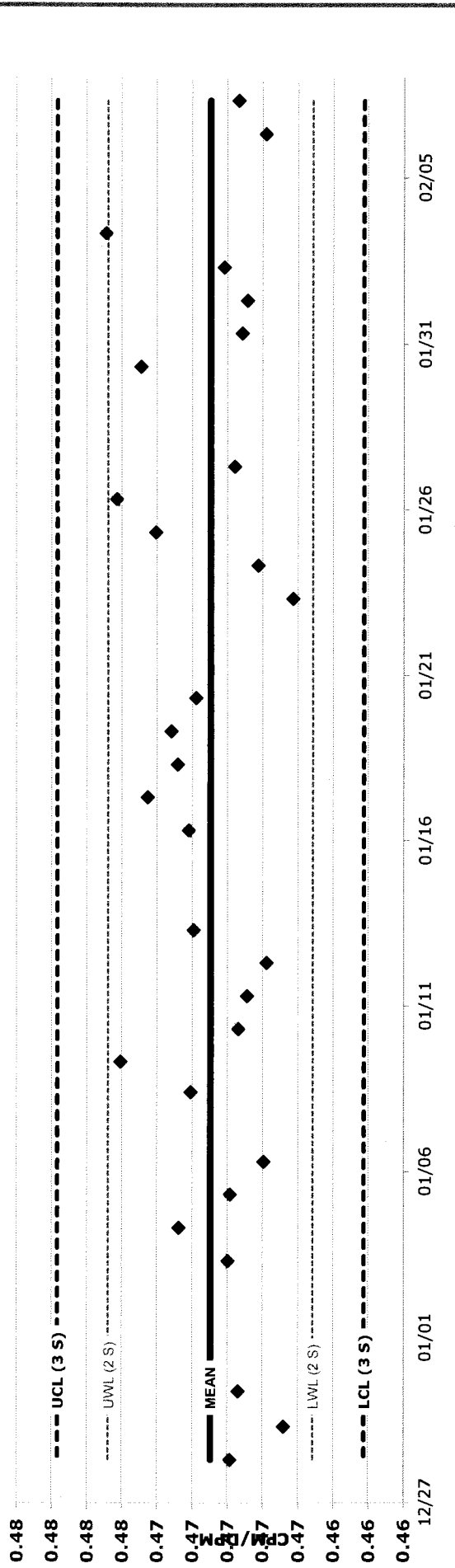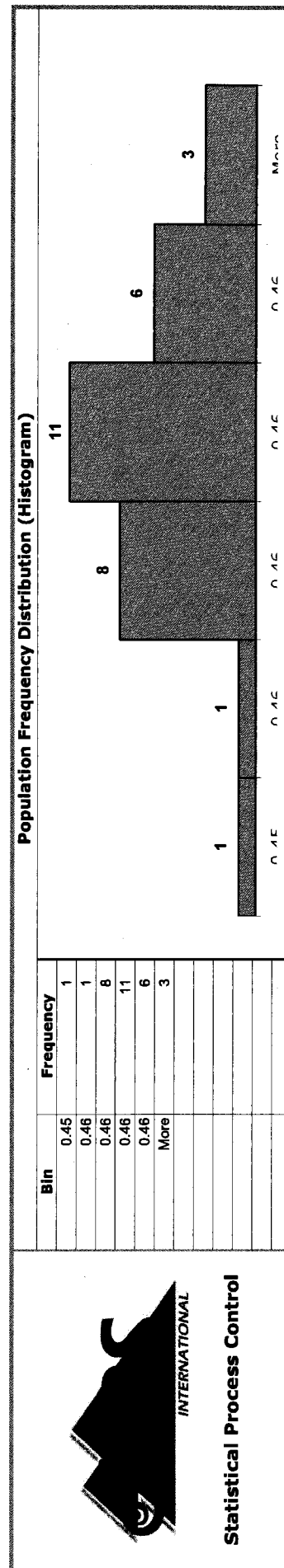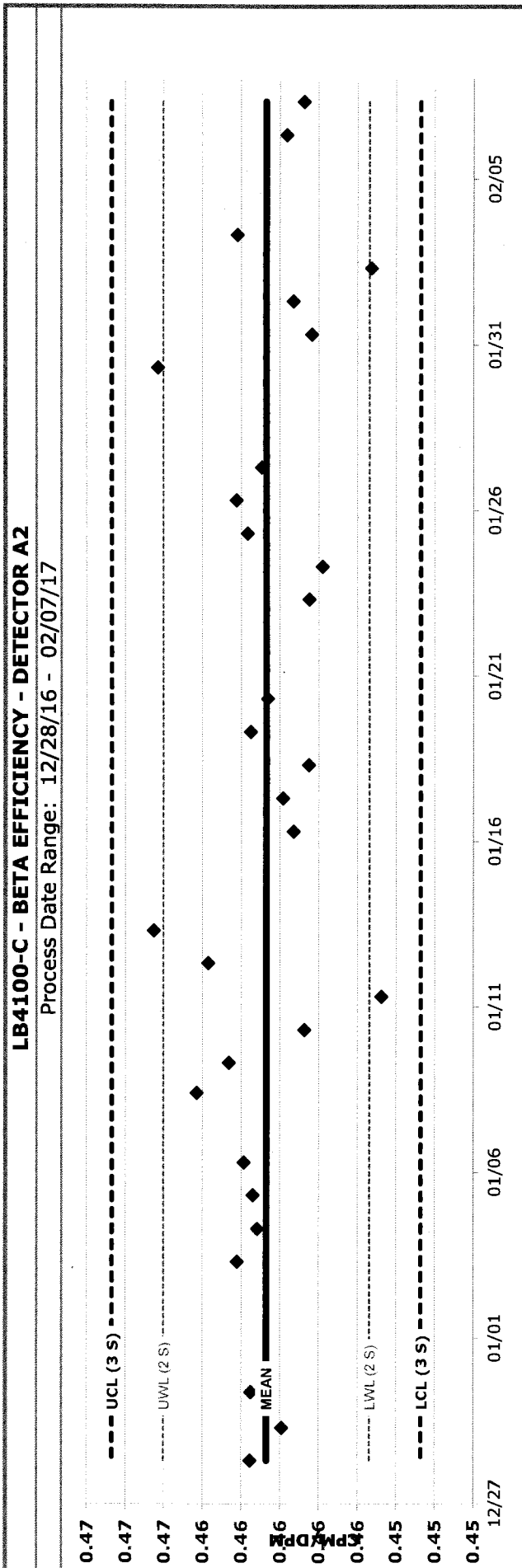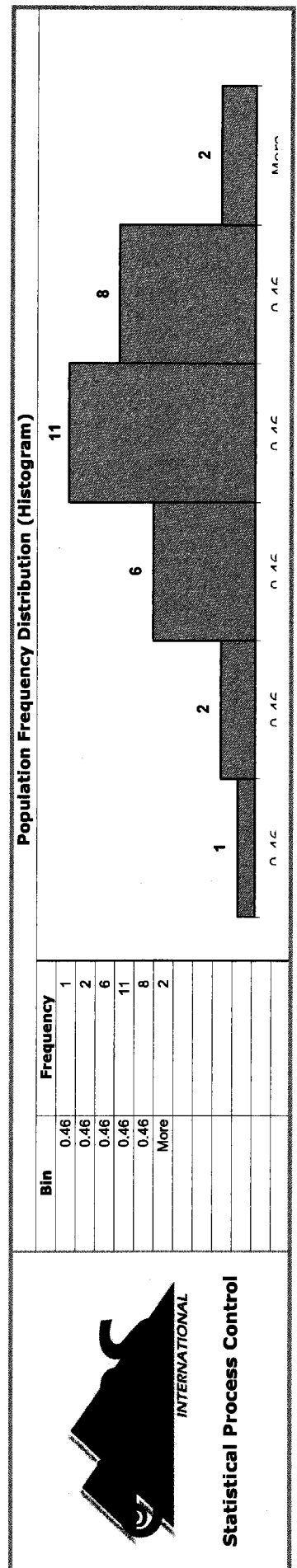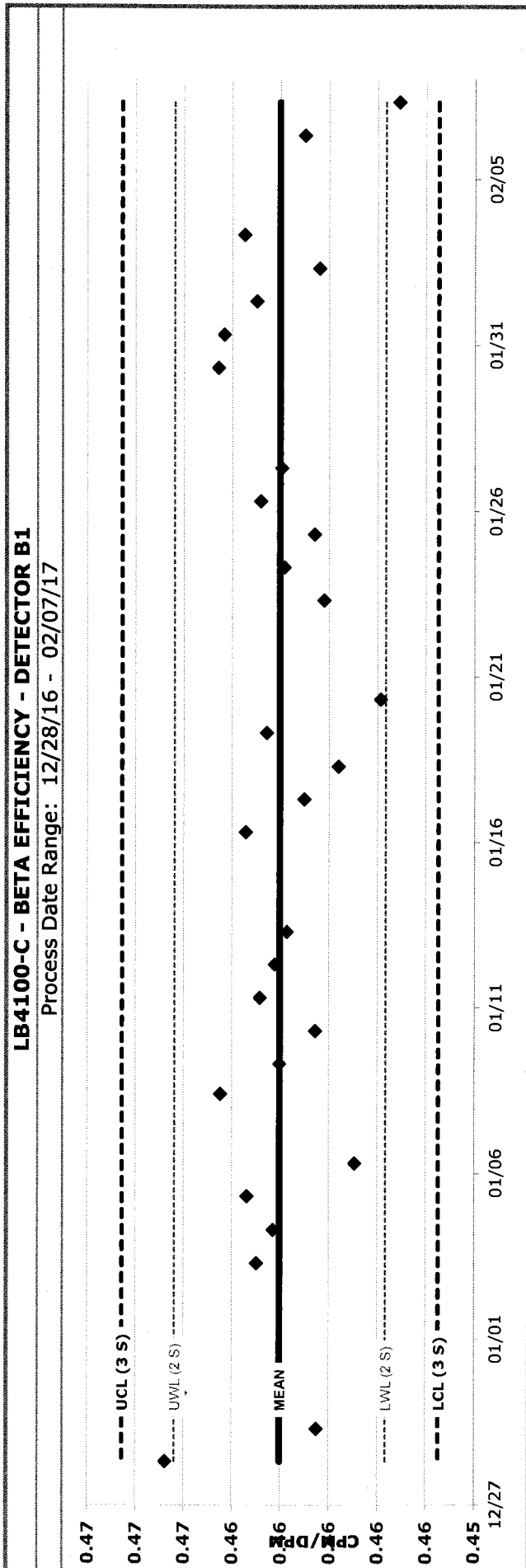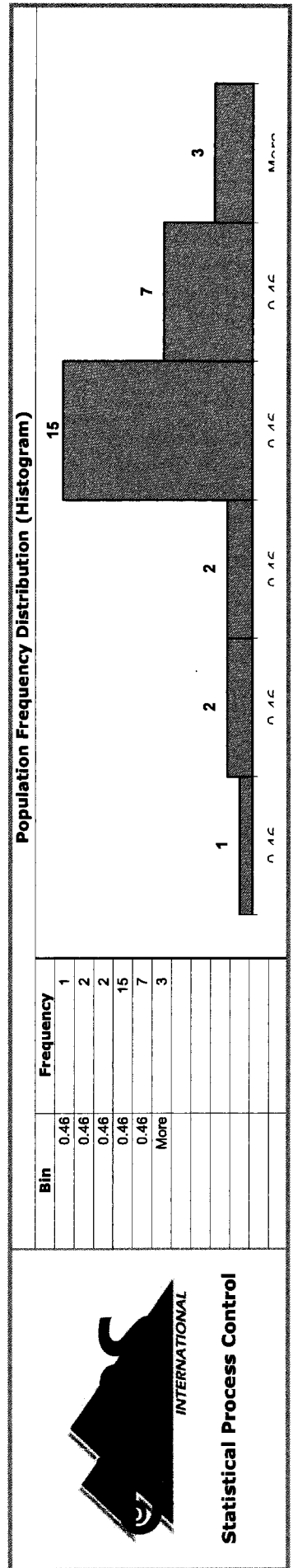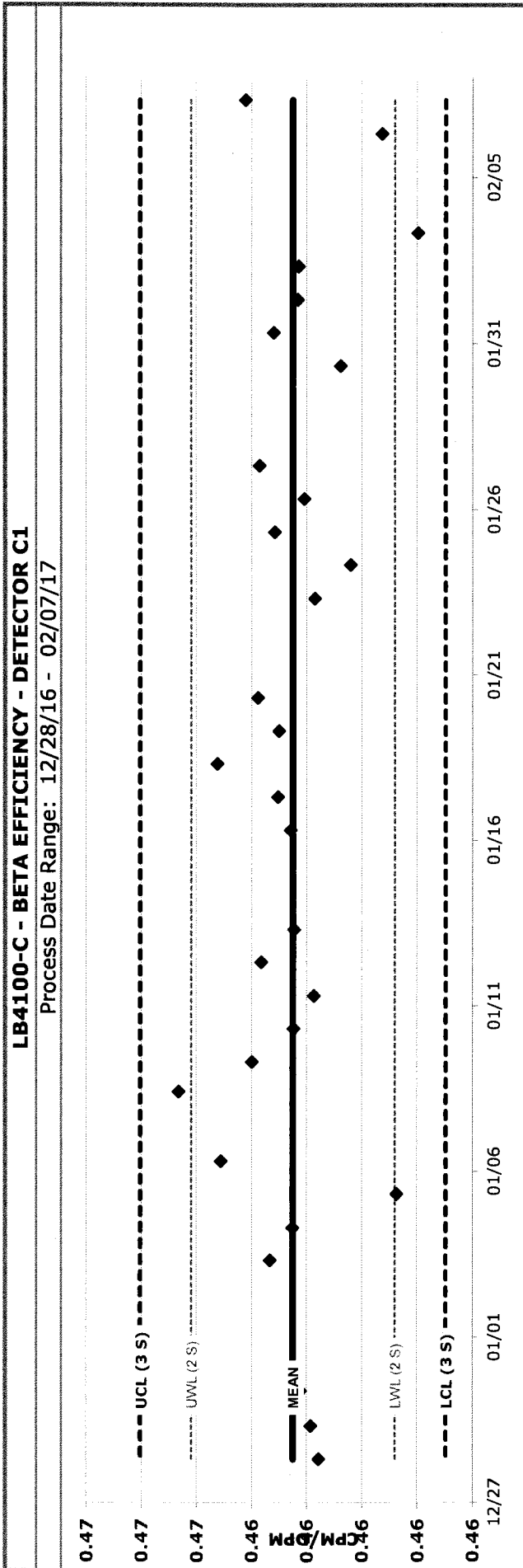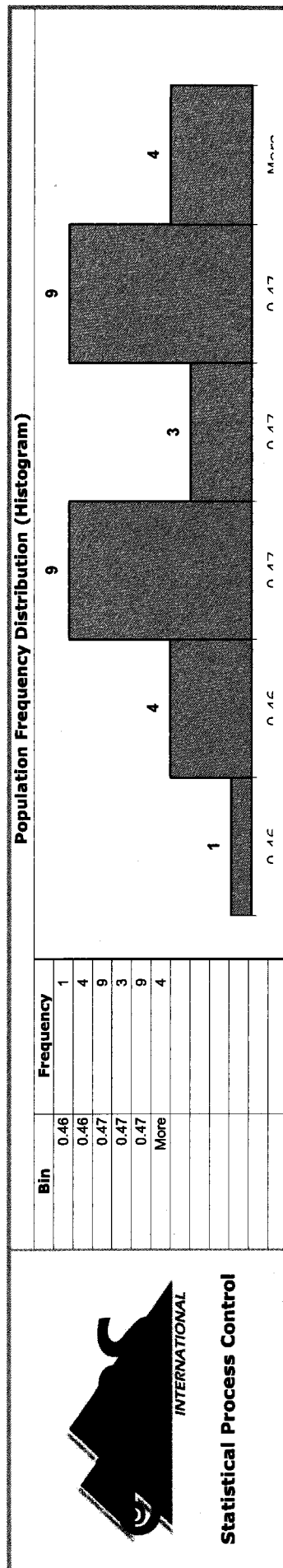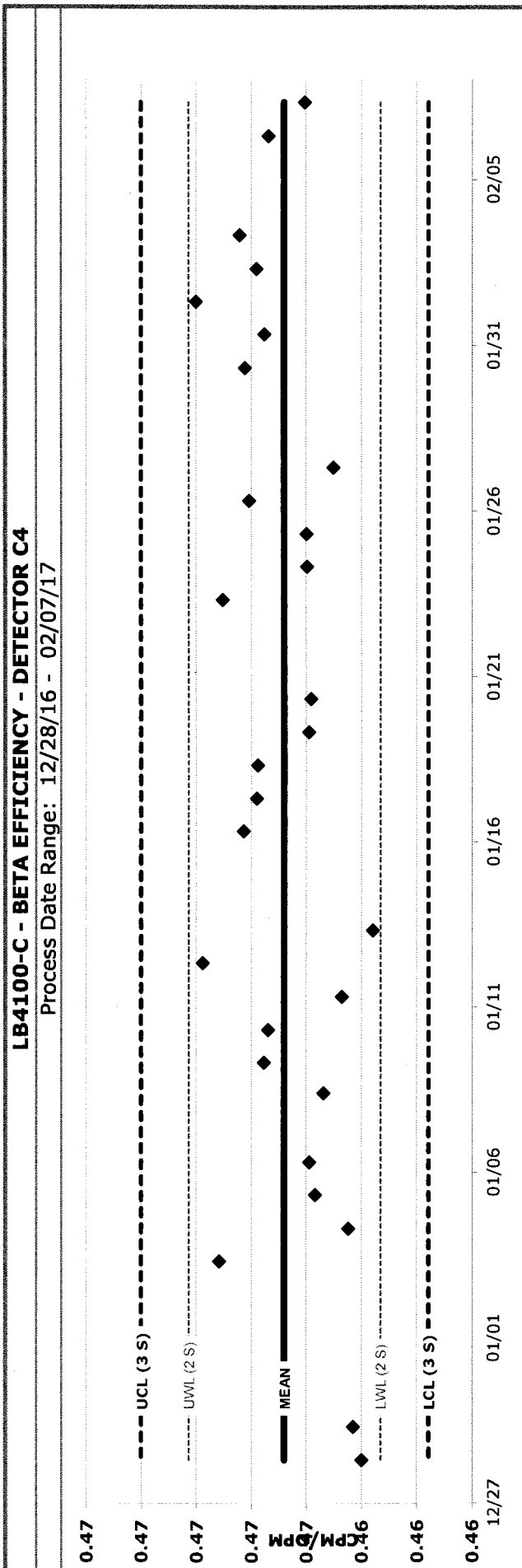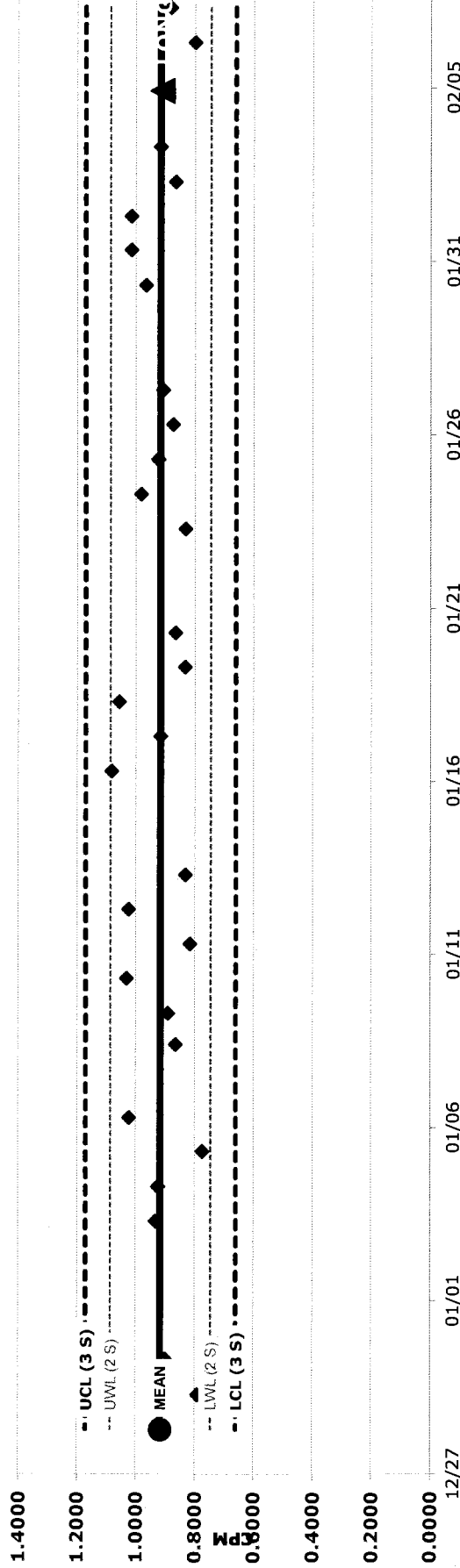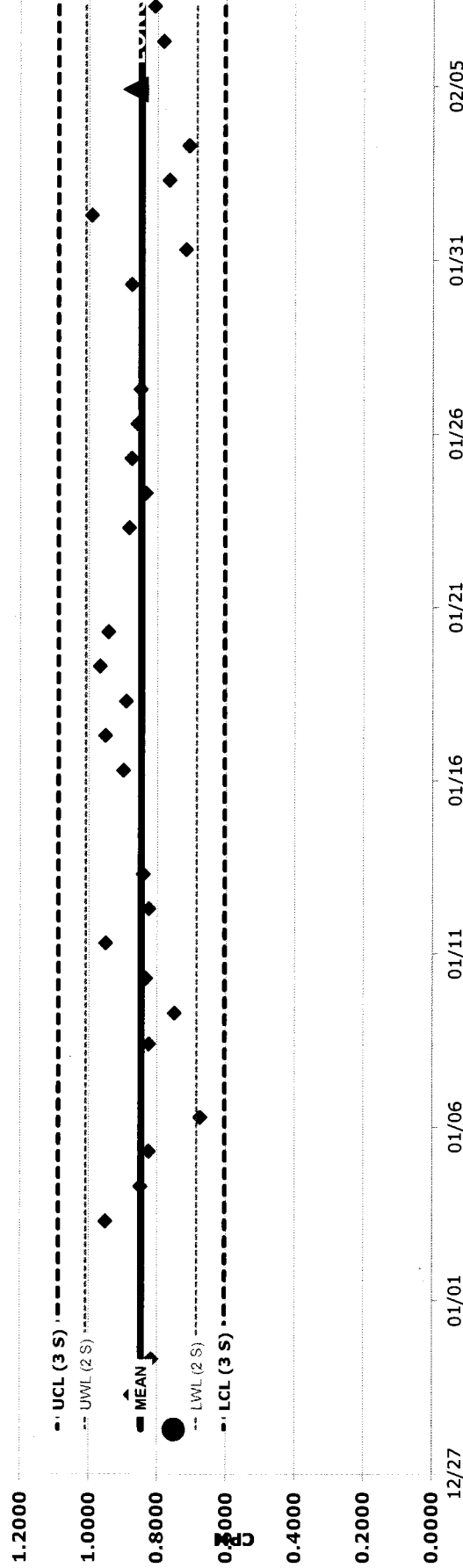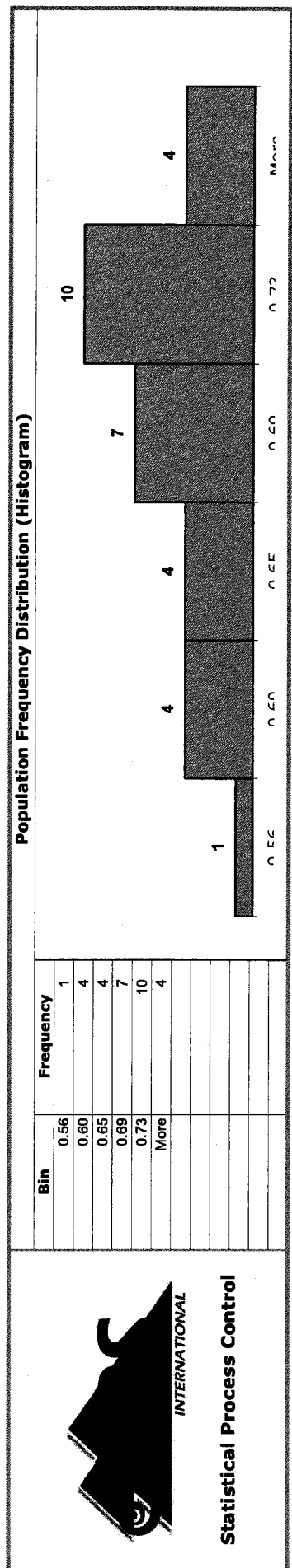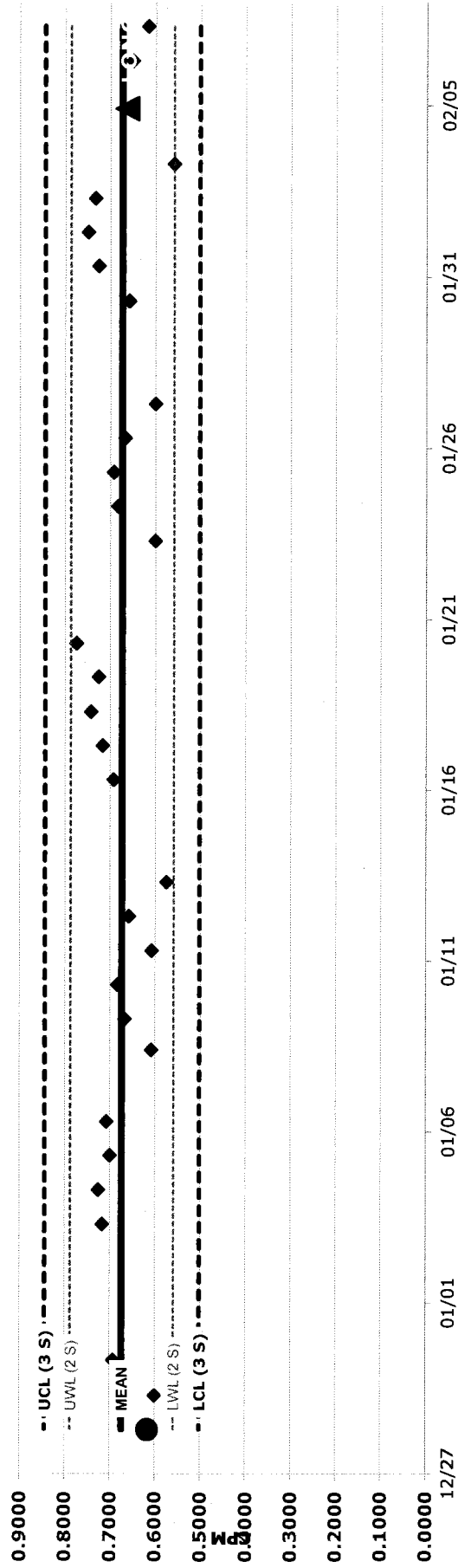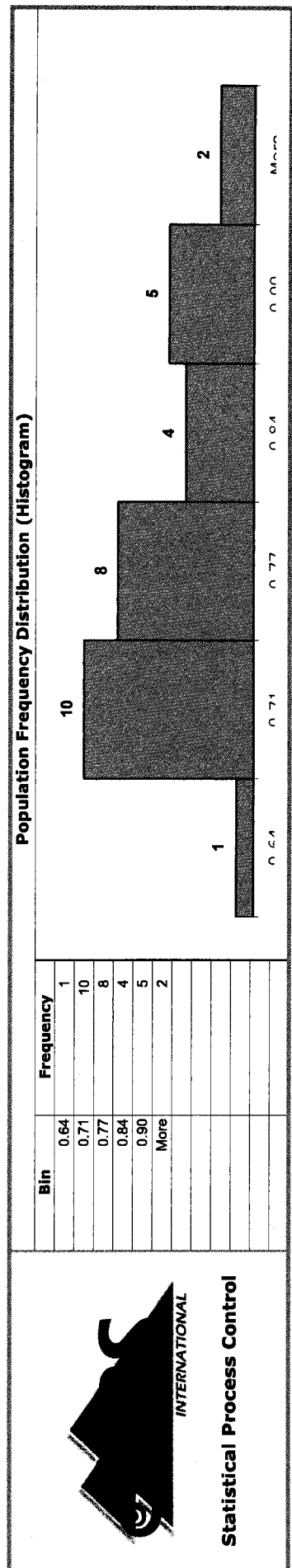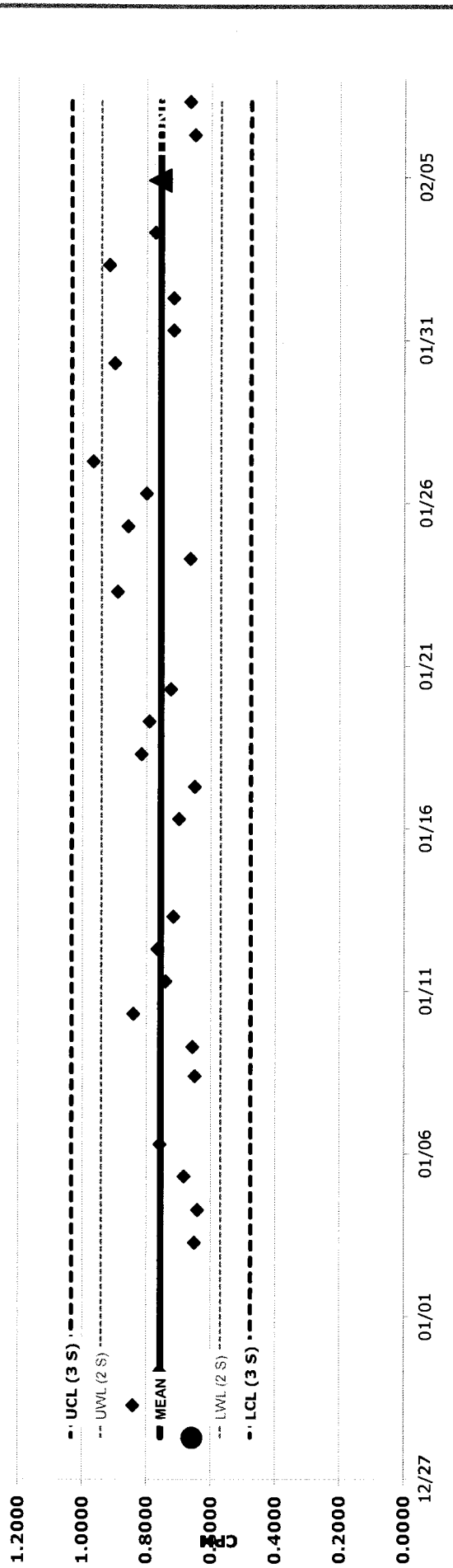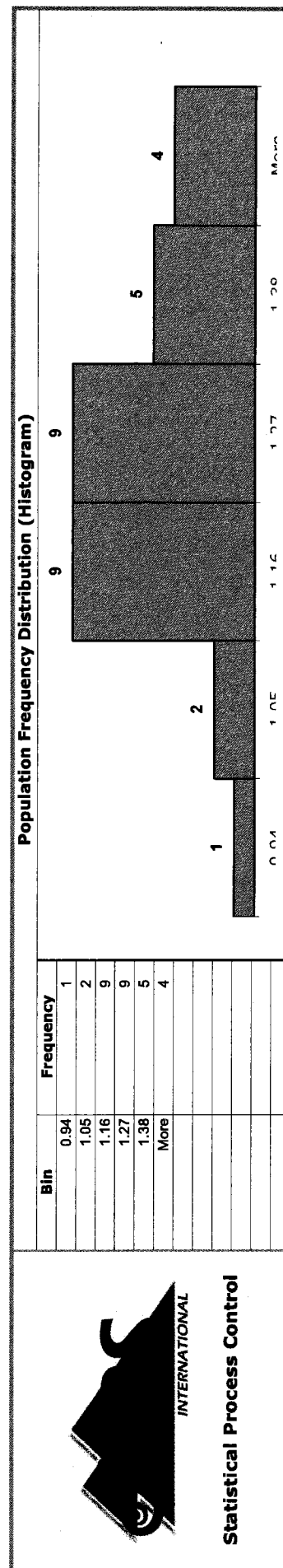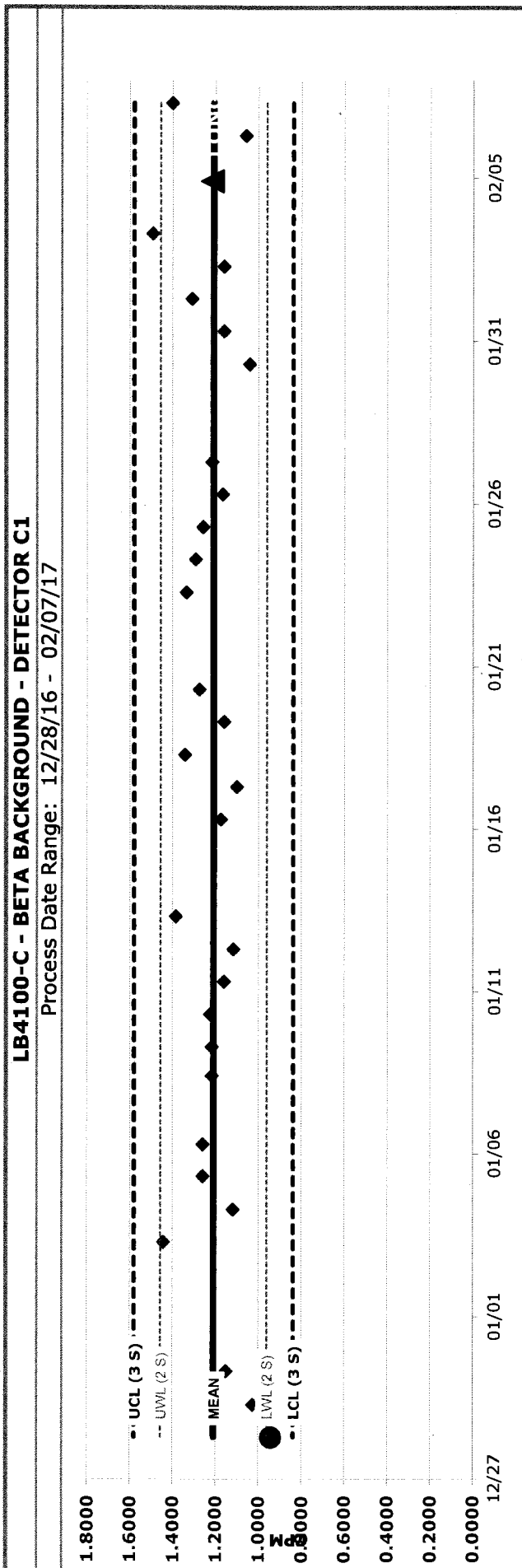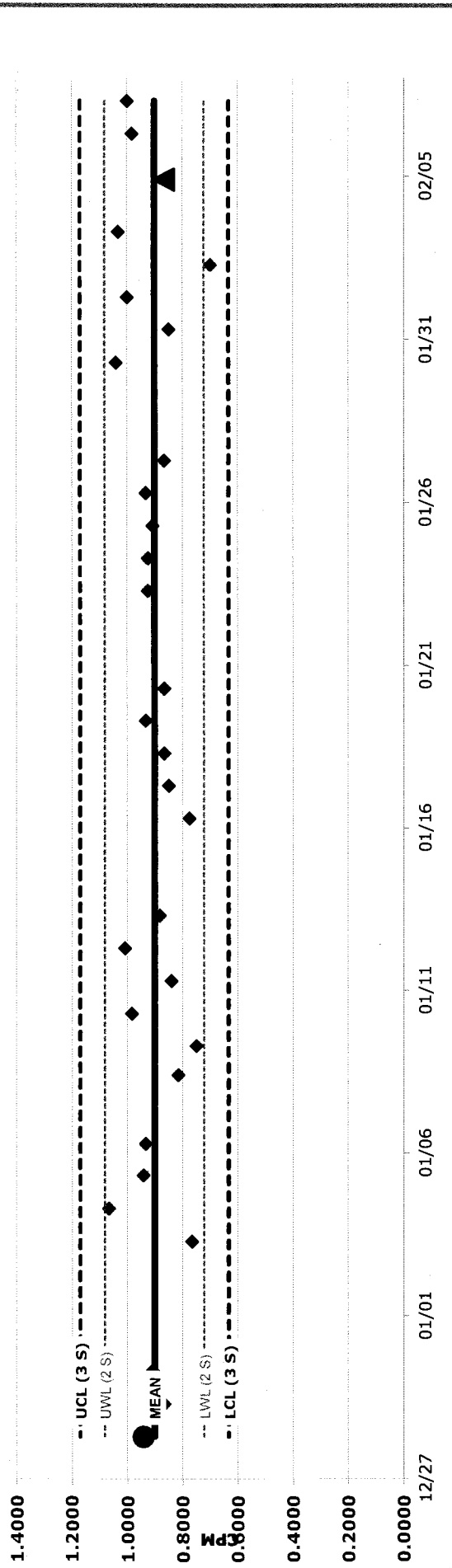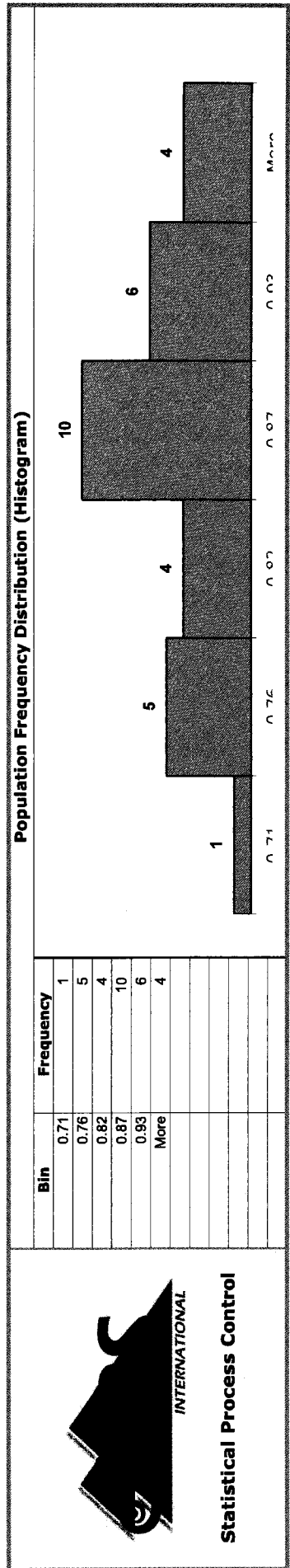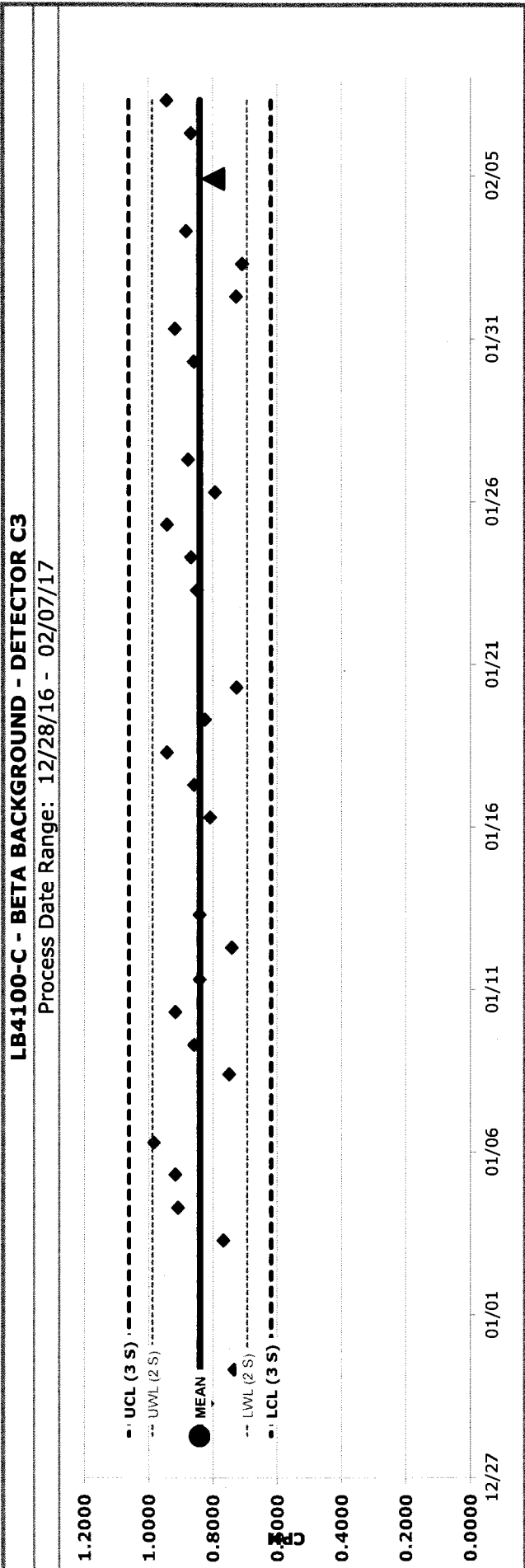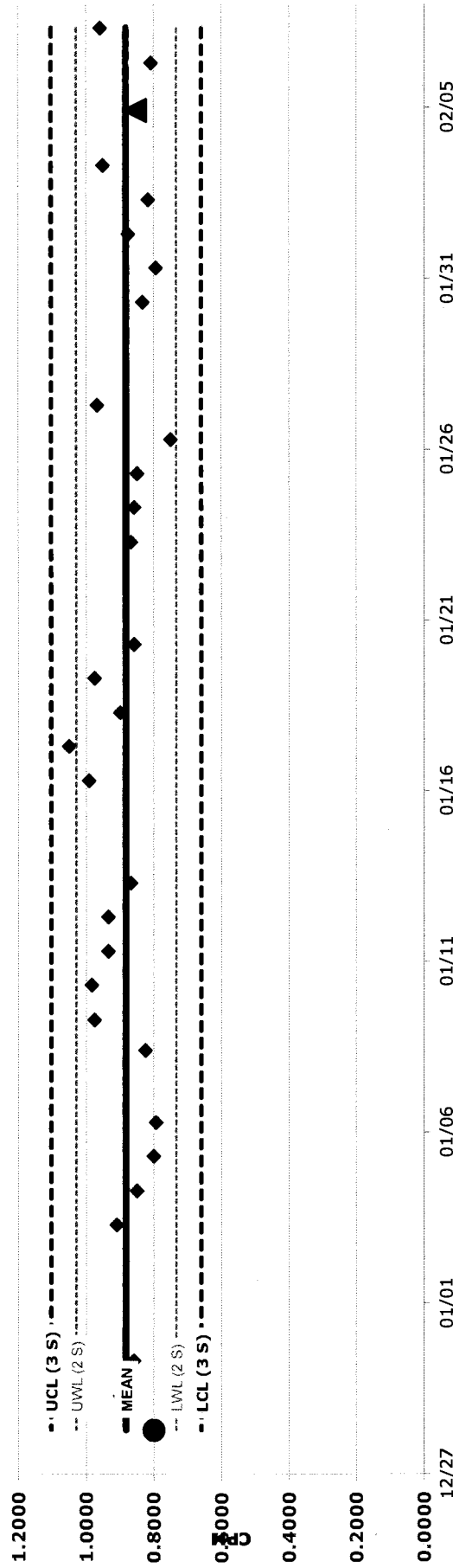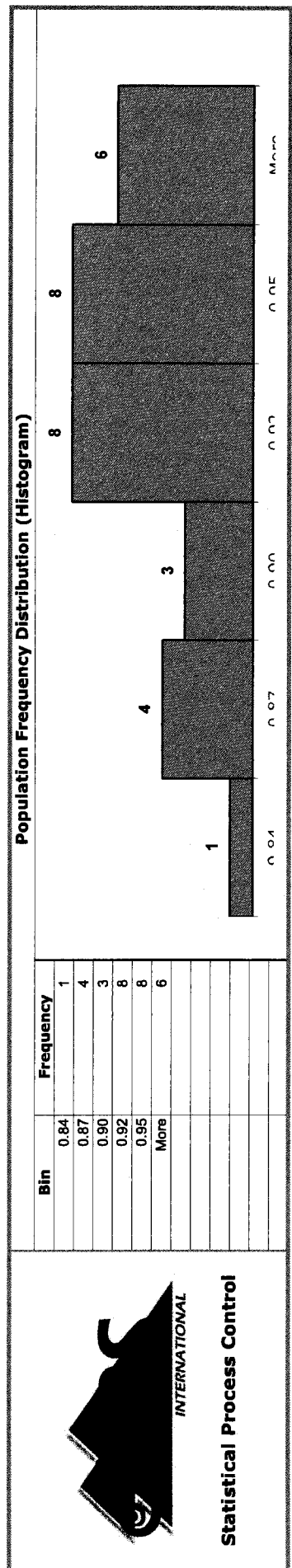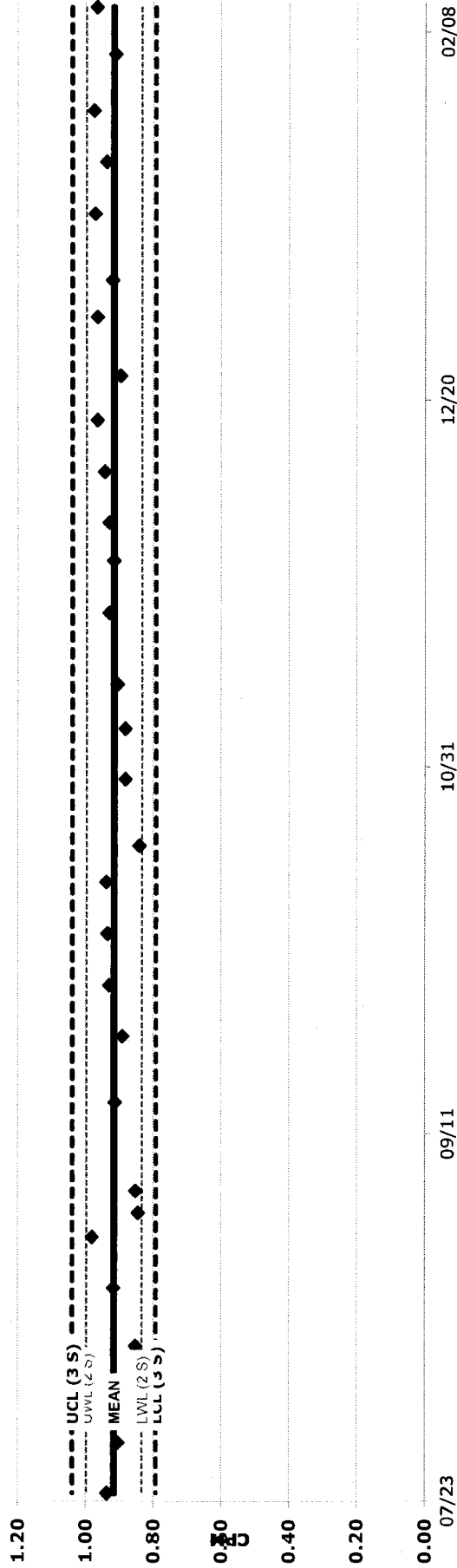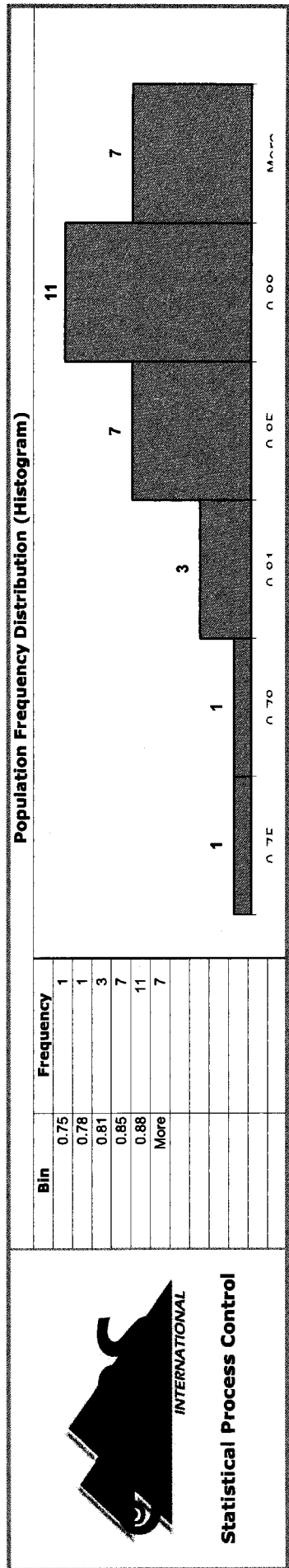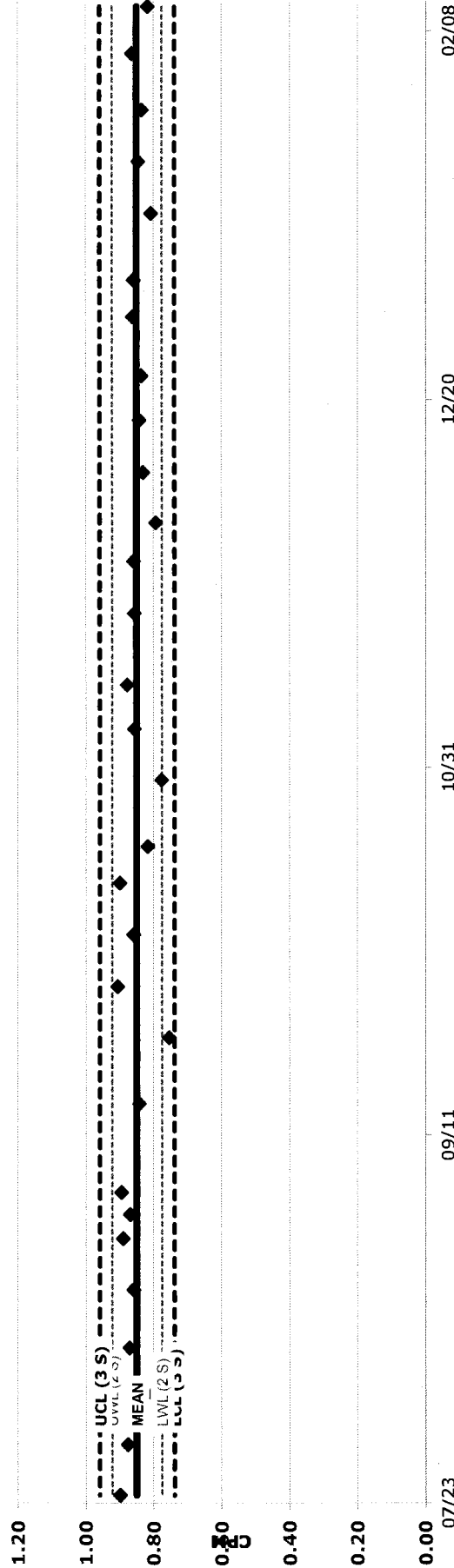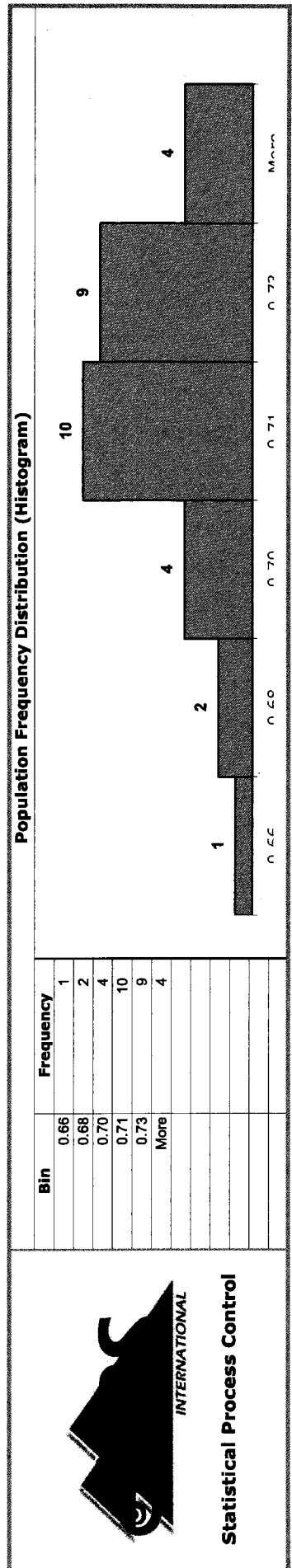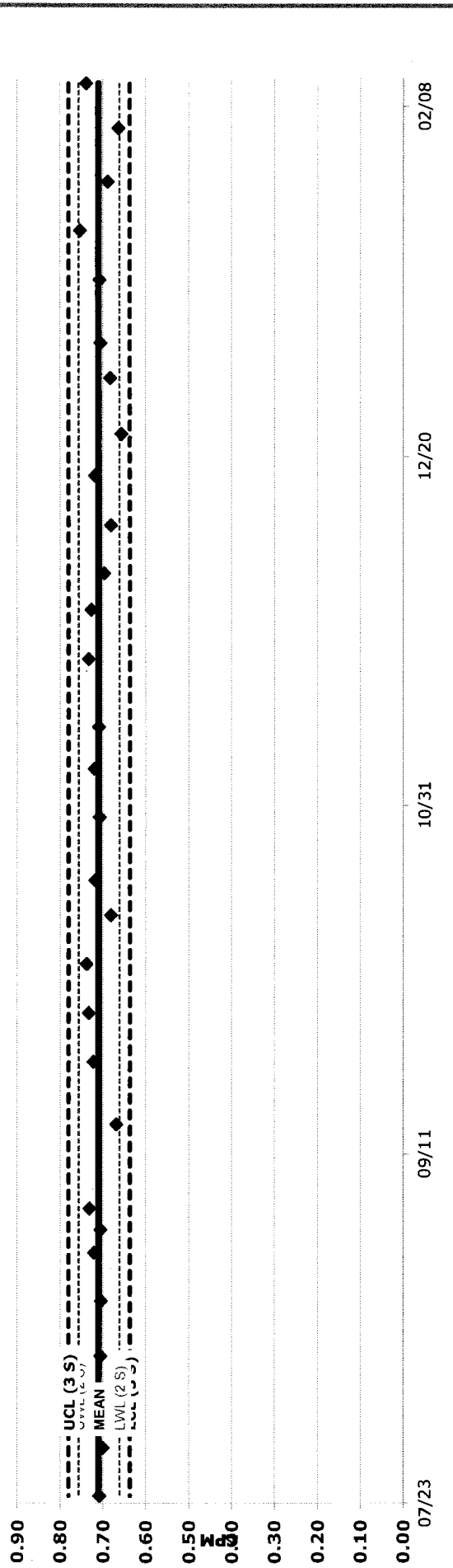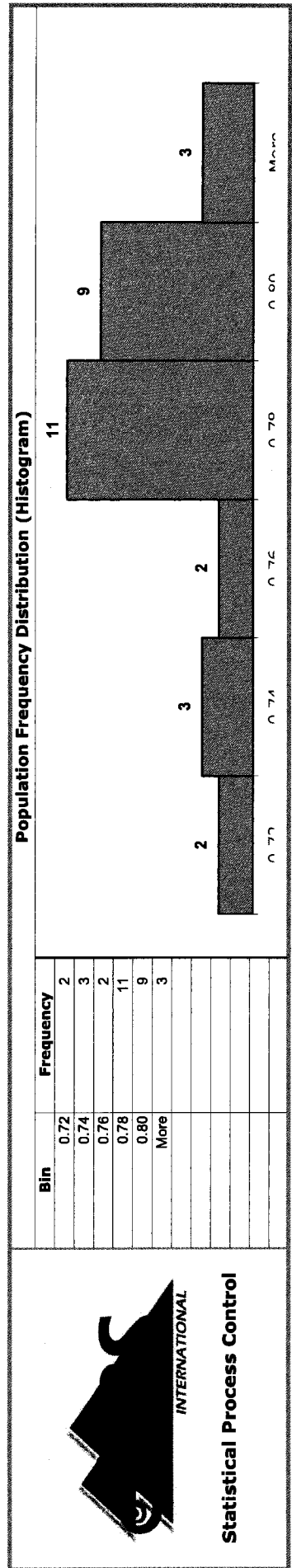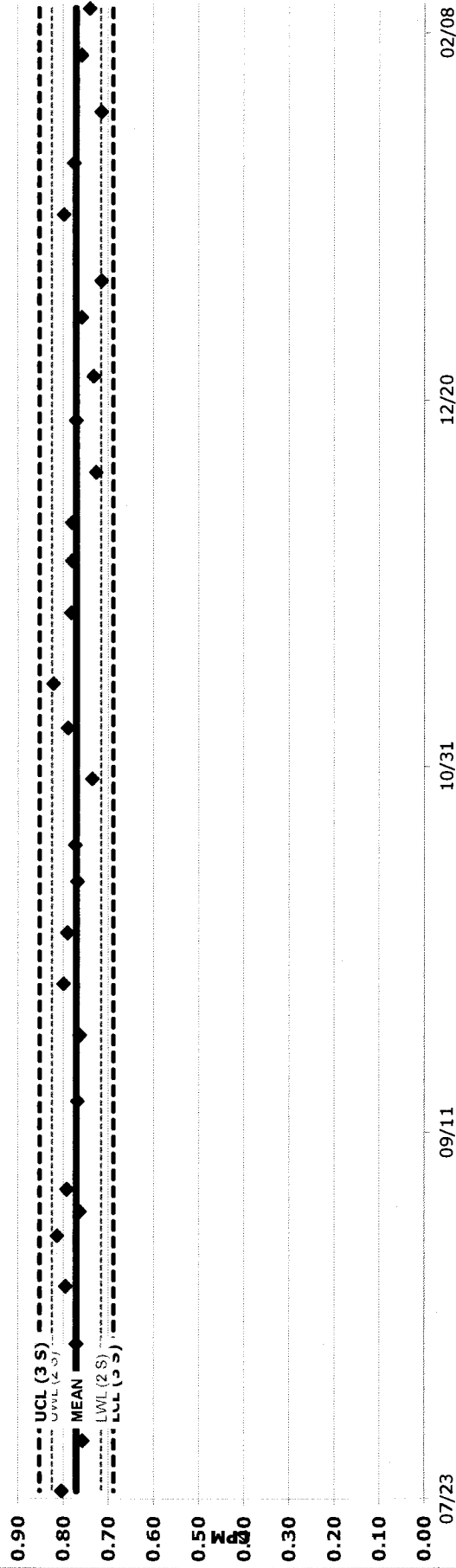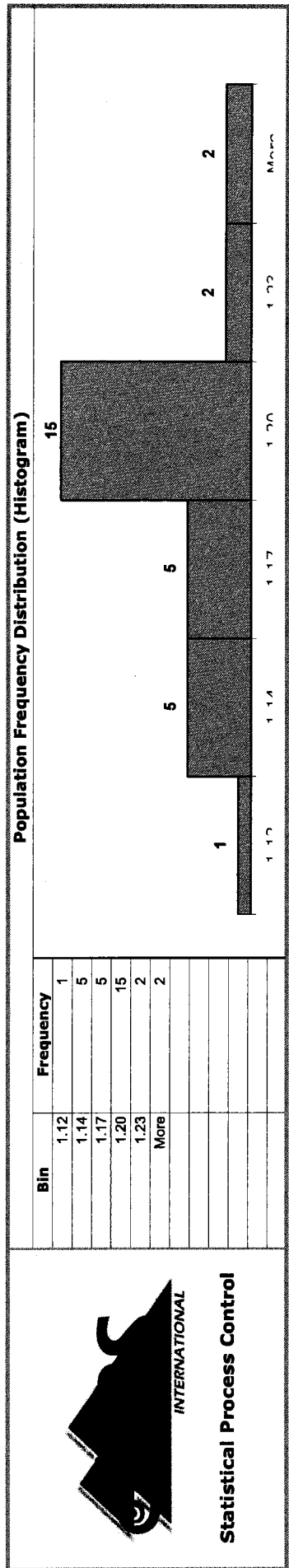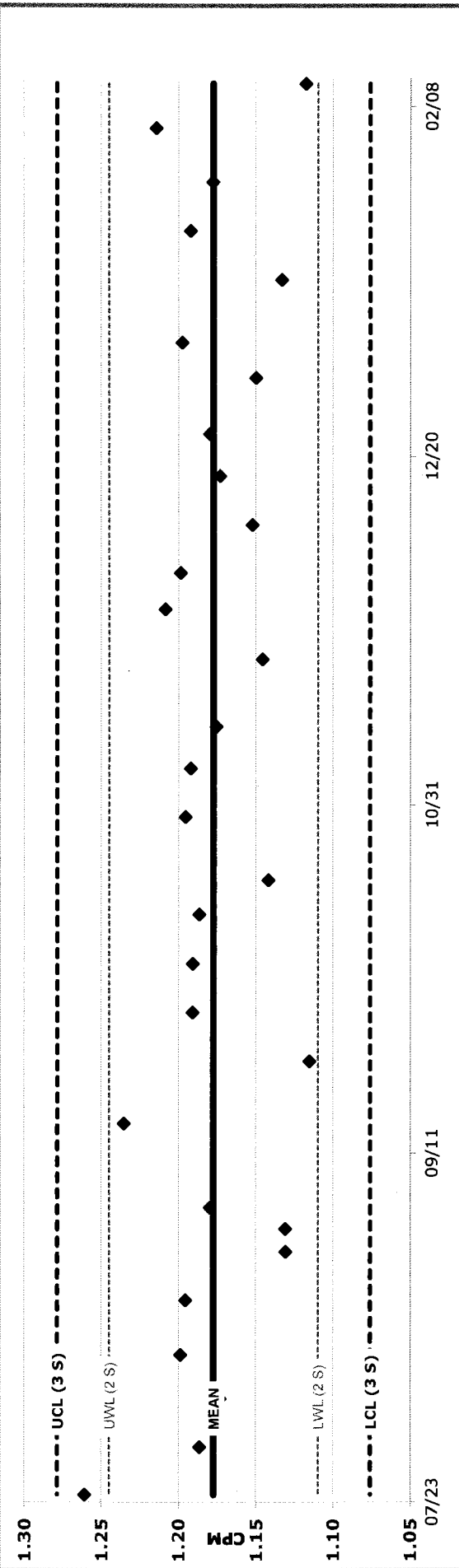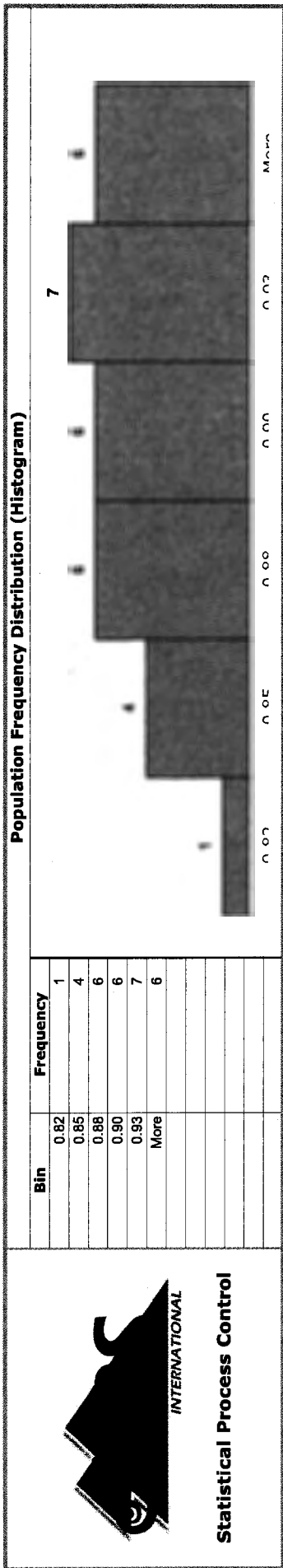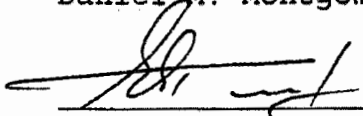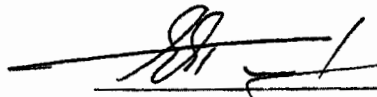Client: JOEL I. CEHN, CHP                    Purchase Order: Need it
Recvd : 17/01/23                     Contact: Joel I. Cehn. 510-863-1570
Job#  : 3491                                   email: cehn@aol.com
Final : 17/03/22      Project name: BBI    4714 Windsor Blvd., Cambria,CA 93428

Cust   LABEL INFO              JOB.SX   REFDATE QUANT   ELYS     TU      eTU
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BB-16A                         3491.02  170117   40     DIR     13        2
OS-7                           3491.03  170117   40     DIR      5        2
OS-3                           3491.04  170117   40     DIR      2        2
BB-19M                         3491.05  170118   35     DIR      2        2
BB-17                          3491.06  170117   40     DIR      9        3
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