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ANALYTICAL REPORT

Job Number: 580-87706-2

Job Description: Portland Harbor

For:
Haley & Aldrich, Inc.
5333 Mission Center Road
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San Diego, CA 92108

Attention: Dr. Laura McWilliams

Approved for release.
Nathan A Lewis
Project Manager I
9/4/2019 3:18 PM

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09/04/2019

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The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
AP	Compounds have an altered pattern compared to the reference pattern within the expected retention time window. This may be due to interferences from non-target compounds, and/or due to different relative concentrations of the compounds.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

CASE NARRATIVE
Client: Haley & Aldrich, Inc.
Project: Portland Harbor
Report Number: 580-87706-2

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 07/16/2019; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.0º C, 3.3º C and 4.5º C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)
Samples 22T-SG-21_20190716 (580-87706-14) and 22T-SG-16_20190716 (580-87706-15) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with 8270D SIM. The samples were prepared on 08/26/2019 and analyzed on 08/29/2019 and 08/30/2019.

Total Alkyl PAH Comments: Total alkyl homologue results are considered estimated. These compounds are identified as eluting within a retention time window established by examining NIST SRM 2779 (Gulf of Mexico Crude Oil). Quantitation is estimated using a parent PAH response factor.

If requested, the following target analytes are reported individually and are also included in the total alkyl result for their respective homologue group: Specifically, 1-methylnaphthalene and 2-methylnaphthalene are included in the total C1-naphthalene homologue result, 2,6-dimethylnaphthalene is included in the total C2-alkylnaphthalene homologue result, 2,3,5-trimethylnaphthalene is included in the total C3-alkylnaphthalene homologue result, and 1-methylphenanthrene is included in the total C1-phenanthrenes/anthracenes homologue result.

The following samples were diluted due to the nature of the sample matrix: 22T-SG-21_20190716 (580-87706-14)[100X], 22T-SG-21_20190716 (580-87706-14)[30X] and 22T-SG-16_20190716 (580-87706-15)[5X]. The reporting limits have been adjusted accordingly. The samples were analyzed at a dilution based on screening results. Because of this dilution the surrogate recovery does not provide useful information.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

The following samples required a copper clean-up to reduce matrix interferences caused by sulfur: 22T-SG-21_20190716 (580-87706-14) and 22T-SG-16_20190716 (580-87706-15).

The following sediment samples were frozen to extend the extraction holding times in accordance with sediment management standards: 22T-SG-21_20190716 (580-87706-14) and 22T-SG-16_20190716 (580-87706-15).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: 22T-SG-21_20190716 — Lab Sample ID: 580-87706-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1-Methylnaphthalene	270		170	24	ng/g	30	☼	8270D SIM	Total/NA
2-Methylnaphthalene	740		350	35	ng/g	30	☼	8270D SIM	Total/NA
Acenaphthene	3600		35	16	ng/g	30	☼	8270D SIM	Total/NA
Acenaphthylene	170		35	8.7	ng/g	30	☼	8270D SIM	Total/NA
Anthracene	1500		35	28	ng/g	30	☼	8270D SIM	Total/NA
Benzo[a]anthracene	2300		35	14	ng/g	30	☼	8270D SIM	Total/NA
Benzo[a]pyrene	2500		35	12	ng/g	30	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	2200		35	18	ng/g	30	☼	8270D SIM	Total/NA
Benzo[e]pyrene	1400		35	12	ng/g	30	☼	8270D SIM	Total/NA
Benzo[g,h,i]perylene	1700		35	20	ng/g	30	☼	8270D SIM	Total/NA
Benzo[k]fluoranthene	800		35	16	ng/g	30	☼	8270D SIM	Total/NA
C1-Chrysenes	720		35	9.0	ng/g	30	☼	8270D SIM	Total/NA
C1-Dibenzothiophenes	780		35	23	ng/g	30	☼	8270D SIM	Total/NA
C1-Fluoranthenes/pyrene	2100		35	18	ng/g	30	☼	8270D SIM	Total/NA
C1-Fluorenes	820		35	19	ng/g	30	☼	8270D SIM	Total/NA
C1-Naphthalenes	640		350	27	ng/g	30	☼	8270D SIM	Total/NA
C1-Phenanthrenes/Anthracenes	3400		69	39	ng/g	30	☼	8270D SIM	Total/NA
C2-Chrysenes	280		35	11	ng/g	30	☼	8270D SIM	Total/NA
C2-Dibenzothiophenes	690		35	32	ng/g	30	☼	8270D SIM	Total/NA
C2-Fluoranthenes/Pyrene	620		35	16	ng/g	30	☼	8270D SIM	Total/NA
C2-Fluorenes	870		69	42	ng/g	30	☼	8270D SIM	Total/NA
C2-Naphthalenes	2100		69	26	ng/g	30	☼	8270D SIM	Total/NA
C2-Phenanthrenes/Anthracenes	1800		140	85	ng/g	30	☼	8270D SIM	Total/NA
C3-Chrysenes	160		35	10	ng/g	30	☼	8270D SIM	Total/NA
C3-Dibenzothiophenes	410		69	39	ng/g	30	☼	8270D SIM	Total/NA
C3-Fluoranthenes/Pyrene	320		35	19	ng/g	30	☼	8270D SIM	Total/NA
C3-Fluorenes	630		69	37	ng/g	30	☼	8270D SIM	Total/NA
C3-Naphthalenes	2300		69	34	ng/g	30	☼	8270D SIM	Total/NA
C3-Phenanthrenes/Anthracenes	910	AP	69	55	ng/g	30	☼	8270D SIM	Total/NA
C4-Chrysenes	100		35	12	ng/g	30	☼	8270D SIM	Total/NA
C4-Dibenzothiophenes	190		35	33	ng/g	30	☼	8270D SIM	Total/NA
C4-Fluoranthenes/Pyrene	170		35	13	ng/g	30	☼	8270D SIM	Total/NA
C4-Naphthalenes	1200		140	72	ng/g	30	☼	8270D SIM	Total/NA
C4-Phenanthrenes/Anthracenes	650	AP	69	65	ng/g	30	☼	8270D SIM	Total/NA
Chrysene	2500		35	13	ng/g	30	☼	8270D SIM	Total/NA
Dibenz(a,h)anthracene	230		35	20	ng/g	30	☼	8270D SIM	Total/NA
Dibenzothiophene	2000		35	12	ng/g	30	☼	8270D SIM	Total/NA
Fluorene	2300		35	17	ng/g	30	☼	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	1300		35	24	ng/g	30	☼	8270D SIM	Total/NA
Naphthalene	1200		690	63	ng/g	30	☼	8270D SIM	Total/NA
Perylene	630		35	6.9	ng/g	30	☼	8270D SIM	Total/NA
Fluoranthene - DL	10000		120	110	ng/g	100	☼	8270D SIM	Total/NA
Phenanthrene - DL	16000		230	200	ng/g	100	☼	8270D SIM	Total/NA
Pyrene - DL	12000		230	69	ng/g	100	☼	8270D SIM	Total/NA

Client Sample ID: 22T-SG-16_20190716 — Lab Sample ID: 580-87706-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1-Methylnaphthalene	23	J	28	4.0	ng/g	5	☼	8270D SIM	Total/NA
2-Methylnaphthalene	46	J	57	5.7	ng/g	5	☼	8270D SIM	Total/NA
Acenaphthene	120		5.7	2.6	ng/g	5	☼	8270D SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: 22T-SG-16_20190716 (Continued)

Lab Sample ID: 580-87706-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	44		5.7	1.4	ng/g	5	☼	8270D SIM	Total/NA
Anthracene	110		5.7	4.6	ng/g	5	☼	8270D SIM	Total/NA
Benzo[a]anthracene	350		5.7	2.3	ng/g	5	☼	8270D SIM	Total/NA
Benzo[a]pyrene	470		5.7	2.0	ng/g	5	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	450		5.7	2.9	ng/g	5	☼	8270D SIM	Total/NA
Benzo[e]pyrene	280		5.7	1.9	ng/g	5	☼	8270D SIM	Total/NA
Benzo[g,h,i]perylene	370		5.7	3.3	ng/g	5	☼	8270D SIM	Total/NA
Benzo[k]fluoranthene	160		5.7	2.6	ng/g	5	☼	8270D SIM	Total/NA
C1-Chrysenes	150		5.7	1.5	ng/g	5	☼	8270D SIM	Total/NA
C1-Dibenzothiophenes	42		5.7	3.7	ng/g	5	☼	8270D SIM	Total/NA
C1-Fluoranthenes/pyrene	280		5.7	2.9	ng/g	5	☼	8270D SIM	Total/NA
C1-Fluorenes	38		5.7	3.2	ng/g	5	☼	8270D SIM	Total/NA
C1-Naphthalenes	45	J	57	4.5	ng/g	5	☼	8270D SIM	Total/NA
C1-Phenanthrenes/Anthracenes	200		11	6.3	ng/g	5	☼	8270D SIM	Total/NA
C2-Chrysenes	76		5.7	1.8	ng/g	5	☼	8270D SIM	Total/NA
C2-Dibenzothiophenes	66		5.7	5.3	ng/g	5	☼	8270D SIM	Total/NA
C2-Fluoranthenes/Pyrene	120		5.7	2.5	ng/g	5	☼	8270D SIM	Total/NA
C2-Fluorenes	59		11	6.8	ng/g	5	☼	8270D SIM	Total/NA
C2-Naphthalenes	71		11	4.3	ng/g	5	☼	8270D SIM	Total/NA
C2-Phenanthrenes/Anthracenes	180		23	14	ng/g	5	☼	8270D SIM	Total/NA
C3-Chrysenes	48		5.7	1.7	ng/g	5	☼	8270D SIM	Total/NA
C3-Dibenzothiophenes	63		11	6.3	ng/g	5	☼	8270D SIM	Total/NA
C3-Fluoranthenes/Pyrene	76		5.7	3.1	ng/g	5	☼	8270D SIM	Total/NA
C3-Fluorenes	74		11	6.1	ng/g	5	☼	8270D SIM	Total/NA
C3-Naphthalenes	99		11	5.5	ng/g	5	☼	8270D SIM	Total/NA
C3-Phenanthrenes/Anthracenes	130		11	8.9	ng/g	5	☼	8270D SIM	Total/NA
C4-Chrysenes	28		5.7	1.9	ng/g	5	☼	8270D SIM	Total/NA
C4-Dibenzothiophenes	39		5.7	5.4	ng/g	5	☼	8270D SIM	Total/NA
C4-Fluoranthenes/Pyrene	40		5.7	2.2	ng/g	5	☼	8270D SIM	Total/NA
C4-Naphthalenes	91		23	12	ng/g	5	☼	8270D SIM	Total/NA
C4-Phenanthrenes/Anthracenes	89	AP	11	11	ng/g	5	☼	8270D SIM	Total/NA
Chrysene	350		5.7	2.2	ng/g	5	☼	8270D SIM	Total/NA
Dibenz(a,h)anthracene	57		5.7	3.2	ng/g	5	☼	8270D SIM	Total/NA
Dibenzothiophene	58		5.7	1.9	ng/g	5	☼	8270D SIM	Total/NA
Fluoranthene	780		5.7	5.2	ng/g	5	☼	8270D SIM	Total/NA
Fluorene	93		5.7	2.7	ng/g	5	☼	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	270		5.7	4.0	ng/g	5	☼	8270D SIM	Total/NA
Naphthalene	100	J	110	10	ng/g	5	☼	8270D SIM	Total/NA
Perylene	190		5.7	1.1	ng/g	5	☼	8270D SIM	Total/NA
Phenanthrene	550		11	10	ng/g	5	☼	8270D SIM	Total/NA
Pyrene	800		11	3.4	ng/g	5	☼	8270D SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: 22T-SG-21_20190716

Date Collected: 07/16/19 14:08
Date Received: 07/16/19 15:45

Lab Sample ID: 580-87706-14

Matrix: Solid
Percent Solids: 43.1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	270		170	24	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
2-Methylnaphthalene	740		350	35	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Acenaphthene	3600		35	16	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Acenaphthylene	170		35	8.7	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Anthracene	1500		35	28	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Benzo[a]anthracene	2300		35	14	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Benzo[a]pyrene	2500		35	12	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Benzo[b]fluoranthene	2200		35	18	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Benzo[e]pyrene	1400		35	12	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Benzo[g,h,i]perylene	1700		35	20	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Benzo[k]fluoranthene	800		35	16	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C1-Chrysenes	720		35	9.0	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C1-Dibenzothiophenes	780		35	23	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C1-Fluoranthenes/pyrene	2100		35	18	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C1-Fluorenes	820		35	19	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C1-Naphthalenes	640		350	27	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C1-Phenanthrenes/Anthracenes	3400		69	39	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C2-Chrysenes	280		35	11	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C2-Dibenzothiophenes	690		35	32	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C2-Fluoranthenes/Pyrene	620		35	16	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C2-Fluorenes	870		69	42	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C2-Naphthalenes	2100		69	26	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C2-Phenanthrenes/Anthracenes	1800		140	85	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C3-Chrysenes	160		35	10	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C3-Dibenzothiophenes	410		69	39	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C3-Fluoranthenes/Pyrene	320		35	19	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C3-Fluorenes	630		69	37	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C3-Naphthalenes	2300		69	34	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C3-Phenanthrenes/Anthracenes	910	AP	69	55	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C4-Chrysenes	100		35	12	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C4-Dibenzothiophenes	190		35	33	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C4-Fluoranthenes/Pyrene	170		35	13	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C4-Naphthalenes	1200		140	72	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
C4-Phenanthrenes/Anthracenes	650	AP	69	65	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Chrysene	2500		35	13	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Dibenz(a,h)anthracene	230		35	20	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Dibenzothiophene	2000		35	12	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Fluorene	2300		35	17	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Indeno[1,2,3-cd]pyrene	1300		35	24	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Naphthalene	1200		690	63	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30
Perylene	630		35	6.9	ng/g	☼	08/26/19 13:35	08/29/19 16:17	30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*0*	*X*	*20 - 142*	*08/26/19 13:35*	*08/29/19 16:17*	*30*
Nitrobenzene-d5	*0*	*X*	*20 - 121*	*08/26/19 13:35*	*08/29/19 16:17*	*30*
Terphenyl-d14	*0*	*X*	*35 - 150*	*08/26/19 13:35*	*08/29/19 16:17*	*30*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	10000		120	110	ng/g	☼	08/26/19 13:35	08/30/19 16:59	100

Client Sample ID: 22T-SG-21_20190716

Lab Sample ID: 580-87706-14

Date Collected: 07/16/19 14:08
Matrix: Solid
Date Received: 07/16/19 15:45
Percent Solids: 43.1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	16000		230	200	ng/g	☼	08/26/19 13:35	08/30/19 16:59	100
Pyrene	12000		230	69	ng/g	☼	08/26/19 13:35	08/30/19 16:59	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*0*	*X*	*20 - 142*	*08/26/19 13:35*	*08/30/19 16:59*	*100*
Nitrobenzene-d5	*0*	*X*	*20 - 121*	*08/26/19 13:35*	*08/30/19 16:59*	*100*
Terphenyl-d14	*0*	*X*	*35 - 150*	*08/26/19 13:35*	*08/30/19 16:59*	*100*

Client Sample ID: 22T-SG-16_20190716

Lab Sample ID: 580-87706-15

Date Collected: 07/16/19 14:24
Matrix: Solid
Date Received: 07/16/19 15:45
Percent Solids: 43.8

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	23	J	28	4.0	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
2-Methylnaphthalene	46	J	57	5.7	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Acenaphthene	120		5.7	2.6	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Acenaphthylene	44		5.7	1.4	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Anthracene	110		5.7	4.6	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Benzo[a]anthracene	350		5.7	2.3	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Benzo[a]pyrene	470		5.7	2.0	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Benzo[b]fluoranthene	450		5.7	2.9	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Benzo[e]pyrene	280		5.7	1.9	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Benzo[g,h,i]perylene	370		5.7	3.3	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Benzo[k]fluoranthene	160		5.7	2.6	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C1-Chrysenes	150		5.7	1.5	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C1-Dibenzothiophenes	42		5.7	3.7	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C1-Fluoranthenes/pyrene	280		5.7	2.9	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C1-Fluorenes	38		5.7	3.2	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C1-Naphthalenes	45	J	57	4.5	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C1-Phenanthrenes/Anthracenes	200		11	6.3	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C2-Chrysenes	76		5.7	1.8	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C2-Dibenzothiophenes	66		5.7	5.3	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C2-Fluoranthenes/Pyrene	120		5.7	2.5	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C2-Fluorenes	59		11	6.8	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C2-Naphthalenes	71		11	4.3	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C2-Phenanthrenes/Anthracenes	180		23	14	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C3-Chrysenes	48		5.7	1.7	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C3-Dibenzothiophenes	63		11	6.3	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C3-Fluoranthenes/Pyrene	76		5.7	3.1	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C3-Fluorenes	74		11	6.1	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C3-Naphthalenes	99		11	5.5	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C3-Phenanthrenes/Anthracenes	130		11	8.9	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C4-Chrysenes	28		5.7	1.9	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C4-Dibenzothiophenes	39		5.7	5.4	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C4-Fluoranthenes/Pyrene	40		5.7	2.2	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C4-Naphthalenes	91		23	12	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
C4-Phenanthrenes/Anthracenes	89	AP	11	11	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Chrysene	350		5.7	2.2	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Dibenz(a,h)anthracene	57		5.7	3.2	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5

Client Sample ID: 22T-SG-16_20190716

Date Collected: 07/16/19 14:24
Date Received: 07/16/19 15:45

Lab Sample ID: 580-87706-15

Matrix: Solid
Percent Solids: 43.8

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzothiophene	58		5.7	1.9	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Fluoranthene	780		5.7	5.2	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Fluorene	93		5.7	2.7	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Indeno[1,2,3-cd]pyrene	270		5.7	4.0	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Naphthalene	100	J	110	10	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Perylene	190		5.7	1.1	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Phenanthrene	550		11	10	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5
Pyrene	800		11	3.4	ng/g	☼	08/26/19 13:35	08/30/19 13:11	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*61*		*20 - 142*	*08/26/19 13:35*	*08/30/19 13:11*	*5*
Nitrobenzene-d5	*63*		*20 - 121*	*08/26/19 13:35*	*08/30/19 13:11*	*5*
Terphenyl-d14	*79*		*35 - 150*	*08/26/19 13:35*	*08/30/19 13:11*	*5*

Default Detection Limits

Client: Haley & Aldrich, Inc.
Project/Site: Portland Harbor

Job ID: 580-87706-2

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Prep: 3540C

Analyte	RL	MDL	Units
1-Methylnaphthalene	5.0	0.70	ng/g
2-Methylnaphthalene	10	1.0	ng/g
Acenaphthene	1.0	0.46	ng/g
Acenaphthylene	1.0	0.25	ng/g
Anthracene	1.0	0.81	ng/g
Benzo[a]anthracene	1.0	0.40	ng/g
Benzo[a]pyrene	1.0	0.36	ng/g
Benzo[b]fluoranthene	1.0	0.51	ng/g
Benzo[e]pyrene	1.0	0.34	ng/g
Benzo[g,h,i]perylene	1.0	0.59	ng/g
Benzo[k]fluoranthene	1.0	0.46	ng/g
C1-Chrysenes	1.0	0.26	ng/g
C1-Dibenzothiophenes	1.0	0.65	ng/g
C1-Fluoranthenes/pyrene	1.0	0.52	ng/g
C1-Fluorenes	1.0	0.56	ng/g
C1-Naphthalenes	10	0.79	ng/g
C1-Phenanthrenes/Anthracenes	2.0	1.1	ng/g
C2-Chrysenes	1.0	0.31	ng/g
C2-Dibenzothiophenes	1.0	0.93	ng/g
C2-Fluoranthenes/Pyrene	1.0	0.45	ng/g
C2-Fluorenes	2.0	1.2	ng/g
C2-Naphthalenes	2.0	0.76	ng/g
C2-Phenanthrenes/Anthracenes	4.0	2.5	ng/g
C3-Chrysenes	1.0	0.30	ng/g
C3-Dibenzothiophenes	2.0	1.1	ng/g
C3-Fluoranthenes/Pyrene	1.0	0.55	ng/g
C3-Fluorenes	2.0	1.1	ng/g
C3-Naphthalenes	2.0	0.98	ng/g
C3-Phenanthrenes/Anthracenes	2.0	1.6	ng/g
C4-Chrysenes	1.0	0.34	ng/g
C4-Dibenzothiophenes	1.0	0.95	ng/g
C4-Fluoranthenes/Pyrene	1.0	0.38	ng/g
C4-Naphthalenes	4.0	2.1	ng/g
C4-Phenanthrenes/Anthracenes	2.0	1.9	ng/g
Chrysene	1.0	0.38	ng/g
Dibenz(a,h)anthracene	1.0	0.57	ng/g
Dibenzothiophene	1.0	0.34	ng/g
Fluoranthene	1.0	0.91	ng/g
Fluorene	1.0	0.48	ng/g
Indeno[1,2,3-cd]pyrene	1.0	0.70	ng/g
Naphthalene	20	1.8	ng/g
Perylene	1.0	0.20	ng/g
Phenanthrene	2.0	1.8	ng/g
Pyrene	2.0	0.60	ng/g

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Portland Harbor

Job ID: 580-87706-2

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPHL
Lab Sample ID	Client Sample ID	(20-142)	(20-121)	(35-150)
580-87706-14	22T-SG-21_20190716	0 X	0 X	0 X
580-87706-14 - DL	22T-SG-21_20190716	0 X	0 X	0 X
580-87706-15	22T-SG-16_20190716	61	63	79
LCS 140-32772/2-A	Lab Control Sample	74	78	83
MB 140-32772/1-A	Method Blank	68	68	78

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
NBZ = Nitrobenzene-d5
TPHL = Terphenyl-d14

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 140-32772/1-A
Matrix: Solid
Analysis Batch: 33099

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		5.0	0.70	ng/g		08/26/19 13:35	08/29/19 15:02	1
2-Methylnaphthalene	ND		10	1.0	ng/g		08/26/19 13:35	08/29/19 15:02	1
Acenaphthene	ND		1.0	0.46	ng/g		08/26/19 13:35	08/29/19 15:02	1
Acenaphthylene	ND		1.0	0.25	ng/g		08/26/19 13:35	08/29/19 15:02	1
Anthracene	ND		1.0	0.81	ng/g		08/26/19 13:35	08/29/19 15:02	1
Benzo[a]anthracene	ND		1.0	0.40	ng/g		08/26/19 13:35	08/29/19 15:02	1
Benzo[a]pyrene	ND		1.0	0.36	ng/g		08/26/19 13:35	08/29/19 15:02	1
Benzo[b]fluoranthene	ND		1.0	0.51	ng/g		08/26/19 13:35	08/29/19 15:02	1
Benzo[e]pyrene	ND		1.0	0.34	ng/g		08/26/19 13:35	08/29/19 15:02	1
Benzo[g,h,i]perylene	ND		1.0	0.59	ng/g		08/26/19 13:35	08/29/19 15:02	1
Benzo[k]fluoranthene	ND		1.0	0.46	ng/g		08/26/19 13:35	08/29/19 15:02	1
C1-Chrysenes	ND		1.0	0.26	ng/g		08/26/19 13:35	08/29/19 15:02	1
C1-Dibenzothiophenes	ND		1.0	0.65	ng/g		08/26/19 13:35	08/29/19 15:02	1
C1-Fluoranthenes/pyrene	ND		1.0	0.52	ng/g		08/26/19 13:35	08/29/19 15:02	1
C1-Fluorenes	ND		1.0	0.56	ng/g		08/26/19 13:35	08/29/19 15:02	1
C1-Naphthalenes	ND		10	0.79	ng/g		08/26/19 13:35	08/29/19 15:02	1
C1-Phenanthrenes/Anthracenes	ND		2.0	1.1	ng/g		08/26/19 13:35	08/29/19 15:02	1
C2-Chrysenes	ND		1.0	0.31	ng/g		08/26/19 13:35	08/29/19 15:02	1
C2-Dibenzothiophenes	ND		1.0	0.93	ng/g		08/26/19 13:35	08/29/19 15:02	1
C2-Fluoranthenes/Pyrene	ND		1.0	0.45	ng/g		08/26/19 13:35	08/29/19 15:02	1
C2-Fluorenes	ND		2.0	1.2	ng/g		08/26/19 13:35	08/29/19 15:02	1
C2-Naphthalenes	ND		2.0	0.76	ng/g		08/26/19 13:35	08/29/19 15:02	1
C2-Phenanthrenes/Anthracenes	ND		4.0	2.5	ng/g		08/26/19 13:35	08/29/19 15:02	1
C3-Chrysenes	ND		1.0	0.30	ng/g		08/26/19 13:35	08/29/19 15:02	1
C3-Dibenzothiophenes	ND		2.0	1.1	ng/g		08/26/19 13:35	08/29/19 15:02	1
C3-Fluoranthenes/Pyrene	ND		1.0	0.55	ng/g		08/26/19 13:35	08/29/19 15:02	1
C3-Fluorenes	ND		2.0	1.1	ng/g		08/26/19 13:35	08/29/19 15:02	1
C3-Naphthalenes	ND		2.0	0.98	ng/g		08/26/19 13:35	08/29/19 15:02	1
C3-Phenanthrenes/Anthracenes	ND		2.0	1.6	ng/g		08/26/19 13:35	08/29/19 15:02	1
C4-Chrysenes	ND		1.0	0.34	ng/g		08/26/19 13:35	08/29/19 15:02	1
C4-Dibenzothiophenes	ND		1.0	0.95	ng/g		08/26/19 13:35	08/29/19 15:02	1
C4-Fluoranthenes/Pyrene	ND		1.0	0.38	ng/g		08/26/19 13:35	08/29/19 15:02	1
C4-Naphthalenes	ND		4.0	2.1	ng/g		08/26/19 13:35	08/29/19 15:02	1
C4-Phenanthrenes/Anthracenes	ND		2.0	1.9	ng/g		08/26/19 13:35	08/29/19 15:02	1
Chrysene	ND		1.0	0.38	ng/g		08/26/19 13:35	08/29/19 15:02	1
Dibenz(a,h)anthracene	ND		1.0	0.57	ng/g		08/26/19 13:35	08/29/19 15:02	1
Dibenzothiophene	ND		1.0	0.34	ng/g		08/26/19 13:35	08/29/19 15:02	1
Fluoranthene	ND		1.0	0.91	ng/g		08/26/19 13:35	08/29/19 15:02	1
Fluorene	ND		1.0	0.48	ng/g		08/26/19 13:35	08/29/19 15:02	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.70	ng/g		08/26/19 13:35	08/29/19 15:02	1
Naphthalene	ND		20	1.8	ng/g		08/26/19 13:35	08/29/19 15:02	1
Perylene	ND		1.0	0.20	ng/g		08/26/19 13:35	08/29/19 15:02	1
Phenanthrene	ND		2.0	1.8	ng/g		08/26/19 13:35	08/29/19 15:02	1
Pyrene	ND		2.0	0.60	ng/g		08/26/19 13:35	08/29/19 15:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*68*		*20 - 142*	*08/26/19 13:35*	*08/29/19 15:02*	*1*
Nitrobenzene-d5	*68*		*20 - 121*	*08/26/19 13:35*	*08/29/19 15:02*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 140-32772/1-A
Matrix: Solid
Analysis Batch: 33099

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 32772

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	78		35 - 150	08/26/19 13:35	08/29/19 15:02	1

Lab Sample ID: LCS 140-32772/2-A
Matrix: Solid
Analysis Batch: 33099

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 32772

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	50.0	37.9		ng/g		76	50 - 150
2-Methylnaphthalene	50.0	38.5		ng/g		77	50 - 150
Acenaphthene	50.0	36.3		ng/g		73	50 - 150
Acenaphthylene	50.0	33.1		ng/g		66	30 - 150
Anthracene	50.0	33.1		ng/g		66	30 - 150
Benzo[a]anthracene	50.0	43.3		ng/g		87	50 - 150
Benzo[a]pyrene	50.0	36.5		ng/g		73	30 - 150
Benzo[b]fluoranthene	50.0	40.1		ng/g		80	50 - 150
Benzo[e]pyrene	50.0	37.7		ng/g		75	50 - 150
Benzo[g,h,i]perylene	50.0	36.4		ng/g		73	50 - 150
Benzo[k]fluoranthene	50.0	36.6		ng/g		73	50 - 150
Chrysene	50.0	38.4		ng/g		77	50 - 150
Dibenz(a,h)anthracene	50.0	38.2		ng/g		76	50 - 150
Dibenzothiophene	50.0	35.0		ng/g		70	50 - 150
Fluoranthene	50.0	42.0		ng/g		84	50 - 150
Fluorene	50.0	36.6		ng/g		73	50 - 150
Indeno[1,2,3-cd]pyrene	50.0	39.1		ng/g		78	50 - 150
Naphthalene	50.0	37.2		ng/g		74	50 - 150
Perylene	50.0	31.7		ng/g		63	30 - 150
Phenanthrene	50.0	36.4		ng/g		73	50 - 150
Pyrene	50.0	40.4		ng/g		81	50 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	74		20 - 142
Nitrobenzene-d5	78		20 - 121
Terphenyl-d14	83		35 - 150

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Portland Harbor

Job ID: 580-87706-2

GC/MS Semi VOA

Prep Batch: 32772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-87706-14 - DL	22T-SG-21_20190716	Total/NA	Solid	3540C	
580-87706-14	22T-SG-21_20190716	Total/NA	Solid	3540C	
580-87706-15	22T-SG-16_20190716	Total/NA	Solid	3540C	
MB 140-32772/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 140-32772/2-A	Lab Control Sample	Total/NA	Solid	3540C	

Analysis Batch: 33099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-87706-14	22T-SG-21_20190716	Total/NA	Solid	8270D SIM	32772
MB 140-32772/1-A	Method Blank	Total/NA	Solid	8270D SIM	32772
LCS 140-32772/2-A	Lab Control Sample	Total/NA	Solid	8270D SIM	32772

Analysis Batch: 33157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-87706-14 - DL	22T-SG-21_20190716	Total/NA	Solid	8270D SIM	32772
580-87706-15	22T-SG-16_20190716	Total/NA	Solid	8270D SIM	32772

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Portland Harbor

Job ID: 580-87706-2

Client Sample ID: 22T-SG-21_20190716

Lab Sample ID: 580-87706-14

Date Collected: 07/16/19 14:08
Matrix: Solid
Date Received: 07/16/19 15:45
Percent Solids: 43.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			32772	08/26/19 13:35	CLI	TAL KNX
Total/NA	Analysis	8270D SIM		30	33099	08/29/19 16:17	JRC	TAL KNX
Total/NA	Prep	3540C	DL		32772	08/26/19 13:35	CLI	TAL KNX
Total/NA	Analysis	8270D SIM	DL	100	33157	08/30/19 16:59	JRC	TAL KNX

Client Sample ID: 22T-SG-16_20190716

Lab Sample ID: 580-87706-15

Date Collected: 07/16/19 14:24
Matrix: Solid
Date Received: 07/16/19 15:45
Percent Solids: 43.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			32772	08/26/19 13:35	CLI	TAL KNX
Total/NA	Analysis	8270D SIM		5	33157	08/30/19 13:11	JRC	TAL KNX

Laboratory References:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Portland Harbor

Job ID: 580-87706-2

Laboratory: Eurofins TestAmerica, Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	WA100007	11-05-19

Laboratory: Eurofins TestAmerica, Knoxville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	TNI0189	01-01-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270D SIM	3540C	Solid	1-Methylnaphthalene
8270D SIM	3540C	Solid	2-Methylnaphthalene
8270D SIM	3540C	Solid	Acenaphthene
8270D SIM	3540C	Solid	Acenaphthylene
8270D SIM	3540C	Solid	Anthracene
8270D SIM	3540C	Solid	Benzo[a]anthracene
8270D SIM	3540C	Solid	Benzo[a]pyrene
8270D SIM	3540C	Solid	Benzo[b]fluoranthene
8270D SIM	3540C	Solid	Benzo[e]pyrene
8270D SIM	3540C	Solid	Benzo[g,h,i]perylene
8270D SIM	3540C	Solid	Benzo[k]fluoranthene
8270D SIM	3540C	Solid	C1-Chrysenes
8270D SIM	3540C	Solid	C1-Dibenzothiophenes
8270D SIM	3540C	Solid	C1-Fluoranthenes/pyrene
8270D SIM	3540C	Solid	C1-Fluorenes
8270D SIM	3540C	Solid	C1-Naphthalenes
8270D SIM	3540C	Solid	C1-Phenanthrenes/Anthracenes
8270D SIM	3540C	Solid	C2-Chrysenes
8270D SIM	3540C	Solid	C2-Dibenzothiophenes
8270D SIM	3540C	Solid	C2-Fluoranthenes/Pyrene
8270D SIM	3540C	Solid	C2-Fluorenes
8270D SIM	3540C	Solid	C2-Naphthalenes
8270D SIM	3540C	Solid	C2-Phenanthrenes/Anthracenes
8270D SIM	3540C	Solid	C3-Chrysenes
8270D SIM	3540C	Solid	C3-Dibenzothiophenes
8270D SIM	3540C	Solid	C3-Fluoranthenes/Pyrene
8270D SIM	3540C	Solid	C3-Fluorenes
8270D SIM	3540C	Solid	C3-Naphthalenes
8270D SIM	3540C	Solid	C3-Phenanthrenes/Anthracenes
8270D SIM	3540C	Solid	C4-Chrysenes
8270D SIM	3540C	Solid	C4-Dibenzothiophenes
8270D SIM	3540C	Solid	C4-Fluoranthenes/Pyrene
8270D SIM	3540C	Solid	C4-Naphthalenes
8270D SIM	3540C	Solid	C4-Phenanthrenes/Anthracenes
8270D SIM	3540C	Solid	Chrysene
8270D SIM	3540C	Solid	Dibenz(a,h)anthracene
8270D SIM	3540C	Solid	Dibenzothiophene
8270D SIM	3540C	Solid	Fluoranthene
8270D SIM	3540C	Solid	Fluorene
8270D SIM	3540C	Solid	Indeno[1,2,3-cd]pyrene

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	TNI0189	01-01-20

8270D SIM	3540C	Solid	Naphthalene
8270D SIM	3540C	Solid	Perylene
8270D SIM	3540C	Solid	Phenanthrene
8270D SIM	3540C	Solid	Pyrene

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Portland Harbor

Job ID: 580-87706-2

Method	Method Description	Protocol	Laboratory
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL KNX
3540C	Soxhlet Extraction	SW846	TAL KNX

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Portland Harbor

Job ID: 580-87706-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-87706-14	22T-SG-21_20190716	Solid	07/16/19 14:08	07/16/19 15:45	
580-87706-15	22T-SG-16_20190716	Solid	07/16/19 14:24	07/16/19 15:45	

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Knoxvi Job No.: 580-87706-2

SDG No.:

Instrument ID: MP Analysis Batch Number: 32163

Lab Sample ID: IC 140-32163/2 Client Sample ID:

Date Analyzed: 07/21/19 11:55 Lab File ID: ic 1XC.D GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chrysene	10.17	Baseline	cochranj	07/29/19 14:32

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Knoxvi Job No.: 580-87706-2

SDG No.:

Instrument ID: MP Analysis Batch Number: 33099

Lab Sample ID: MB 140-32772/1-A Client Sample ID:

Date Analyzed: 08/29/19 15:02 Lab File ID: mb 140-32772-1-a.D GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
C1-Dibenzothiophenes		Baseline	cochranj	08/30/19 09:11
C2-Dibenzothiophenes		Baseline	cochranj	08/30/19 09:11
C3-Fluorenes		Baseline	cochranj	08/30/19 09:11
Dibenz(a,h)anthracene		Invalid Compound ID	cochranj	08/30/19 09:12
Dibenzothiophene		Invalid Compound ID	cochranj	08/30/19 09:12
Perylene	11.77	Peak assignment corrected	cochranj	08/29/19 15:40
Benzo[g,h,i]perylene	13.52	Peak assignment corrected	cochranj	08/29/19 15:40

Lab Sample ID: 580-87706-14 Client Sample ID: 22T-SG-21_20190716

Date Analyzed: 08/29/19 16:17 Lab File ID: 580-87706-b-14-a.D GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
2-Fluorobiphenyl (Surr)		Invalid Compound ID	cochranj	08/31/19 10:56
Nitrobenzene-d5		Invalid Compound ID	cochranj	08/31/19 10:56
Terphenyl-d14		Invalid Compound ID	cochranj	08/31/19 10:56
Benzo[b]fluoranthene	11.28	Split Peak	cochranj	08/30/19 09:16
Benzo[k]fluoranthene	11.31	Split Peak	cochranj	08/30/19 09:16
Benzo[a]pyrene	11.67	Peak assignment corrected	cochranj	08/30/19 09:39

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Knoxvi Job No.: 580-87706-2

SDG No.:

Instrument ID: MP Analysis Batch Number: 33157

Lab Sample ID: 580-87706-15 Client Sample ID: 22T-SG-16_20190716

Date Analyzed: 08/30/19 13:11 Lab File ID: 580-87706-b-15-a.D GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Benzo[b]fluoranthene	11.28	Split Peak	cochranj	08/30/19 15:41
Benzo[k]fluoranthene	11.31	Missed Peak	cochranj	08/30/19 15:41
Benzo[a]pyrene	11.67	Missed Peak	cochranj	08/30/19 15:41
Dibenz(a,h)anthracene	13.16	Baseline	cochranj	08/30/19 15:42

Lab Sample ID: 580-87706-14 DL Client Sample ID: 22T-SG-21_20190716 DL

Date Analyzed: 08/30/19 16:59 Lab File ID: 580-87706-b-14-aX.D GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
2-Fluorobiphenyl (Surr)		Invalid Compound ID	cochranj	08/31/19 13:17
Nitrobenzene-d5		Invalid Compound ID	cochranj	08/31/19 13:16
Terphenyl-d14		Invalid Compound ID	cochranj	08/31/19 13:17

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
608270simccv_00005	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19	Restek, Lot A0139031			(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
608270simccv_00005	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60XX8270PAHT1_00003	25 uL	1-Methylnaphthalene	0.5 ug/mL
							2-Methylnaphthalene	0.5 ug/mL
							Acenaphthene	0.5 ug/mL
							Acenaphthylene	0.5 ug/mL
							Anthracene	0.5 ug/mL
							Benzo[a]anthracene	0.5 ug/mL
							Benzo[a]pyrene	0.5 ug/mL
							Benzo[b]fluoranthene	0.5 ug/mL
							Benzo[g,h,i]perylene	0.5 ug/mL
							Benzo[k]fluoranthene	0.5 ug/mL
							Chrysene	0.5 ug/mL
							Dibenz(a,h)anthracene	0.5 ug/mL
							Fluoranthene	0.5 ug/mL
							Fluorene	0.5 ug/mL
							Indeno[1,2,3-cd]pyrene	0.5 ug/mL
							Naphthalene	0.5 ug/mL
							Phenanthrene	0.5 ug/mL
							Pyrene	0.5 ug/mL
							Benzo[e]pyrene	0.5 ug/mL
							Dibenzothiophene	0.5 ug/mL
							Perylene	0.5 ug/mL
					60xx8270simsr_00005	25 uL	2-Fluorobiphenyl (Surr)	0.5 ug/mL
							Nitrobenzene-d5	0.5 ug/mL
							Terphenyl-d14	0.5 ug/mL
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		Benzo[e]pyrene	2000 ug/mL
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
60ICV8270SIM_00010	11/30/19	07/15/19	Hexane, Lot 221330	1 mL	60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19		Restek, Lot A0139031		(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
60ICV8270SIM_00010	11/30/19	07/15/19	Hexane, Lot 221330	1 mL	60xx8270simsr_00005	25 uL	2-Fluorobiphenyl (Surr)	0.5 ug/mL
							Nitrobenzene-d5	0.5 ug/mL
							Terphenyl-d14	0.5 ug/mL
					60XXICVPAH2_00003	25 uL	1-Methylnaphthalene	0.5 ug/mL
							2-Methylnaphthalene	0.5 ug/mL
							Acenaphthene	0.5 ug/mL
							Acenaphthylene	0.5 ug/mL
							Anthracene	0.5 ug/mL
							Benzo[a]anthracene	0.5 ug/mL
							Benzo[a]pyrene	0.5 ug/mL
							Benzo[b]fluoranthene	0.5 ug/mL
							Benzo[g,h,i]perylene	0.5 ug/mL
							Benzo[k]fluoranthene	0.5 ug/mL
							Chrysene	0.5 ug/mL
							Dibenz(a,h)anthracene	0.5 ug/mL
							Fluoranthene	0.5 ug/mL
							Fluorene	0.5 ug/mL
							Indeno[1,2,3-cd]pyrene	0.5 ug/mL
							Naphthalene	0.5 ug/mL
							Phenanthrene	0.5 ug/mL
							Pyrene	0.5 ug/mL
					60XXSACPAHICV_00007	25 uL	Benzo[e]pyrene	0.5 ug/mL
							Dibenzothiophene	0.5 ug/mL
							Perylene	0.5 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
.60XXICVPAH2_00003	03/06/21	03/05/19	Hexane, Lot 203464	5 mL	60MXSSCLMX5_00001	0.05 mL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Chrysene	20 ug/mL
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
..60MXSSCLMX5_00001	03/06/21		Restek, Lot A0115109		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL
							Pyrene	2000 ug/mL
.60XXSACPAHICV_00007	04/19/20	07/15/19	Hexane, Lot 221330	10 mL	60MXSSBENZEP_00005	1000 uL	Benzo[e]pyrene	20 ug/mL
					60MXSSDBTHP_00004	200 uL	Dibenzothiophene	20 ug/mL
					60MXSSPERYLN_00003	200 uL	Perylene	20 ug/mL
..60MXSSBENZEP_00005	07/15/21		CIL, Lot SDGL-018		(Purchased Reagent)		Benzo[e]pyrene	200 ug/mL
..60MXSSDBTHP_00004	05/02/21		SPEX CertiPrep, Lot EN180502014		(Purchased Reagent)		Dibenzothiophene	1000 ug/mL
..60MXSSPERYLN_00003	05/02/20		SPEX CertiPrep, Lot EN170502007		(Purchased Reagent)		Perylene	1000 ug/mL
60L18270SIM_00005	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60XX8270PAHT1_00003	1 uL	1-Methylnaphthalene	0.02 ug/mL
							2-Methylnaphthalene	0.02 ug/mL
							Acenaphthene	0.02 ug/mL
							Acenaphthylene	0.02 ug/mL
							Anthracene	0.02 ug/mL
							Benzo[a]anthracene	0.02 ug/mL
							Benzo[a]pyrene	0.02 ug/mL
							Benzo[b]fluoranthene	0.02 ug/mL
							Benzo[g,h,i]perylene	0.02 ug/mL
							Benzo[k]fluoranthene	0.02 ug/mL
							Chrysene	0.02 ug/mL
							Dibenz(a,h)anthracene	0.02 ug/mL
							Fluoranthene	0.02 ug/mL
							Fluorene	0.02 ug/mL
							Indeno[1,2,3-cd]pyrene	0.02 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Naphthalene	0.02 ug/mL
							Phenanthrene	0.02 ug/mL
							Pyrene	0.02 ug/mL
							1-Methylphenanthrene	0.02 ug/mL
							2,3,5-Trimethylnaphthalene	0.02 ug/mL
							2,6-Dimethylnaphthalene	0.02 ug/mL
							Benzo[e]pyrene	0.02 ug/mL
							Dibenzothiophene	0.02 ug/mL
							Perylene	0.02 ug/mL
							1,1'-Biphenyl	0.02 ug/mL
							Dibenzofuran	0.02 ug/mL
					60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
					60xx8270simsr_00005	1 uL	2-Fluorobiphenyl (Surr)	0.02 ug/mL
							Nitrobenzene-d5	0.02 ug/mL
							Terphenyl-d14	0.02 ug/mL
					60xx8270smspc_00003	1 uL	Benzo(b)thiophene	0.02 ug/mL
							cis-Decalin	0.02 ug/mL
							Naphthobenzothiophene	0.02 ug/mL
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	1-Methylphenanthrene	20 ug/mL
							2,3,5-Trimethylnaphthalene	20 ug/mL
							2,6-Dimethylnaphthalene	20 ug/mL
							Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
					60MXSVOCAD_00004	100 uL	1,1'-Biphenyl	20 ug/mL
							Dibenzofuran	20 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		1-Methylphenanthrene	2000 ug/mL
							2,3,5-Trimethylnaphthalene	2000 ug/mL
							2,6-Dimethylnaphthalene	2000 ug/mL
							Benzo[e]pyrene	2000 ug/mL
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
..60MXSVOCAD_00004	02/08/21		Restek, Lot A0139915		(Purchased Reagent)		1,1'-Biphenyl	2000 ug/mL
							Dibenzofuran	2000 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19		Restek, Lot A0139031		(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
.60xx8270smspc_00003	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXB(b)Th_00001	100 uL	Benzo(b)thiophene	20 ug/mL
					60MXDECALIN_00001	200 uL	cis-Decalin	20 ug/mL
					60MXNBT_00001	200 uL	Naphthobenzothiophene	20 ug/mL
..60MXB(b)Th_00001	06/13/20		Absolute, Lot 061818		(Purchased Reagent)		Benzo(b)thiophene	2000 ug/mL
..60MXDECALIN_00001	06/13/20		Absolute, Lot 071018		(Purchased Reagent)		cis-Decalin	1000 ug/mL
..60MXNBT_00001	06/13/20		Absolute, Lot 051118		(Purchased Reagent)		Naphthobenzothiophene	1000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
60L28270SIM_00006	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60XX8270PAHT1_00003	5 uL	1-Methylnaphthalene	0.1 ug/mL
							2-Methylnaphthalene	0.1 ug/mL
							Acenaphthene	0.1 ug/mL
							Acenaphthylene	0.1 ug/mL
							Anthracene	0.1 ug/mL
							Benzo[a]anthracene	0.1 ug/mL
							Benzo[a]pyrene	0.1 ug/mL
							Benzo[b]fluoranthene	0.1 ug/mL
							Benzo[g,h,i]perylene	0.1 ug/mL
							Benzo[k]fluoranthene	0.1 ug/mL
							Chrysene	0.1 ug/mL
							Dibenz(a,h)anthracene	0.1 ug/mL
							Fluoranthene	0.1 ug/mL
							Fluorene	0.1 ug/mL
							Indeno[1,2,3-cd]pyrene	0.1 ug/mL
							Naphthalene	0.1 ug/mL
							Phenanthrene	0.1 ug/mL
							Pyrene	0.1 ug/mL
							1-Methylphenanthrene	0.1 ug/mL
							2,3,5-Trimethylnaphthalene	0.1 ug/mL
							2,6-Dimethylnaphthalene	0.1 ug/mL
							Benzo[e]pyrene	0.1 ug/mL
							Dibenzothiophene	0.1 ug/mL
							Perylene	0.1 ug/mL
							1,1'-Biphenyl	0.1 ug/mL
							Dibenzofuran	0.1 ug/mL
					60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
					60xx8270simsr_00005	5 uL	2-Fluorobiphenyl (Surr)	0.1 ug/mL
							Nitrobenzene-d5	0.1 ug/mL
							Terphenyl-d14	0.1 ug/mL
					60xx8270smspc_00003	5 uL	Benzo(b)thiophene	0.1 ug/mL
							cis-Decalin	0.1 ug/mL
							Naphthobenzothiophene	0.1 ug/mL
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	1-Methylphenanthrene	20 ug/mL
							2,3,5-Trimethylnaphthalene	20 ug/mL
							2,6-Dimethylnaphthalene	20 ug/mL
							Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
					60MXSVOCAD_00004	100 uL	1,1'-Biphenyl	20 ug/mL
							Dibenzofuran	20 ug/mL
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		1-Methylphenanthrene	2000 ug/mL
							2,3,5-Trimethylnaphthalene	2000 ug/mL
							2,6-Dimethylnaphthalene	2000 ug/mL
							Benzo[e]pyrene	2000 ug/mL
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
..60MXSVOCAD_00004	02/08/21		Restek, Lot A0139915		(Purchased Reagent)		1,1'-Biphenyl	2000 ug/mL
							Dibenzofuran	2000 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19		Restek, Lot A0139031		(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
.60xx8270smspc_00003	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXB(b)Th_00001	100 uL	Benzo(b)thiophene	20 ug/mL
					60MXDECALIN_00001	200 uL	cis-Decalin	20 ug/mL
					60MXNBT_00001	200 uL	Naphthobenzothiophene	20 ug/mL
..60MXB(b)Th_00001	06/13/20		Absolute, Lot 061818		(Purchased Reagent)		Benzo(b)thiophene	2000 ug/mL
..60MXDECALIN_00001	06/13/20		Absolute, Lot 071018		(Purchased Reagent)		cis-Decalin	1000 ug/mL
..60MXNBT_00001	06/13/20		Absolute, Lot 051118		(Purchased Reagent)		Naphthobenzothiophene	1000 ug/mL
60L38270SIM_00006	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60XX8270PAHT1_00003	12.5 uL	1-Methylnaphthalene	0.25 ug/mL
							2-Methylnaphthalene	0.25 ug/mL
							Acenaphthene	0.25 ug/mL
							Acenaphthylene	0.25 ug/mL
							Anthracene	0.25 ug/mL
							Benzo[a]anthracene	0.25 ug/mL
							Benzo[a]pyrene	0.25 ug/mL
							Benzo[b]fluoranthene	0.25 ug/mL
							Benzo[g,h,i]perylene	0.25 ug/mL
							Benzo[k]fluoranthene	0.25 ug/mL
							Chrysene	0.25 ug/mL
							Dibenz(a,h)anthracene	0.25 ug/mL
							Fluoranthene	0.25 ug/mL
							Fluorene	0.25 ug/mL
							Indeno[1,2,3-cd]pyrene	0.25 ug/mL
							Naphthalene	0.25 ug/mL
							Phenanthrene	0.25 ug/mL
							Pyrene	0.25 ug/mL
							1-Methylphenanthrene	0.25 ug/mL
							2,3,5-Trimethylnaphthalene	0.25 ug/mL
							2,6-Dimethylnaphthalene	0.25 ug/mL
							Benzo[e]pyrene	0.25 ug/mL
							Dibenzothiophene	0.25 ug/mL
							Perylene	0.25 ug/mL
							1,1'-Biphenyl	0.25 ug/mL
							Dibenzofuran	0.25 ug/mL
					60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
					60xx8270simsr_00005	12.5 uL	2-Fluorobiphenyl (Surr)	0.25 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Nitrobenzene-d5	0.25 ug/mL
							Terphenyl-d14	0.25 ug/mL
					60xx8270smspc_00003	12.5 uL	Benzo(b)thiophene	0.25 ug/mL
							cis-Decalin	0.25 ug/mL
							Naphthobenzothiophene	0.25 ug/mL
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	1-Methylphenanthrene	20 ug/mL
							2,3,5-Trimethylnaphthalene	20 ug/mL
							2,6-Dimethylnaphthalene	20 ug/mL
							Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
					60MXSVOCAD_00004	100 uL	1,1'-Biphenyl	20 ug/mL
							Dibenzofuran	20 ug/mL
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		1-Methylphenanthrene	2000 ug/mL
							2,3,5-Trimethylnaphthalene	2000 ug/mL
							2,6-Dimethylnaphthalene	2000 ug/mL
							Benzo[e]pyrene	2000 ug/mL
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
..60MXSVOCAD_00004	02/08/21		Restek, Lot A0139915		(Purchased Reagent)		1,1'-Biphenyl	2000 ug/mL
							Dibenzofuran	2000 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19		Restek, Lot A0139031		(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
.60xx8270smspc_00003	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXB(b)Th_00001	100 uL	Benzo(b)thiophene	20 ug/mL
					60MXDECALIN_00001	200 uL	cis-Decalin	20 ug/mL
					60MXNBT_00001	200 uL	Naphthobenzothiophene	20 ug/mL
..60MXB(b)Th_00001	06/13/20		Absolute, Lot 061818		(Purchased Reagent)		Benzo(b)thiophene	2000 ug/mL
..60MXDECALIN_00001	06/13/20		Absolute, Lot 071018		(Purchased Reagent)		cis-Decalin	1000 ug/mL
..60MXNBT_00001	06/13/20		Absolute, Lot 051118		(Purchased Reagent)		Naphthobenzothiophene	1000 ug/mL
60L48270SIM_00006	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60XX8270PAHT1_00003	25 uL	1-Methylnaphthalene	0.5 ug/mL
							2-Methylnaphthalene	0.5 ug/mL
							Acenaphthene	0.5 ug/mL
							Acenaphthylene	0.5 ug/mL
							Anthracene	0.5 ug/mL
							Benzo[a]anthracene	0.5 ug/mL
							Benzo[a]pyrene	0.5 ug/mL
							Benzo[b]fluoranthene	0.5 ug/mL
							Benzo[g,h,i]perylene	0.5 ug/mL
							Benzo[k]fluoranthene	0.5 ug/mL
							Chrysene	0.5 ug/mL
							Dibenz(a,h)anthracene	0.5 ug/mL
							Fluoranthene	0.5 ug/mL
							Fluorene	0.5 ug/mL
							Indeno[1,2,3-cd]pyrene	0.5 ug/mL
							Naphthalene	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Phenanthrene	0.5 ug/mL
							Pyrene	0.5 ug/mL
							1-Methylphenanthrene	0.5 ug/mL
							2,3,5-Trimethylnaphthalene	0.5 ug/mL
							2,6-Dimethylnaphthalene	0.5 ug/mL
							Benzo[e]pyrene	0.5 ug/mL
							Dibenzothiophene	0.5 ug/mL
							Perylene	0.5 ug/mL
							1,1'-Biphenyl	0.5 ug/mL
							Dibenzofuran	0.5 ug/mL
					60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
					60xx8270simsr_00005	25 uL	2-Fluorobiphenyl (Surr)	0.5 ug/mL
							Nitrobenzene-d5	0.5 ug/mL
							Terphenyl-d14	0.5 ug/mL
					60xx8270smspc_00003	25 uL	Benzo(b)thiophene	0.5 ug/mL
							cis-Decalin	0.5 ug/mL
							Naphthobenzothiophene	0.5 ug/mL
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	1-Methylphenanthrene	20 ug/mL
							2,3,5-Trimethylnaphthalene	20 ug/mL
							2,6-Dimethylnaphthalene	20 ug/mL
							Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
					60MXSVOCAD_00004	100 uL	1,1'-Biphenyl	20 ug/mL
							Dibenzofuran	20 ug/mL
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		1-Methylphenanthrene	2000 ug/mL
							2,3,5-Trimethylnaphthalene	2000 ug/mL
							2,6-Dimethylnaphthalene	2000 ug/mL
							Benzo[e]pyrene	2000 ug/mL
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
..60MXSVOCAD_00004	02/08/21		Restek, Lot A0139915		(Purchased Reagent)		1,1'-Biphenyl	2000 ug/mL
							Dibenzofuran	2000 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19		Restek, Lot A0139031		(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
.60xx8270smspc_00003	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXB(b)Th_00001	100 uL	Benzo(b)thiophene	20 ug/mL
					60MXDECALIN_00001	200 uL	cis-Decalin	20 ug/mL
					60MXNBT_00001	200 uL	Naphthobenzothiophene	20 ug/mL
..60MXB(b)Th_00001	06/13/20		Absolute, Lot 061818		(Purchased Reagent)		Benzo(b)thiophene	2000 ug/mL
..60MXDECALIN_00001	06/13/20		Absolute, Lot 071018		(Purchased Reagent)		cis-Decalin	1000 ug/mL
..60MXNBT_00001	06/13/20		Absolute, Lot 051118		(Purchased Reagent)		Naphthobenzothiophene	1000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
60L58270SIM_00006	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60XX8270PAHT1_00003	50 uL	1-Methylnaphthalene	1 ug/mL
							2-Methylnaphthalene	1 ug/mL
							Acenaphthene	1 ug/mL
							Acenaphthylene	1 ug/mL
							Anthracene	1 ug/mL
							Benzo[a]anthracene	1 ug/mL
							Benzo[a]pyrene	1 ug/mL
							Benzo[b]fluoranthene	1 ug/mL
							Benzo[g,h,i]perylene	1 ug/mL
							Benzo[k]fluoranthene	1 ug/mL
							Chrysene	1 ug/mL
							Dibenz(a,h)anthracene	1 ug/mL
							Fluoranthene	1 ug/mL
							Fluorene	1 ug/mL
							Indeno[1,2,3-cd]pyrene	1 ug/mL
							Naphthalene	1 ug/mL
							Phenanthrene	1 ug/mL
							Pyrene	1 ug/mL
							1-Methylphenanthrene	1 ug/mL
							2,3,5-Trimethylnaphthalene	1 ug/mL
							2,6-Dimethylnaphthalene	1 ug/mL
							Benzo[e]pyrene	1 ug/mL
							Dibenzothiophene	1 ug/mL
							Perylene	1 ug/mL
							1,1'-Biphenyl	1 ug/mL
							Dibenzofuran	1 ug/mL
					60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
					60xx8270simsr_00005	50 uL	2-Fluorobiphenyl (Surr)	1 ug/mL
							Nitrobenzene-d5	1 ug/mL
							Terphenyl-d14	1 ug/mL
					60xx8270smspc_00003	50 uL	Benzo(b)thiophene	1 ug/mL
							cis-Decalin	1 ug/mL
							Naphthobenzothiophene	1 ug/mL
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	1-Methylphenanthrene	20 ug/mL
							2,3,5-Trimethylnaphthalene	20 ug/mL
							2,6-Dimethylnaphthalene	20 ug/mL
							Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
					60MXSVOCAD_00004	100 uL	1,1'-Biphenyl	20 ug/mL
							Dibenzofuran	20 ug/mL
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		1-Methylphenanthrene	2000 ug/mL
							2,3,5-Trimethylnaphthalene	2000 ug/mL
							2,6-Dimethylnaphthalene	2000 ug/mL
							Benzo[e]pyrene	2000 ug/mL
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
..60MXSVOCAD_00004	02/08/21		Restek, Lot A0139915		(Purchased Reagent)		1,1'-Biphenyl	2000 ug/mL
							Dibenzofuran	2000 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19		Restek, Lot A0139031		(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
.60xx8270smspc_00003	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXB(b)Th_00001	100 uL	Benzo(b)thiophene	20 ug/mL
					60MXDECALIN_00001	200 uL	cis-Decalin	20 ug/mL
					60MXNBT_00001	200 uL	Naphthobenzothiophene	20 ug/mL
..60MXB(b)Th_00001	06/13/20		Absolute, Lot 061818		(Purchased Reagent)		Benzo(b)thiophene	2000 ug/mL
..60MXDECALIN_00001	06/13/20		Absolute, Lot 071018		(Purchased Reagent)		cis-Decalin	1000 ug/mL
..60MXNBT_00001	06/13/20		Absolute, Lot 051118		(Purchased Reagent)		Naphthobenzothiophene	1000 ug/mL
60L68270SIM_00006	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60XX8270PAHT1_00003	125 uL	1-Methylnaphthalene	2.5 ug/mL
							2-Methylnaphthalene	2.5 ug/mL
							Acenaphthene	2.5 ug/mL
							Acenaphthylene	2.5 ug/mL
							Anthracene	2.5 ug/mL
							Benzo[a]anthracene	2.5 ug/mL
							Benzo[a]pyrene	2.5 ug/mL
							Benzo[b]fluoranthene	2.5 ug/mL
							Benzo[g,h,i]perylene	2.5 ug/mL
							Benzo[k]fluoranthene	2.5 ug/mL
							Chrysene	2.5 ug/mL
							Dibenz(a,h)anthracene	2.5 ug/mL
							Fluoranthene	2.5 ug/mL
							Fluorene	2.5 ug/mL
							Indeno[1,2,3-cd]pyrene	2.5 ug/mL
							Naphthalene	2.5 ug/mL
							Phenanthrene	2.5 ug/mL
							Pyrene	2.5 ug/mL
							1-Methylphenanthrene	2.5 ug/mL
							2,3,5-Trimethylnaphthalene	2.5 ug/mL
							2,6-Dimethylnaphthalene	2.5 ug/mL
							Benzo[e]pyrene	2.5 ug/mL
							Dibenzothiophene	2.5 ug/mL
							Perylene	2.5 ug/mL
							1,1'-Biphenyl	2.5 ug/mL
							Dibenzofuran	2.5 ug/mL
					60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
					60xx8270simsr_00005	125 uL	2-Fluorobiphenyl (Surr)	2.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Nitrobenzene-d5	2.5 ug/mL
							Terphenyl-d14	2.5 ug/mL
					60xx8270smspc_00003	125 uL	Benzo(b)thiophene	2.5 ug/mL
							cis-Decalin	2.5 ug/mL
							Naphthobenzothiophene	2.5 ug/mL
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	1-Methylphenanthrene	20 ug/mL
							2,3,5-Trimethylnaphthalene	20 ug/mL
							2,6-Dimethylnaphthalene	20 ug/mL
							Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
					60MXSVOCAD_00004	100 uL	1,1'-Biphenyl	20 ug/mL
							Dibenzofuran	20 ug/mL
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		1-Methylphenanthrene	2000 ug/mL
							2,3,5-Trimethylnaphthalene	2000 ug/mL
							2,6-Dimethylnaphthalene	2000 ug/mL
							Benzo[e]pyrene	2000 ug/mL
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
..60MXSVOCAD_00004	02/08/21		Restek, Lot A0139915		(Purchased Reagent)		1,1'-Biphenyl	2000 ug/mL
							Dibenzofuran	2000 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19		Restek, Lot A0139031		(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
.60xx8270smspc_00003	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXB(b)Th_00001	100 uL	Benzo(b)thiophene	20 ug/mL
					60MXDECALIN_00001	200 uL	cis-Decalin	20 ug/mL
					60MXNBT_00001	200 uL	Naphthobenzothiophene	20 ug/mL
..60MXB(b)Th_00001	06/13/20		Absolute, Lot 061818		(Purchased Reagent)		Benzo(b)thiophene	2000 ug/mL
..60MXDECALIN_00001	06/13/20		Absolute, Lot 071018		(Purchased Reagent)		cis-Decalin	1000 ug/mL
..60MXNBT_00001	06/13/20		Absolute, Lot 051118		(Purchased Reagent)		Naphthobenzothiophene	1000 ug/mL
60L78270SIM_00006	11/30/19	07/09/19	Hexane, Lot 221330	1 mL	60XX8270PAHT1_00003	250 uL	1-Methylnaphthalene	5 ug/mL
							2-Methylnaphthalene	5 ug/mL
							Acenaphthene	5 ug/mL
							Acenaphthylene	5 ug/mL
							Anthracene	5 ug/mL
							Benzo[a]anthracene	5 ug/mL
							Benzo[a]pyrene	5 ug/mL
							Benzo[b]fluoranthene	5 ug/mL
							Benzo[g,h,i]perylene	5 ug/mL
							Benzo[k]fluoranthene	5 ug/mL
							Chrysene	5 ug/mL
							Dibenz(a,h)anthracene	5 ug/mL
							Fluoranthene	5 ug/mL
							Fluorene	5 ug/mL
							Indeno[1,2,3-cd]pyrene	5 ug/mL
							Naphthalene	5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Phenanthrene	5 ug/mL
							Pyrene	5 ug/mL
							1-Methylphenanthrene	5 ug/mL
							2,3,5-Trimethylnaphthalene	5 ug/mL
							2,6-Dimethylnaphthalene	5 ug/mL
							Benzo[e]pyrene	5 ug/mL
							Dibenzothiophene	5 ug/mL
							Perylene	5 ug/mL
							1,1'-Biphenyl	5 ug/mL
							Dibenzofuran	5 ug/mL
					60xx8270simis_00003	10 uL	Acenaphthene-d10	0.5 ug/mL
							Chrysene-d12	0.5 ug/mL
							Naphthalene-d8	0.5 ug/mL
							Perylene-d12	0.5 ug/mL
							Phenanthrene-d10	0.5 ug/mL
					60xx8270simsr_00005	250 uL	2-Fluorobiphenyl (Surr)	5 ug/mL
							Nitrobenzene-d5	5 ug/mL
							Terphenyl-d14	5 ug/mL
					60xx8270smspc_00003	250 uL	Benzo(b)thiophene	5 ug/mL
							cis-Decalin	5 ug/mL
							Naphthobenzothiophene	5 ug/mL
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	1-Methylphenanthrene	20 ug/mL
							2,3,5-Trimethylnaphthalene	20 ug/mL
							2,6-Dimethylnaphthalene	20 ug/mL
							Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
					60MXSVOCAD_00004	100 uL	1,1'-Biphenyl	20 ug/mL
							Dibenzofuran	20 ug/mL
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		1-Methylphenanthrene	2000 ug/mL
							2,3,5-Trimethylnaphthalene	2000 ug/mL
							2,6-Dimethylnaphthalene	2000 ug/mL
							Benzo[e]pyrene	2000 ug/mL
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
..60MXSVOCAD_00004	02/08/21		Restek, Lot A0139915		(Purchased Reagent)		1,1'-Biphenyl	2000 ug/mL
							Dibenzofuran	2000 ug/mL
.60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
..60MXIS_00008	11/30/19		Restek, Lot A0139031		(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2-Fluorobiphenyl (Surr)	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2-Fluorobiphenyl (Surr)	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
.60xx8270smspc_00003	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXB(b)Th_00001	100 uL	Benzo(b)thiophene	20 ug/mL
					60MXDECALIN_00001	200 uL	cis-Decalin	20 ug/mL
					60MXNBT_00001	200 uL	Naphthobenzothiophene	20 ug/mL
..60MXB(b)Th_00001	06/13/20		Absolute, Lot 061818		(Purchased Reagent)		Benzo(b)thiophene	2000 ug/mL
..60MXDECALIN_00001	06/13/20		Absolute, Lot 071018		(Purchased Reagent)		cis-Decalin	1000 ug/mL
..60MXNBT_00001	06/13/20		Absolute, Lot 051118		(Purchased Reagent)		Naphthobenzothiophene	1000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
60SP8270SIMSR_00008	06/13/20	08/08/19	Methanol, Lot 225737	50 mL	60xx8270simsr_00005	2.5 mL	2,4,6-Tribromophenol	1 ug/mL
							2-Fluorobiphenyl (Surr)	1 ug/mL
							2-Fluorophenol	1 ug/mL
							Nitrobenzene-d5	1 ug/mL
							Phenol-d5	1 ug/mL
							Terphenyl-d14	1 ug/mL
.60xx8270simsr_00005	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXSU_00020	40 uL	2,4,6-Tribromophenol	20 ug/mL
							2-Fluorobiphenyl (Surr)	20 ug/mL
							2-Fluorophenol	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
							Phenol-d5	20 ug/mL
							Terphenyl-d14	20 ug/mL
..60MXSU_00020	06/13/20		Restek, Lot A0143524		(Purchased Reagent)		2,4,6-Tribromophenol	5000 ug/mL
							2-Fluorobiphenyl (Surr)	5000 ug/mL
							2-Fluorophenol	5000 ug/mL
							Nitrobenzene-d5	5000 ug/mL
							Phenol-d5	5000 ug/mL
							Terphenyl-d14	5000 ug/mL
60SP8270SIMTA_00009	02/08/20	07/24/19	Methanol, Lot 225737	25 mL	60XX8270PAHT1_00003	1.25 mL	1-Methylnaphthalene	1 ug/mL
							2-Methylnaphthalene	1 ug/mL
							Acenaphthene	1 ug/mL
							Acenaphthylene	1 ug/mL
							Anthracene	1 ug/mL
							Benzo[a]anthracene	1 ug/mL
							Benzo[a]pyrene	1 ug/mL
							Benzo[b]fluoranthene	1 ug/mL
							Benzo[g,h,i]perylene	1 ug/mL
							Benzo[k]fluoranthene	1 ug/mL
							Chrysene	1 ug/mL
							Dibenz(a,h)anthracene	1 ug/mL
							Fluoranthene	1 ug/mL
							Fluorene	1 ug/mL
							Indeno[1,2,3-cd]pyrene	1 ug/mL
							Naphthalene	1 ug/mL
							Phenanthrene	1 ug/mL
							Pyrene	1 ug/mL
							1-Methylphenanthrene	1 ug/mL
							2,3,5-Trimethylnaphthalene	1 ug/mL
							2,6-Dimethylnaphthalene	1 ug/mL
							Benzo[e]pyrene	1 ug/mL
							Dibenzothiophene	1 ug/mL
							Perylene	1 ug/mL
							1,1'-Biphenyl	1 ug/mL
							Dibenzofuran	1 ug/mL
					60xx8270smspc_00003	1.25 mL	Benzo(b)thiophene	1 ug/mL
							cis-Decalin	1 ug/mL
							Naphthobenzothiophene	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.60XX8270PAHT1_00003	02/08/20	07/09/19	Hexane, Lot 221330	10 mL	60MX8270CLMX5_00003	100 uL	1-Methylnaphthalene	20 ug/mL
							2-Methylnaphthalene	20 ug/mL
							Acenaphthene	20 ug/mL
							Acenaphthylene	20 ug/mL
							Anthracene	20 ug/mL
							Benzo[a]anthracene	20 ug/mL
							Benzo[a]pyrene	20 ug/mL
							Benzo[b]fluoranthene	20 ug/mL
							Benzo[g,h,i]perylene	20 ug/mL
							Benzo[k]fluoranthene	20 ug/mL
							Chrysene	20 ug/mL
							Dibenz(a,h)anthracene	20 ug/mL
							Fluoranthene	20 ug/mL
							Fluorene	20 ug/mL
							Indeno[1,2,3-cd]pyrene	20 ug/mL
							Naphthalene	20 ug/mL
							Phenanthrene	20 ug/mL
							Pyrene	20 ug/mL
					60MXNATSACPAH_00008	100 uL	1-Methylphenanthrene	20 ug/mL
							2,3,5-Trimethylnaphthalene	20 ug/mL
							2,6-Dimethylnaphthalene	20 ug/mL
							Benzo[e]pyrene	20 ug/mL
							Dibenzothiophene	20 ug/mL
							Perylene	20 ug/mL
					60MXSVOCAD_00004	100 uL	1,1'-Biphenyl	20 ug/mL
							Dibenzofuran	20 ug/mL
..60MX8270CLMX5_00003	03/05/21		Restek, Lot A0125411		(Purchased Reagent)		1-Methylnaphthalene	2000 ug/mL
							2-Methylnaphthalene	2000 ug/mL
							Acenaphthene	2000 ug/mL
							Acenaphthylene	2000 ug/mL
							Anthracene	2000 ug/mL
							Benzo[a]anthracene	2000 ug/mL
							Benzo[a]pyrene	2000 ug/mL
							Benzo[b]fluoranthene	2000 ug/mL
							Benzo[g,h,i]perylene	2000 ug/mL
							Benzo[k]fluoranthene	2000 ug/mL
							Chrysene	2000 ug/mL
							Dibenz(a,h)anthracene	2000 ug/mL
							Fluoranthene	2000 ug/mL
							Fluorene	2000 ug/mL
							Indeno[1,2,3-cd]pyrene	2000 ug/mL
							Naphthalene	2000 ug/mL
							Phenanthrene	2000 ug/mL
							Pyrene	2000 ug/mL
..60MXNATSACPAH_00008	09/01/20		Restek, Lot A0146343		(Purchased Reagent)		1-Methylphenanthrene	2000 ug/mL
							2,3,5-Trimethylnaphthalene	2000 ug/mL
							2,6-Dimethylnaphthalene	2000 ug/mL
							Benzo[e]pyrene	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Dibenzothiophene	2000 ug/mL
							Perylene	2000 ug/mL
..60MXSVOCAD_00004	02/08/21		Restek, Lot A0139915		(Purchased Reagent)		1,1'-Biphenyl	2000 ug/mL
							Dibenzofuran	2000 ug/mL
.60xx8270smspc_00003	06/13/20	07/09/19	Hexane, Lot 221330	10 mL	60MXB(b)Th_00001	100 uL	Benzo(b)thiophene	20 ug/mL
					60MXDECALIN_00001	200 uL	cis-Decalin	20 ug/mL
					60MXNBT_00001	200 uL	Naphthobenzothiophene	20 ug/mL
..60MXB(b)Th_00001	06/13/20		Absolute, Lot 061818		(Purchased Reagent)		Benzo(b)thiophene	2000 ug/mL
..60MXDECALIN_00001	06/13/20		Absolute, Lot 071018		(Purchased Reagent)		cis-Decalin	1000 ug/mL
..60MXNBT_00001	06/13/20		Absolute, Lot 051118		(Purchased Reagent)		Naphthobenzothiophene	1000 ug/mL
60WDM8270D_00003	11/30/19	06/12/19	Hexane, Lot 211844	1 mL	60SRMWDM_00001	0.005 mL	C1-Benzothiophenes	5000 ug/mL
							C1-Chrysenes	5000 ug/mL
							C1-Decalins	5000 ug/mL
							C1-Dibenzothiophenes	5000 ug/mL
							C1-Fluoranthenes/pyrene	5000 ug/mL
							C1-Fluorenes	5000 ug/mL
							C1-Naphthalenes	5000 ug/mL
							C1-Naphthobenzothiophenes	5000 ug/mL
							C1-Phenanthrenes/Anthracenes	5000 ug/mL
							C2-Benzothiophenes	5000 ug/mL
							C2-Chrysenes	5000 ug/mL
							C2-Decalins	5000 ug/mL
							C2-Dibenzothiophenes	5000 ug/mL
							C2-Fluoranthenes/Pyrene	5000 ug/mL
							C2-Fluorenes	5000 ug/mL
							C2-Naphthalenes	5000 ug/mL
							C2-Naphthobenzothiophenes	5000 ug/mL
							C2-Phenanthrenes/Anthracenes	5000 ug/mL
							C3-Benzothiophenes	5000 ug/mL
							C3-Chrysenes	5000 ug/mL
							C3-Decalins	5000 ug/mL
							C3-Dibenzothiophenes	5000 ug/mL
							C3-Fluoranthenes/Pyrene	5000 ug/mL
							C3-Fluorenes	5000 ug/mL
							C3-Naphthalenes	5000 ug/mL
							C3-Naphthobenzothiophenes	5000 ug/mL
							C3-Phenanthrenes/Anthracenes	5000 ug/mL
							C4-Benzothiophenes	5000 ug/mL
							C4-Chrysenes	5000 ug/mL
							C4-Decalins	5000 ug/mL
							C4-Dibenzothiophenes	5000 ug/mL
							C4-Fluoranthenes/Pyrene	5000 ug/mL
							C4-Naphthalenes	5000 ug/mL
							C4-Naphthobenzothiophenes	5000 ug/mL
							C4-Phenanthrenes/Anthracenes	5000 ug/mL
.60SRMWDM_00001	05/30/19		National Institute of STDs and Tech., Lot SRM 2779		(Purchased Reagent)		C1-Benzothiophenes	1 g/g
							C1-Chrysenes	1 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							C1-Decalins	1 g/g
							C1-Dibenzothiophenes	1 g/g
							C1-Fluoranthenes/pyrene	1 g/g
							C1-Fluorenes	1 g/g
							C1-Naphthalenes	1 g/g
							C1-Naphthobenzothiophenes	1 g/g
							C1-Phenanthrenes/Anthracenes	1 g/g
							C2-Benzothiophenes	1 g/g
							C2-Chrysenes	1 g/g
							C2-Decalins	1 g/g
							C2-Dibenzothiophenes	1 g/g
							C2-Fluoranthenes/Pyrene	1 g/g
							C2-Fluorenes	1 g/g
							C2-Naphthalenes	1 g/g
							C2-Naphthobenzothiophenes	1 g/g
							C2-Phenanthrenes/Anthracenes	1 g/g
							C3-Benzothiophenes	1 g/g
							C3-Chrysenes	1 g/g
							C3-Decalins	1 g/g
							C3-Dibenzothiophenes	1 g/g
							C3-Fluoranthenes/Pyrene	1 g/g
							C3-Fluorenes	1 g/g
							C3-Naphthalenes	1 g/g
							C3-Naphthobenzothiophenes	1 g/g
							C3-Phenanthrenes/Anthracenes	1 g/g
							C4-Benzothiophenes	1 g/g
							C4-Chrysenes	1 g/g
							C4-Decalins	1 g/g
							C4-Dibenzothiophenes	1 g/g
							C4-Fluoranthenes/Pyrene	1 g/g
							C4-Naphthalenes	1 g/g
							C4-Naphthobenzothiophenes	1 g/g
							C4-Phenanthrenes/Anthracenes	1 g/g
60xx8270simis_00003	11/30/19	07/09/19	Hexane, Lot 221330	10 mL	60MXIS_00008	0.25 mL	Acenaphthene-d10	50 ug/mL
							Chrysene-d12	50 ug/mL
							Naphthalene-d8	50 ug/mL
							Perylene-d12	50 ug/mL
							Phenanthrene-d10	50 ug/mL
.60MXIS_00008	11/30/19	Restek, Lot A0139031			(Purchased Reagent)		Acenaphthene-d10	2000 ug/mL
							Chrysene-d12	2000 ug/mL
							Naphthalene-d8	2000 ug/mL
							Perylene-d12	2000 ug/mL
							Phenanthrene-d10	2000 ug/mL

Reagent

60MX8270CLMX5_00003

BNA 1335-37
Rec 7/17/17 JW

RESTEK
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Bellefonte, PA 16823-8812
Tel: (800)356-1688
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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

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. : 31995 **Lot No.:** A0125411

Description : 8270 Calibration Mix #5, Revised

8270 Calibration Mix #5, Revised 2,000µg/ml, Methylene Chloride, 1ml/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

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

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Naphthalene **CAS #** 91-20-3 **Purity** 99%	(Lot MKBW2603V)	2,008.0 µg/mL	+/- 11.7841 +/- 90.4557 +/- 100.3688	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	2-Methylnaphthalene **CAS #** 91-57-6 **Purity** 95%	(Lot STBF0201V)	2,014.5 µg/mL	+/- 11.8221 +/- 90.7474 +/- 100.6925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
3	1-Methylnaphthalene **CAS #** 90-12-0 **Purity** 98%	(Lot 523400-9)	2,005.1 µg/mL	+/- 11.7669 +/- 90.3242 +/- 100.2229	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
4	Acenaphthylene **CAS #** 208-96-8 **Purity** 98%	(Lot L18Q)	2,008.5 µg/mL	+/- 11.7871 +/- 90.4787 +/- 100.3943	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
5	Acenaphthene **CAS #** 83-32-9 **Purity** 99%	(Lot MKBW9515V)	2,016.0 µg/mL	+/- 11.8310 +/- 90.8161 +/- 100.7687	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
6	Fluorene **CAS #** 86-73-7 **Purity** 99%	(Lot 10193329)	2,018.0 µg/mL	+/- 11.8428 +/- 90.9062 +/- 100.8687	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
7	Phenanthrene **CAS #** 85-01-8 **Purity** 99%	(Lot MKBT8628V)	2,016.0 µg/mL	+/- 11.8310 +/- 90.8161 +/- 100.7687	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

8	Anthracene **CAS #** 120-12-7 **Purity** 99%	(Lot MKBV7759V)	2,017.0	µg/mL	+/- 11.8369 +/- 90.8611 +/- 100.8187	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Fluoranthene **CAS #** 206-44-0 **Purity** 98%	(Lot MKBQ6360V)	2,007.0	µg/mL	+/- 11.7784 +/- 90.4125 +/- 100.3208	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Pyrene **CAS #** 129-00-0 **Purity** 98%	(Lot BCBP9868V)	2,017.8	µg/mL	+/- 11.8417 +/- 90.8981 +/- 100.8597	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Benz(a)anthracene **CAS #** 56-55-3 **Purity** 99%	(Lot ER031412-01)	2,017.5	µg/mL	+/- 11.8398 +/- 90.8837 +/- 100.8437	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	Chrysene **CAS #** 218-01-9 **Purity** 99%	(Lot 012015)	2,009.0	µg/mL	+/- 11.7899 +/- 90.5008 +/- 100.4188	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	Benzo(b)fluoranthene **CAS #** 205-99-2 **Purity** 99%	(Lot ER03101401)	2,018.5	µg/mL	+/- 11.8457 +/- 90.9287 +/- 100.8937	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	Benzo(k)fluoranthene **CAS #** 207-08-9 **Purity** 99%	(Lot 012012K)	2,004.0	µg/mL	+/- 11.7606 +/- 90.2755 +/- 100.1689	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	Benzo(a)pyrene **CAS #** 50-32-8 **Purity** 99%	(Lot ER071309-02)	1,995.5	µg/mL	+/- 11.7107 +/- 89.8926 +/- 99.7440	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	Indeno(1,2,3-cd)pyrene **CAS #** 193-39-5 **Purity** 99%	(Lot ER082107-02)	2,020.0	µg/mL	+/- 11.8545 +/- 90.9963 +/- 100.9686	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Dibenz(a,h)anthracene **CAS #** 53-70-3 **Purity** 99%	(Lot ER032211-01)	2,018.5	µg/mL	+/- 11.8457 +/- 90.9287 +/- 100.8937	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Benzo(g,h,i)perylene **CAS #** 191-24-2 **Purity** 99%	(Lot ER05121401)	2,018.5	µg/mL	+/- 11.8457 +/- 90.9287 +/- 100.8937	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
Solvent:	Methylene Chloride **CAS #** 75-09-2 **Purity** 99%						

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

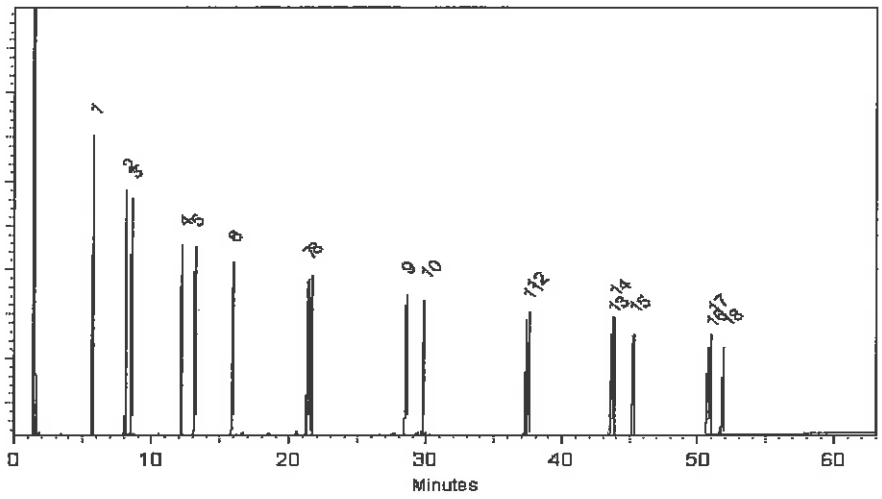
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
100°C (hold 1 min.) to 330°C
@ 4°C/min. (hold 5 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Dawn Brownson - Mix Technician

Date Mixed: 27-Feb-2017 **Balance:** 1128360905

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 03-Mar-2017

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

Reagent

60MXB(b)Th_00001

Absolute Standards, Inc.
800-368-1131
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Certified Reference Material CRM

ISO 17034 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT

Part Number: 92840
Lot Number: 061818
Description: Thianaphthene

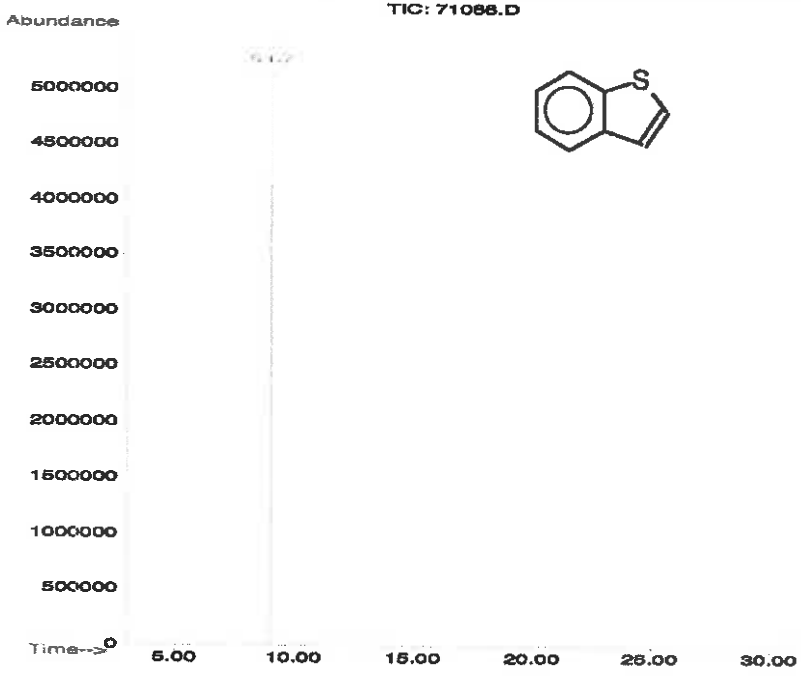
Solvent: Methylene chloride **Lot#** 76782

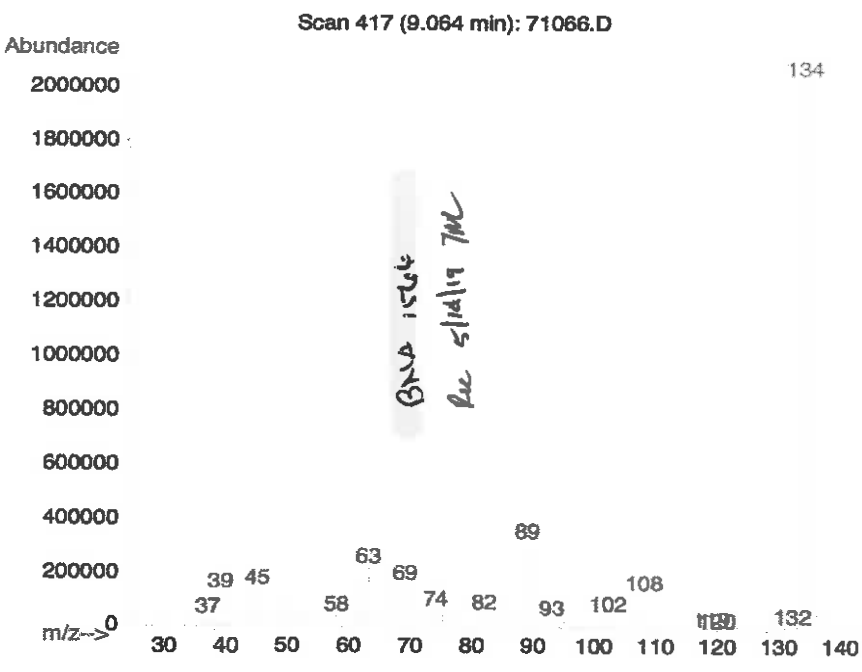
Expiration Date: 061823
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 2000
NIST Test ID#: 2684186 5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 20.0 0.003 Flask Uncertainty

Formulated By:	Justin Dippold	061818 DATE
Reviewed By:	Pedro L. Rentas	061818 DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight (g)	Actual Weight (g)	Actual Conc(µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Thianaphthene	1066	04526HY	2000	99	0.2	0.04043	0.04050	2003.6	9.5	95-15-8	N/A	N/A

Method GC8MSD-2.M: Column:SBB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (14 min.), Rate = 10°C/min., Injector B= 250°C, Detector B = 300°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by Lance R. Boynton/Nicole Poisson





- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Reagent

60MXDECALIN_00001

CERTIFIED WEIGHT REPOFIT

Part Number: 71975
Lot Number: 071018
Description: cis-Decahydronaphthalene

Solvent(s): Methanol Lot# DS435

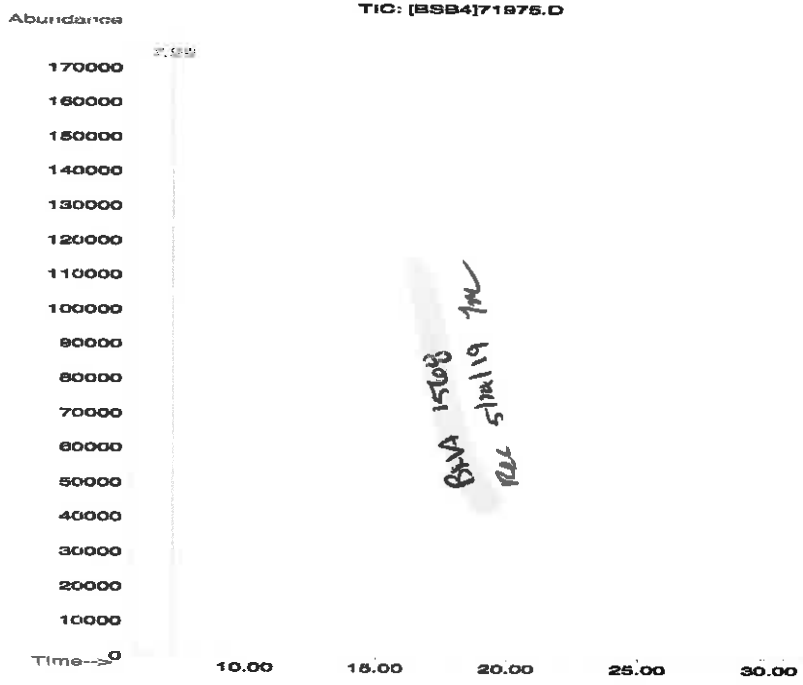
Expiration Date: 071023
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 2684186 5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 10.0 0.002 Flask Uncertainty

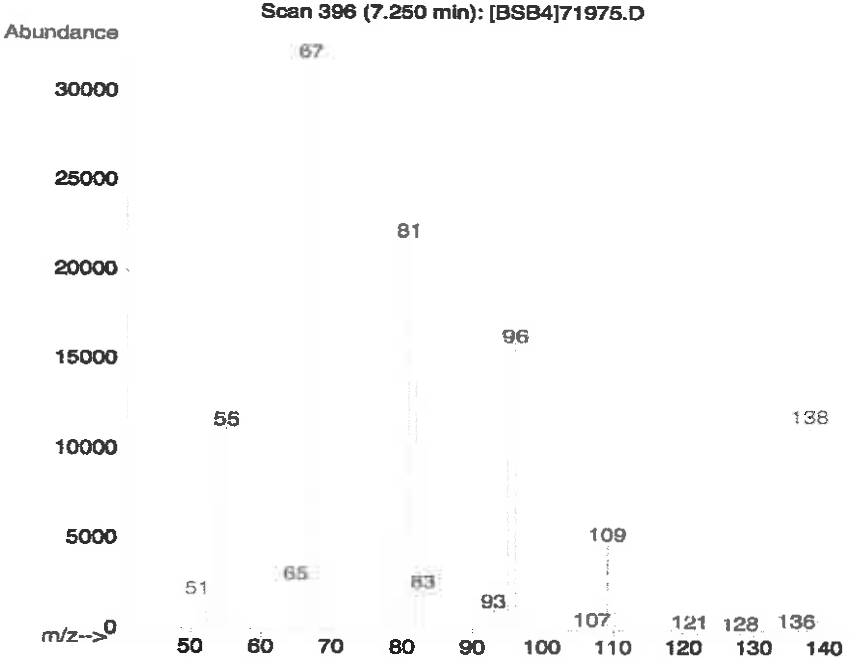
Eli Aliaga 071018
Formulated By: Eli Aliaga DATE

Pedro Rentas 071018
Reviewed By: Pedro L. Rentas DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. cis-Decahydronaphthalene	1975	00628KI	1000	99	0.2	0.01006	0.01012	1005.7	10.7	493-01-6	N/A	N/A

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 200°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Gina McLane.





- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Reagent

60MXIS_00008

BNA 1499-1501

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Fax: (814)353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

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. : 567684 **Lot No.:** A0139031

Description : 8270 Internal Standard

8270 Internal Standard 2,000µg/mL, Methylene chloride, 5mL/ampul

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

Expiration Date : June 30, 2023 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)		Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dichlorobenzene-d4 **CAS #** 3855-82-1 **Purity** 99%	(Lot PR-18488)	2,005.7	µg/mL	+/- 11.6613 +/- 90.3379 +/- 100.2411	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	Naphthalene-d8 **CAS #** 1146-65-2 **Purity** 99%	(Lot M-1452)	2,011.0	µg/mL	+/- 11.6921 +/- 90.5766 +/- 100.5060	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
3	Acenaphthene-d10 **CAS #** 15067-26-2 **Purity** 99%	(Lot PR-28021)	2,011.5	µg/mL	+/- 11.6950 +/- 90.5992 +/- 100.5310	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
4	Phenanthrene-d10 **CAS #** 1517-22-2 **Purity** 99%	(Lot PR-23065)	2,005.3	µg/mL	+/- 11.6590 +/- 90.3199 +/- 100.2211	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
5	Chrysene-d12 **CAS #** 1719-03-5 **Purity** 99%	(Lot PR-28823)	2,005.3	µg/mL	+/- 11.6590 +/- 90.3199 +/- 100.2211	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
6	Perylene-d12 **CAS #** 1520-96-3 **Purity** 99%	(Lot PR-24113)	2,011.6	µg/mL	+/- 11.6956 +/- 90.6037 +/- 100.5360	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Reagent

60MXNATSACPAH_00008

BHA 1521 - 1525
Rec 2/28/19

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Gravimetric Certificate

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

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. : 569478-FL **Lot No.:** A0146343

Description : Sacramento SIM PAH Standard

Sacramento SIM PAH Standard 2,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

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

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Component #	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1-Methylphenanthrene **CAS #** 832-69-9 **Purity** 99% (Lot 7137700)	2,000.0 µg/mL	+/- 20.1475 µg/mL +/- 91.5714 µg/mL +/- 101.3013 µg/mL	Gravimetric Unstressed Stressed
2	2,3,5-Trimethylnaphthalene **CAS #** 2245-38-7 **Purity** 98% (Lot N7VYK)	2,004.1 µg/mL	+/- 20.1888 µg/mL +/- 91.7592 µg/mL +/- 101.5090 µg/mL	Gravimetric Unstressed Stressed
3	2,6-Dimethylnaphthalene **CAS #** 581-42-0 **Purity** 99% (Lot STBG7481)	2,000.0 µg/mL	+/- 20.1475 µg/mL +/- 91.5714 µg/mL +/- 101.3013 µg/mL	Gravimetric Unstressed Stressed
4	3-Methylphenanthrene **CAS #** 832-71-3 **Purity** 99% (Lot SABOL)	2,010.0 µg/mL	+/- 20.2482 µg/mL +/- 92.0293 µg/mL +/- 101.8078 µg/mL	Gravimetric Unstressed Stressed
5	Benzo(e)pyrene **CAS #** 192-97-2 **Purity** 99% (Lot NT061029)	2,000.0 µg/mL	+/- 20.1475 µg/mL +/- 91.5714 µg/mL +/- 101.3013 µg/mL	Gravimetric Unstressed Stressed
6	Dibenzothiophene **CAS #** 132-65-0 **Purity** 98% (Lot H27J01)	1,999.2 µg/mL	+/- 20.1394 µg/mL +/- 91.5348 µg/mL +/- 101.2608 µg/mL	Gravimetric Unstressed Stressed
7	Perylene **CAS #** 198-55-0 **Purity** 99% (Lot 04101PG)	2,005.0 µg/mL	+/- 20.1978 µg/mL +/- 91.8004 µg/mL +/- 101.5545 µg/mL	Gravimetric Unstressed Stressed

Reagent

60MXNBT_00001

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ISO 17034 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT

Part Number: 71977
Lot Number: 051118
Description: 1,2-Benzodiphenylene sulfide

Solvent(s):	Lot#
Methanol	DS435

Expiration Date: 051121
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 2684186

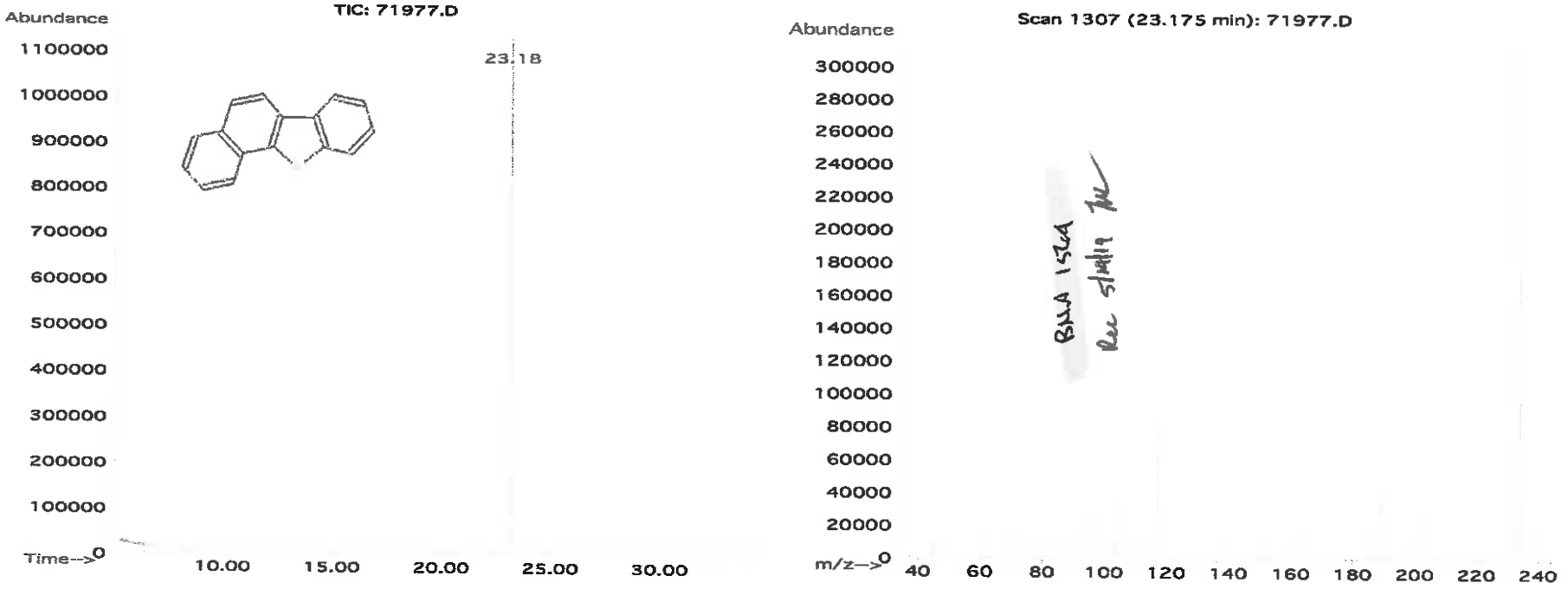
5E-05 Balance Uncertainty
0.001 Flask Uncertainty

Weight(s) shown below were combined and diluted to (mL): 2.5

Formulated By: Mario Luis	051118	DATE
Reviewed By: Pedro L. Rentas	051118	DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. 1,2-Benzodiphenylene sulfide	1977	07527KSV	1000	99	0.2	0.00253	0.00255	1009.8	39.8	239-35-0	N/A	N/A

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 200°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Melissa Stonier.



- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Reagent

60MXSSBENZEP_00005

BNA 1596
Rec 7/12/19

Cambridge Isotope Laboratories, Inc. Certificate of Analysis

Product Name: BENZO[E]PYRENE
(Isotopic Label & Enrichment Specification) UNLABELED STANDARD 200 UG/ML IN ISOOCTANE

Lot Number: SDGL-018

Catalog Number: ULM-7423-S

Product Information

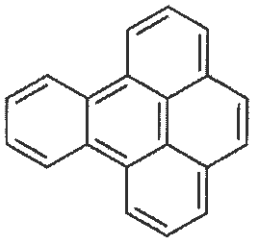
Chemical Purity Specification: ≥ 98%

MW*: 252.31
** For isotopically labeled compounds, MW listed is for the fully enriched product.*

Labeled CAS Number: NA

Unlabeled CAS Number: 192-97-2

Chemical Formula: C20H12



Storage: Store at room temperature away from light and moisture
Stability: See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

Approved by: Marina Klionsky

Marina Klionsky, Quality Review

Quality Control Tests and Results

QC Release Date	2/01/2017
Expiration Date	2/01/2027
Concentration Based on Gravimetry	200.0 ± 2.1 µg/mL (k=2)
Chemical Purity of Neat Material(s)	99.5%

Reagent

60MXSSCLMX5_00001

BNA 1348
Rec 7/17/17 TW

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

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED ISO Guide 34 Accredited Reference Material Producer Certificate #3222.01

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. : 31995.sec **Lot No.:** A0115109

Description : 8270 Calibration Mix #5, Revised

8270 Calibration Mix #5, Revised 2,000 µg/ml, Methylene Chloride, 1ml/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

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

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Naphthalene **CAS #** 91-20-3.SEC (Lot 4KW3H-OO) **Purity** 99%	2,014.0 µg/mL	+/- 11.9625 µg/mL +/- 90.7448 µg/mL +/- 100.6857 µg/mL	Gravimetric Unstressed Stressed
2	2-Methylnaphthalene **CAS #** 91-57-6.SEC (Lot 76023-1) **Purity** 99%	2,000.0 µg/mL	+/- 11.8794 µg/mL +/- 90.1140 µg/mL +/- 99.9858 µg/mL	Gravimetric Unstressed Stressed
3	1-Methylnaphthalene **CAS #** 90-12-0.SEC (Lot UATSA) **Purity** 99%	2,000.0 µg/mL	+/- 11.8794 µg/mL +/- 90.1140 µg/mL +/- 99.9858 µg/mL	Gravimetric Unstressed Stressed
4	Acenaphthylene **CAS #** 208-96-8.SEC (Lot 062013) **Purity** 98%	2,005.1 µg/mL	+/- 11.9096 µg/mL +/- 90.3429 µg/mL +/- 100.2397 µg/mL	Gravimetric Unstressed Stressed
5	Acenaphthene **CAS #** 83-32-9.SEC (Lot BWZJE) **Purity** 99%	2,000.0 µg/mL	+/- 11.8794 µg/mL +/- 90.1140 µg/mL +/- 99.9858 µg/mL	Gravimetric Unstressed Stressed
6	Fluorene **CAS #** 86-73-7.SEC (Lot 1561600) **Purity** 99%	2,010.0 µg/mL	+/- 11.9388 µg/mL +/- 90.5645 µg/mL +/- 100.4857 µg/mL	Gravimetric Unstressed Stressed
7	Phenanthrene **CAS #** 85-01-8.SEC (Lot 1777100) **Purity** 98%	2,007.0 µg/mL	+/- 11.9212 µg/mL +/- 90.4312 µg/mL +/- 100.3377 µg/mL	Gravimetric Unstressed Stressed

8	Anthracene **CAS #** 120-12-7.SEC **Purity** 99%	(Lot WDFNJ)	2,012.0	µg/mL	+/- 11.9507 +/- 90.6547 +/- 100.5857	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Fluoranthene **CAS #** 206-44-0.SEC **Purity** 99%	(Lot FREGF)	2,016.0	µg/mL	+/- 11.9744 +/- 90.8349 +/- 100.7856	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Pyrene **CAS #** 129-00-0.SEC **Purity** 99%	(Lot ROVJC)	2,012.0	µg/mL	+/- 11.9507 +/- 90.6547 +/- 100.5857	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Benz(a)anthracene **CAS #** 56-55-3.SEC **Purity** 97%	(Lot MTENF)	2,015.7	µg/mL	+/- 11.9724 +/- 90.8196 +/- 100.7686	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	chrysene **CAS #** 218-01-9.SEC **Purity** 99%	(Lot I3AKL)	2,002.0	µg/mL	+/- 11.8913 +/- 90.2041 +/- 100.0857	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	Benzo(b)fluoranthene **CAS #** 205-99-2.SEC **Purity** 97%	(Lot 012012)	2,017.6	µg/mL	+/- 11.9839 +/- 90.9070 +/- 100.8656	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	Benzo(k)fluoranthene **CAS #** 207-08-9.SEC **Purity** 98%	(Lot 3596500)	2,005.1	µg/mL	+/- 11.9096 +/- 90.3429 +/- 100.2397	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	Benzo(a)pyrene **CAS #** 50-32-8.SEC **Purity** 99%	(Lot 2IGMD)	2,002.0	µg/mL	+/- 11.8913 +/- 90.2041 +/- 100.0857	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	Indeno(1,2,3-cd)pyrene **CAS #** 193-39-5.SEC **Purity** 99%	(Lot 022013)	2,014.0	µg/mL	+/- 11.9625 +/- 90.7448 +/- 100.6857	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Dibenz(a,h)anthracene **CAS #** 53-70-3.SEC **Purity** 99%	(Lot 0012012)	2,012.0	µg/mL	+/- 11.9507 +/- 90.6547 +/- 100.5857	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Benzo(g,h,i)perylene **CAS #** 191-24-2.SEC **Purity** 99%	(Lot 0022012)	2,016.0	µg/mL	+/- 11.9744 +/- 90.8349 +/- 100.7856	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
Solvent:	Methylene Chloride **CAS #** 75-09-2 **Purity** 99%						

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

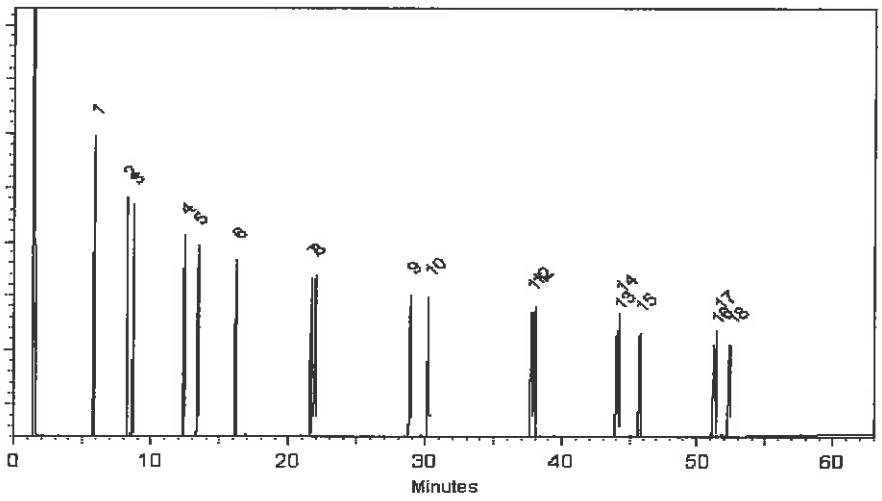
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
100°C (hold 1 min.) to 330°C
@ 4°C/min. (hold 5 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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

Lane Kibe - Mix Technician

Date Mixed: 02-Nov-2015 **Balance:** 1128353505

Jennifer L. Pollino - QC Analyst

Date Passed: 04-Nov-2015

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

Reagent

60MXSSDBTHP_00004

BNA 1593
Rec 7/12/19

Reference Materials Producer
Cert #2495.01

SPEXertificate®
Certificate of Reference Material

Chemical Testing
Cert #2495.02

Catalog Number: S-1185 **Lot No.** EN180502014

Description: Dibenzothiophene

Matrix: Methanol (Purge & Trap Grade)

Manufactured Date: 5-2-2018

Expiration Date: 5-1-2021

This **SPEXOrganics®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for organic chromatography instrumentation such as GC, GC-MS, LC, and LC-MS. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Compounds:

Compound	CAS #	Labeled	Purity	Certified†	Uncertainty
Dibenzothiophene	132-65-0	1000 µg/mL	98%	1009 µg/mL	± 26 µg/mL

Final Solution Verification:

Final solution integrity verified by Gas Chromatography/Mass Spectrometry. The mass spectrum of each compound was confirmed against the NIST mass spectral database.

† Certified concentration based on gravimetric weights and corrected for the purity of the compound(s) used to prepare the standard. Analytical balance calibration is verified daily with C1 weight set #23-190006 which is registered with Atlantic Scale, and traceable to NIST and NJ Division of Weights and Measures.

This CRM is guaranteed stable and accurate to within the uncertainty listed for the certified value. This includes uncertainty components due to preparation, homogeneity, short term and long term stability. During the stated period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution. For further information, contact the Sales Support Department at crmsales@spexcsp.com.

Date of Certification: 5-2-2018

Certifying Officer: Shannon Mace

Shannon Macieira, Operations Manager

Reagent

60MXSSPERYLN_00003

BNA 1595
Rec 7/12/17

Reference Materials Producer
Cert #2495.01

SPEXertificate®
Certificate of Reference Material

Chemical Testing
Cert #2495.02

Catalog Number: S-3005 **Lot No.** EN170502007

Description: Perylene

Matrix: Methylene Chloride

Manufactured Date: 5-2-2017
Expiration Date: 5-1-2020

This **SPEXOrganics®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for organic chromatography instrumentation such as GC, GC-MS, LC, and LC-MS. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Compounds:

Compound	CAS #	Labeled	Purity	Certified†	Uncertainty
Perylene	198-55-0	1000 µg/mL	99%	1008 µg/mL	± 26 µg/mL

Final Solution Verification:

Final solution integrity verified by Gas Chromatography/Mass Spectrometry. The mass spectrum of each compound was confirmed against the NIST mass spectral database.

† Certified concentration based on gravimetric weights and corrected for the purity of the compound(s) used to prepare the standard. Analytical balance calibration is verified daily with C1 weight set #23-190006 which is registered with Atlantic Scale, and traceable to NIST and NJ Division of Weights and Measures.

This CRM is guaranteed stable and accurate to within the uncertainty listed for the certified value. This includes uncertainty components due to preparation, homogeneity, short term and long term stability. During the stated period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution. For further information, contact the Sales Support Department at crmsales@spexcsp.com.

Date of Certification: 5-2-2017

Certifying Officer: Shannon Mace

Shannon Macieira, Operations Manager

Reagent

60MXSU_00020

BNA 1559-1561

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

rec'd 4/19/19

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. : 567685 **Lot No.:** A0143524

Description : 8270 Surrogate Standard

8270 Surrogate Standard 5,000µg/mL, Methylene chloride, 5mL/ampul

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

Expiration Date : November 30, 2023 **Storage:** 10°C or colder

Handling: Sonicate prior to use.

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Fluorophenol **CAS #** 367-12-4 **Purity** 99%	(Lot STBF3761V)	4,998.8 µg/mL	+/- 29.0635 µg/mL +/- 145.8817 µg/mL +/- 177.0219 µg/mL		Gravimetric Unstressed Stressed
2	Phenol-d5 **CAS #** 4165-62-2 **Purity** 99%	(Lot CD-105)	5,018.9 µg/mL	+/- 29.1801 µg/mL +/- 146.4674 µg/mL +/- 177.7325 µg/mL		Gravimetric Unstressed Stressed
3	Nitrobenzene-d5 **CAS #** 4165-60-0 **Purity** 99%	(Lot PR-29603)	5,009.3 µg/mL	+/- 29.1243 µg/mL +/- 146.1872 µg/mL +/- 177.3925 µg/mL		Gravimetric Unstressed Stressed
4	2-Fluorobiphenyl **CAS #** 321-60-8 **Purity** 99%	(Lot M09E045)	5,024.7 µg/mL	+/- 29.2138 µg/mL +/- 146.6366 µg/mL +/- 177.9379 µg/mL		Gravimetric Unstressed Stressed
5	2,4,6-Tribromophenol **CAS #** 118-79-6 **Purity** 99%	(Lot 29699MJV)	5,012.1 µg/mL	+/- 29.1410 µg/mL +/- 146.2708 µg/mL +/- 177.4940 µg/mL		Gravimetric Unstressed Stressed
6	p-Terphenyl-d14 **CAS #** 1718-51-0 **Purity** 99%	(Lot B180320L)	5,022.9 µg/mL	+/- 29.2038 µg/mL +/- 146.5860 µg/mL +/- 177.8765 µg/mL		Gravimetric Unstressed Stressed

Reagent

60MXSVOCAD_00004

BNA 1515-1519
Rec 1/31/19

RESTEK CERTIFIED REFERENCE MATERIAL

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

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Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

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. : 567839 **Lot No.:** A0139915

Description : SVOC PAH Additions

SVOC PAH Additions 2,000µg/mL, Methylene chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : June 30, 2024 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Biphenyl **CAS #** 92-52-4 **Purity** 99% (Lot MKBV9808V)	2,020.0 µg/mL	+/- 18.7849 µg/mL +/- 92.1557 µg/mL +/- 102.0148 µg/mL	Gravimetric Unstressed Stressed
2	Dibenzofuran **CAS #** 132-64-9 **Purity** 99% (Lot MKCD9952)	2,020.0 µg/mL	+/- 18.7849 µg/mL +/- 92.1557 µg/mL +/- 102.0148 µg/mL	Gravimetric Unstressed Stressed

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

Reagent

60SRMWDM_00001

BNA 1443
Rec. 4/10/18
Exp. 9/30/20

National Institute of Standards & Technology

opened: 5/29/18 TAL
Exp. 5/29/20

Certificate of Analysis

Standard Reference Material® 2779

Gulf of Mexico Crude Oil

This Standard Reference Material (SRM) 2779 is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), hopanes, and steranes in a crude oil matrix. All of the constituents for which certified, reference, and information values are provided are naturally present in the oil. A unit of SRM 2779 consists of five ampoules each containing 1.2 mL of crude oil.

Certified Mass Fraction Values: Certified mass fraction values for 21 PAHs are provided in Table 1. A NIST certified value is a value for which NIST has the highest confidence in its accuracy in that all known or suspected sources of bias have been investigated or taken into account [1]. The certified values are based on the agreement of results obtained at NIST using multiple analytical techniques.

Reference Mass Fraction Values: Reference mass fraction values are provided for an additional 22 PAHs (Table 2), alkylated PAHs (Table 3), and hopanes and steranes (Table 4). Reference values are noncertified values that are estimates of the true value. However, the values do not meet the NIST criteria for certification and are provided with associated uncertainties that may reflect only measurement precision, may not include all sources of uncertainty, or may reflect a lack of sufficient statistical agreement among multiple analytical methods [1].

Expiration of Certification: The certification of **SRM 2779** is valid, within the measurement uncertainties specified, until **30 September 2020,** provided the SRM is handled and stored in accordance with the instructions given in this certificate (see "Instructions for Handling, Storage, and Use"). The certification is nullified if the SRM is damaged, contaminated, or otherwise modified.

Maintenance of SRM Certification: NIST will monitor this SRM over the period of its certification. If substantive technical changes occur that affect the certification before the expiration of this certificate, NIST will notify the purchaser. Registration (see attached sheet) will facilitate notification.

The overall direction and coordination of technical measurements leading to certification were performed by M.M. Schantz and L.C. Sander of the NIST Analytical Chemistry Division.

Evaluation of the data was provided by N.A. Heckert, S.D. Leigh, and A.L. Pintar of the NIST Statistical Engineering Division.

Support aspects involved in the issuance of this SRM were coordinated through the NIST Measurement Services Division.

Analytical measurements were performed by B.A. Benner, Jr., J.R. Kucklick, and M.M. Schantz of the NIST Analytical Chemistry Division. Additional results for PAHs, hopanes, and steranes were used from 24 laboratories that participated in an interlaboratory study coordinated by M.M. Schantz.

Partial funding support for the preparation and certification of this SRM was provided by the National Oceanic and Atmospheric Administration and ultimately paid by BP Corporation North America, Inc. as part of the natural resource damage assessment for the 2010 Deepwater Horizon oil spill.

Stephen A. Wise, Chief
Analytical Chemistry Division

Robert L. Watters, Jr., Chief
Measurement Services Division

Gaithersburg, MD 20899
Certificate Issue Date: 04 June 2012
Certificate Revision History on Last Page

INSTRUCTIONS FOR HANDLING, STORAGE, AND USE

Handling: This material is naturally occurring crude oil and may contain constituents of unknown toxicities; therefore, caution and care should be exercised during its handling and use.

Storage: Sealed ampoules, as received, should be stored in the dark at temperatures between 4 °C and 30 °C.

Use: Samples for analysis should be withdrawn immediately after opening ampoules and should be processed without delay for the certified values in Table 1 to be valid within the stated uncertainties. Certified values are not applicable to material stored in ampoules that have been opened, even if they are resealed.

PREPARATION AND ANALYSIS[1]

Sample Collection and Preparation: The petroleum crude oil for this SRM was collected on May 21, 2010 on the drillship *Discoverer Enterprise* from the insertion tube that was receiving oil directly from the Macondo well during response operations. The oil was collected into certified cleaned 2.5 liter glass bottles and transported under chain of custody to TDI Brooks Laboratory in College Station, Texas. A portion was subsequently provided to NIST under the authority of the National Oceanic and Atmospheric Administration (NOAA). The water was separated from the oil by letting it sit in a separatory funnel for 4 h and removing the water. The resulting oil was homogenized by stirring for 18 h in a 20 L glass flask before transferring into 2 mL amber glass ampoules that had been flushed with argon.

Analysis for PAHs, Hopanes, and Steranes: The general approach used for the value assignment of the PAHs, hopanes, and steranes in SRM 2779 consisted of combining results from analyses using various combinations of different cleanup/isolation procedures and chromatographic separation and detection techniques [2]. Three sets of gas chromatography/mass spectrometry (GC/MS) results, designated as GC/MS (I) through GC/MS (III) were obtained at NIST.

For GC/MS (I) analyses, duplicate test portions of 400 mg from 10 ampoules of SRM 2779 were transferred to a vial, spiked with a known amount of an internal standard solution (see below), and diluted with hexane. A portion of the diluted oil (0.5 mL) was fractionated using an aminopropyl solid-phase extraction (SPE) column to isolate the fraction of interest. Following a concentration step, the processed extract was then fractionated using liquid chromatography on a semi-preparative scale aminopropyl silane column. Three fractions were collected: (1) aliphatics, hopanes, and steranes; (2) naphthalene through the dimethylphenanthrenes and anthracenes; and (3) the remainder of the PAHs through molecular mass 302 g/mol. Each fraction was then analyzed by GC/MS using a 0.25 mm i.d × 60 m fused silica capillary column with a 50 % (mole fraction) phenyl methylpolysiloxane phase (0.25 µm film thickness; DB-17MS, Agilent Technologies, Wilmington, DE), and fractions 2 and 3 were analyzed using a 0.25 mm i.d. × 15 m fused silica capillary column with a 50 % (mole fraction) liquid crystal polysiloxane phase (0.15 µm film thickness; LC-50, J&K Scientific, Milton, Ontario, Canada). The results from the DB-17MS column are denoted as GC/MS Ia and those from the LC-50 column as GC/MS Ib.

For the GC/MS (II) determination of the PAHs, one test portion (6 mg to 8 mg) from each of six ampoules was transferred to a vial, spiked with a known amount of internal standard solution (see below), and diluted with 2 % dichloromethane in hexane (volume fraction). A portion of the diluted oil (0.1 mL) was fractionated using an aminopropyl SPE column to isolate the fraction of interest. Following a concentration step, the isolated fraction was analyzed by GC/MS using a 0.25 mm i.d. × 60 m fused silica capillary column with a 50 % phenyl methylpolysiloxane phase (0.25 µm film thickness; ZB-50 column, Phenomenex, Torrance, CA).

For the GC/MS (III) determination of the PAHs, hopanes, and steranes, one test portion (1 mL, exact mass known) from each of three ampoules was transferred to a bottle and diluted with 25 mL of hexane (exact mass known) prior to adding the internal standards (see below). The extracts were fractionated into two fractions using a silica/alumina column with the majority of the aliphatics, hopanes, and steranes in fraction 1 and the majority of the PAHs in fraction 2. The analytes of interest were quantified using GC/MS on a 0.25 mm i.d. × 60 m fused silica capillary column with a 50 % (mole fraction) phenyl methylpolysiloxane phase (0.25 µm film thickness; Rxi-17sil MS, Restek, Bellefonte, PA).

For the methods described above, perdeuterated PAHs and perdeuterated aliphatics were added to the crude oil as internal standards for quantification purposes.

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[1] Certain commercial equipment, instrumentation, or materials are identified in this certificate to adequately specify the experimental procedure. Such identification does not imply recommendation or endorsement by the NIST, nor does it imply that the materials or equipment identified are necessarily the best available for the purpose.

In addition to the analyses performed at NIST, SRM 2779 was used in an interlaboratory comparison exercise in 2011 [3]. Results from 24 laboratories that participated in this exercise were used as the fourth data set in the determination of the values for PAHs, hopanes, and steranes in SRM 2779. Not all of the laboratories returned data for each analyte. The laboratories participating in this exercise used the analytical procedures routinely used in their laboratories to measure the analytes of interest. For the alkylated PAHs, more than 90 % of the laboratories used the parent PAH for determination of the response factor for the corresponding alkylated group.

Homogeneity Assessment for PAHs: The homogeneity of SRM 2779 was assessed by analyzing duplicate test portions of 400 mg from 10 ampoules selected by stratified random sampling. Test portions were processed and analyzed as described above for GC/MS (I). No differences among ampoules were observed for the PAHs at the 400 mg test portion size.

Certified Values: The certified mass fraction value is a weighted mean of the mass fractions from two to five analytical methods [4]. The uncertainty listed with each value is an expanded uncertainty about the mean [4,5], with coverage factor, $k = 2$, calculated by combining within-method variances with a between-method variance [6] following the ISO Guide [7,8]. Sample fractionation and analysis method are denoted by the footnotes in the table.

Table 1. Certified Mass Fraction Values for PAHs in SRM 2779

	Mass Fraction (mg/kg)		
Naphthalene[a,b,c,d]	855	±	46
1-Methylnaphthalene[a,b,d]	1140	±	20
2-Methylnaphthalene[a,b,d]	1630	±	50
Dibenzothiophene[a,b,d]	51.8	±	2.1
Phenanthrene[a,b,c,d,e]	258	±	27
Anthracene[a,c,e]	3.42	±	0.59
1-Methylphenanthrene[a,b,c,d,e]	169	±	10
2-Methylphenanthrene[a,b,c,e]	230	±	14
3-Methylphenanthrene[a,b,c,e]	206	±	32
9-Methylphenanthrene[a,b,c,e]	232	±	19
Fluoranthene[a,b,c,d,e]	4.36	±	0.40
Pyrene[a,b,c,d,e]	14.81	±	0.39
Benz[*a*]anthracene[a,b,c,d,e]	7.03	±	0.85
Chrysene/Triphenylene[a,b,d]	47.4	±	1.7
Benzo[*b*]fluoranthene[a,b,c,d,e]	5.62	±	0.34
Benzo[*e*]pyrene[a,b,c,d,e]	10.78	±	0.60
Benzo[*ghi*]perylene[a,b,c,d,e]	2.11	±	0.26
Dibenz[*a,c*]anthracene[a,h]	2.03	±	0.10
Dibenz[*a,h*]anthracene[a,c,e]	0.574	±	0.091
Benzo[*b*]chyrsene[a,c]	0.629	±	0.022

[a] GC/MS Ia using LC fractionation followed by analysis on a DB-17MS column.
[b] GC/MS II using SPE clean-up followed by analysis on a ZB-50 column.
[c] GC/MS III using silica/alumina fractionation followed by analysis on an Rxi-17sil MS column.
[d] Data from the interlaboratory study [3].
[e] GC/MS Ib using LC fractionation followed by analysis on a LC-50 column.

Reference Values: For most of the PAHs, the reference mass fraction value is a weighted mean of the mass fractions from two to five analytical methods [4] when available. The uncertainty listed with each value is an expanded uncertainty about the mean [4,5], with coverage factor, $k = 2$, calculated by combining within method variances with a between method variance [6] following the ISO Guide [7,8] unless otherwise indicated. Sample fractionation and analysis methods are denoted by the footnotes in the table.

For dibenzofuran, 1,2-dimethylnapthalene, 1-methylfluoranthene, 3-methylfluoranthene, and 1,6,7-trimethylnaphthalene, the reference mass fractions value are the means of results obtained using one analytical technique. The expanded uncertainty, U, is calculated as $U = ku_c$, where u_c is one standard deviation of the analyte mean, and the coverage factor, k, is determined from the Student's t-distribution corresponding to the associated degrees of freedom and a 95 % confidence level for each analyte. There are five degrees of freedom for these values except for the 1,6,7-trimethylnaphthalene (15 degrees of freedom) value and the dibenzofuran (12 degrees of freedom) value.

Table 2. Reference Mass Fraction Values for PAHs in SRM 2779

	Mass Fraction (mg/kg)
Biphenyl[a,b,c,d]	195 ± 19
Acenaphthylene[a,b]	8.09 ± 0.10
1,2-Dimethylnaphthalene[d]	173 ± 5
1,6-Dimethylnaphthalene[c,d]	1160 ± 100
1,6,7-Trimethylnaphthalene[e]	306 ± 63
Dibenzofuran[e]	25.7 ± 3.6
Fluorene[a,b,c,d]	145 ± 43
2-Methylanthracene[a,d]	23.3 ± 2.5
1,7-Dimethylphenanthrene[c,d]	110 ± 12
1-Methylfluoranthene[e]	5.77 ± 0.09
3-Methylfluoranthene[c]	1.75 ± 0.17
1-Methylpyrene[a,c,d,e]	12.1 ± 1.8
4-Methylpyrene[a,c,d,e]	21.6 ± 1.5
Chrysene[a,e]	23.3 ± 5.2
Triphenylene[a,e]	17.7 ± 6.7
6-Methylchrysene[a,c,d,e]	15.10 ± 0.56
Benzo[*j*]fluoranthene[a,c,e]	0.75 ± 0.29
Benzo[*k*]fluoranthene[a,c,e]	0.66 ± 0.28
Benzo[*a*]pyrene[a,b,c,d,e]	1.36 ± 0.35
Perylene[a,c,e]	0.71 ± 0.17
Indeno[1,2,3-*cd*]pyrene[a,c,e]	0.48 ± 0.14
Picene[a,c,d]	1.92 ± 0.37

[a] GC/MS III using silica/alumina fractionation followed by analysis on an Rxi-17sil MS column.
[b] Data from the interlaboratory study [3].
[c] GC/MS Ia using LC fractionation followed by analysis on a DB-17MS column.
[d] GC/MS II using SPE clean-up followed by analysis on a ZB-50 column.
[e] GC/MS Ib using LC fractionation followed by analysis on a LC-50 column.

The reference mass fraction values for the alkylated PAH groups are the means of results obtained using one analytical technique. The data are from the interlaboratory study [3]. The expanded uncertainty, U, is calculated as $U = ku_c$, where u_c is one standard deviation of the analyte mean, and the coverage factor, k, is determined from the Student's t-distribution corresponding to the associated degrees of freedom and a 95 % confidence level for each analyte.

Table 3. Reference Mass Fraction Values for Alkylated PAH Groups in SRM 2779

	Mass Fraction (mg/kg)	Degrees of Freedom
C1-Decalins	1040 ± 410	5
C2-Decalins	1060 ± 470	5
C3-Decalins	1460 ± 600	5
C2-Naphthalenes	2170 ± 360	22
C3-Naphthalenes	1380 ± 270	21
C4-Naphthalenes	700 ± 130	22
C2-Benzothiophenes	36 ± 13	6
C4-Benzothiophenes	30 ± 4	5
C1-Fluorenes	300 ± 60	22
C2-Fluorenes	380 ± 30	19
C3-Fluorenes	270 ± 40	21
C1-Phenanthrenes/anthracenes	670 ± 90	22
C2-Phenanthrenes/anthracenes	630 ± 60	21
C3-Phenanthrenes/anthracenes	400 ± 50	20
C4-Phenanthrenes/anthracenes	200 ± 30	19
C1-Dibenzothiophenes	130 ± 20	21
C2-Dibenzothiophenes	160 ± 20	21
C3-Dibenzothiophenes	110 ± 10	19
C4-Dibenzothiophenes	56 ± 10	17
C1-Fluoranthenes/pyrenes	67 ± 7	19
C2-Fluoranthenes/pyrenes	130 ± 20	18
C3-Fluoranthenes/pyrenes	120 ± 20	19
C4-Fluoranthenes/pyrenes	87 ± 21	11
C1-Naphthobenzothiophenes	57 ± 15	7
C2-Naphthobenzothiophenes	70 ± 19	7
C3-Naphthobenzothiophenes	48 ± 12	7
C4-Naphthobenzothiophenes	31 ± 10	6
C1-Benzanthraces/chrysenes/triphenylenes	110 ± 7	20
C2-Benzanthraces/chrysenes/triphenylenes	130 ± 10	18
C3-Benzanthraces/chrysenes/triphenylenes	93 ± 12	17
C4-Benzanthraces/chrysenes/triphenylenes	71 ± 16	12

The reference mass fraction values for hopanes and steranes, where data are available from three analytical methods, are weighted means [4]. The uncertainty listed with each value is an expanded uncertainty about the mean [4,5], with coverage factor, $k = 2$, calculated by combining within-method variances with a between-method variance [6] following the ISO Guide [7,8].

For analytes where the only available data are from the interlaboratory study, the reference mass fractions and associated uncertainties are calculated using the method means. The expanded uncertainty, U, is calculated as $U = ku_c$, where u_c is one standard deviation of the analyte mean, and the coverage factor, k, is determined from the Student's t-distribution corresponding to eight degrees of freedom and a 95 % confidence level for each analyte.

Table 4. Reference Mass Fraction Values for Hopanes and Steranes in SRM 2779

	Mass Fraction (mg/kg)
17α(H),21β(H)-30-Norhopane[a,b,c]	17.0 ± 4.6
17α(H)-22,29,30-Trisnorhopane[a,b,c]	7.29 ± 0.79
18α(H)-22,29,30-Trisnorhopane[c]	6.9 ± 1.1
17α(H),21β(H)-30-Hopane[a,b,c]	42.1 ± 9.9
17α(H),21β(H)-22R-Homohopane[a,b,c]	13.8 ± 3.6
17α(H),21β(H)-22S-Homohopane[a,b c]	17.3 ± 4.3
17α(H)-Diahopane[c]	4.5 ± 1.2
5α(H), 14β(H),17β(H)-Cholestane 20S[c]	22.3 ± 7.5
5α(H), 14β(H),17β(H)-Cholestane 20R[a,b,c]	23.7 ± 2.7
13β(H),17α(H)-Diacholestane 20S[c]	41.2 ± 6.7
5α(H), 14α(H),17α(H)-24-Ethylcholestane 20R[a,b,c]	16.9 ± 5.0
5α(H), 14β(H),17β(H)-24-Ethylcholestane 20R[a,b,c]	21.3 ± 8.2
5α(H), 14β(H),17β(H)-24-Ethylcholestane 20S[c]	23.1 ± 6.4

[a] GC/MS Ia using LC fractionation followed by analysis on a DB-17MS column.
[b] GC/MS III using silica/alumina fractionation followed by analysis on an Rxi-17sil MS column.
[c] Data from the interlaboratory study [3].

The laboratories listed below participated in the interlaboratory comparison exercise for the determination of PAHs, hopanes, and steranes in SRM 2779 [3].

Alpha Analytical, Inc., Mansfield, MA
ALS Environmental Division, Edmonton, AB, Canada
Battelle Analytical & Environmental Chemistry Laboratory, Duxbury, MA
Columbia Analytical Services at Jacksonville, FL, Rochester, NY, and Kelso, WA
Florida International University, North Miami, FL
New York State Department of Health, Albany, NY
NOAA/NCCOS/NOS, Charleston, SC
NOAA/NMFS/Alaska Fisheries Science Center, Juneau, AK
NOAA/NMFS/NW Fisheries Science Center, Seattle, WA
Pace Analytical Services, Inc., Minneapolis, MN
RJ Lee Group, Inc., at Monroeville, PA and Pasco, WA
TDI/B&B Laboratories, Inc., College Station, TX
TestAmerica Laboratories at Mobile, AL, West Sacramento, CA, University Park, IL, Pittsburgh, PA, Knoxville, TN, South Burlington, VT, and Tacoma, WA
Texas A&M University, College Station, TX
University of Iowa, Iowa City, IA

REFERENCES

[1] May, W.; Parris, R.; Beck, C.; Fassett, J.; Greenberg, R.; Guenther, F.; Kramer, G.; Wise, S.; Gills, T.; Colbert, J.; Gettings, R.; MacDonald, B.; *Definitions of Terms and Modes Used at NIST for Value-Assignment of Reference Materials for Chemical Measurements;* NIST Special Publication 260-136; U.S. Government Printing Office: Washington, DC (2000); available at http://www.nist.gov/srm/publications.cfm (accessed June 2012).

[2] Wise, S.A.; Poster, D.L.; Kucklick, J.R.; Keller, J.M.; Vander-Pol, S.S.; Sander, L.C.; Schantz, M.M.; *Standard Reference Materials (SRMs) for Determination of Organic Contaminants in Environmental Samples*; Anal. Bioanal. Chem., Vol. 386, pp. 1153–1190 (2006).

[3] Schantz, M.M.; Kucklick, J.R.; *NIST Interlaboratory Analytical Comparison Study to Support Deepwater Horizon Natural Resource Damage Assessment: Description and Results for Crude Oil QA10OIL01*; NISTIR 7793 (2011).

[4] Dersimonian, R.; Laird, N.; *Meta-Analysis in Clinical Trials*; Control Clin. Trials, Vol. 7, pp. 177–188 (1986).

[5] Rukhin, A.L.; *Weighted Means Statistics in Interlaboratory Studies*; Metrologia, Vol. 46, pp. 323-331 (2009).

[6] Horn, R.A.; Horn, S.A.; Duncan, D.B.; *Estimating Hetroscedastic Variance in Linear Models*; J. Am. Stat. Assoc., Vol. 70, pp. 380–385 (1975).

[7] JCGM 100:2008; *Evaluation of Measurement Data — Guide to the Expression of Uncertainty in Measurement* (ISO GUM 1995 with Minor Corrections); Joint Committee for Guides in Metrology (JCGM) (2008); available at http://www.bipm.org/utils/common/documents/jcgm/JCGM_100_2008_E.pdf (accessed June 2012); see also Taylor, B.N.; Kuyatt, C.E.; *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*; NIST Technical Note 1297; U.S. Government Printing Office: Washington, DC (1994); available at http://www.nist.gov/pml/pubs/index.cfm (accessed June 2012).

[8] JCGM 101:2008; *Evaluation of Measurement Data – Supplement 1 to the Guide to the Expression of Uncertainty in Measurement – Propagation of Distributions Using a Monte Carlo Method*; Joint Committee for Guides in Metrology (JCGM) (2008); available at http://www.bipm.org/utils/common/documents/jcgm/JCGM_101_2008_E.pdf (accessed June 2012).

Certificate Revision History: 04 June 2012 (Editorial changes); 22 May 2012 (Corrected names in Table 4; editorial changes); 30 January 2012 (Original certificate date)

Users of this SRM should ensure that the Certificate of Analysis in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srminfo@nist.gov; or via the Internet at http://www.nist.gov/srm.

Method 8270D SIM

Semivolatile Organic Compounds (GC/MS SIM) by Method 8270D

FORM II
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Matrix: Solid Level: Low

GC Column (1): Rxi-5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	NBZ	#	FBP	#	TPHL	#
22T-SG-21_20190716	580-87706-14	0	X	0	X	0	X
22T-SG-21_20190716 DL	580-87706-14 DL	0	X	0	X	0	X
22T-SG-16_20190716	580-87706-15	63		61		79	
	MB 140-32772/1-A	68		68		78	
	LCS 140-32772/2-A	78		74		83	

	QC LIMITS
NBZ = Nitrobenzene-d5	20-121
FBP = 2-Fluorobiphenyl (Surr)	20-142
TPHL = Terphenyl-d14	35-150

Column to be used to flag recovery values

FORM II 8270D SIM

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Matrix: Solid Level: Low Lab File ID: lcs 140-32772-2-a.D

Lab ID: LCS 140-32772/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/g)	LCS CONCENTRATION (ng/g)	LCS % REC	QC LIMITS REC	#
1-Methylnaphthalene	50.0	37.9	76	50-150	
2-Methylnaphthalene	50.0	38.5	77	50-150	
Acenaphthene	50.0	36.3	73	50-150	
Acenaphthylene	50.0	33.1	66	30-150	
Anthracene	50.0	33.1	66	30-150	
Benzo[a]anthracene	50.0	43.3	87	50-150	
Benzo[a]pyrene	50.0	36.5	73	30-150	
Benzo[b]fluoranthene	50.0	40.1	80	50-150	
Benzo[e]pyrene	50.0	37.7	75	50-150	
Benzo[g,h,i]perylene	50.0	36.4	73	50-150	
Benzo[k]fluoranthene	50.0	36.6	73	50-150	
Chrysene	50.0	38.4	77	50-150	
Dibenz(a,h)anthracene	50.0	38.2	76	50-150	
Dibenzothiophene	50.0	35.0	70	50-150	
Fluoranthene	50.0	42.0	84	50-150	
Fluorene	50.0	36.6	73	50-150	
Indeno[1,2,3-cd]pyrene	50.0	39.1	78	50-150	
Naphthalene	50.0	37.2	74	50-150	
Perylene	50.0	31.7	63	30-150	
Phenanthrene	50.0	36.4	73	50-150	
Pyrene	50.0	40.4	81	50-150	

Column to be used to flag recovery and RPD values

FORM III 8270D SIM

FORM IV
GC/MS SEMI VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Lab File ID: mb 140-32772-1-a.D Lab Sample ID: MB 140-32772/1-A

Matrix: Solid Date Extracted: 08/26/2019 13:35

Instrument ID: MP Date Analyzed: 08/29/2019 15:02

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 140-32772/2-A	lcs 140-32772-2 -a.D	08/29/2019 15:27
22T-SG-21_20190716	580-87706-14	580-87706-b -14-a.D	08/29/2019 16:17
22T-SG-16_20190716	580-87706-15	580-87706-b -15-a.D	08/30/2019 13:11
22T-SG-21_20190716 DL	580-87706-14 DL	580-87706-b -14-aX.D	08/30/2019 16:59

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Sample No.: ICIS 140-32163/5 Date Analyzed: 07/21/2019 13:11

Instrument ID: MP GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

Lab File ID (Standard): icis 4X.D Heated Purge: (Y/N) N

Calibration ID: 2060

		NPT		ANT		PHN	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		213911	4.89	105890	6.34	180526	7.59
UPPER LIMIT		427822	5.39	211780	6.84	361052	8.09
LOWER LIMIT		106956	4.39	52945	5.84	90263	7.09
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 140-32163/10		198727	4.90	97779	6.35	165088	7.59

NPT = Naphthalene-d8
ANT = Acenaphthene-d10
PHN = Phenanthrene-d10

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Sample No.: ICIS 140-32163/5 Date Analyzed: 07/21/2019 13:11

Instrument ID: MP GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

Lab File ID (Standard): icis 4X.D Heated Purge: (Y/N) N

Calibration ID: 2060

		CRY		PRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		158085	10.15	149512	11.75		
UPPER LIMIT		316170	10.65	299024	12.25		
LOWER LIMIT		79043	9.65	74756	11.25		
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 140-32163/10		144275	10.15	115957	11.75		

CRY = Chrysene-d12
PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Sample No.: CCVIS 140-33099/2 Date Analyzed: 08/29/2019 12:06

Instrument ID: MP GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

Lab File ID (Standard): ccvis.D Heated Purge: (Y/N) N

Calibration ID: 2060

		NPT		ANT		PHN	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		217594	4.88	110054	6.34	181476	7.58
UPPER LIMIT		435188	5.38	220108	6.84	362952	8.08
LOWER LIMIT		108797	4.38	55027	5.84	90738	7.08
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 140-32772/1-A		201450	4.88	107716	6.34	186946	7.59
LCS 140-32772/2-A		213389	4.88	112706	6.34	196330	7.59
580-87706-14	22T-SG-21_20190716	212820	4.88	108539	6.34	198016	7.59

NPT = Naphthalene-d8
ANT = Acenaphthene-d10
PHN = Phenanthrene-d10

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Sample No.: CCVIS 140-33099/2 Date Analyzed: 08/29/2019 12:06

Instrument ID: MP GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

Lab File ID (Standard): ccvis.D Heated Purge: (Y/N) N

Calibration ID: 2060

		CRY		PRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		154805	10.13	135373	11.73		
UPPER LIMIT		309610	10.63	270746	12.23		
LOWER LIMIT		77403	9.63	67687	11.23		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 140-32772/1-A		161863	10.14	159849	11.74		
LCS 140-32772/2-A		176624	10.14	183878	11.73		
580-87706-14	22T-SG-21_20190716	192843	10.14	203707	11.74		

CRY = Chrysene-d12
PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Sample No.: CCVIS 140-33157/2 Date Analyzed: 08/30/2019 10:26

Instrument ID: MP GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

Lab File ID (Standard): ccvis.D Heated Purge: (Y/N) N

Calibration ID: 2060

		NPT		ANT		PHN	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		212421	4.88	108113	6.33	181428	7.58
UPPER LIMIT		424842	5.38	216226	6.83	362856	8.08
LOWER LIMIT		106211	4.38	54057	5.83	90714	7.08
LAB SAMPLE ID	CLIENT SAMPLE ID						
580-87706-15	22T-SG-16_20190716	201290	4.88	106693	6.34	191914	7.58
580-87706-14 DL	22T-SG-21_20190716 DL	190620	4.88	97462	6.34	166619	7.59

NPT = Naphthalene-d8
ANT = Acenaphthene-d10
PHN = Phenanthrene-d10

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Sample No.: CCVIS 140-33157/2 Date Analyzed: 08/30/2019 10:26

Instrument ID: MP GC Column: Rxi-5SilMS 25 ID: 0.25(mm)

Lab File ID (Standard): ccvis.D Heated Purge: (Y/N) N

Calibration ID: 2060

		CRY		PRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		158011	10.13	149435	11.73		
UPPER LIMIT		316022	10.63	298870	12.23		
LOWER LIMIT		79006	9.63	74718	11.23		
LAB SAMPLE ID	CLIENT SAMPLE ID						
580-87706-15	22T-SG-16_20190716	182783	10.14	204261	11.74		
580-87706-14 DL	22T-SG-21_20190716 DL	149006	10.14	159131	11.73		

CRY = Chrysene-d12
PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Client Sample ID: 22T-SG-21_20190716 Lab Sample ID: 580-87706-14

Matrix: Solid Lab File ID: 580-87706-b-14-a.D

Analysis Method: 8270D SIM Date Collected: 07/16/2019 14:08

Extract. Method: 3540C Date Extracted: 08/26/2019 13:35

Sample wt/vol: 20.08(g) Date Analyzed: 08/29/2019 16:17

Con. Extract Vol.: 0.5(mL) Dilution Factor: 30

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: 56.9 GPC Cleanup:(Y/N) N

Analysis Batch No.: 33099 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
90-12-0	1-Methylnaphthalene	270		170	24
91-57-6	2-Methylnaphthalene	740		350	35
83-32-9	Acenaphthene	3600		35	16
208-96-8	Acenaphthylene	170		35	8.7
120-12-7	Anthracene	1500		35	28
56-55-3	Benzo[a]anthracene	2300		35	14
50-32-8	Benzo[a]pyrene	2500		35	12
205-99-2	Benzo[b]fluoranthene	2200		35	18
192-97-2	Benzo[e]pyrene	1400		35	12
191-24-2	Benzo[g,h,i]perylene	1700		35	20
207-08-9	Benzo[k]fluoranthene	800		35	16
STL00905	C1-Chrysenes	720		35	9.0
STL00909	C1-Dibenzothiophenes	780		35	23
STL00912	C1-Fluoranthenes/pyrene	2100		35	18
STL00913	C1-Fluorenes	820		35	19
STL00916	C1-Naphthalenes	640		350	27
STL00901	C1-Phenanthrenes/Anthracenes	3400		69	39
STL00906	C2-Chrysenes	280		35	11
STL00910	C2-Dibenzothiophenes	690		35	32
STL00968	C2-Fluoranthenes/Pyrene	620		35	16
STL00914	C2-Fluorenes	870		69	42
STL00917	C2-Naphthalenes	2100		69	26
STL00902	C2-Phenanthrenes/Anthracenes	1800		140	85
STL00907	C3-Chrysenes	160		35	10
STL00911	C3-Dibenzothiophenes	410		69	39
STL00969	C3-Fluoranthenes/Pyrene	320		35	19
STL00915	C3-Fluorenes	630		69	37
STL00918	C3-Naphthalenes	2300		69	34
STL00903	C3-Phenanthrenes/Anthracenes	910	AP	69	55
STL00908	C4-Chrysenes	100		35	12
STL00967	C4-Dibenzothiophenes	190		35	33
STL01791	C4-Fluoranthenes/Pyrene	170		35	13
STL00919	C4-Naphthalenes	1200		140	72
STL00904	C4-Phenanthrenes/Anthracenes	650	AP	69	65

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Client Sample ID: 22T-SG-21_20190716 Lab Sample ID: 580-87706-14

Matrix: Solid Lab File ID: 580-87706-b-14-a.D

Analysis Method: 8270D SIM Date Collected: 07/16/2019 14:08

Extract. Method: 3540C Date Extracted: 08/26/2019 13:35

Sample wt/vol: 20.08(g) Date Analyzed: 08/29/2019 16:17

Con. Extract Vol.: 0.5(mL) Dilution Factor: 30

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: 56.9 GPC Cleanup:(Y/N) N

Analysis Batch No.: 33099 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
218-01-9	Chrysene	2500		35	13
53-70-3	Dibenz(a,h)anthracene	230		35	20
132-65-0	Dibenzothiophene	2000		35	12
86-73-7	Fluorene	2300		35	17
193-39-5	Indeno[1,2,3-cd]pyrene	1300		35	24
91-20-3	Naphthalene	1200		690	63
198-55-0	Perylene	630		35	6.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
321-60-8	2-Fluorobiphenyl (Surr)	0	X	20-142
4165-60-0	Nitrobenzene-d5	0	X	20-121
1718-51-0	Terphenyl-d14	0	X	35-150

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D
Lims ID: 580-87706-B-14-A
Client ID: 22T-SG-21_20190716
Sample Type: Client
Inject. Date: 29-Aug-2019 16:17:30 ALS Bottle#: 4 Worklist Smp#: 12
Injection Vol: 1.0 ul Dil. Factor: 30.0000
Sample Info: 140-0012890-012
Misc. Info.: P082919(8270)
Operator ID: 11211 Instrument ID: MP

Method: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 11:48:08 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 31-Aug-2019 10:56:30

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Flags
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	212820	0.5000	
4 Naphthalene	128	4.903	4.896	0.007	93	335812	0.7169	
6 2-Methylnaphthalene	142	5.463	5.463	0.000	97	130348	0.4247	
7 1-Methylnaphthalene	142	5.545	5.545	0.000	97	45185	0.1545	
11 Acenaphthylene	152	6.216	6.216	0.000	70	36686	0.0982	
* 12 Acenaphthene-d10	164	6.337	6.337	0.000	99	108539	0.5000	
13 Acenaphthene	153	6.364	6.360	0.004	99	593456	2.05	
16 Fluorene	166	6.793	6.793	0.000	100	420661	1.32	
17 Dibenzothiophene	184	7.497	7.497	0.000	100	553917	1.17	
* 18 Phenanthrene-d10	188	7.587	7.581	0.006	97	198016	0.5000	
19 Phenanthrene	178	7.609	7.603	0.006	100	3899223	7.65	E
20 Anthracene	178	7.648	7.648	0.000	100	365058	0.8582	
22 Fluoranthene	202	8.690	8.687	0.003	99	2597535	5.24	E
23 Pyrene	202	8.911	8.906	0.005	99	3184053	5.46	E
26 Benzo[a]anthracene	228	10.121	10.121	0.000	64	616413	1.34	
* 27 Chrysene-d12	240	10.137	10.129	0.008	70	192843	0.5000	
28 Chrysene	228	10.161	10.161	0.000	100	801606	1.46	
29 Benzo[b]fluoranthene	252	11.278	11.278	0.000	100	704177	1.27	M
30 Benzo[k]fluoranthene	252	11.309	11.309	0.000	100	292424	0.4636	Ma
31 Benzo[e]pyrene	252	11.599	11.599	0.000	100	426321	0.8162	
32 Benzo[a]pyrene	252	11.668	11.660	0.008	100	686015	1.43	a
* 33 Perylene-d12	264	11.737	11.729	0.008	100	203707	0.5000	
34 Perylene	252	11.760	11.760	0.000	100	196464	0.3635	
35 Indeno[1,2,3-cd]pyrene	276	13.152	13.150	0.002	85	426842	0.7254	
36 Dibenz(a,h)anthracene	278	13.156	13.159	-0.003	41	65610	0.1314	
37 Benzo[g,h,i]perylene	276	13.509	13.508	0.001	99	538731	0.9784	
A 38 C1-Naphthalenes	142	5.507	(5.454-5.583)		0	174212	0.3719	
A 39 C2-Naphthalenes	156	6.076	(5.923-6.247)		0	575613	1.23	
A 40 C3-Naphthalenes	170	6.555	(6.323-6.820)		0	618469	1.32	
A 41 C4-Naphthalenes	184	6.951	(6.483-7.421)		0	334800	0.7147	
A 42 C1-Fluorenes	180	7.302	(7.219-7.413)		0	151039	0.4728	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Flags
A 43 C2-Fluorenes	194	7.688	(7.565-7.939)		0	159644	0.4998	
A 44 C3-Fluorenes	208	8.132	(7.989-8.454)		0	116268	0.3640	
A 45 C1-Dibenzothiophenes	198	7.950	(7.827-8.065)		0	213860	0.4525	
A 46 C2-Dibenzothiophenes	212	8.328	(8.209-8.703)		0	188268	0.3983	
A 47 C3-Dibenzothiophenes	226	8.655	(8.529-9.109)		0	111269	0.2354	
A 48 C4-Dibenzothiophenes	240	9.056	(8.814-9.591)		0	52079	0.1102	
A 49 C1-Phenanthrenes/Anthracen	192	8.052	(8.020-8.193)		0	986442	1.93	
A 50 C2-Phenanthrenes/Anthracen	206	8.564	(8.358-8.785)		0	538764	1.06	
A 51 C3-Phenanthrenes/Anthracen	220	9.000	(8.747-9.260)		0	267926	0.5253	
A 52 C4-Phenanthrenes/Anthracen	234	9.189	(8.966-9.686)		0	190543	0.3736	
A 53 C1-Fluoranthenes/pyrene	216	9.315	(9.112-9.500)		0	718456	1.23	
A 54 C2-Fluoranthenes/Pyrene	230	9.810	(9.587-10.039)		0	207984	0.3564	
A 55 C3-Fluoranthenes/Pyrene	244	10.233	(10.043-10.519)		0	106387	0.1823	
A 56 C4-Fluoranthenes/Pyrene	258	10.560	(10.371-10.864)		0	56028	0.0960	
A 57 C1-Chrysenes	242	10.624	(10.512-10.741)		0	227144	0.4142	
A 58 C2-Chrysenes	256	11.038	(10.937-11.264)		0	88835	0.1620	
A 59 C3-Chrysenes	270	11.515	(11.245-11.890)		0	49674	0.0906	
A 60 C4-Chrysenes	284	11.867	(11.332-12.465)		0	32419	0.0591	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

60xx8270simis_00003 Amount Added: 0.01 Units: mL Run Reagent

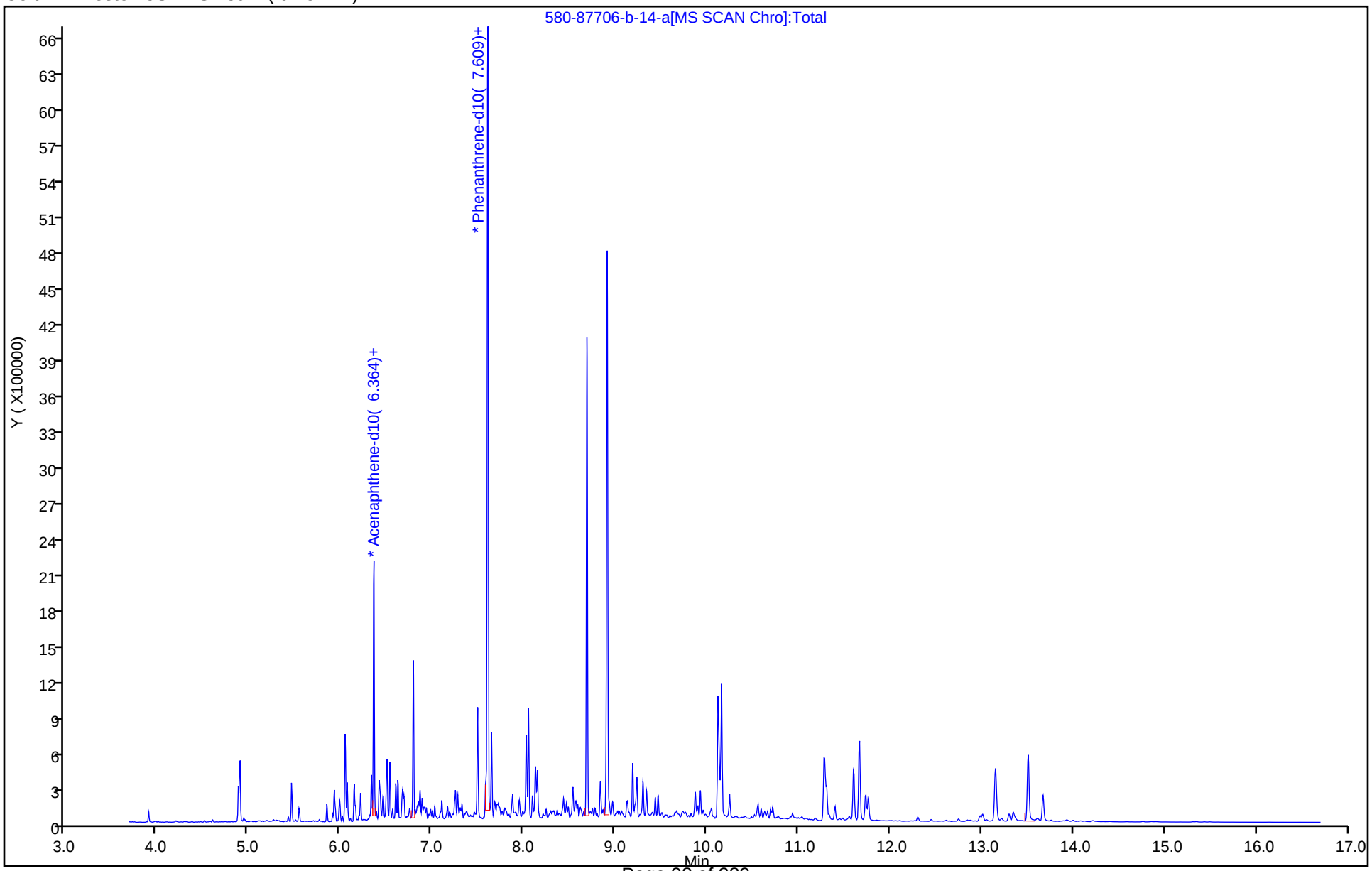
Report Date: 31-Aug-2019 11:48:36 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D

Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14	Worklist Smp#:	12
Client ID:	22T-SG-21_20190716				
Injection Vol:	1.0 ul	Dil. Factor:	30.0000	ALS Bottle#:	4
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)

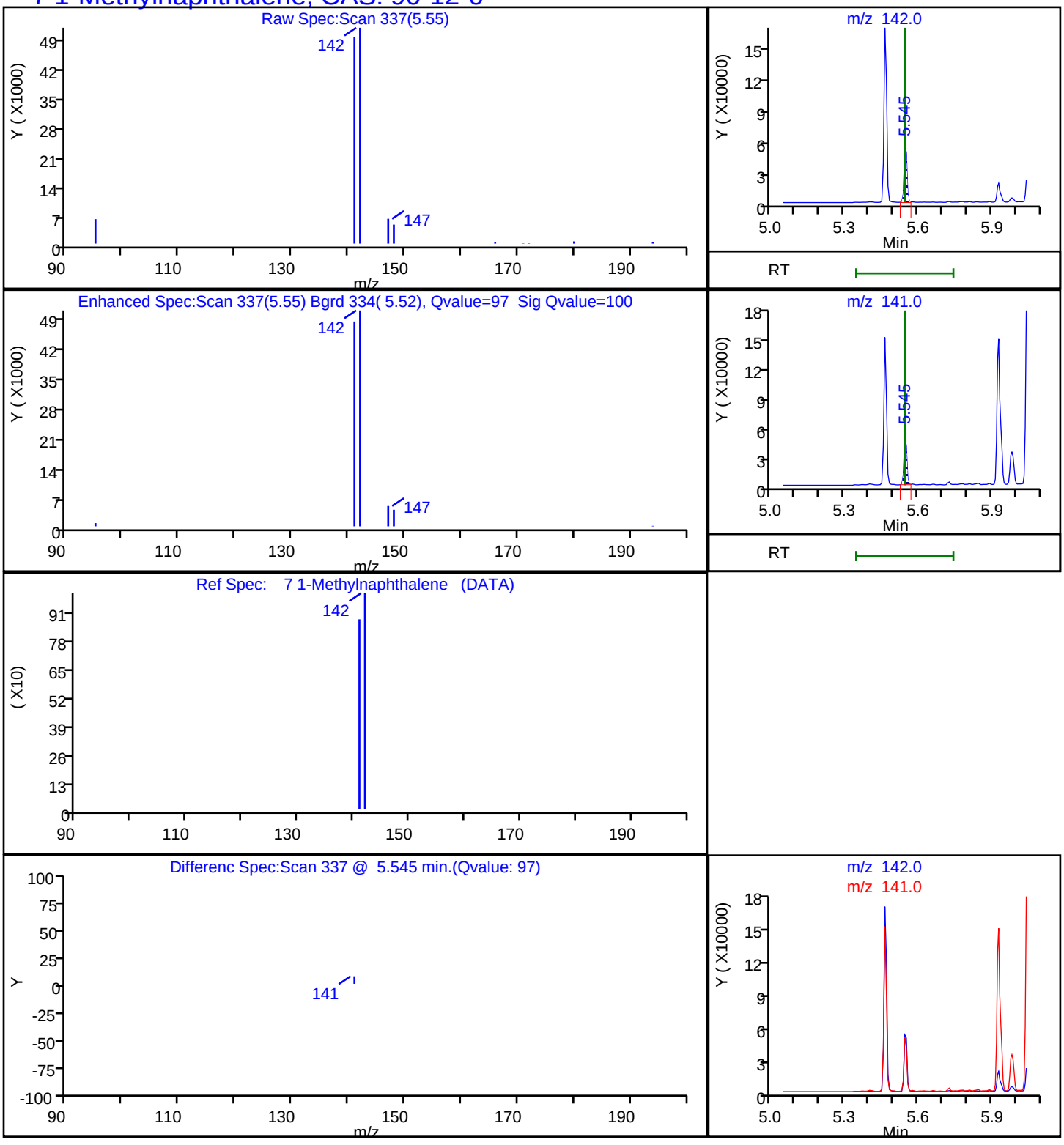


Report Date: 31-Aug-2019 11:48:36 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

7 1-Methylnaphthalene, CAS: 90-12-0

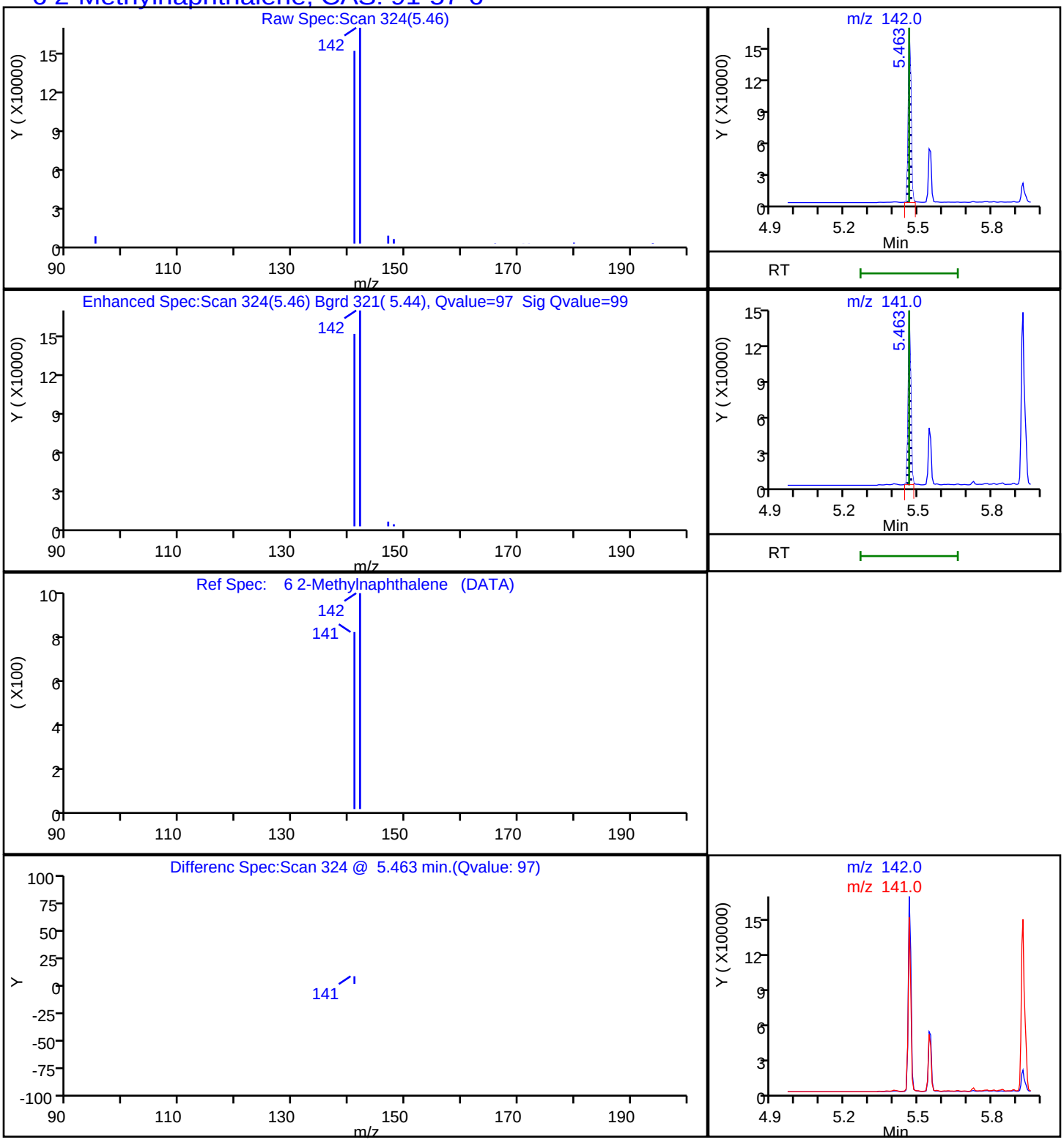


Report Date: 31-Aug-2019 11:48:36 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

6 2-Methylnaphthalene, CAS: 91-57-6

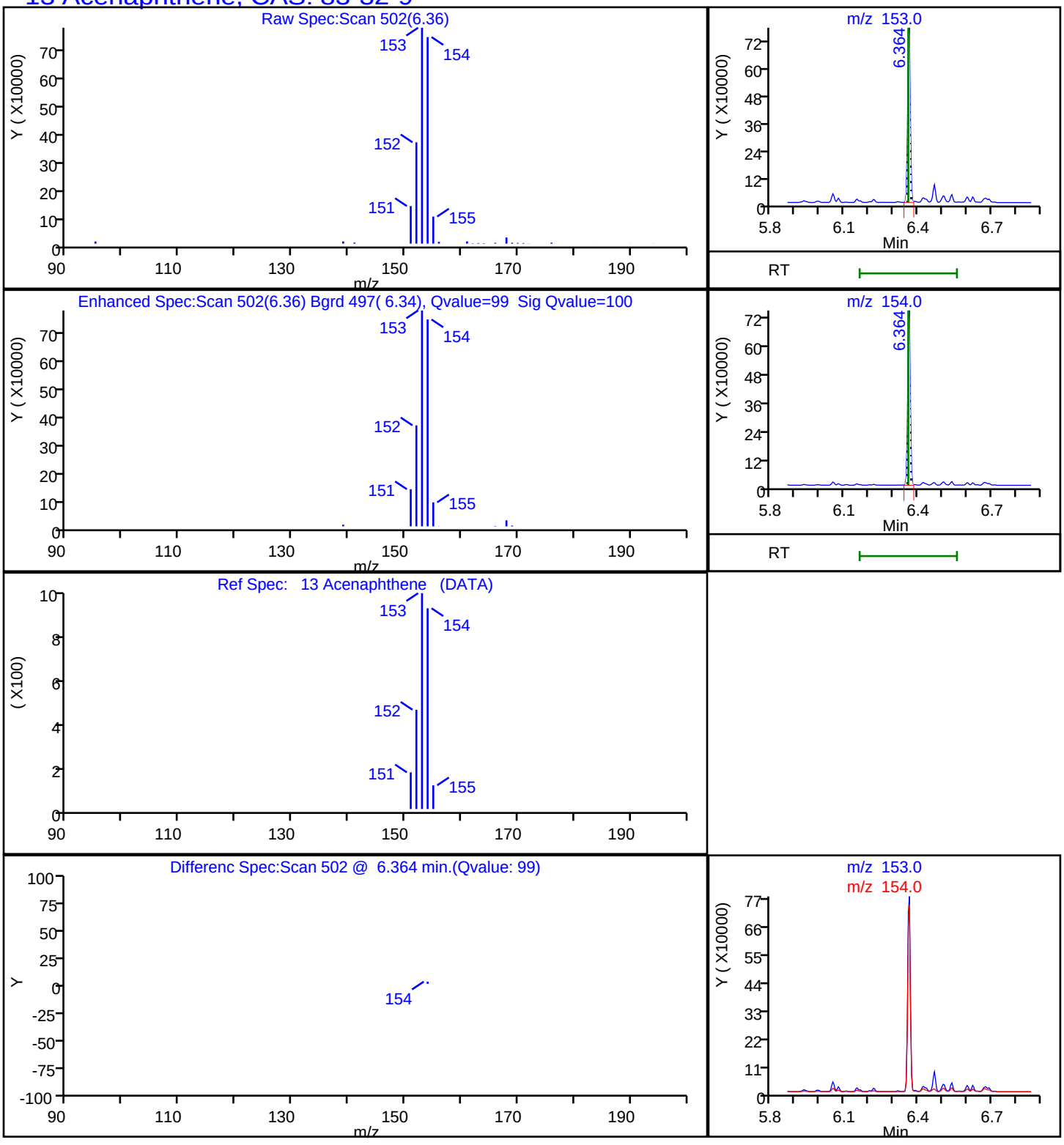


Report Date: 31-Aug-2019 11:48:36 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

13 Acenaphthene, CAS: 83-32-9

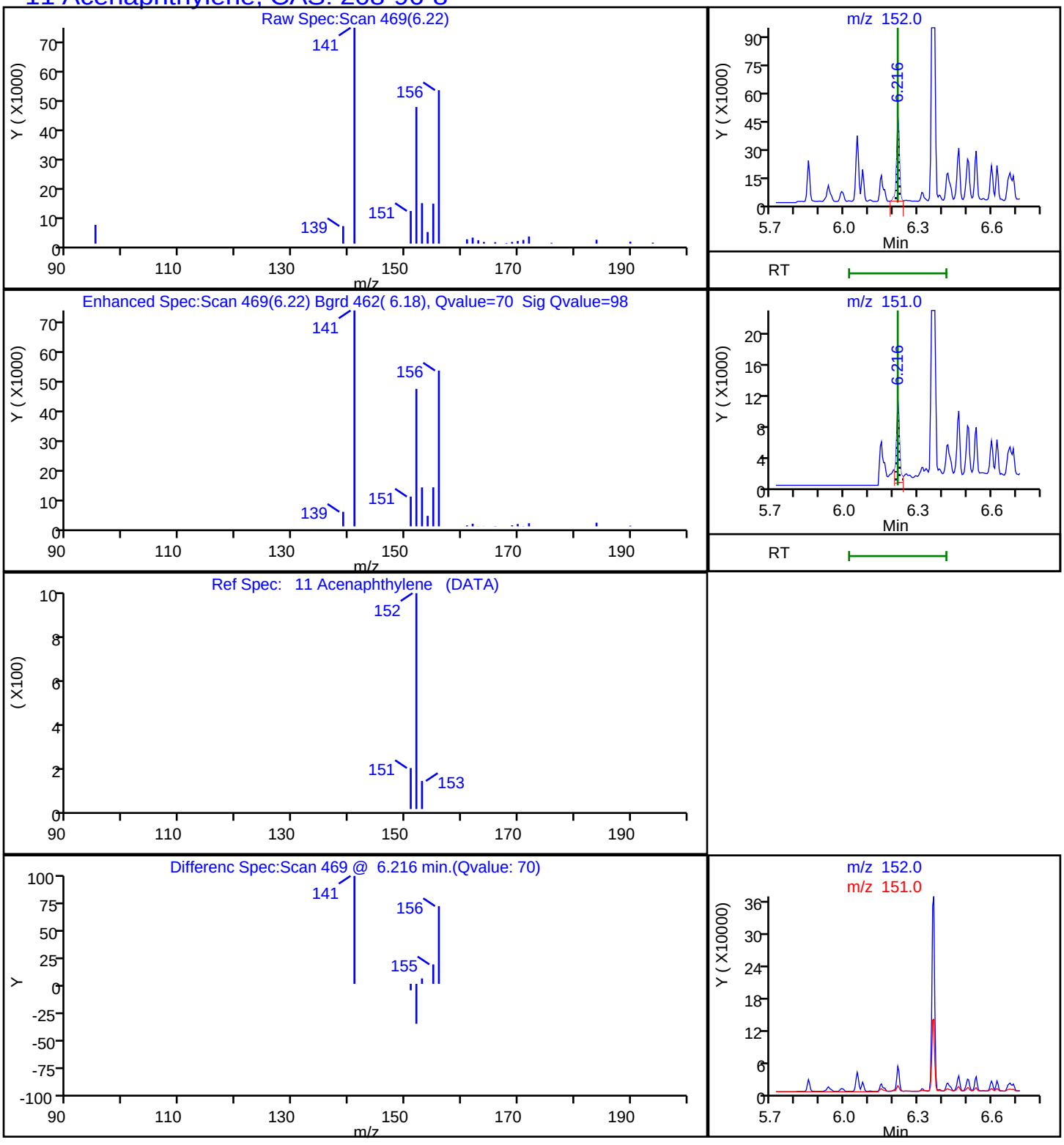


Report Date: 31-Aug-2019 11:48:36 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

11 Acenaphthylene, CAS: 208-96-8

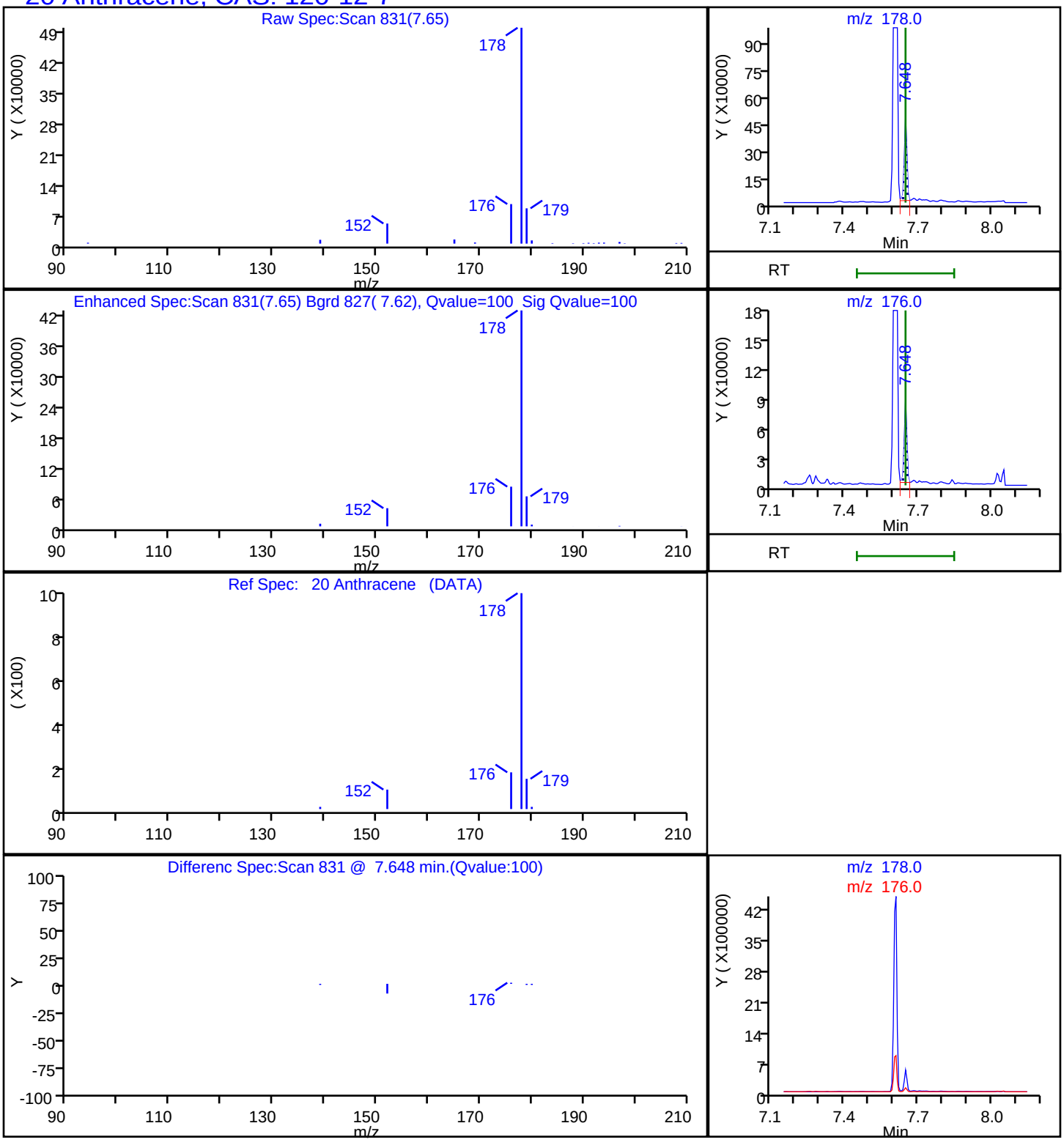


Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

20 Anthracene, CAS: 120-12-7



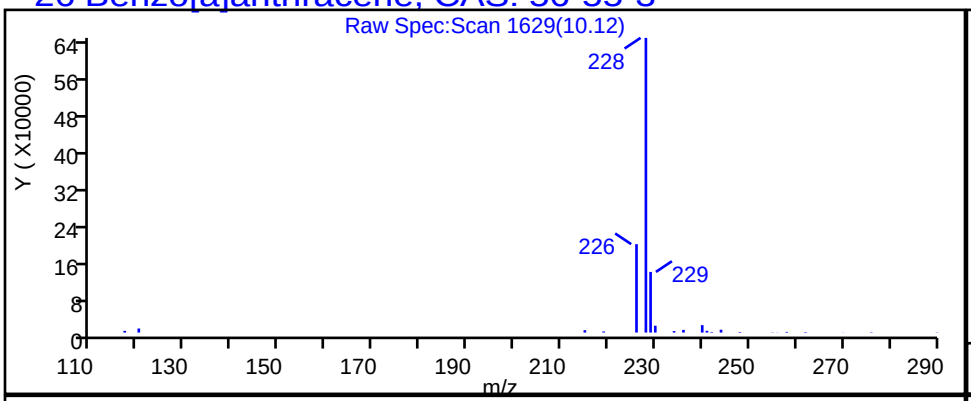
Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

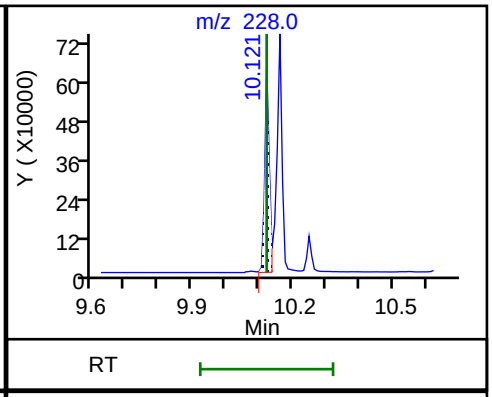
Eurofins TestAmerica, Knoxville

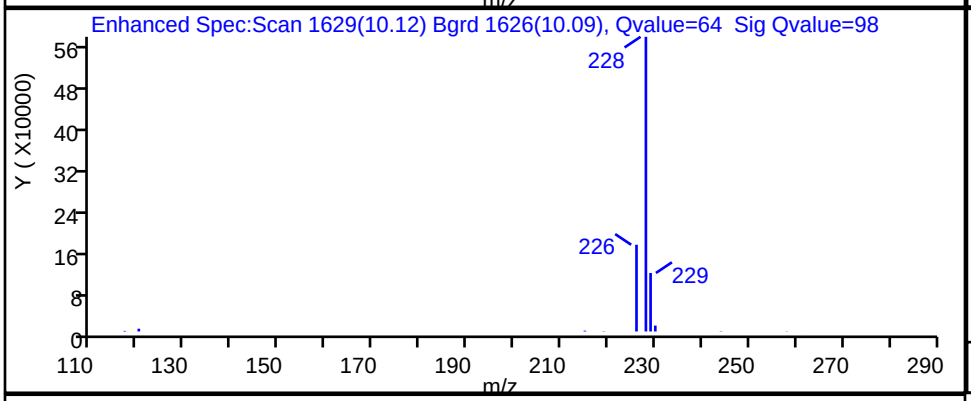
Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D

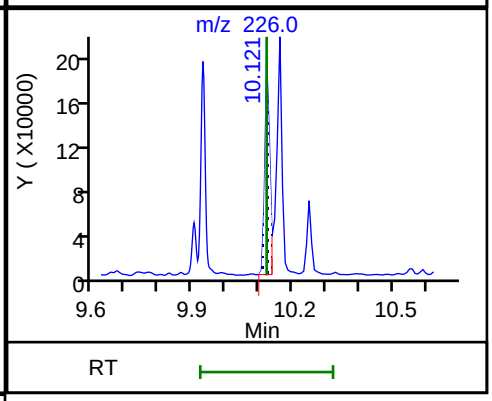
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

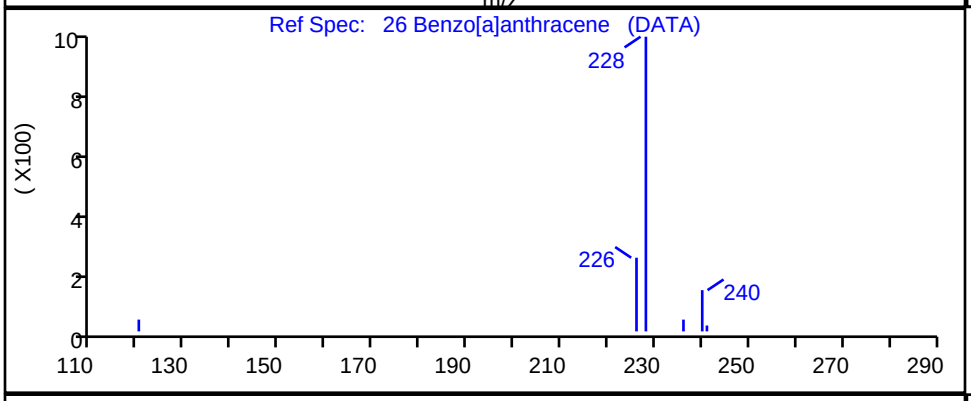
26 Benzo[a]anthracene, CAS: 56-55-3

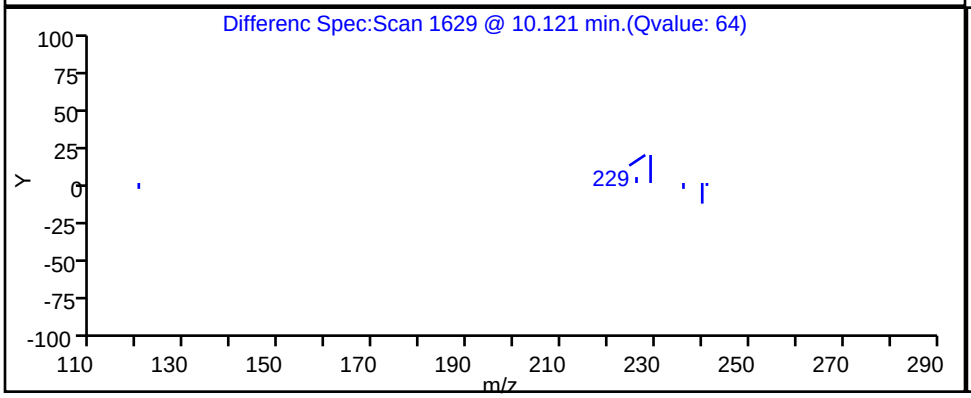


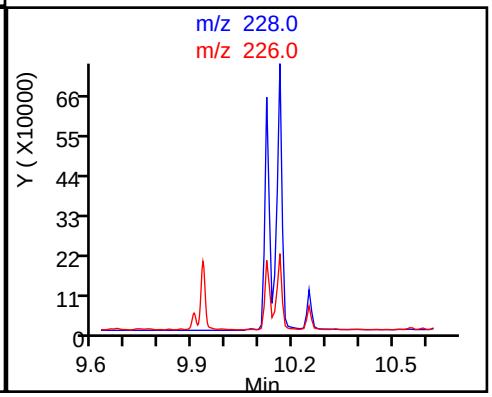










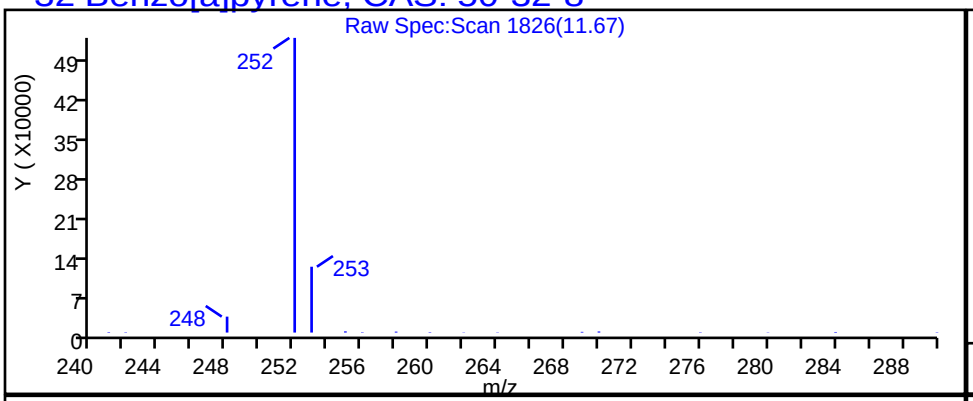


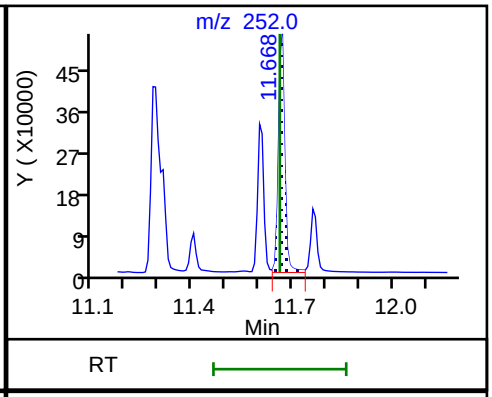
Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

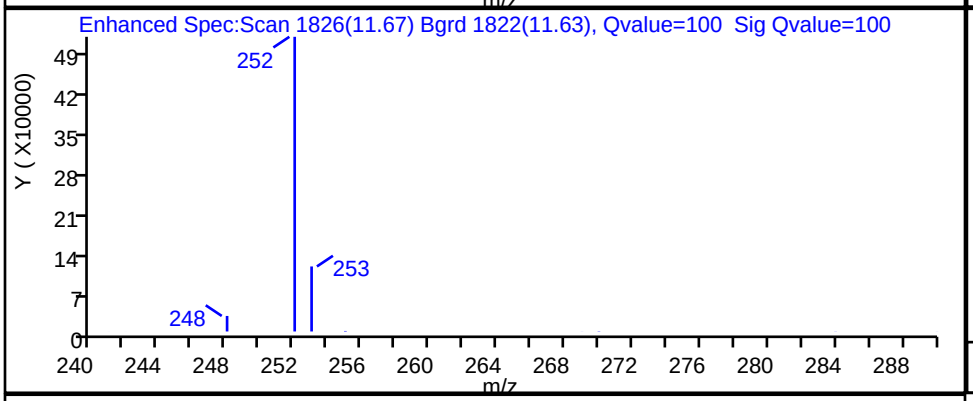
Eurofins TestAmerica, Knoxville

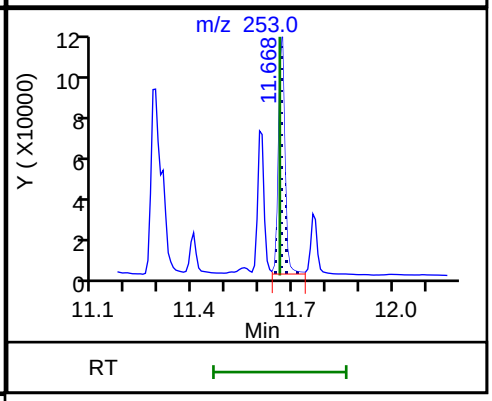
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

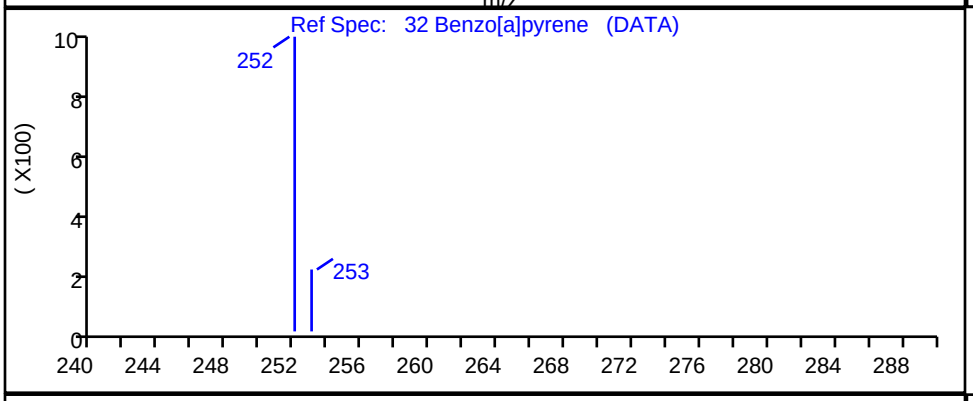
32 Benzo[a]pyrene, CAS: 50-32-8

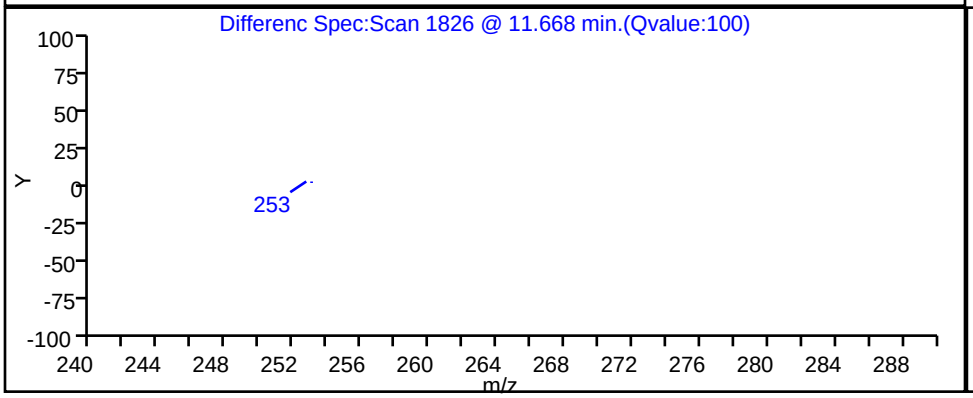


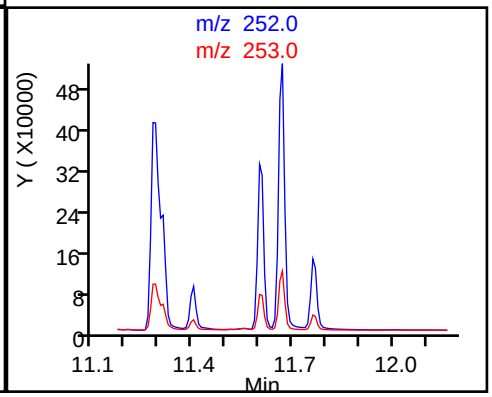










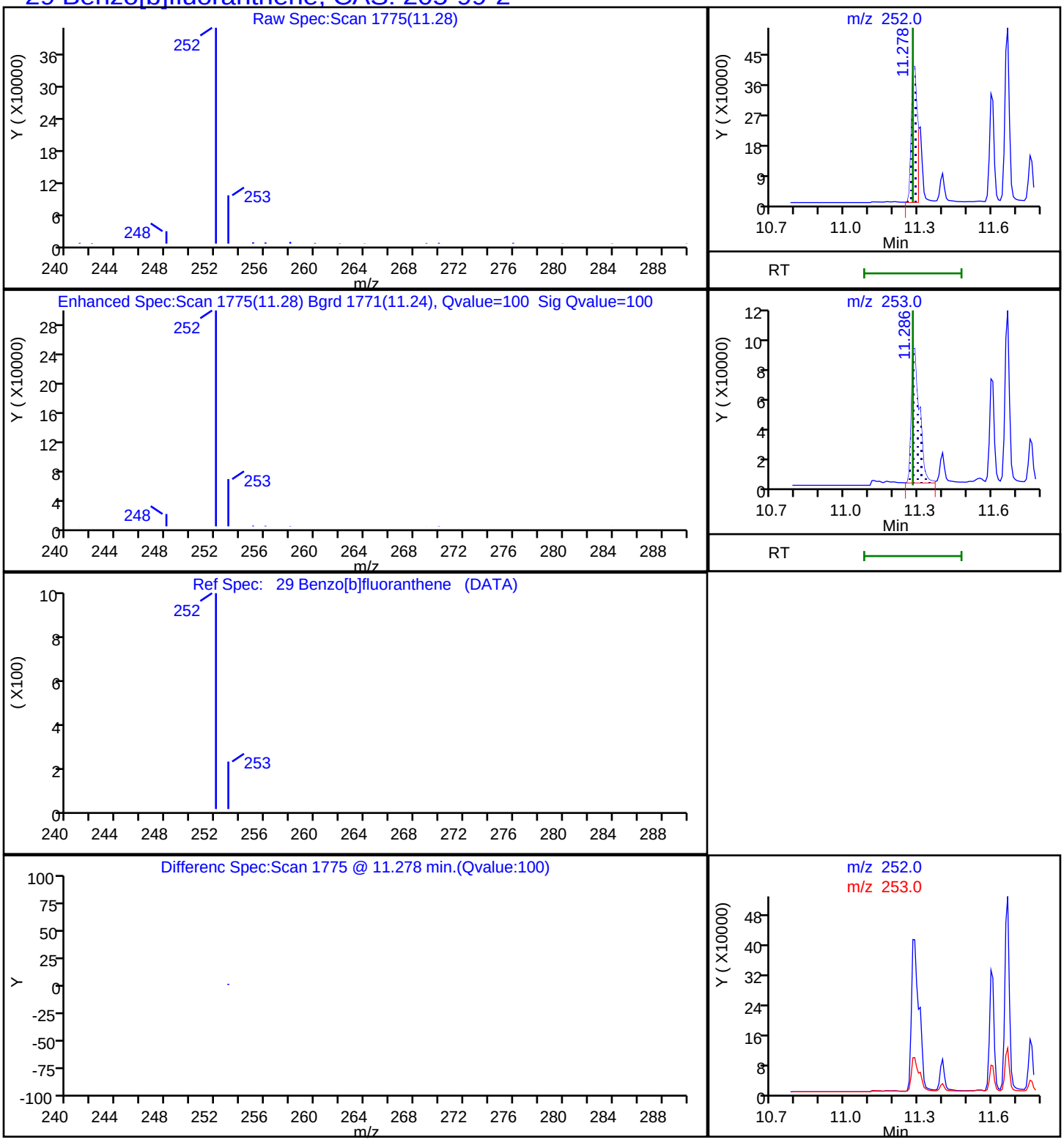


Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

29 Benzo[b]fluoranthene, CAS: 205-99-2

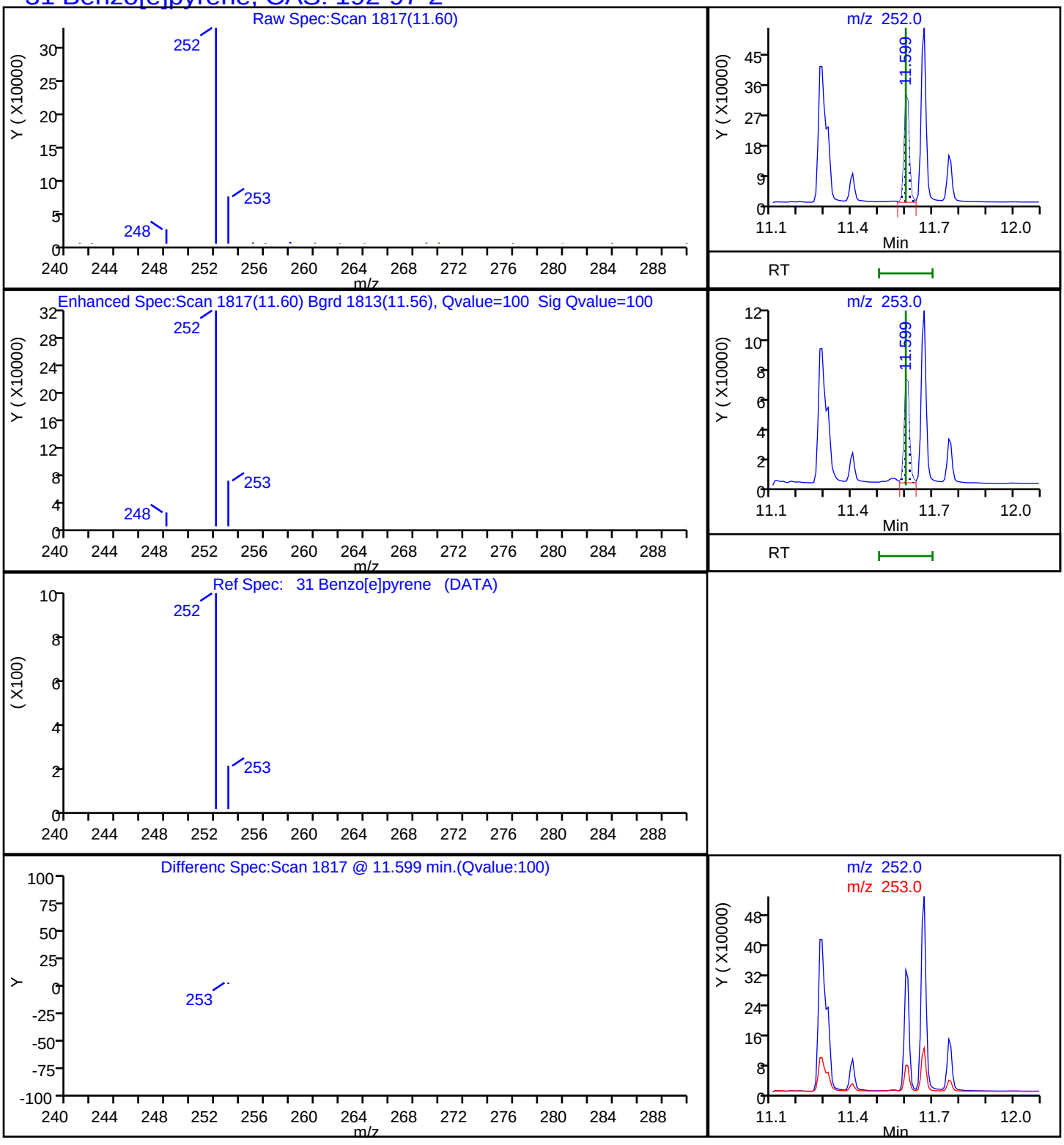


Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

31 Benzo[e]pyrene, CAS: 192-97-2

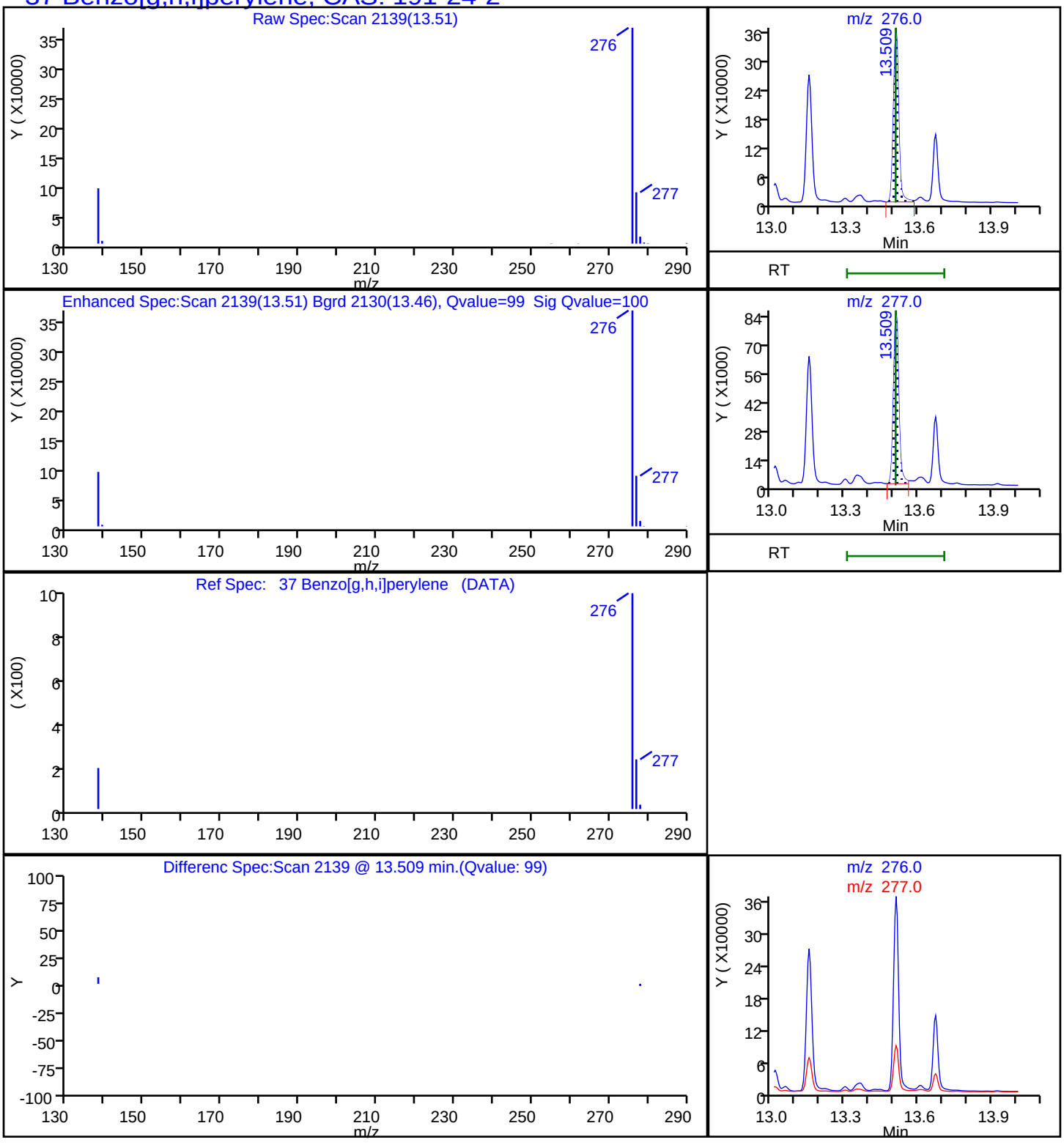


Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

37 Benzo[g,h,i]perylene, CAS: 191-24-2



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
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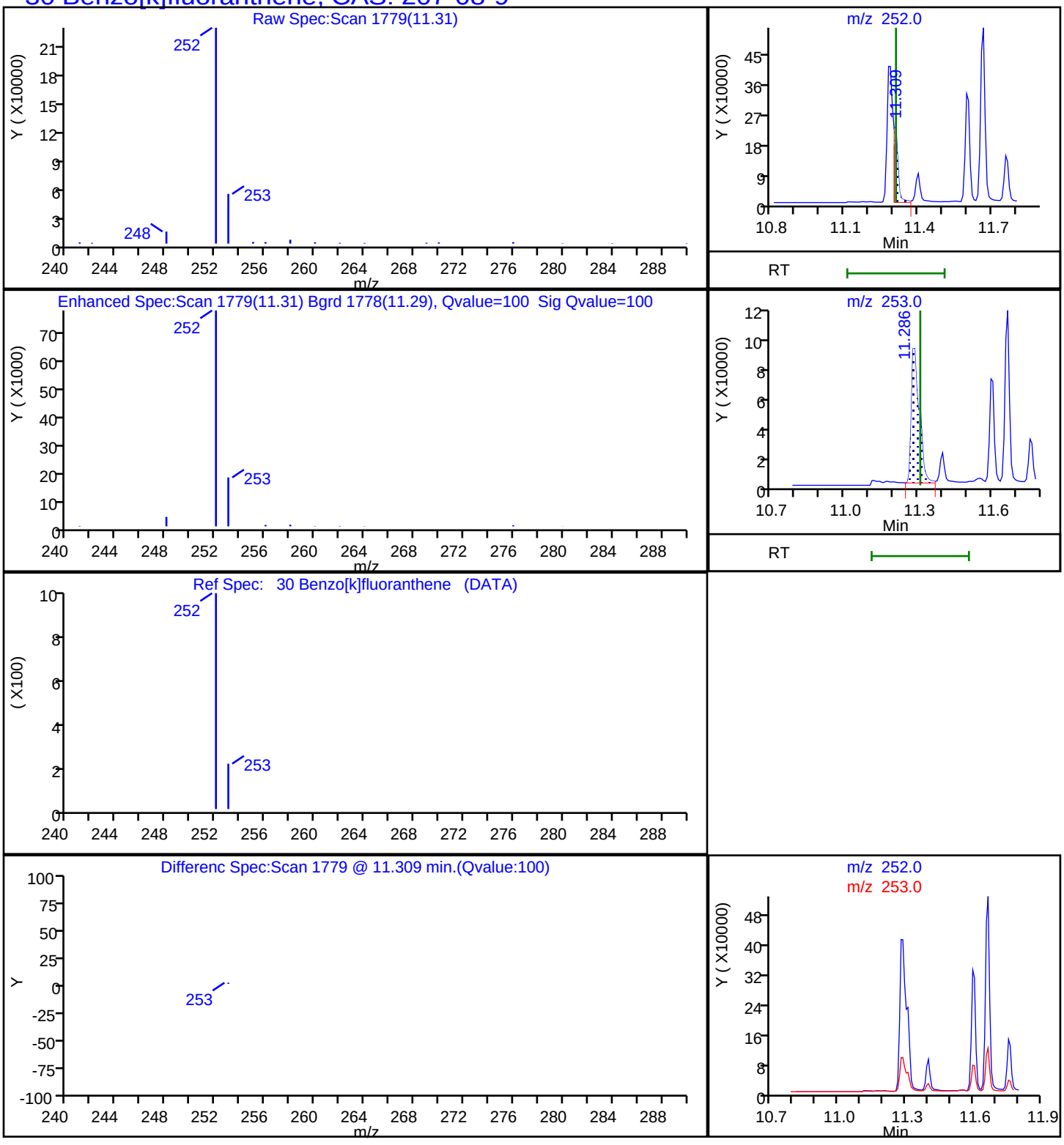
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

30 Benzo[k]fluoranthene, CAS: 207-08-9



Report Date: 31-Aug-2019 11:48:38 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
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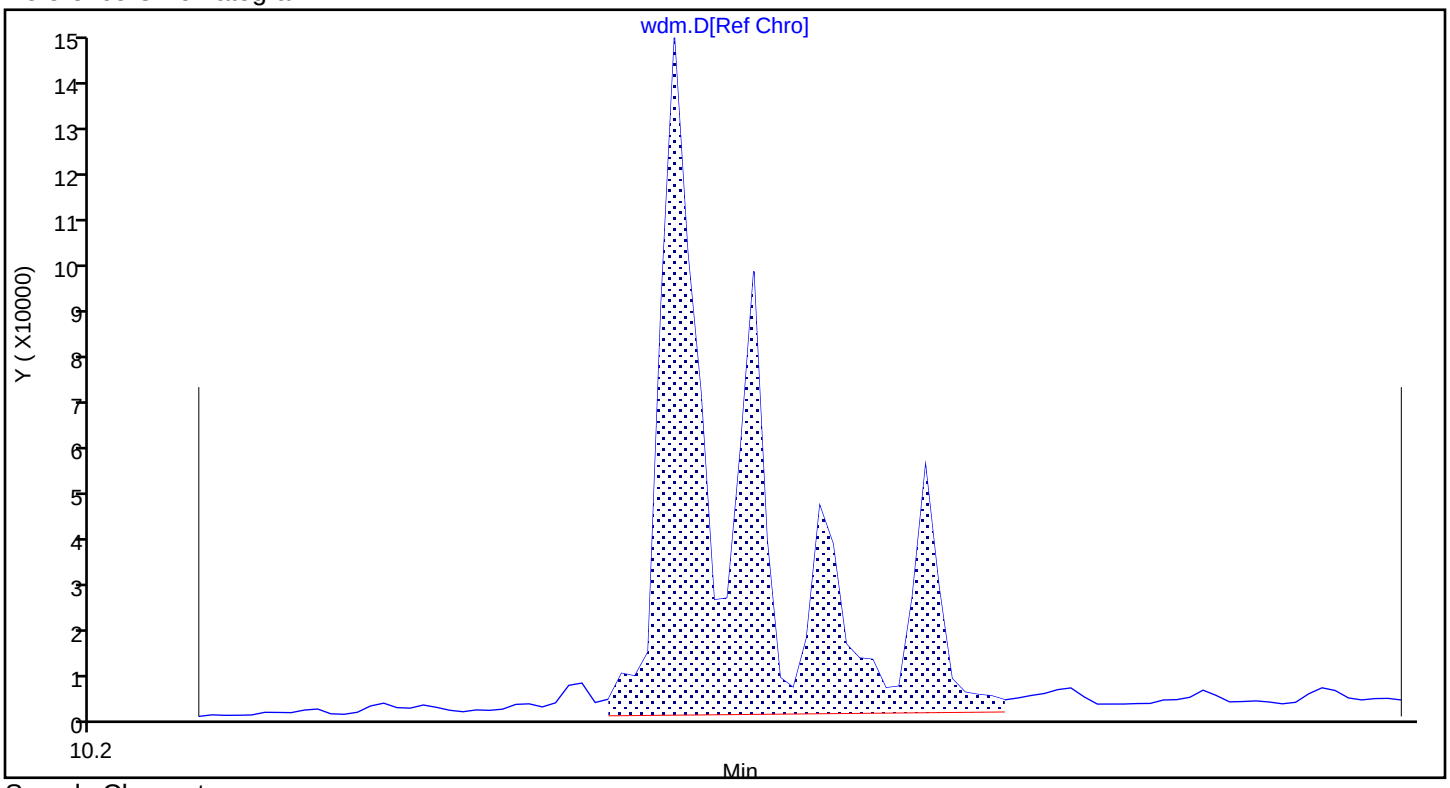
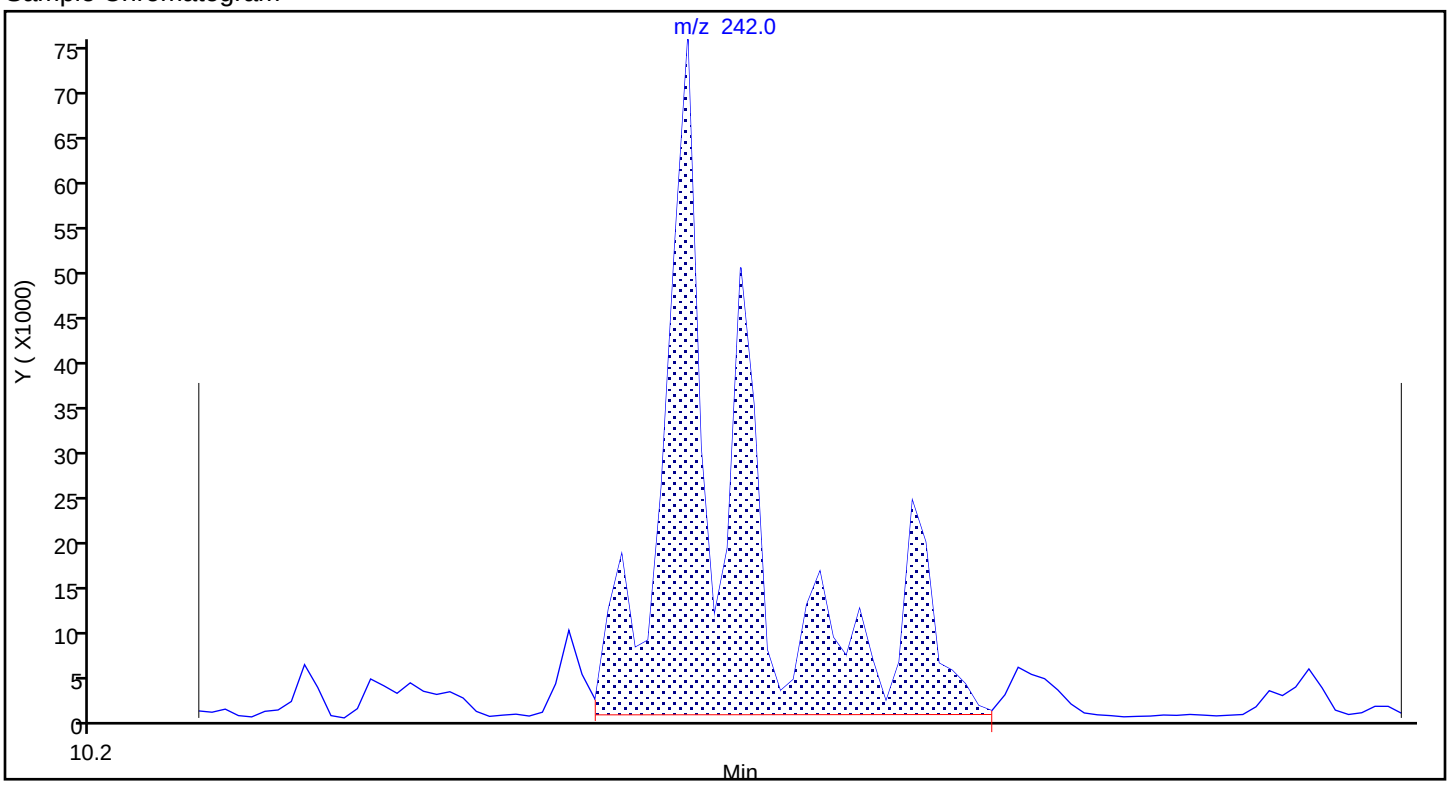
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 57 C1-Chrysenes, CAS: STL00905

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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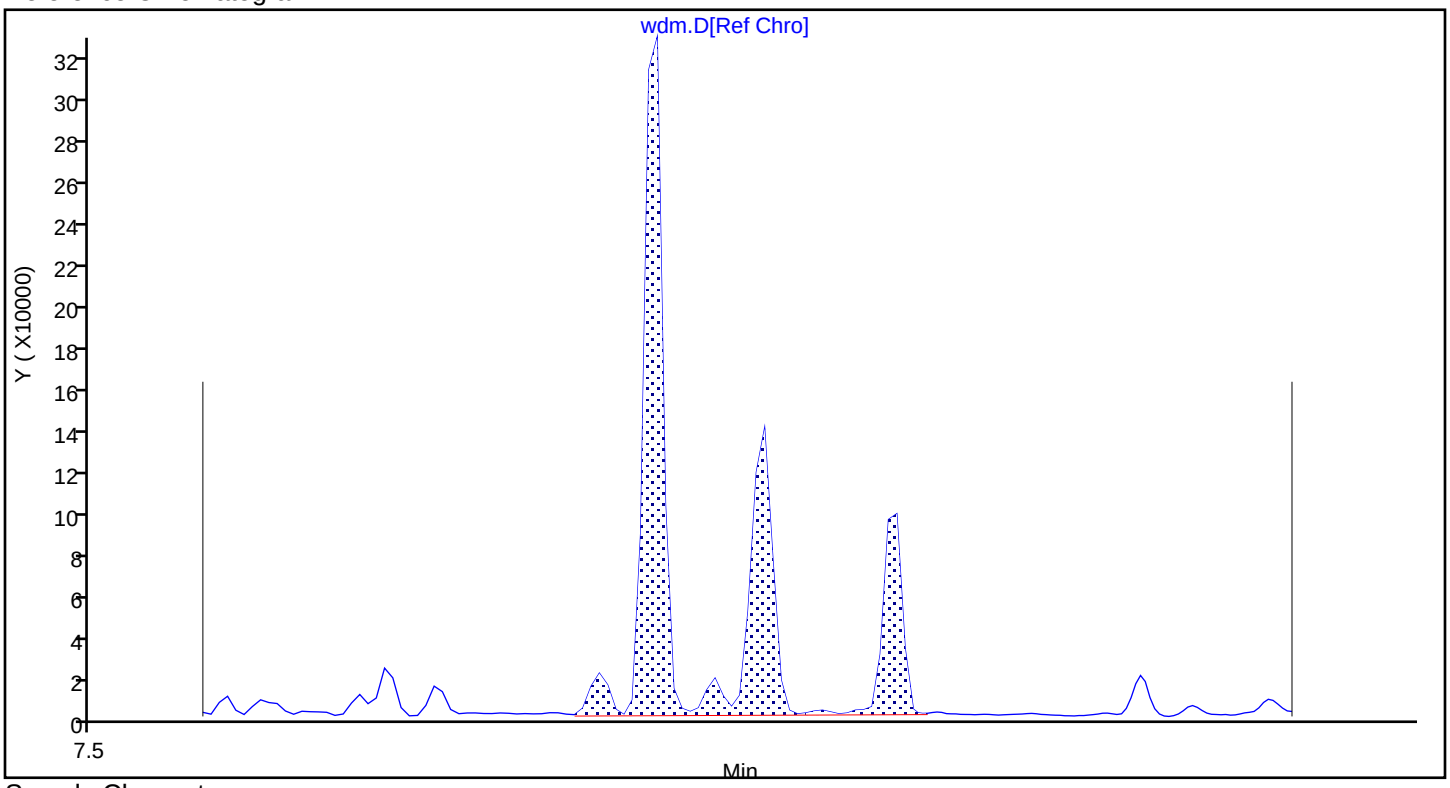
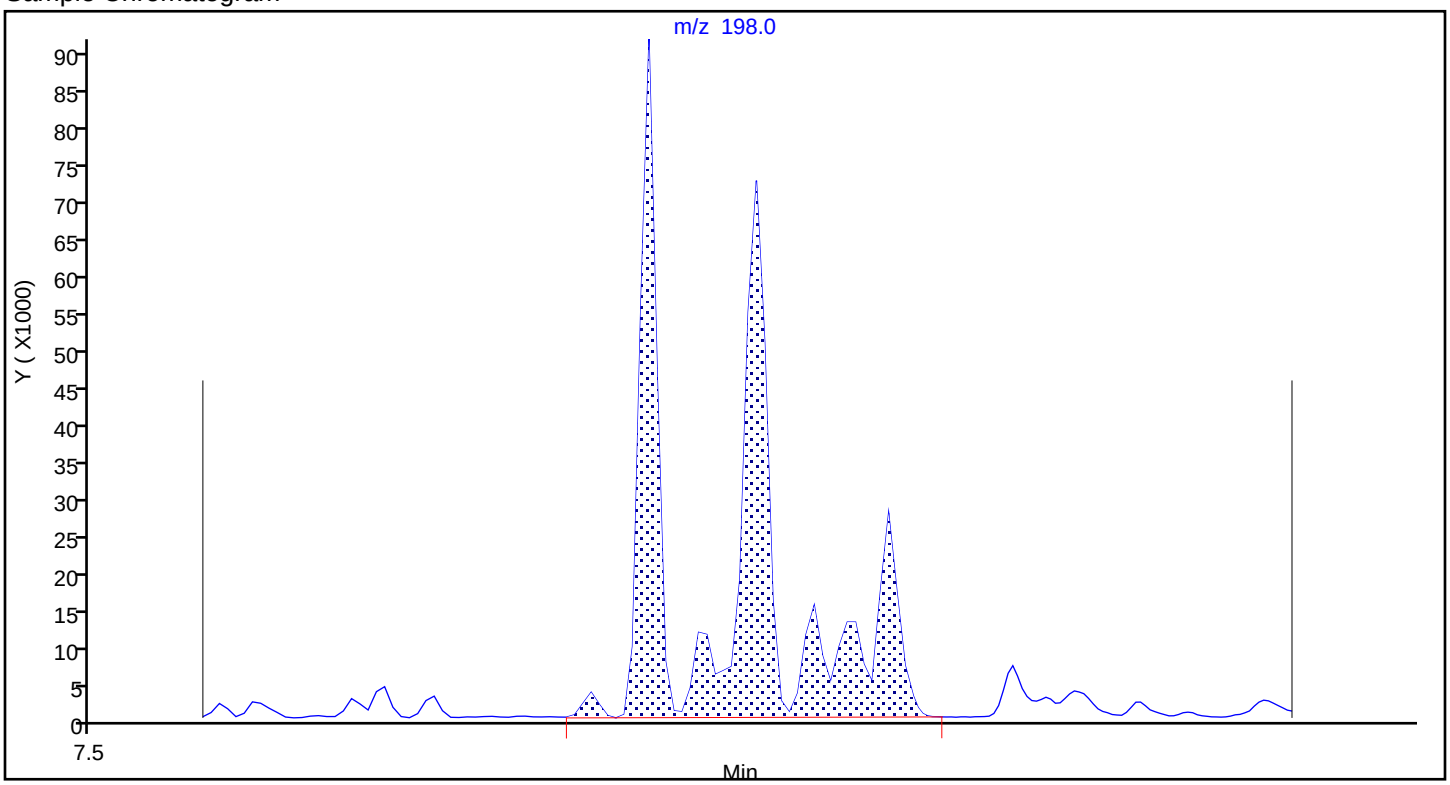
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 45 C1-Dibenzothiophenes, CAS: STL00909

Reference Chromatogram



Sample Chromatogram



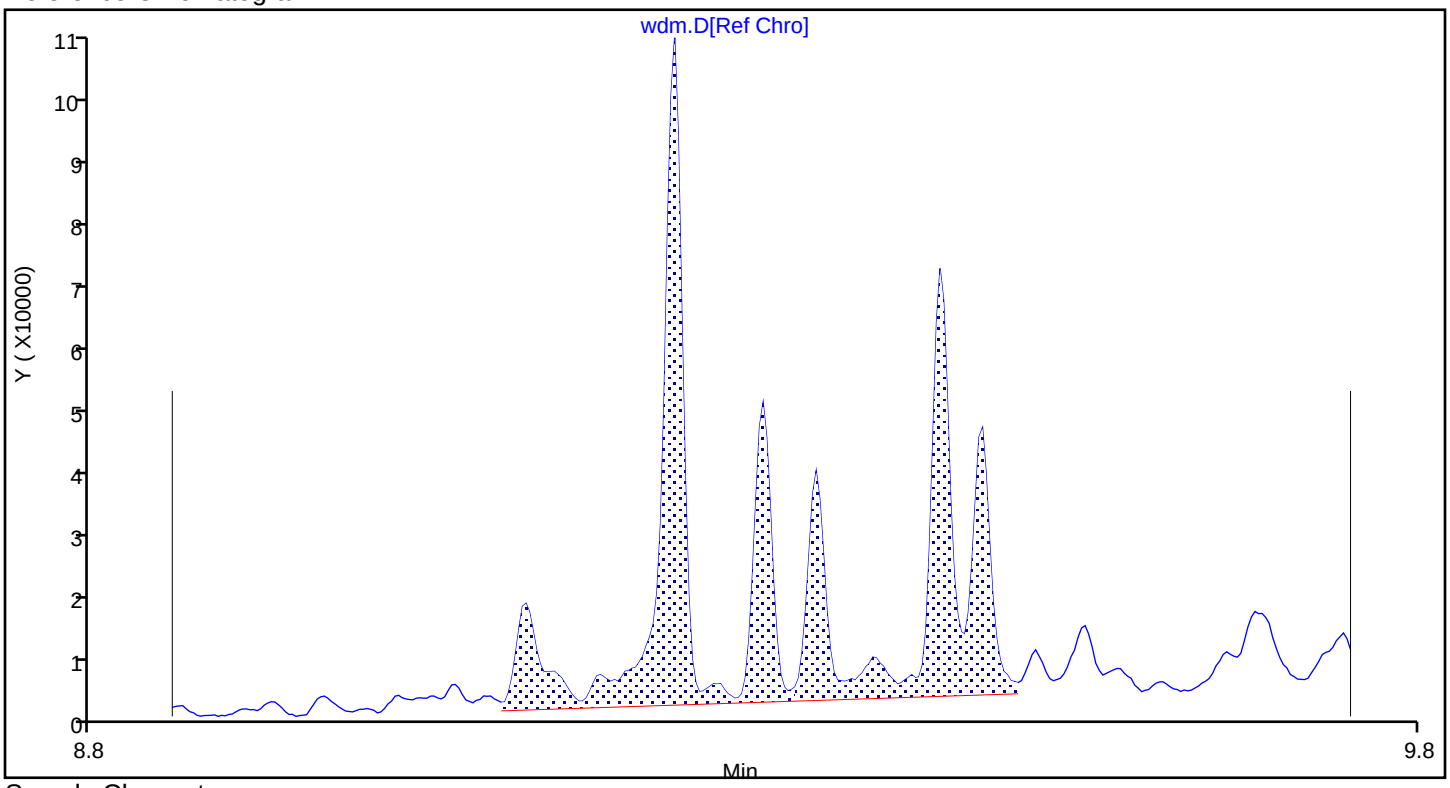
Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

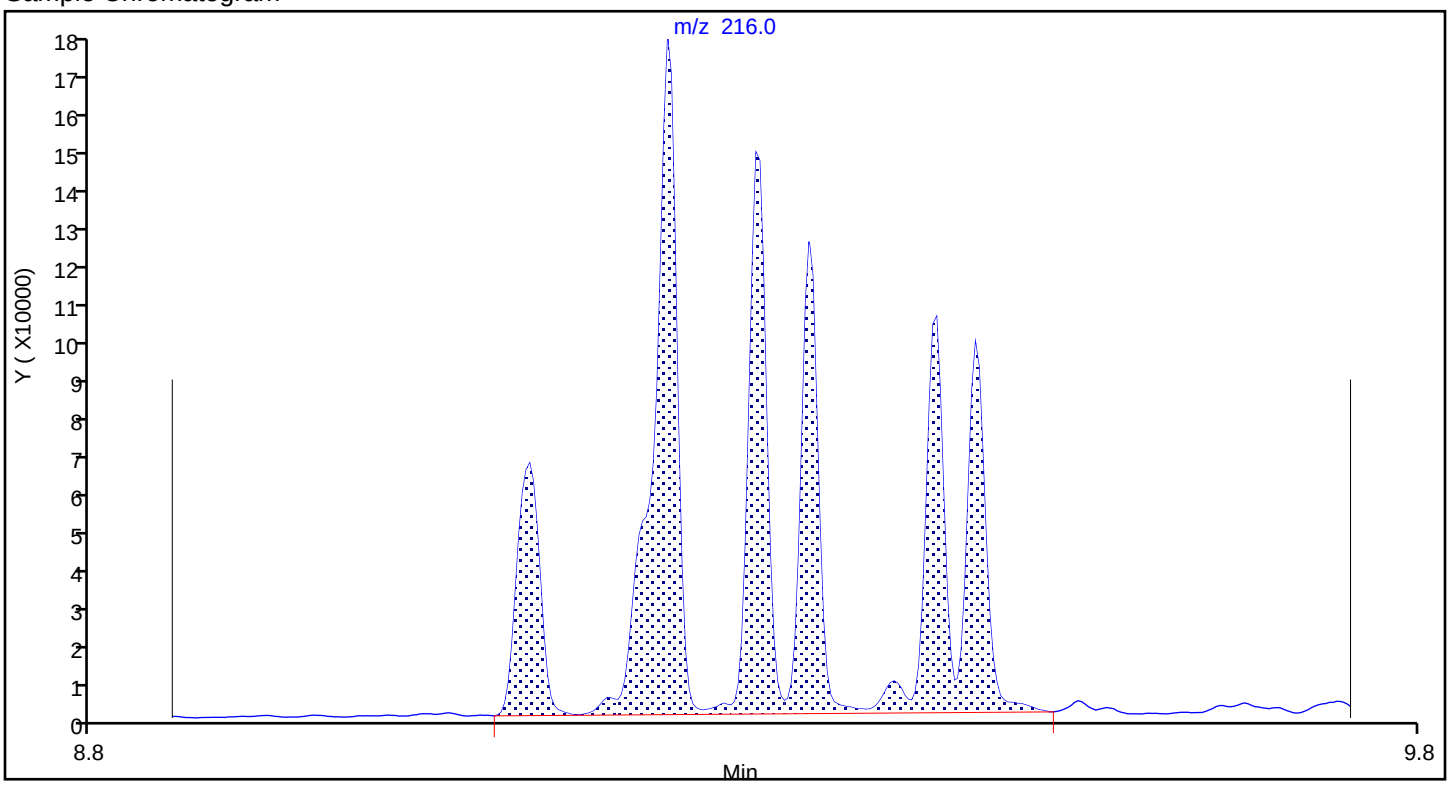
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 53 C1-Fluoranthenes/pyrene, CAS: STL00912

Reference Chromatogram



Sample Chromatogram



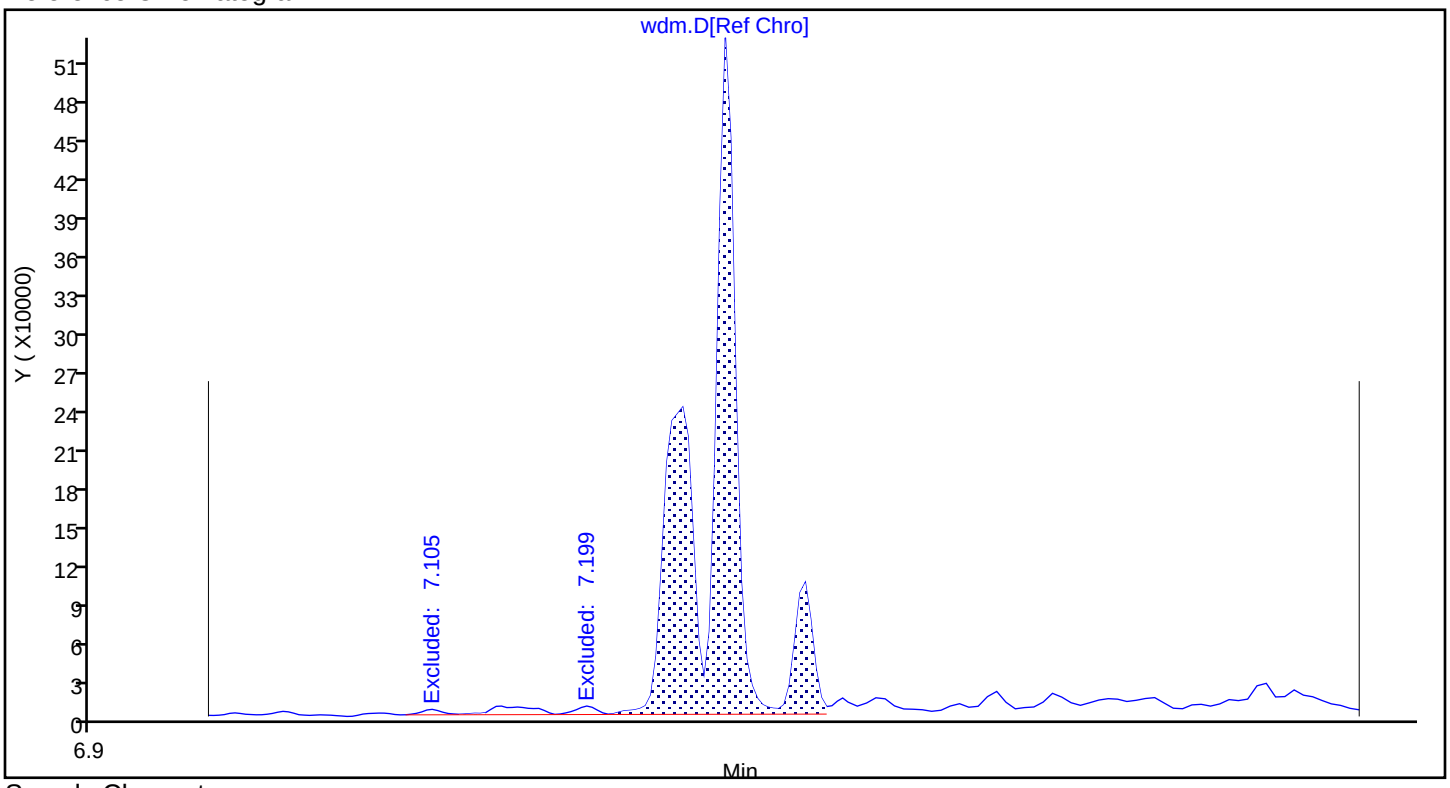
Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

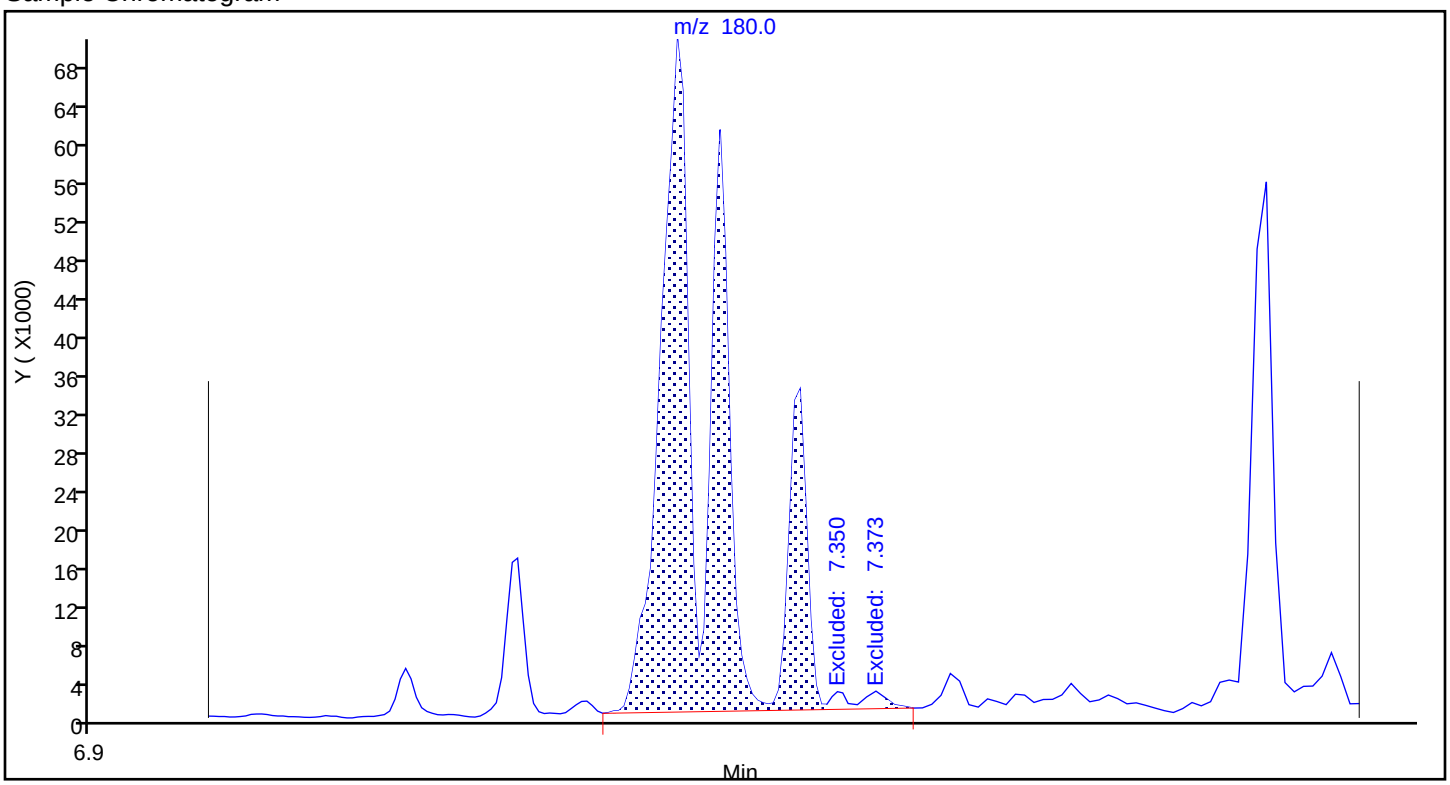
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 42 C1-Fluorenes, CAS: STL00913

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
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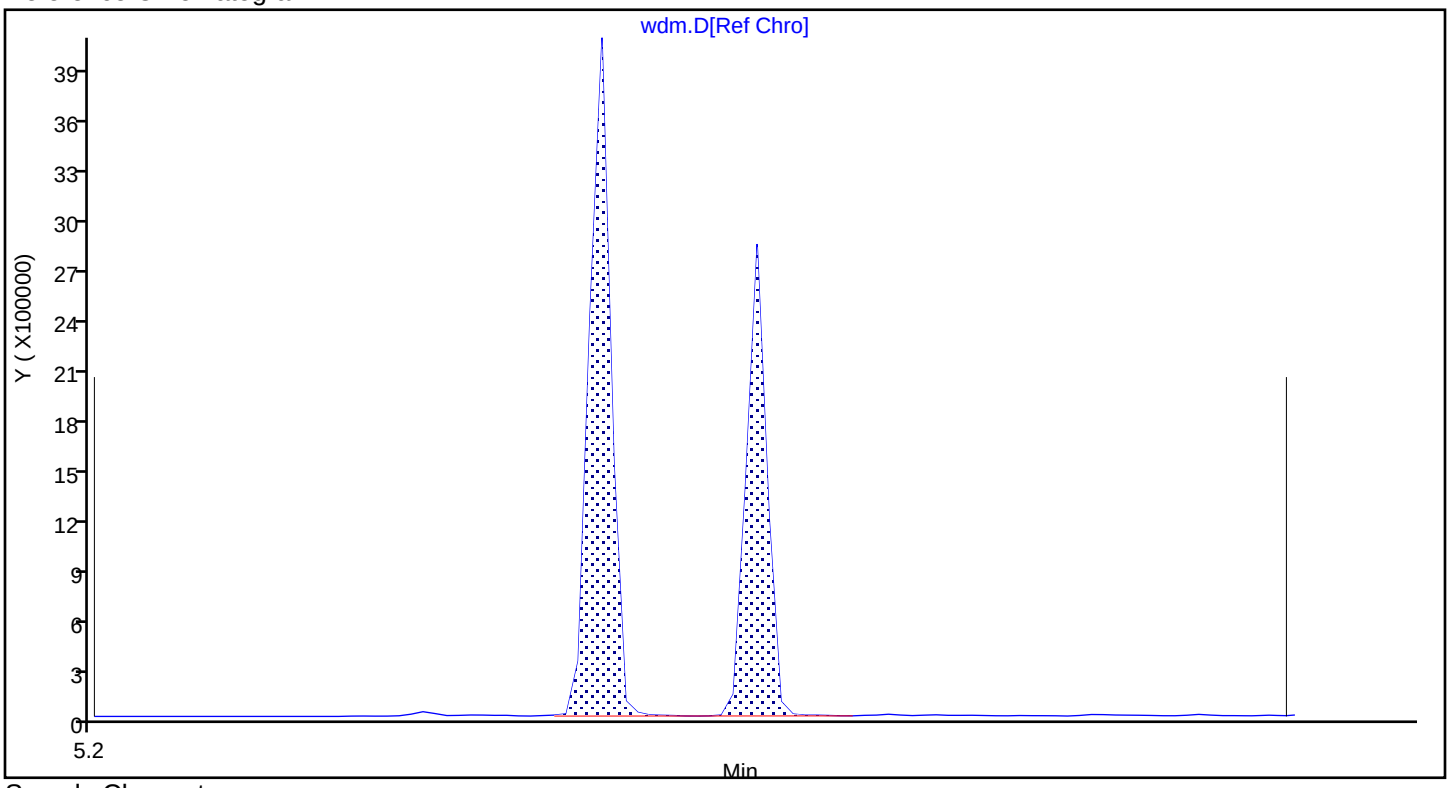
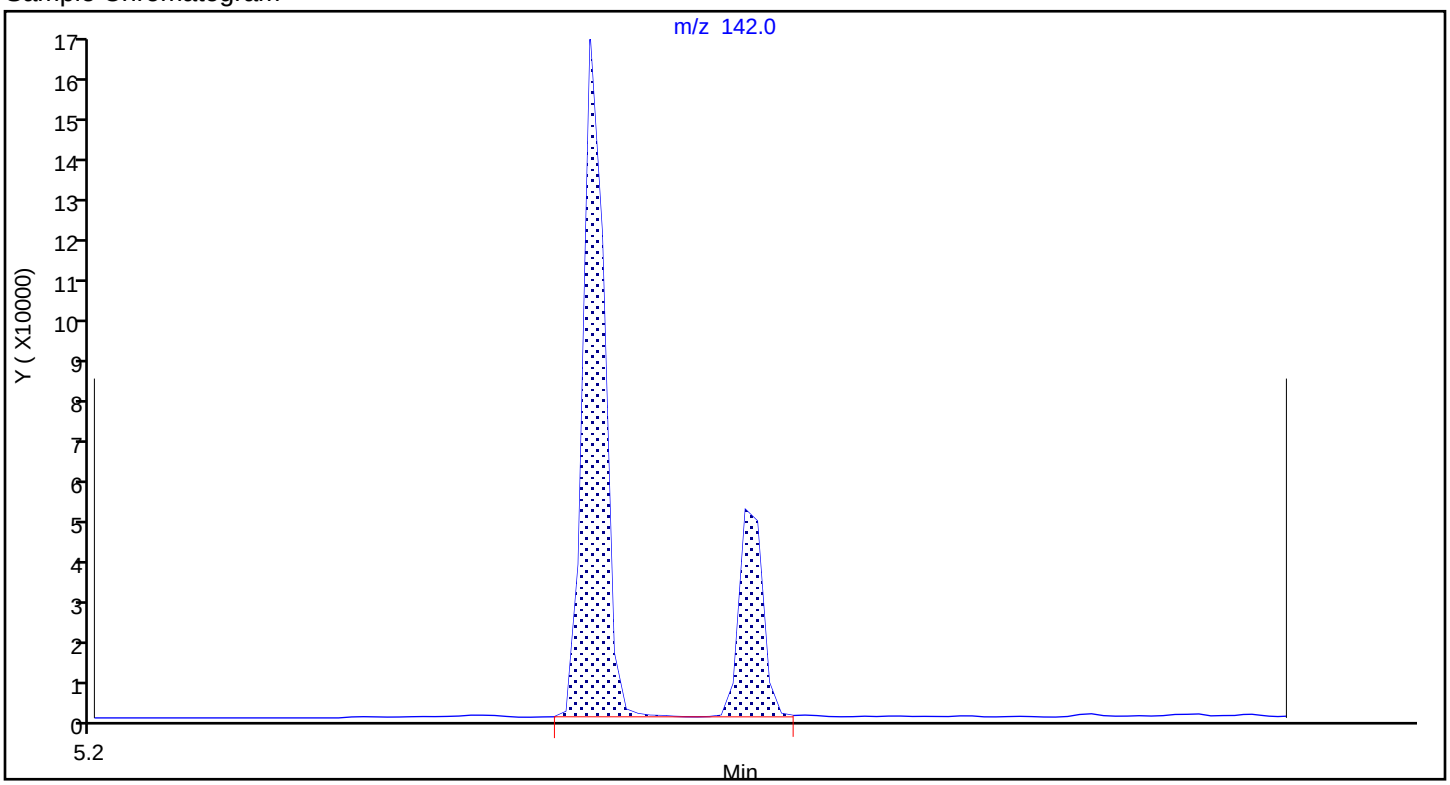
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 38 C1-Naphthalenes, CAS: STL00916

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
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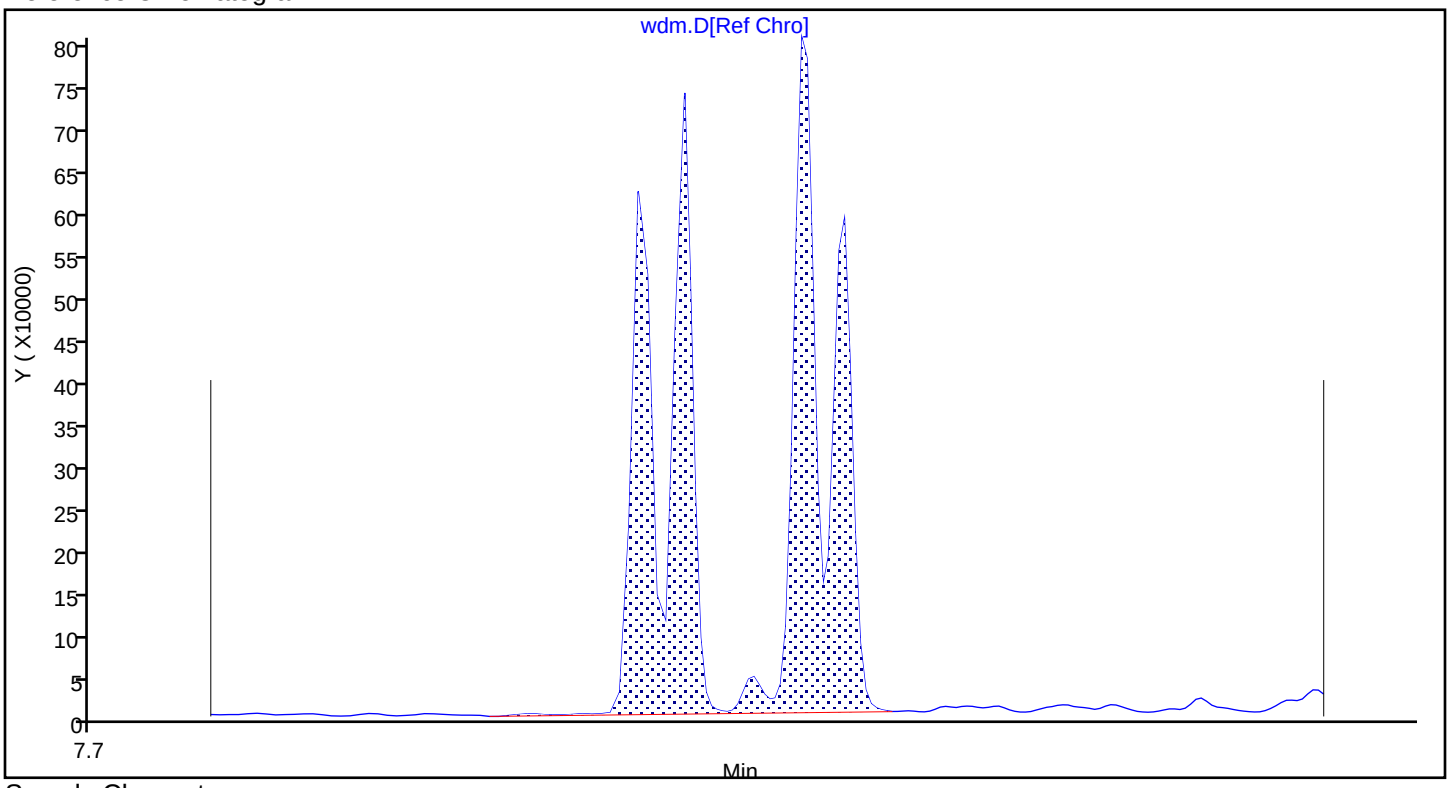
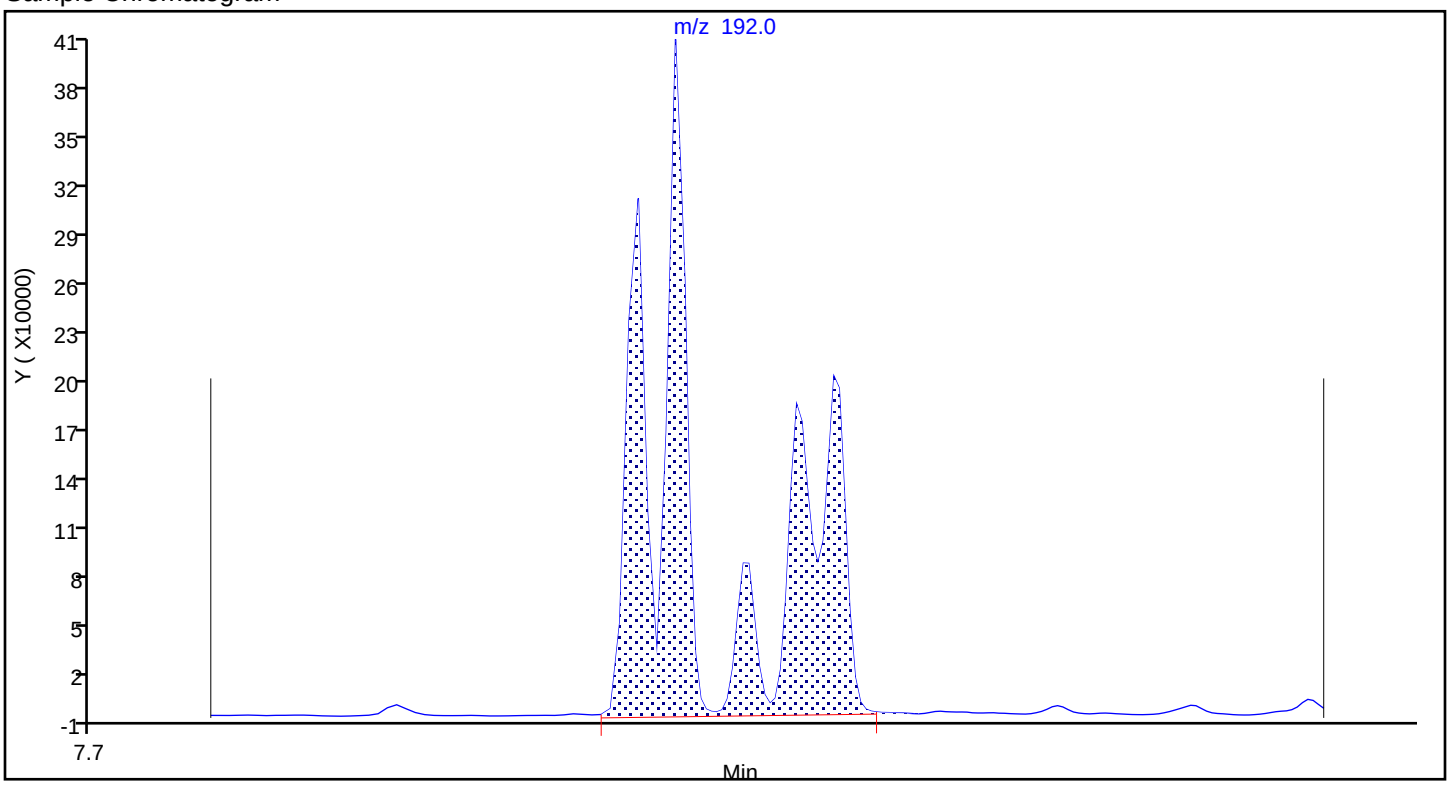
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 49 C1-Phenanthrenes/Anthracenes, CAS: STL00901

Reference Chromatogram



Sample Chromatogram



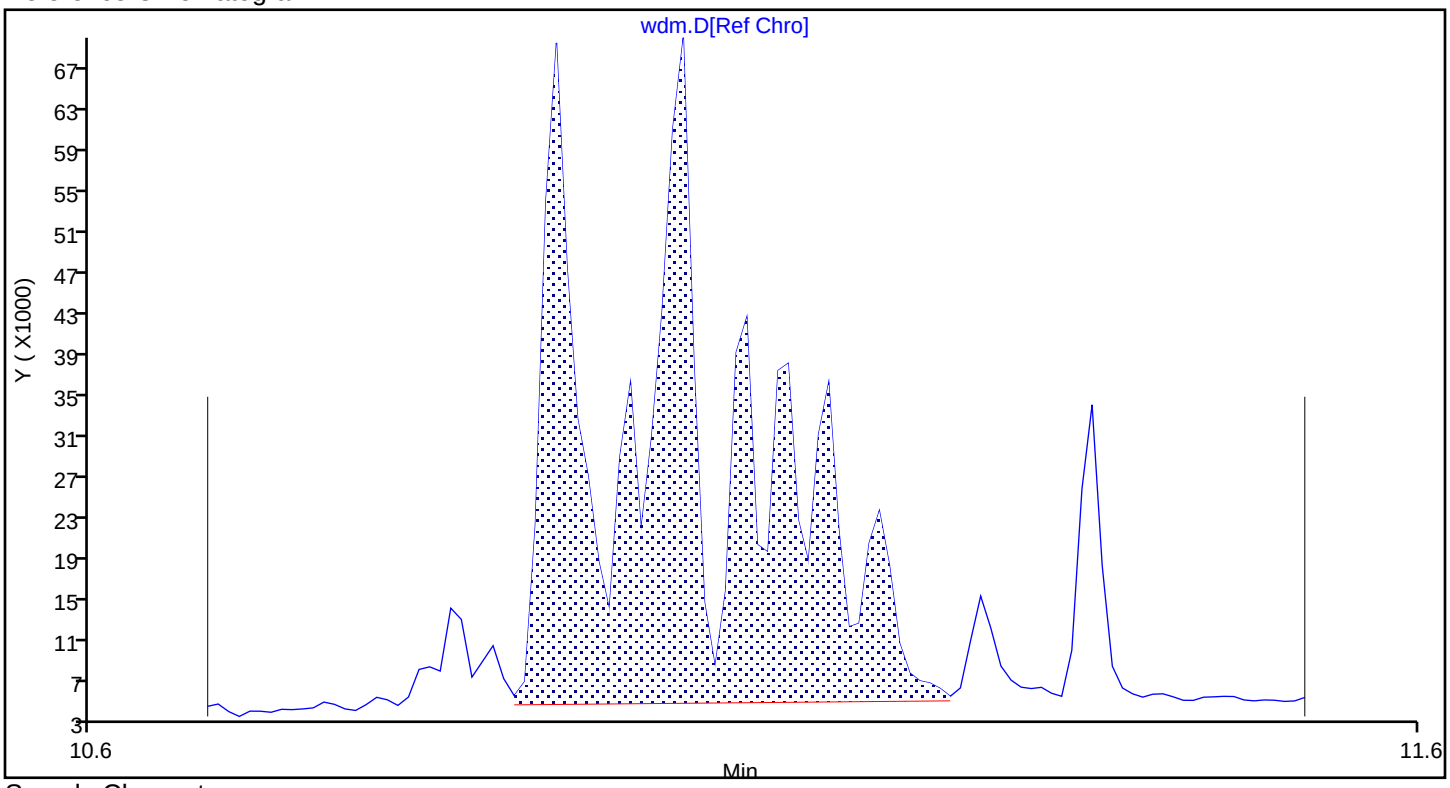
Report Date: 31-Aug-2019 11:48:38 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

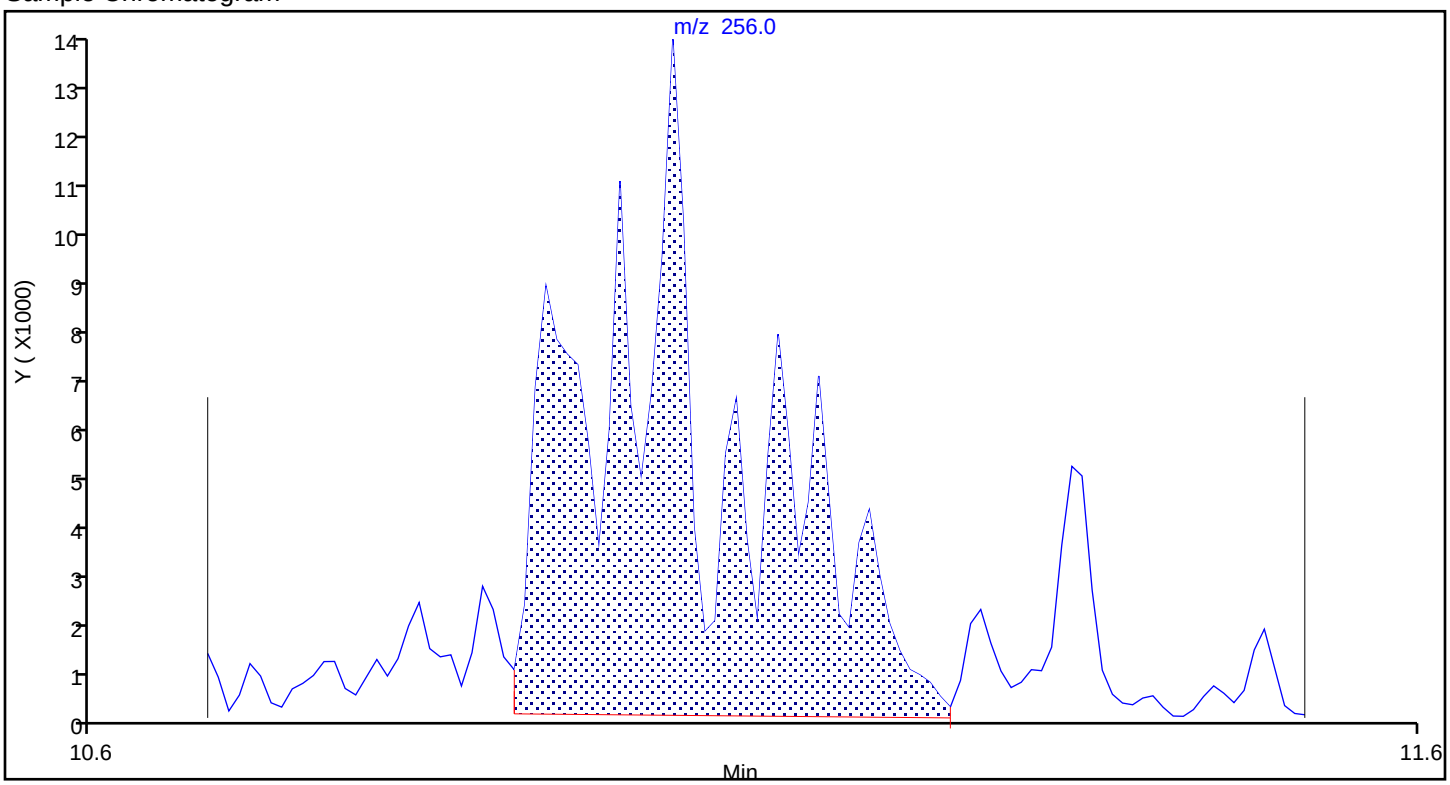
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 58 C2-Chrysenes, CAS: STL00906

Reference Chromatogram



Sample Chromatogram



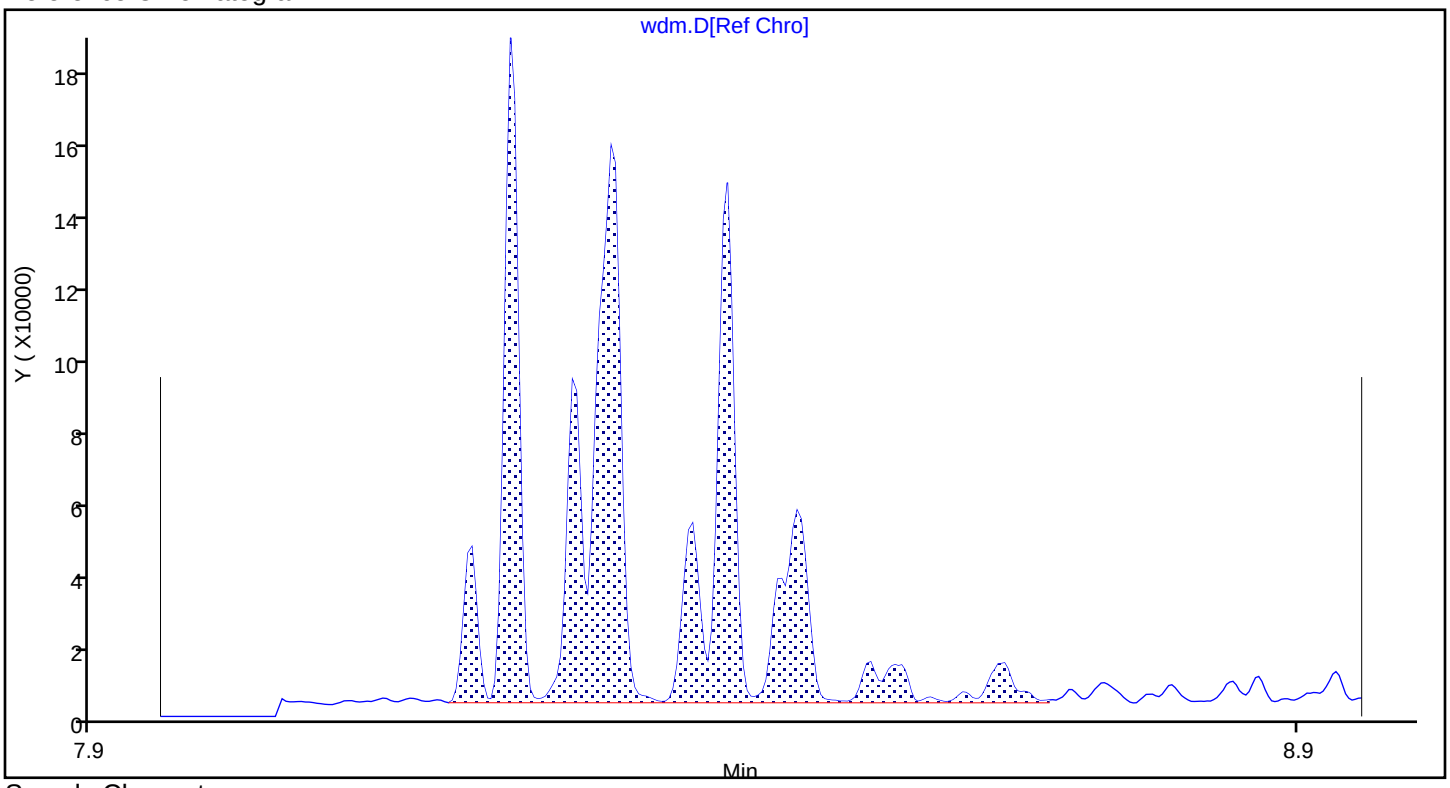
Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

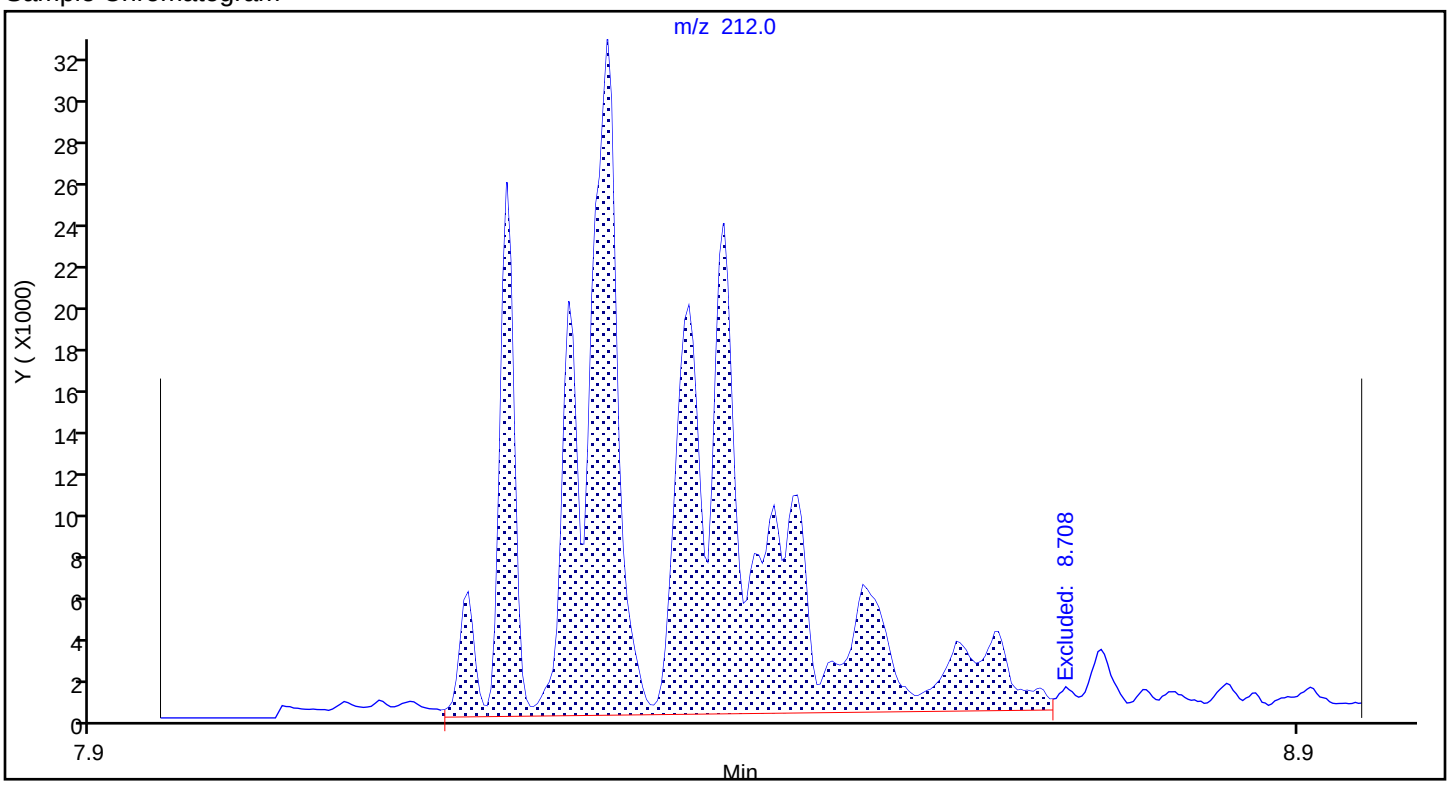
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 46 C2-Dibenzothiophenes, CAS: STL00910

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
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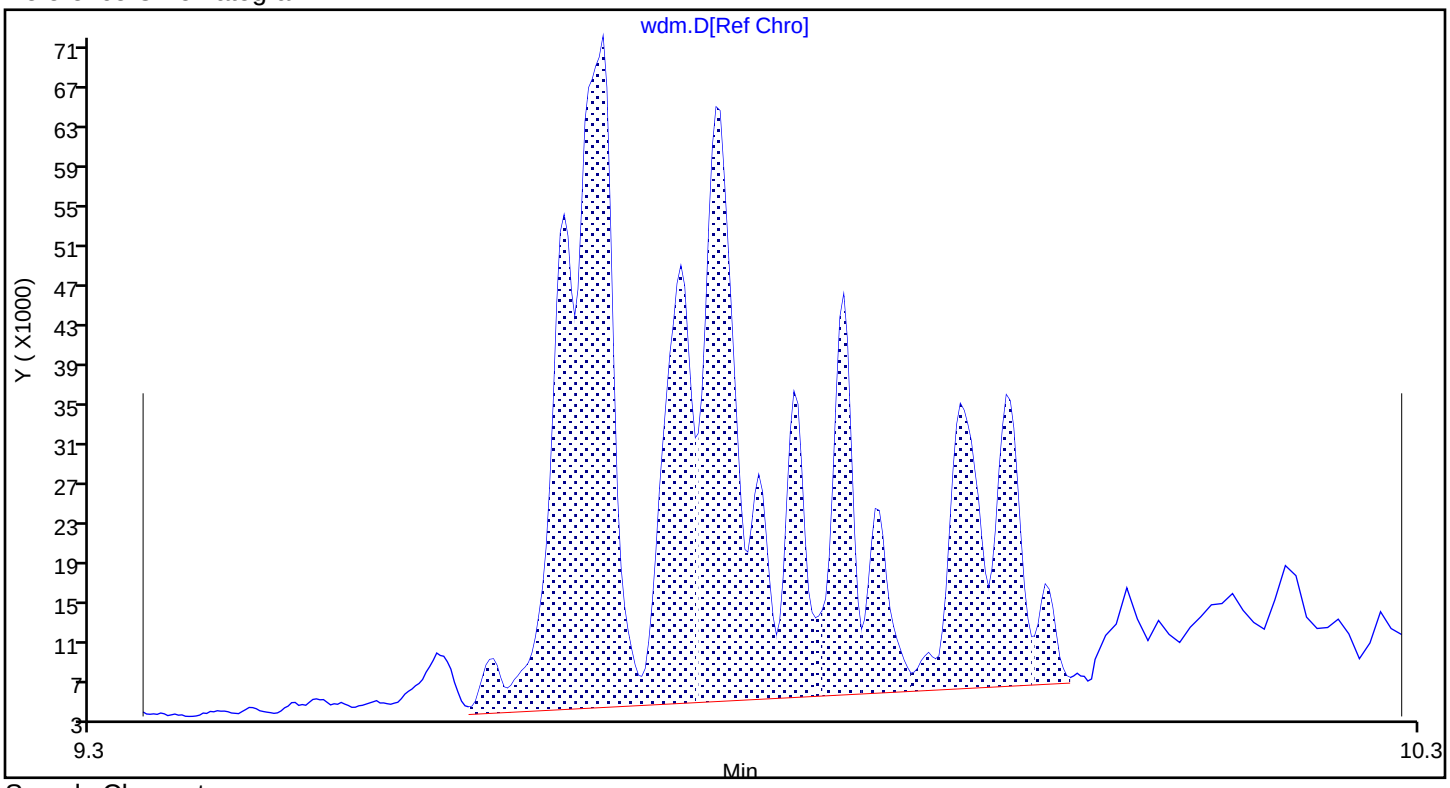
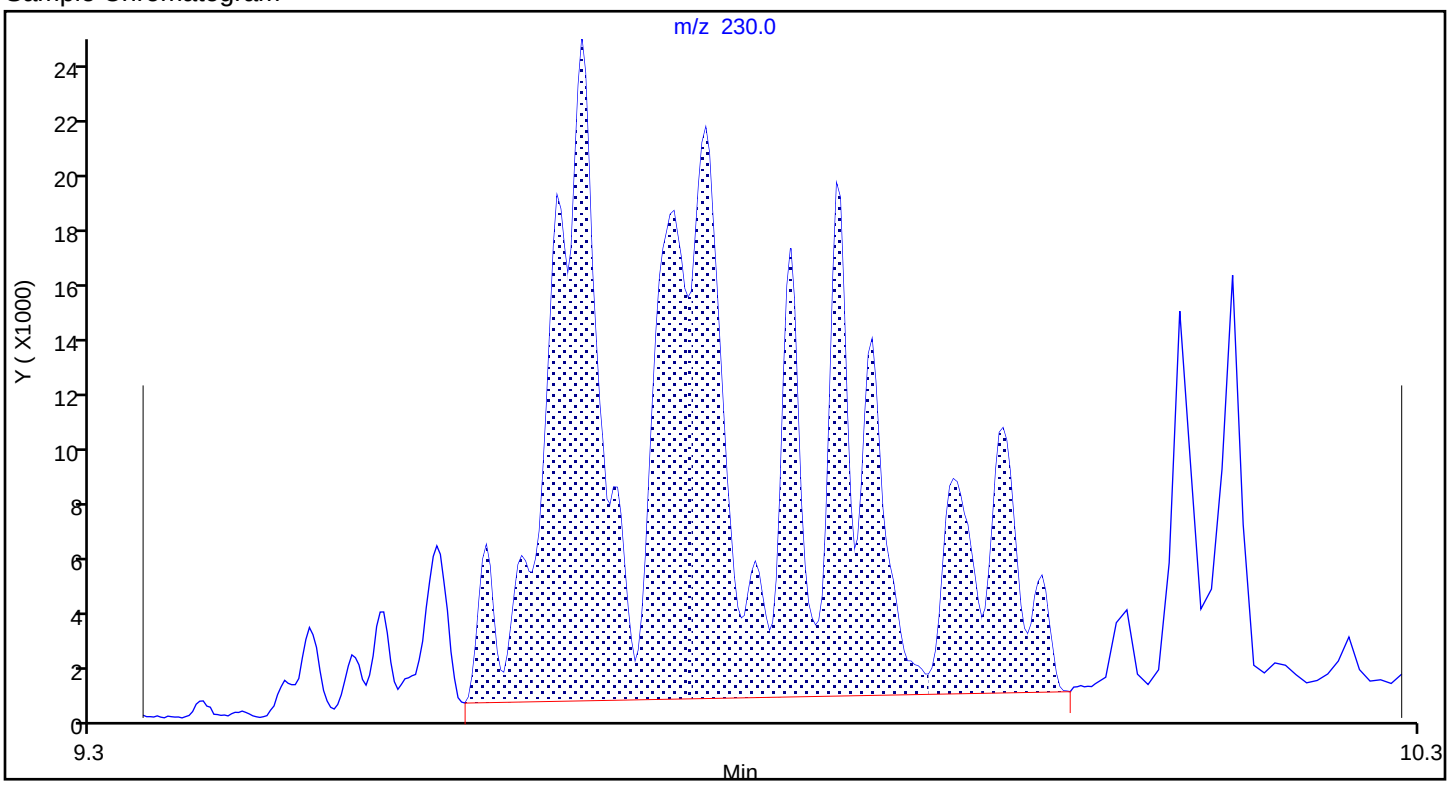
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 54 C2-Fluoranthenes/Pyrene, CAS: STL00968

Reference Chromatogram



Sample Chromatogram



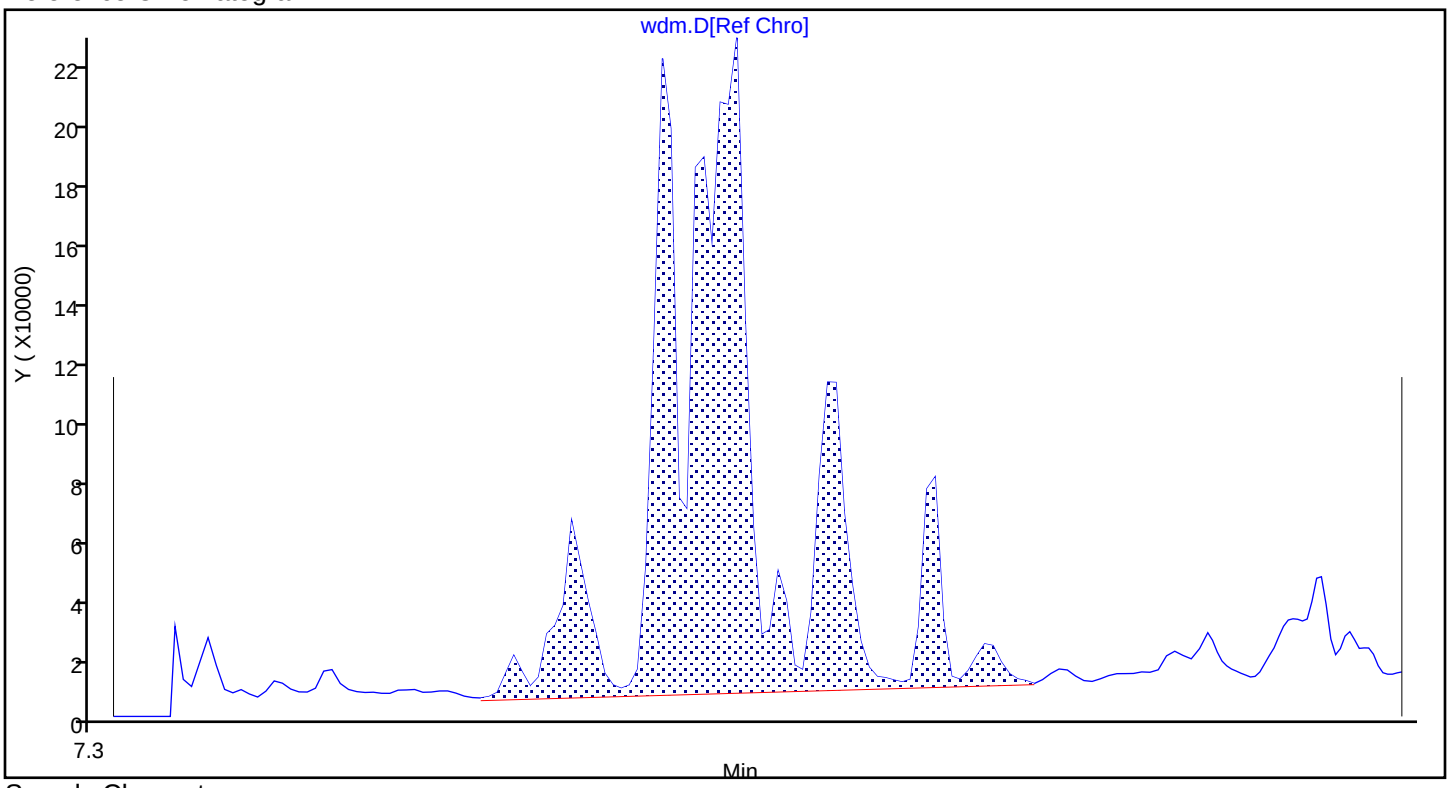
Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

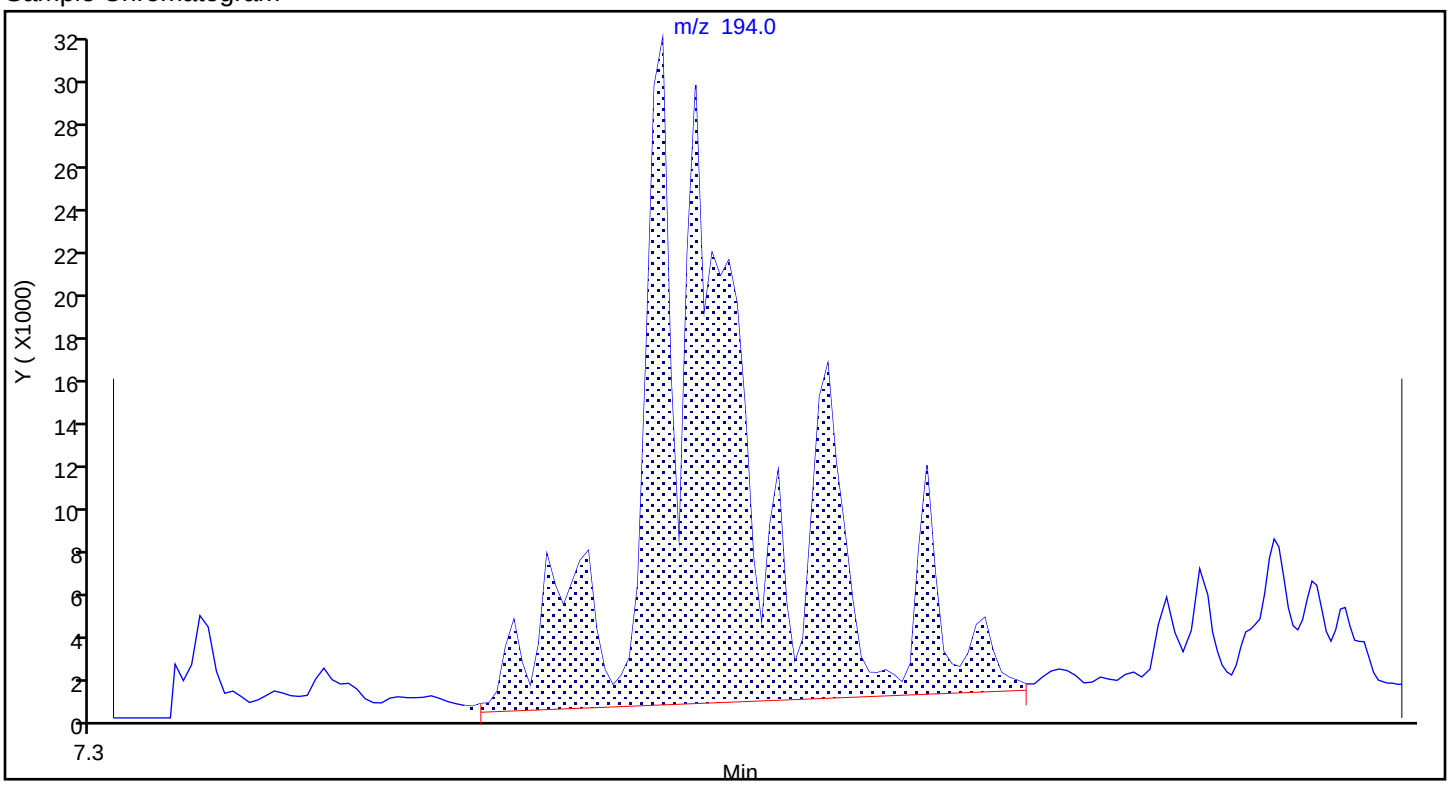
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 43 C2-Fluorenes, CAS: STL00914

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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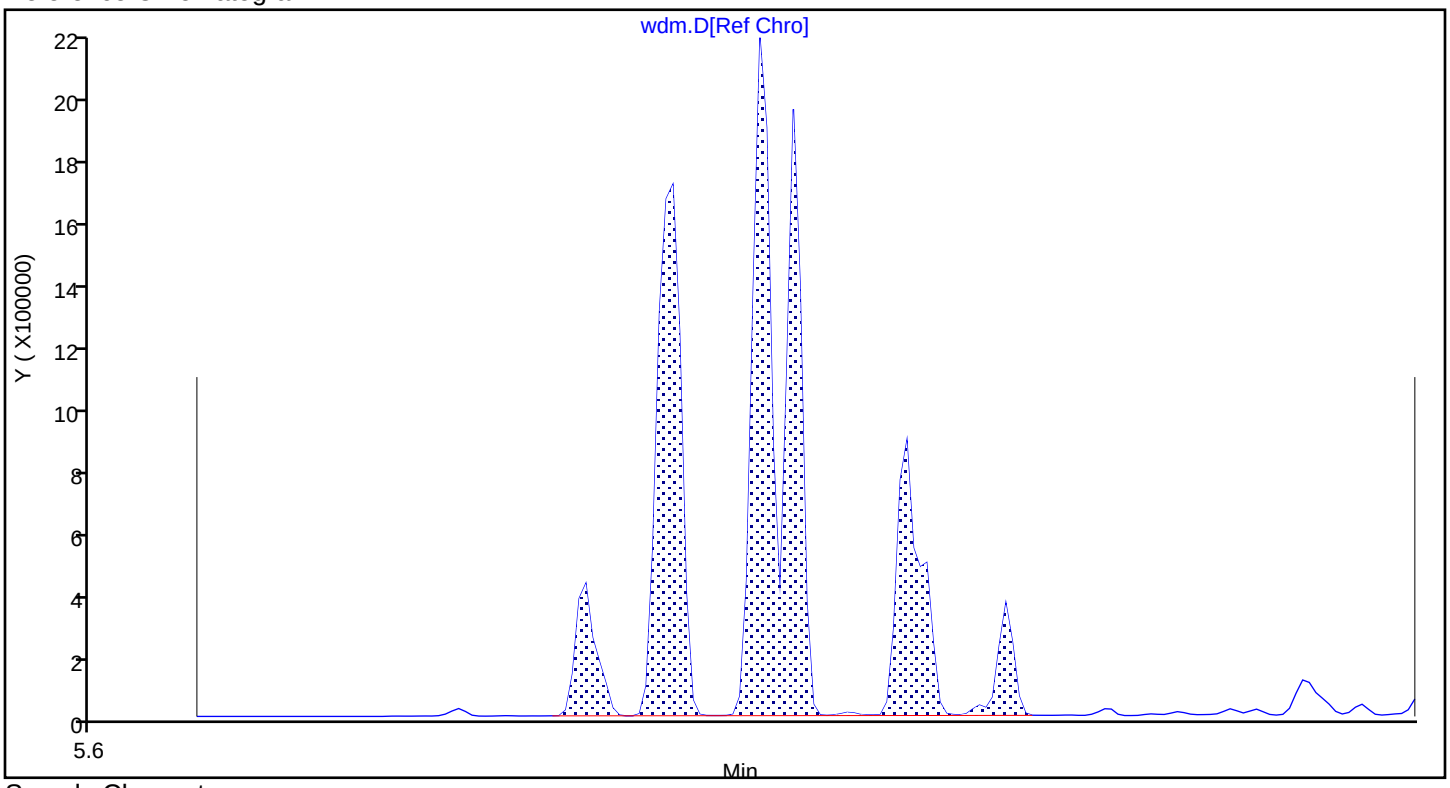
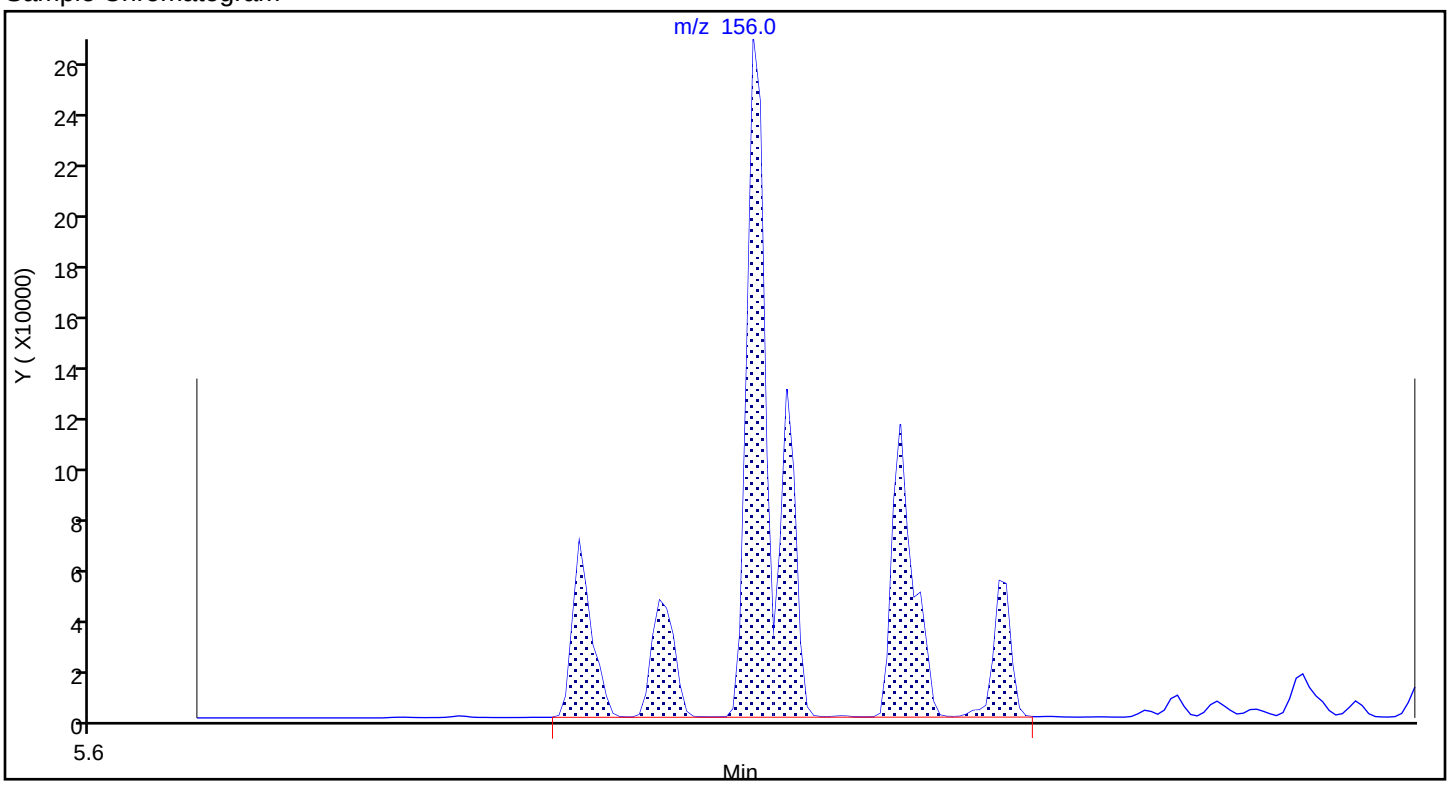
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 39 C2-Naphthalenes, CAS: STL00917

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
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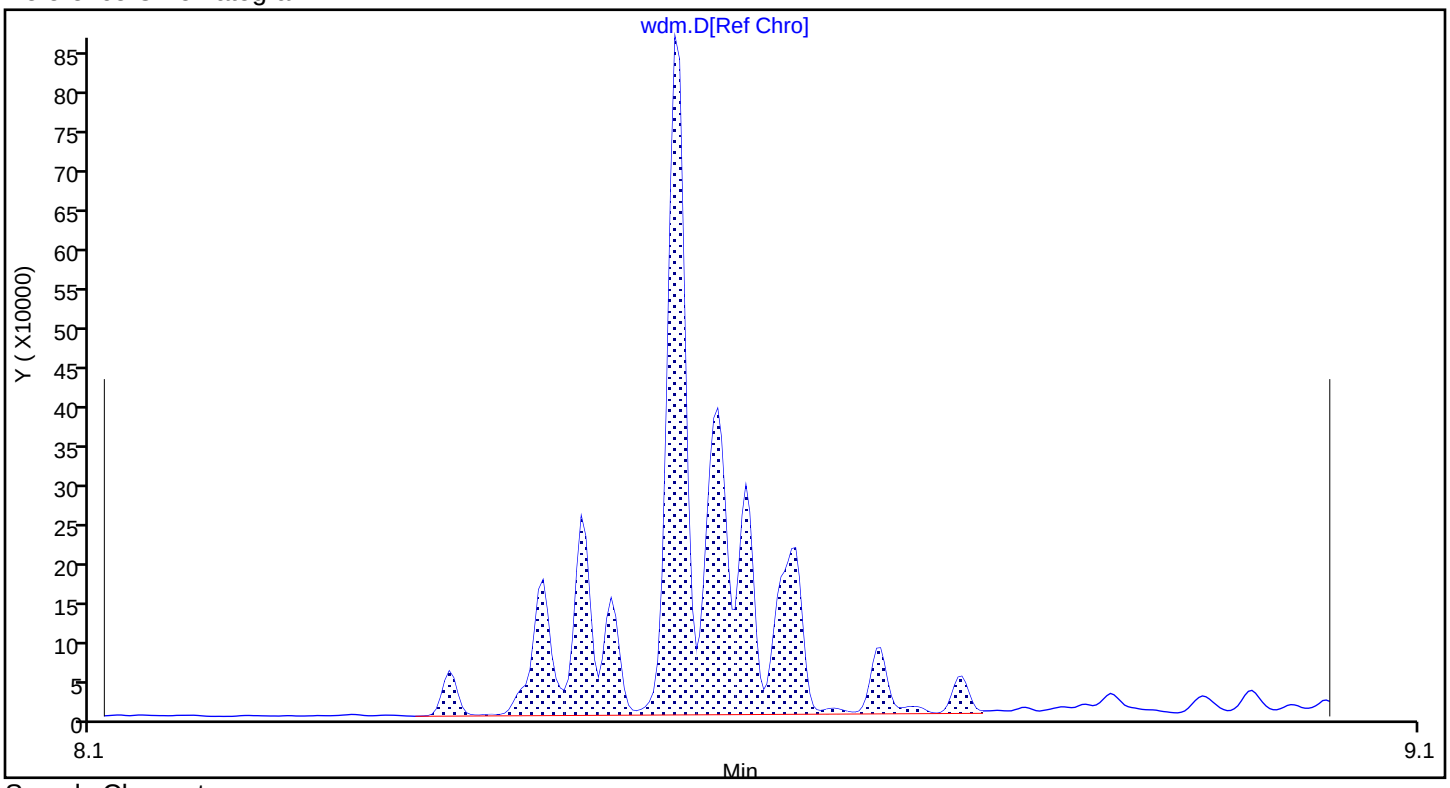
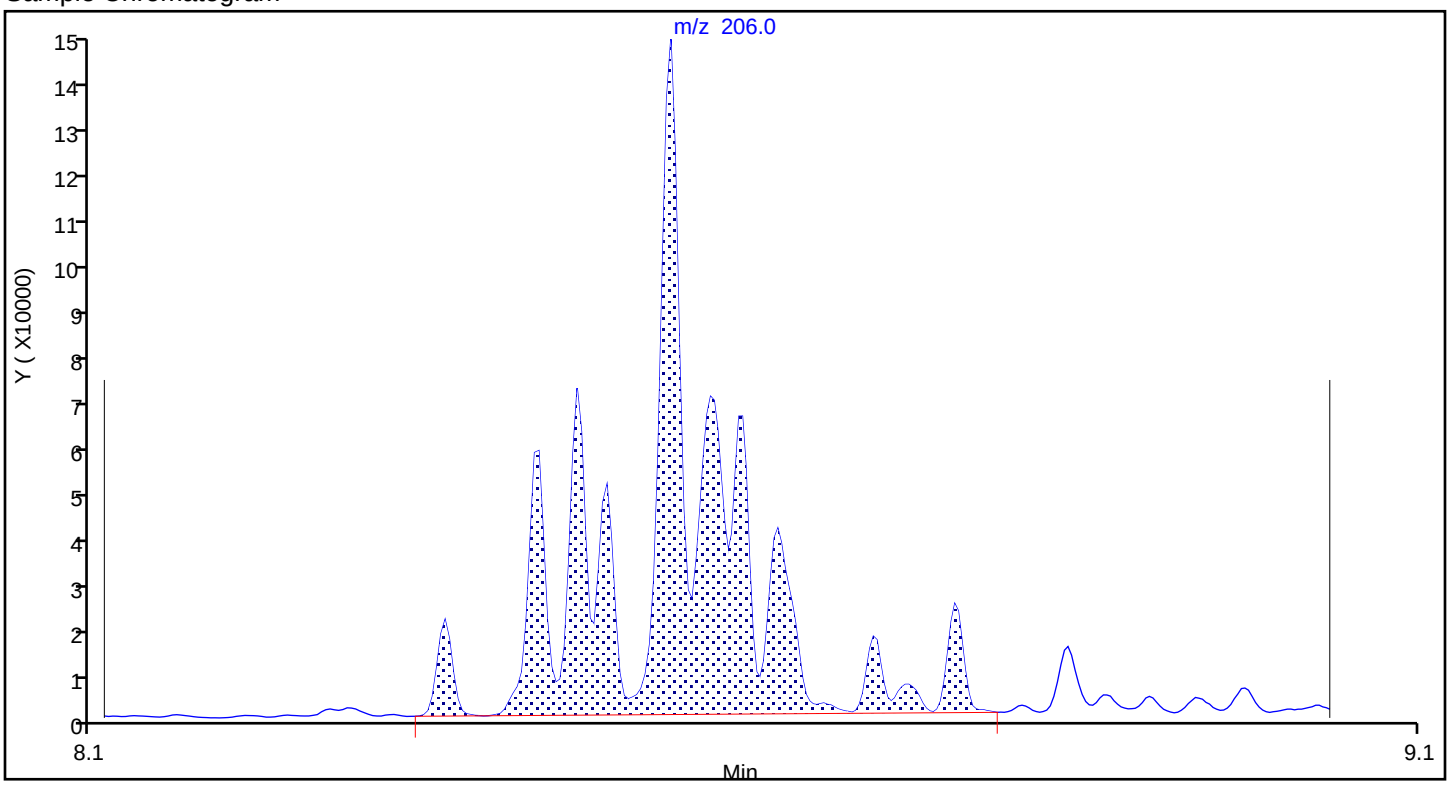
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 50 C2-Phenanthrenes/Anthracenes, CAS: STL00902

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:38 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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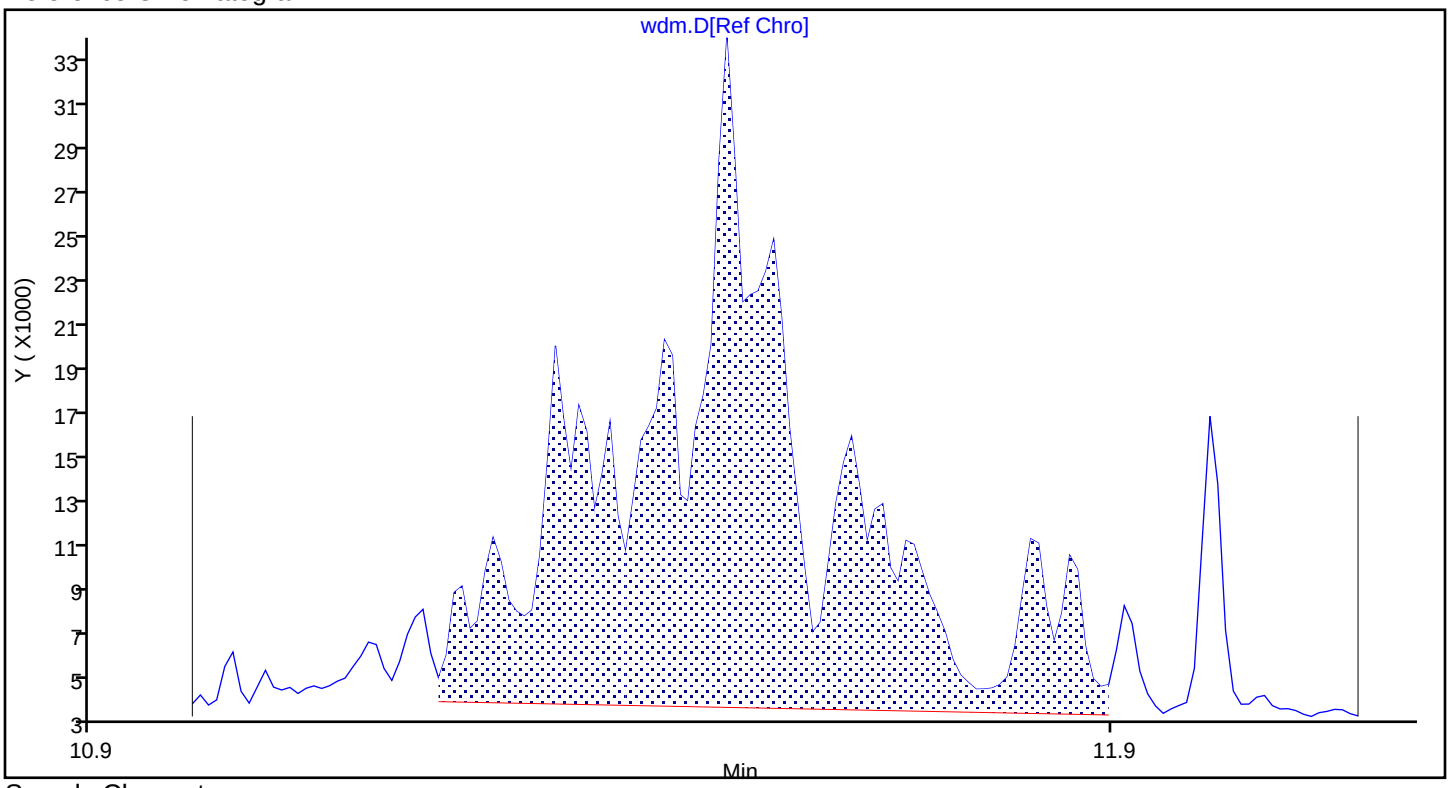
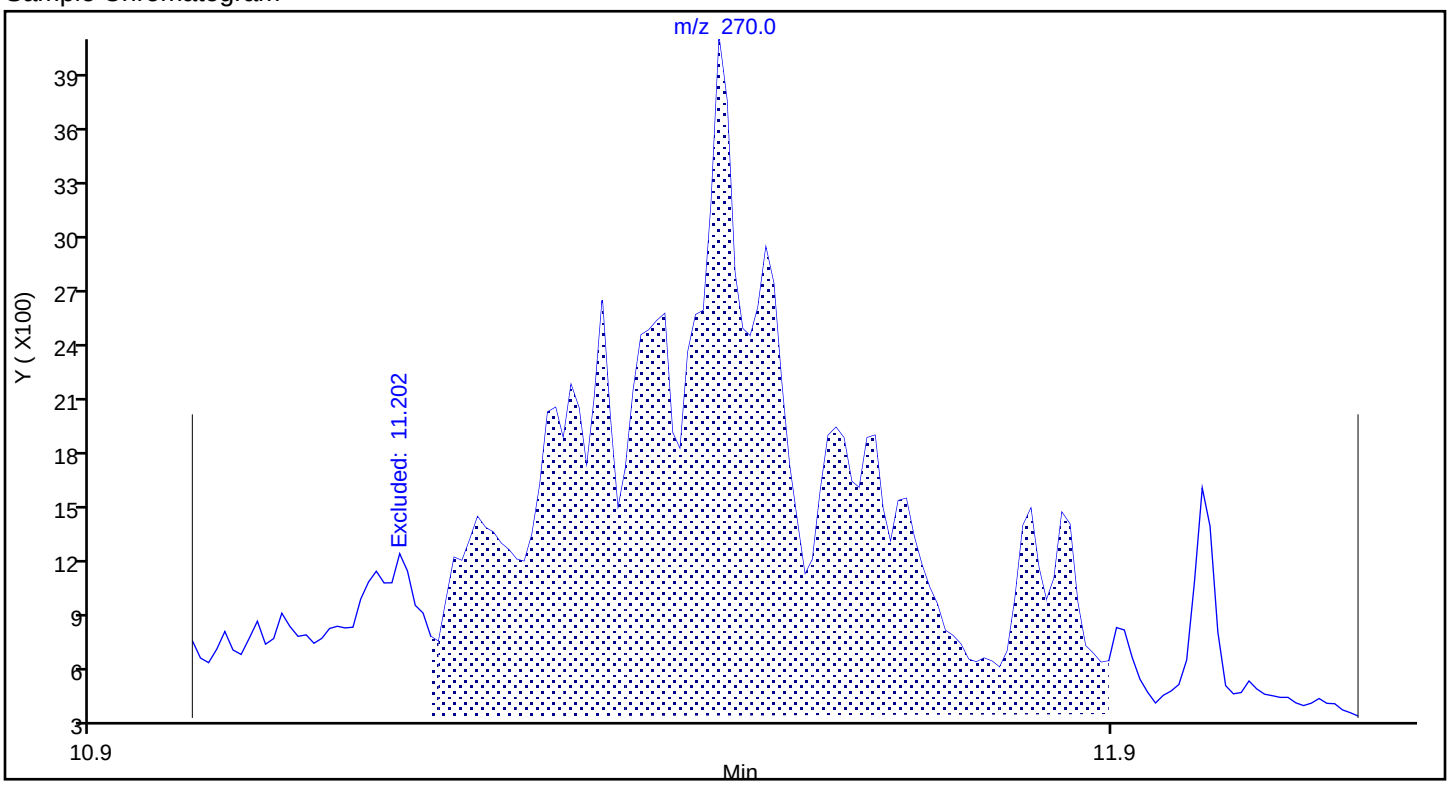
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 59 C3-Chrysenes, CAS: STL00907

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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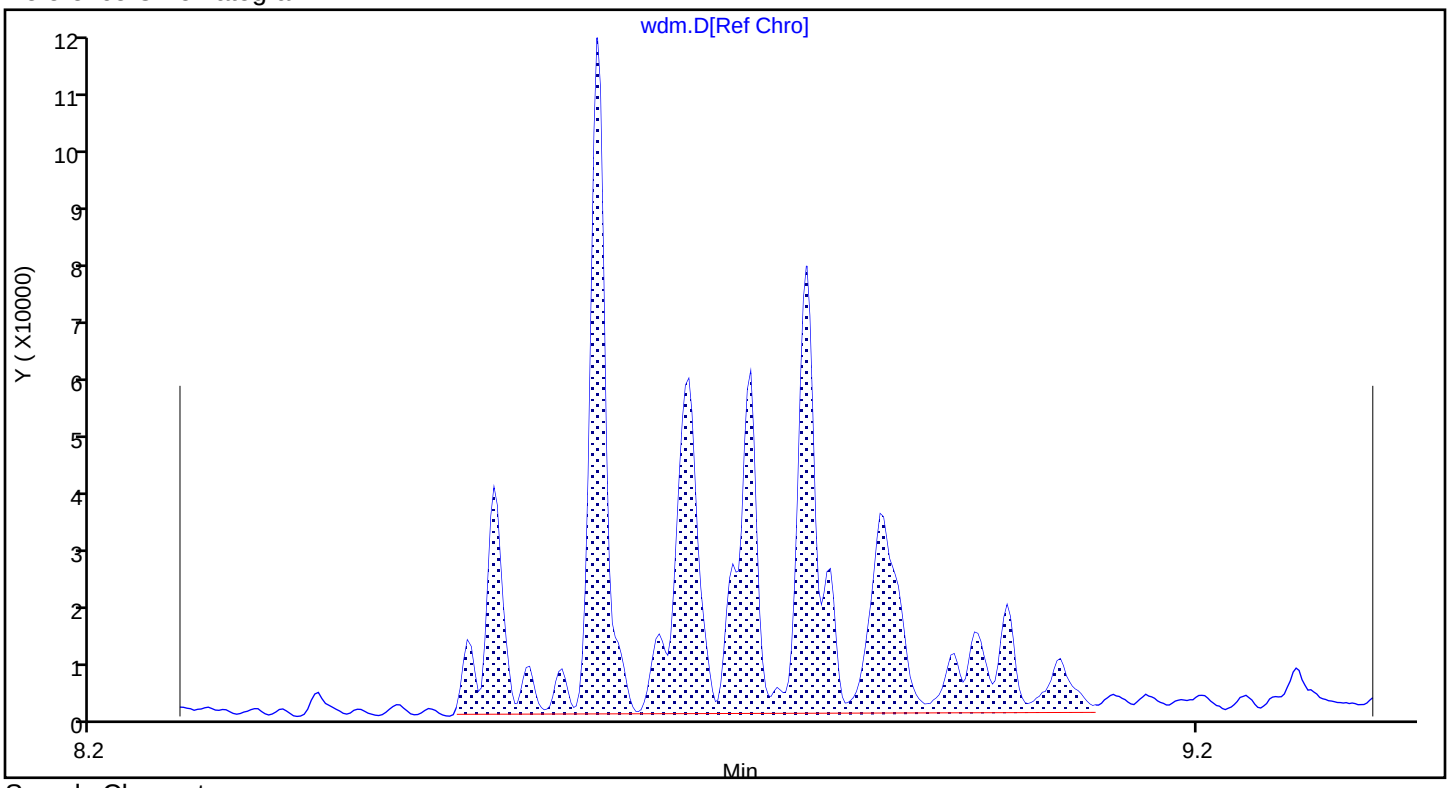
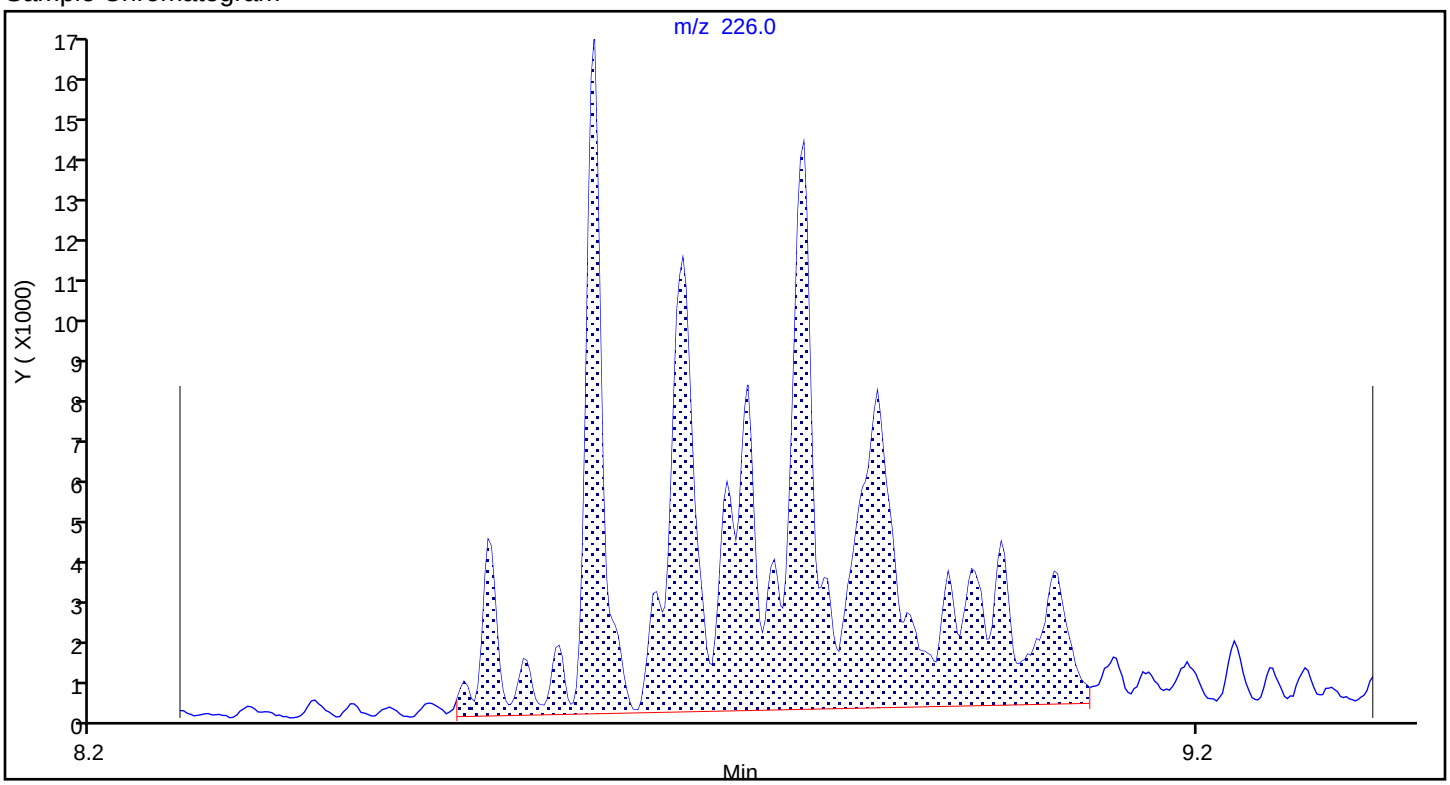
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 47 C3-Dibenzothiophenes, CAS: STL00911

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
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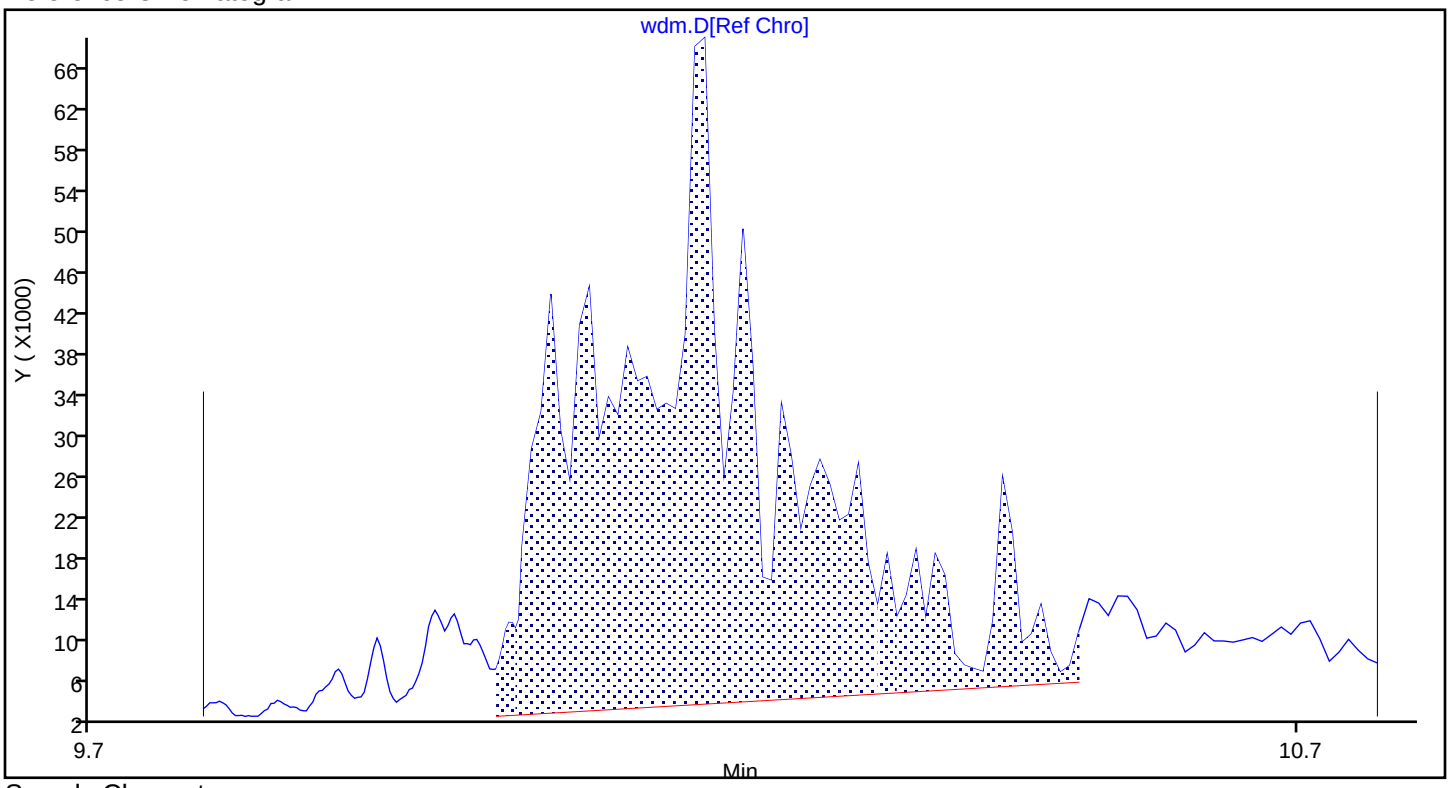
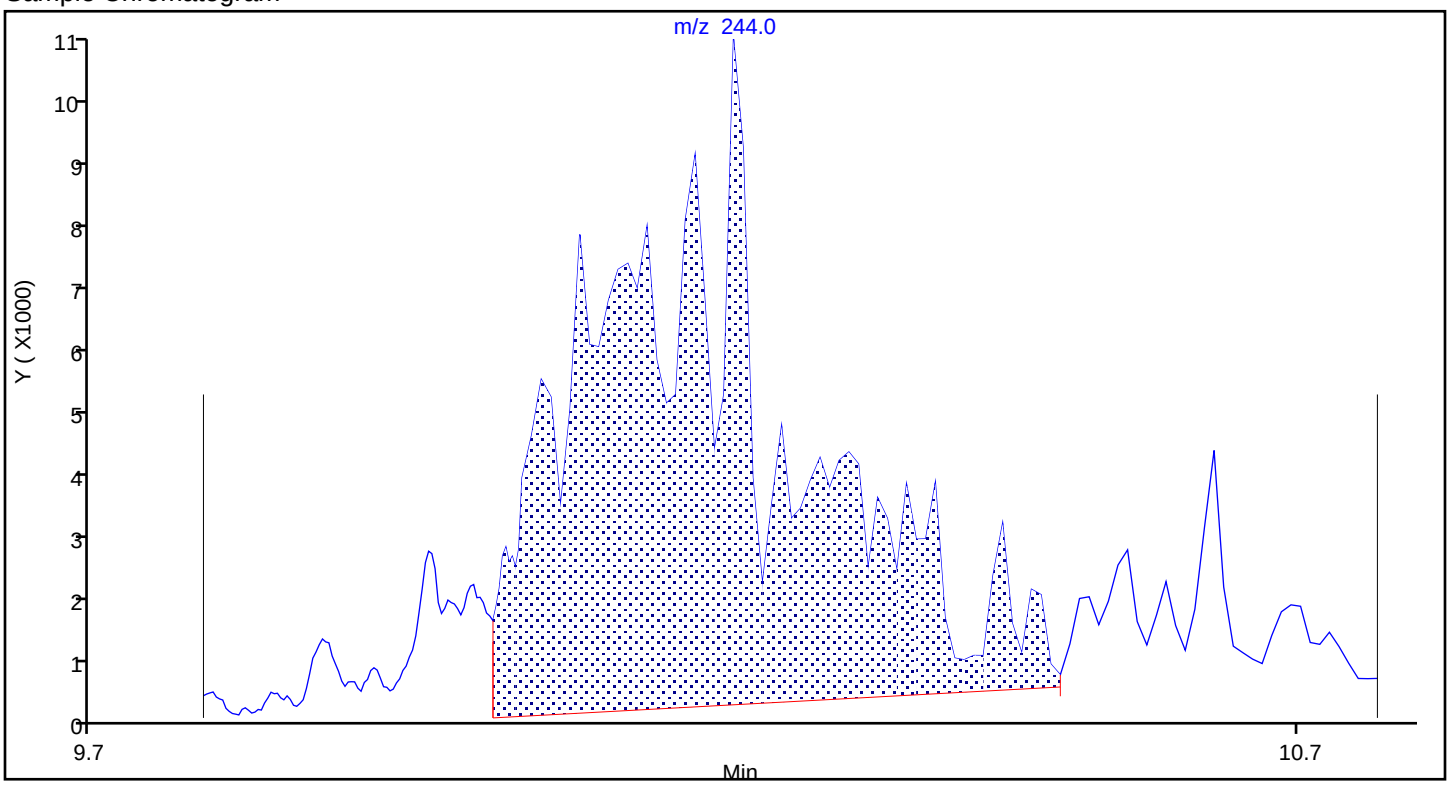
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 55 C3-Fluoranthenes/Pyrene, CAS: STL00969

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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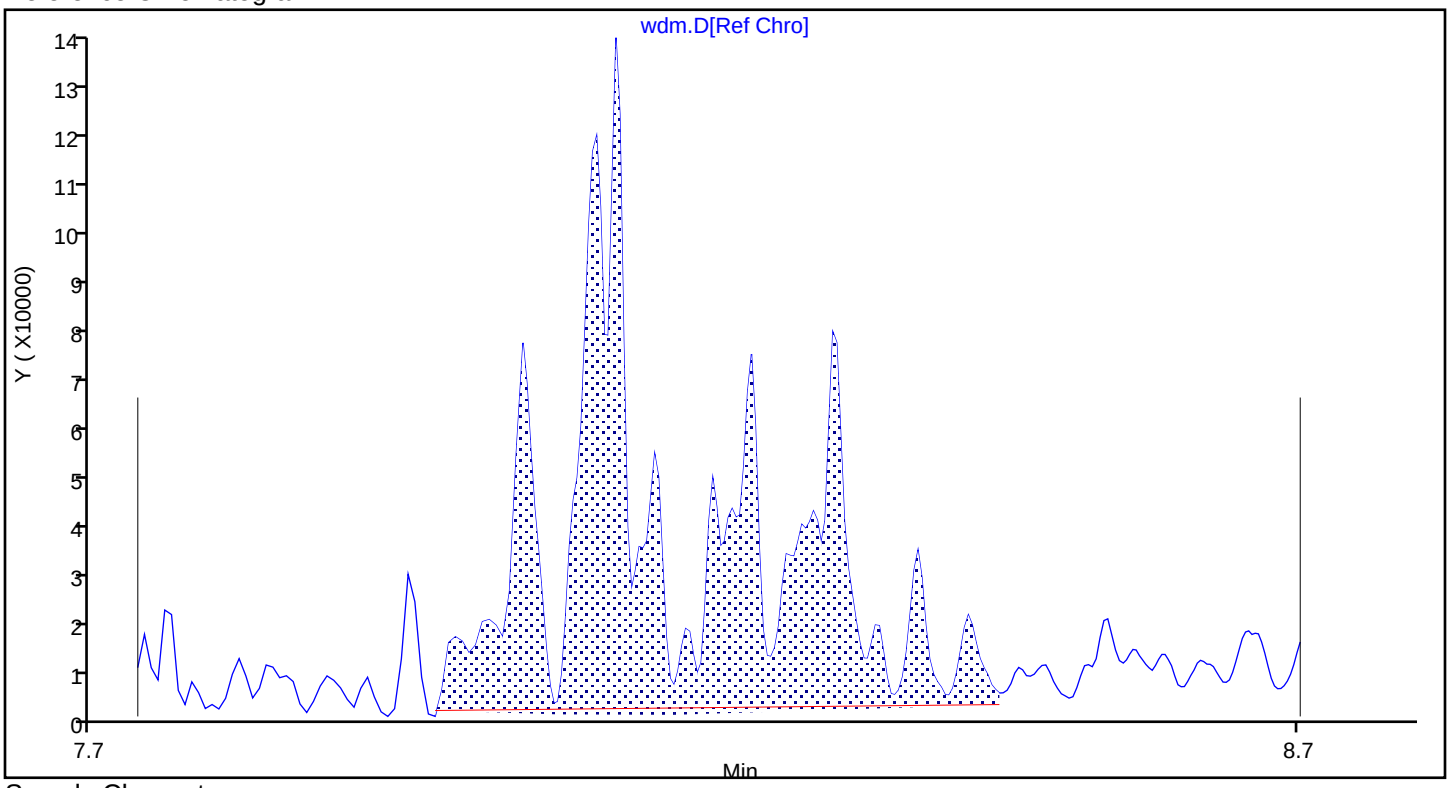
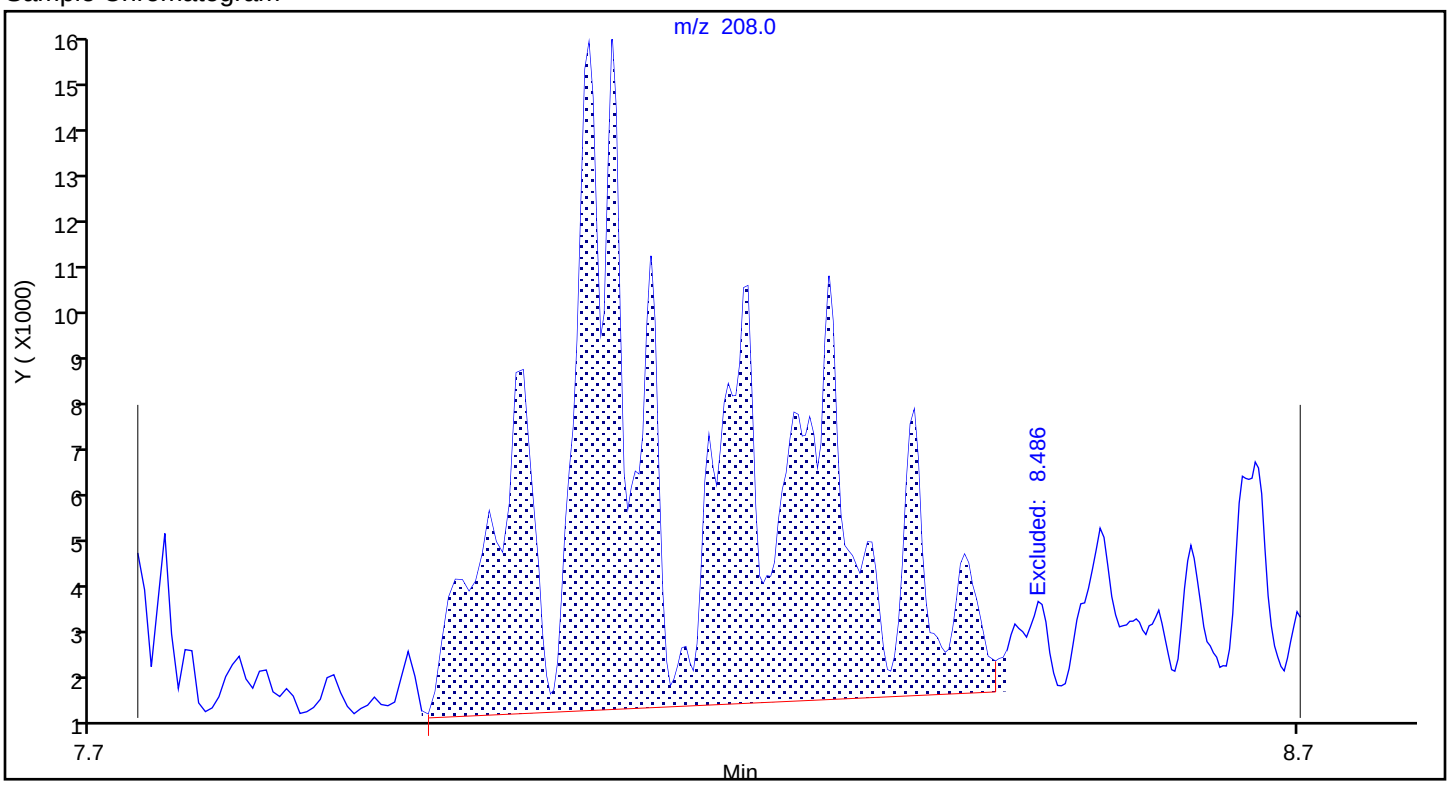
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 44 C3-Fluorenes, CAS: STL00915

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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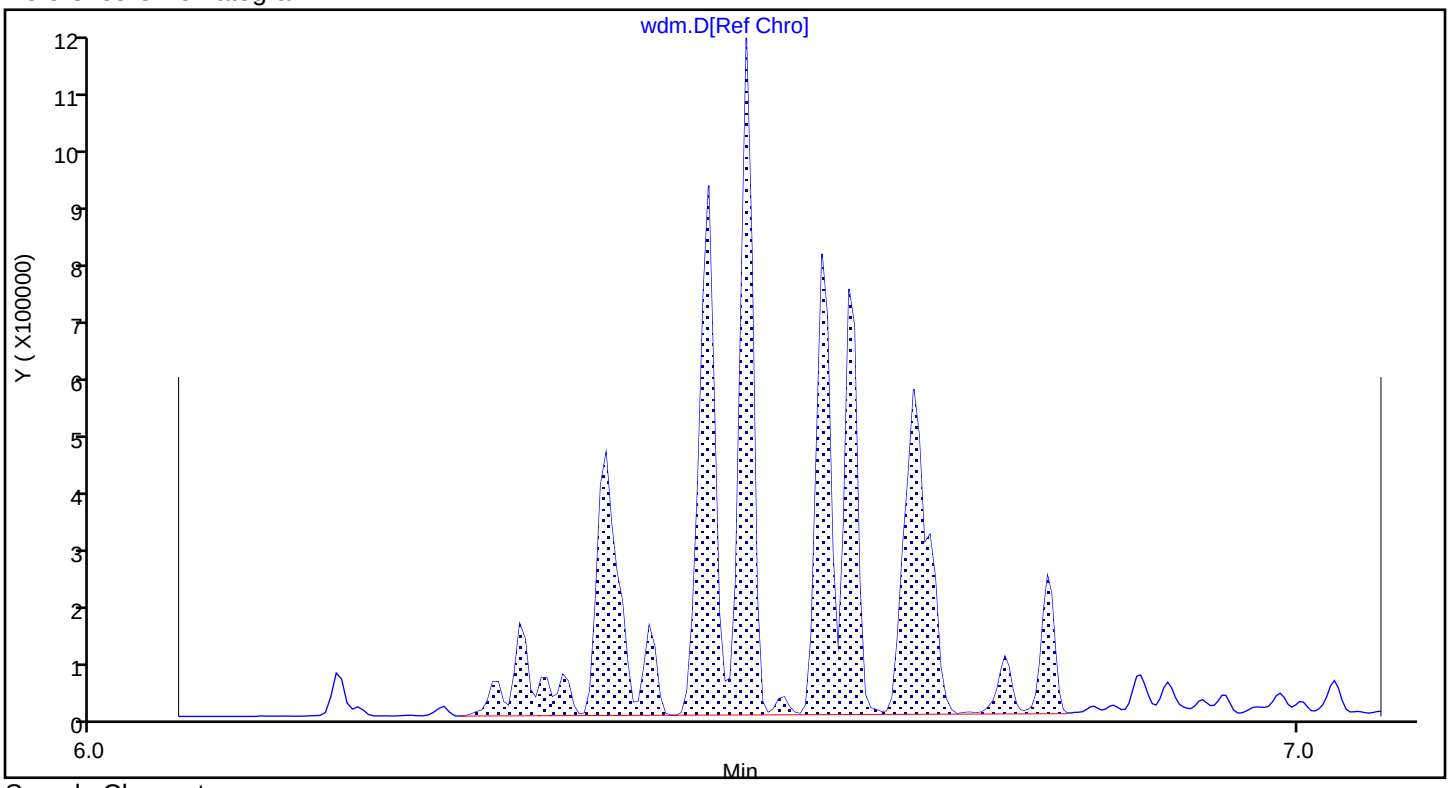
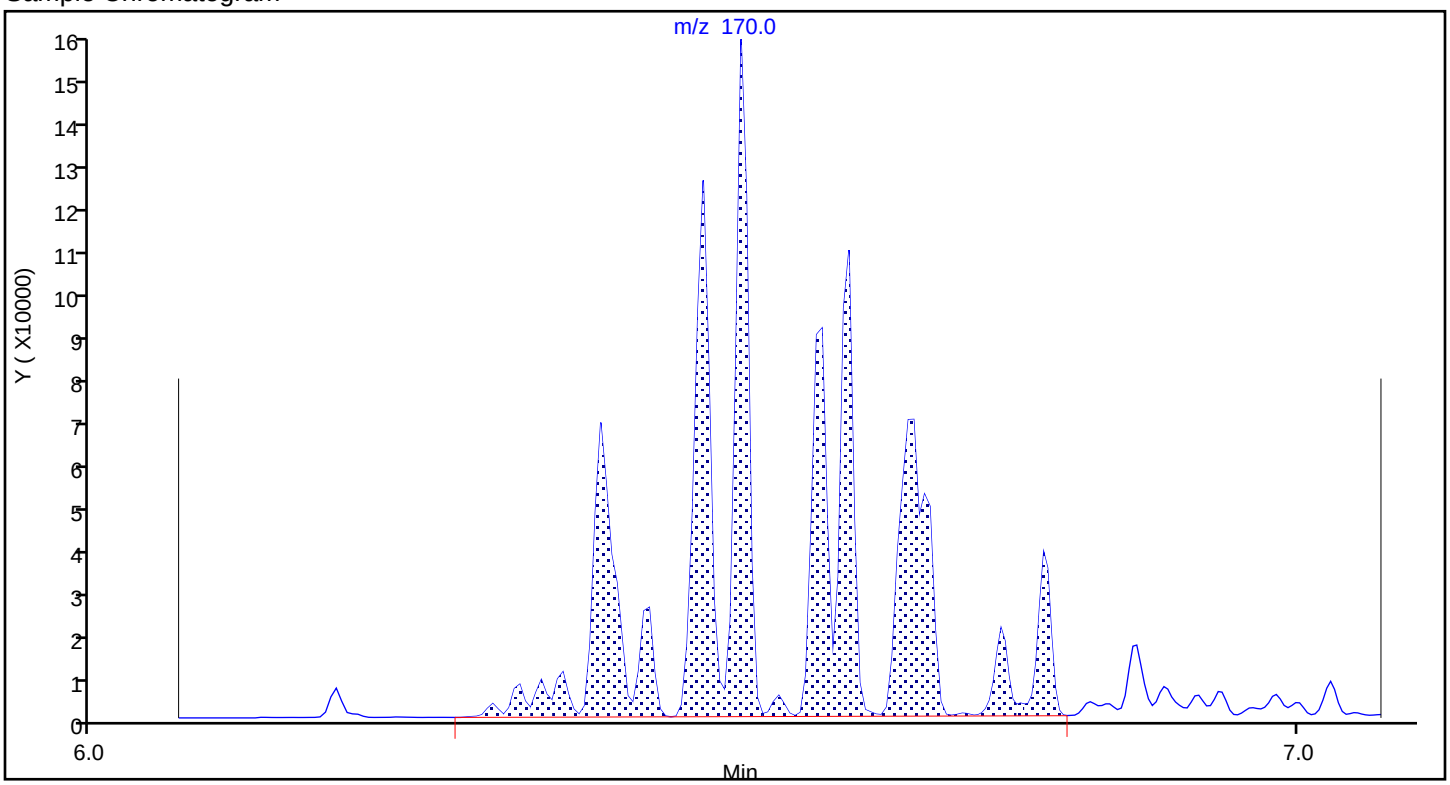
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 40 C3-Naphthalenes, CAS: STL00918

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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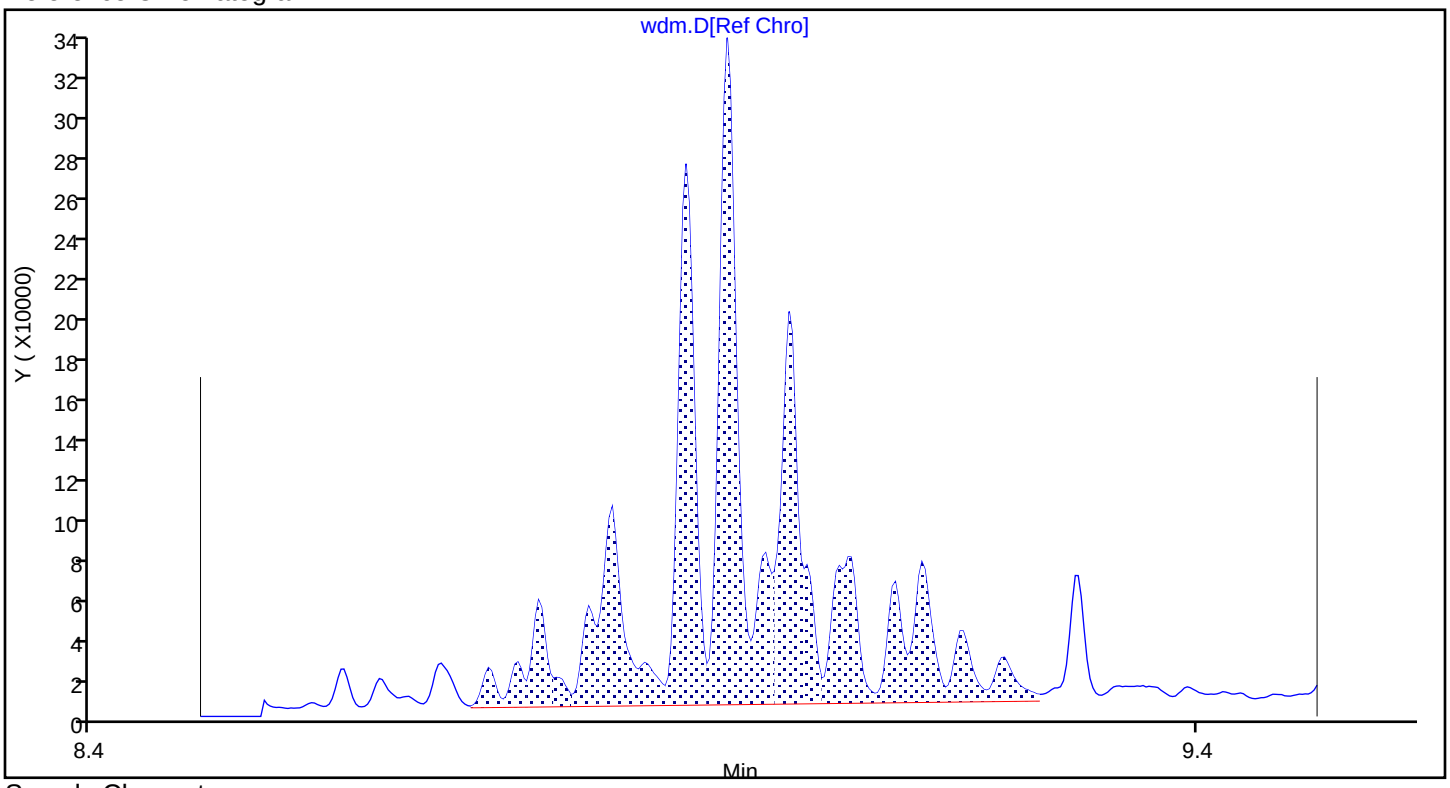
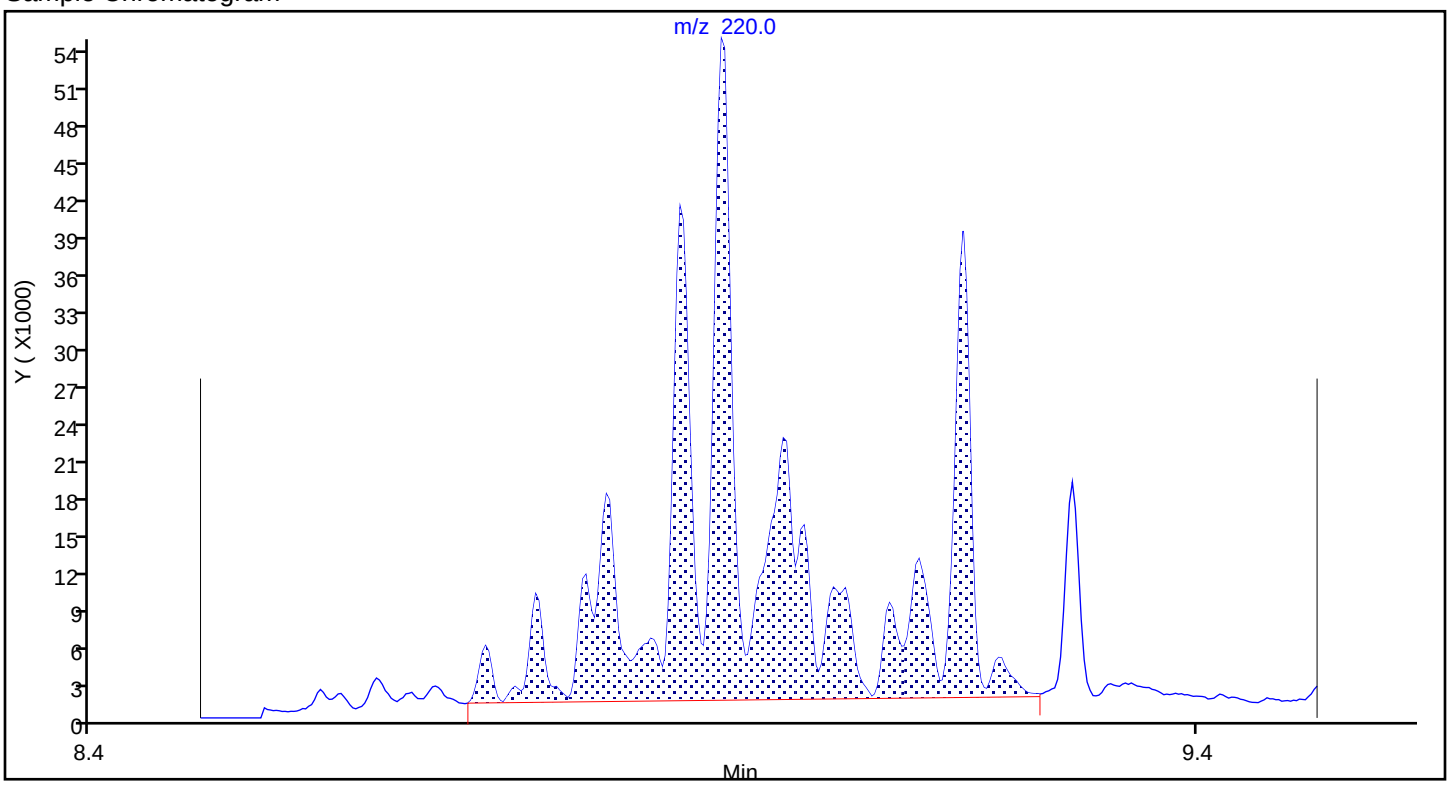
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 51 C3-Phenanthrenes/Anthracenes, CAS: STL00903

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:38 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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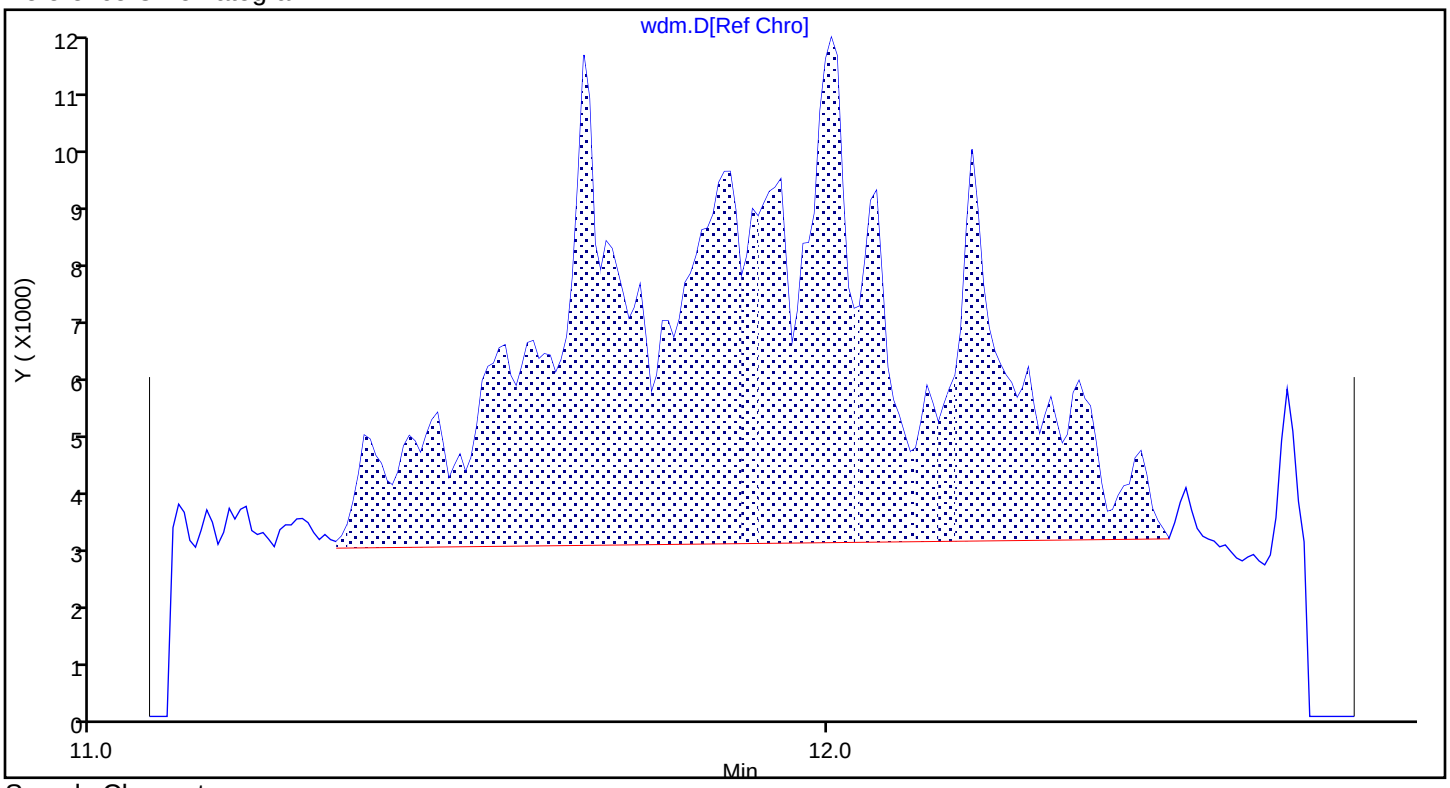
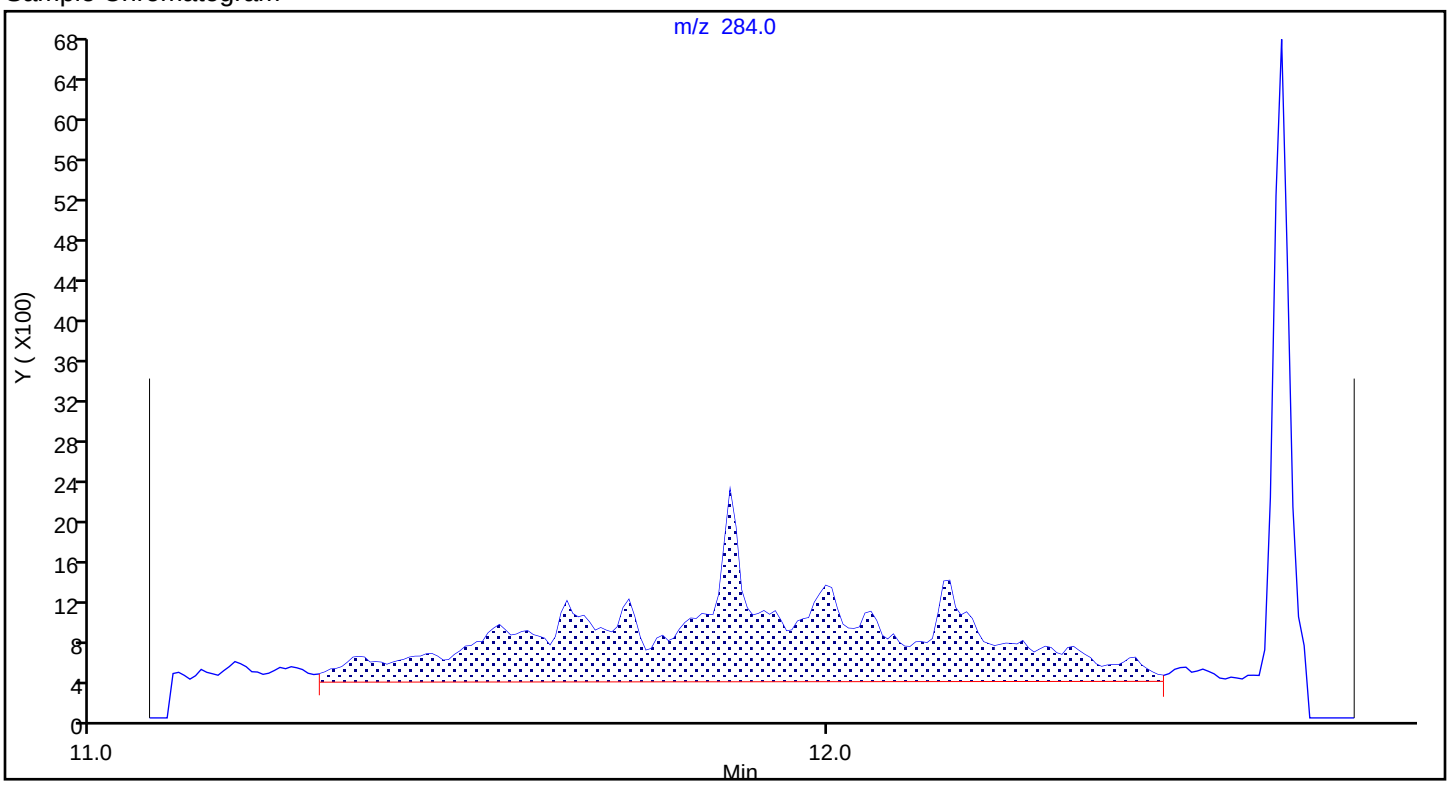
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 60 C4-Chrysenes, CAS: STL00908

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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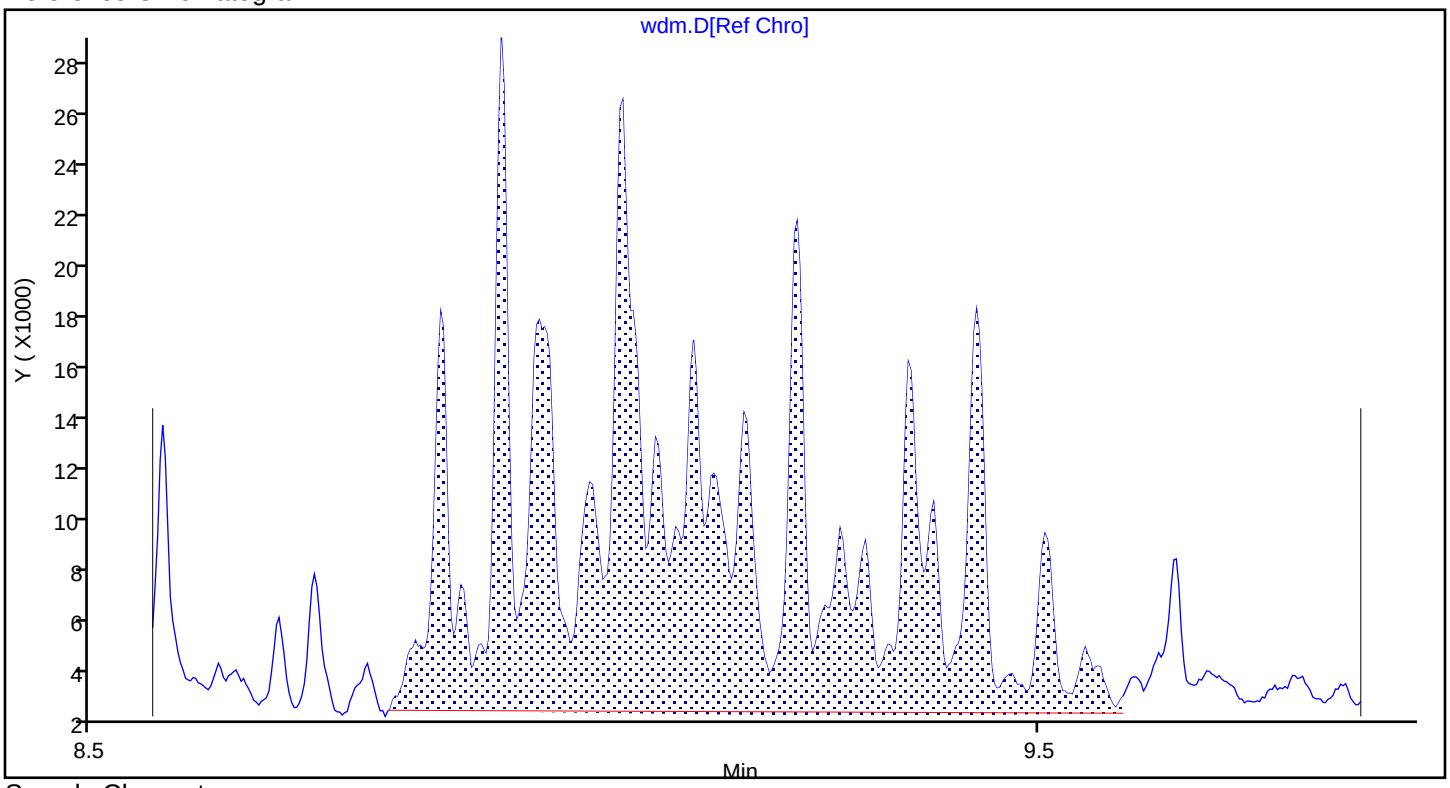
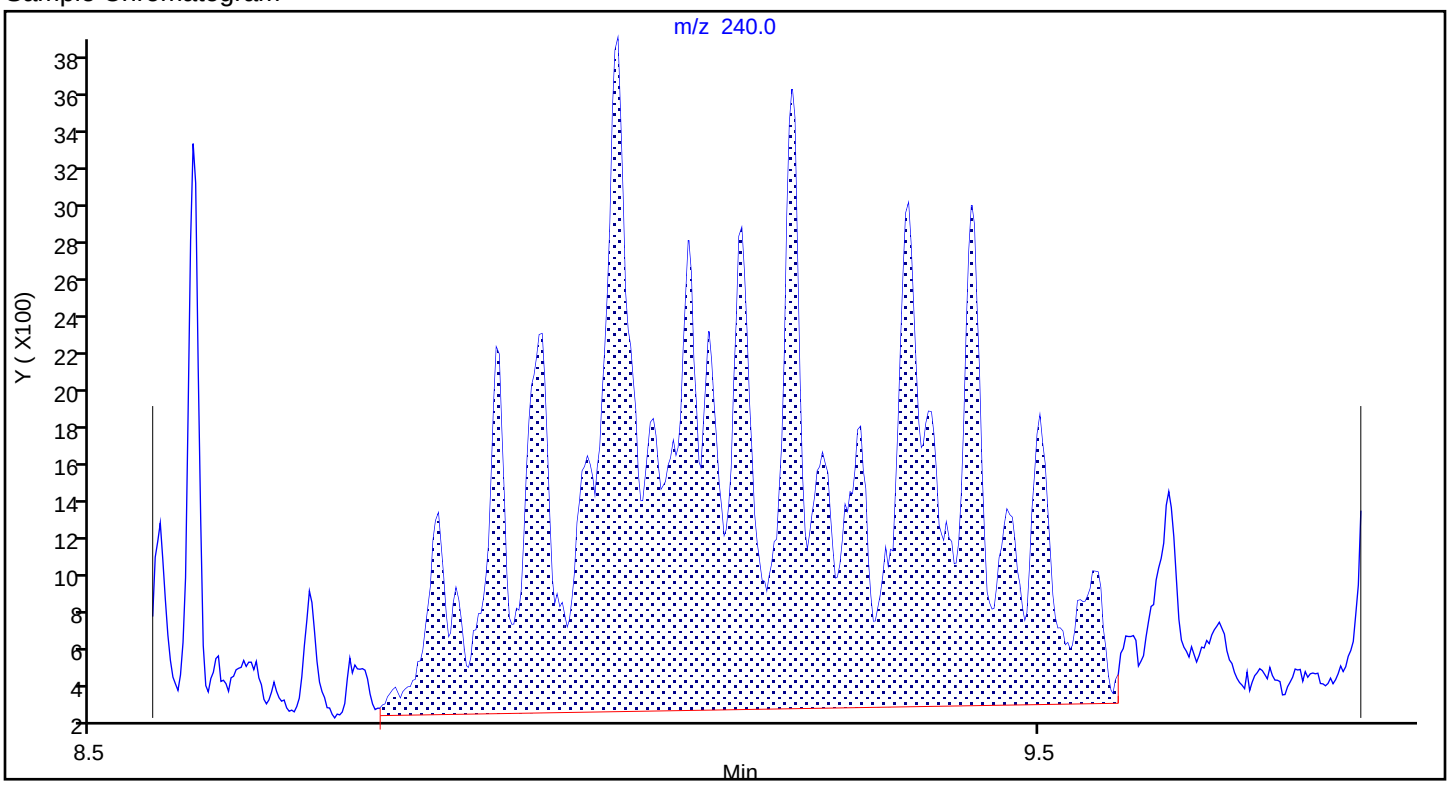
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 48 C4-Dibenzothiophenes, CAS: STL00967

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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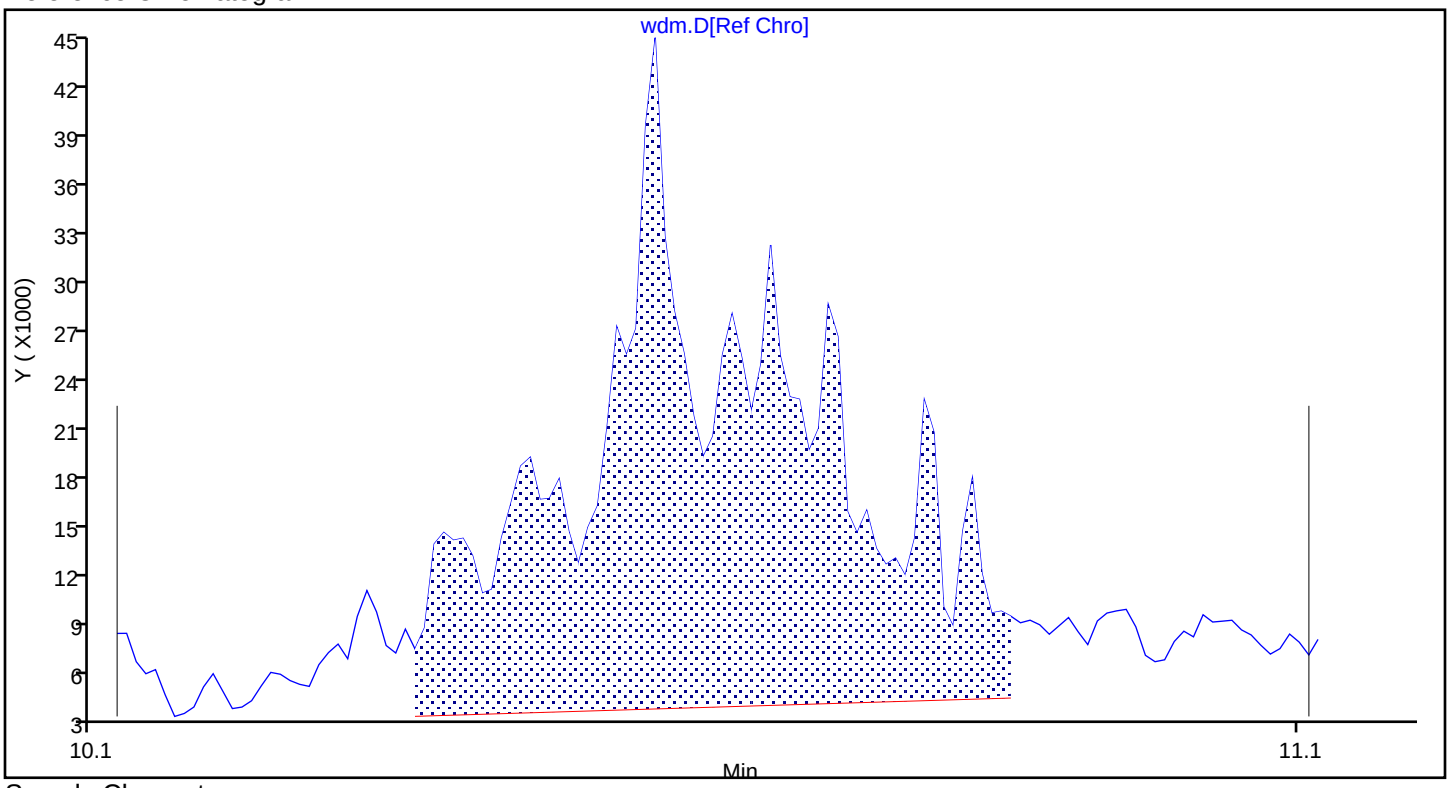
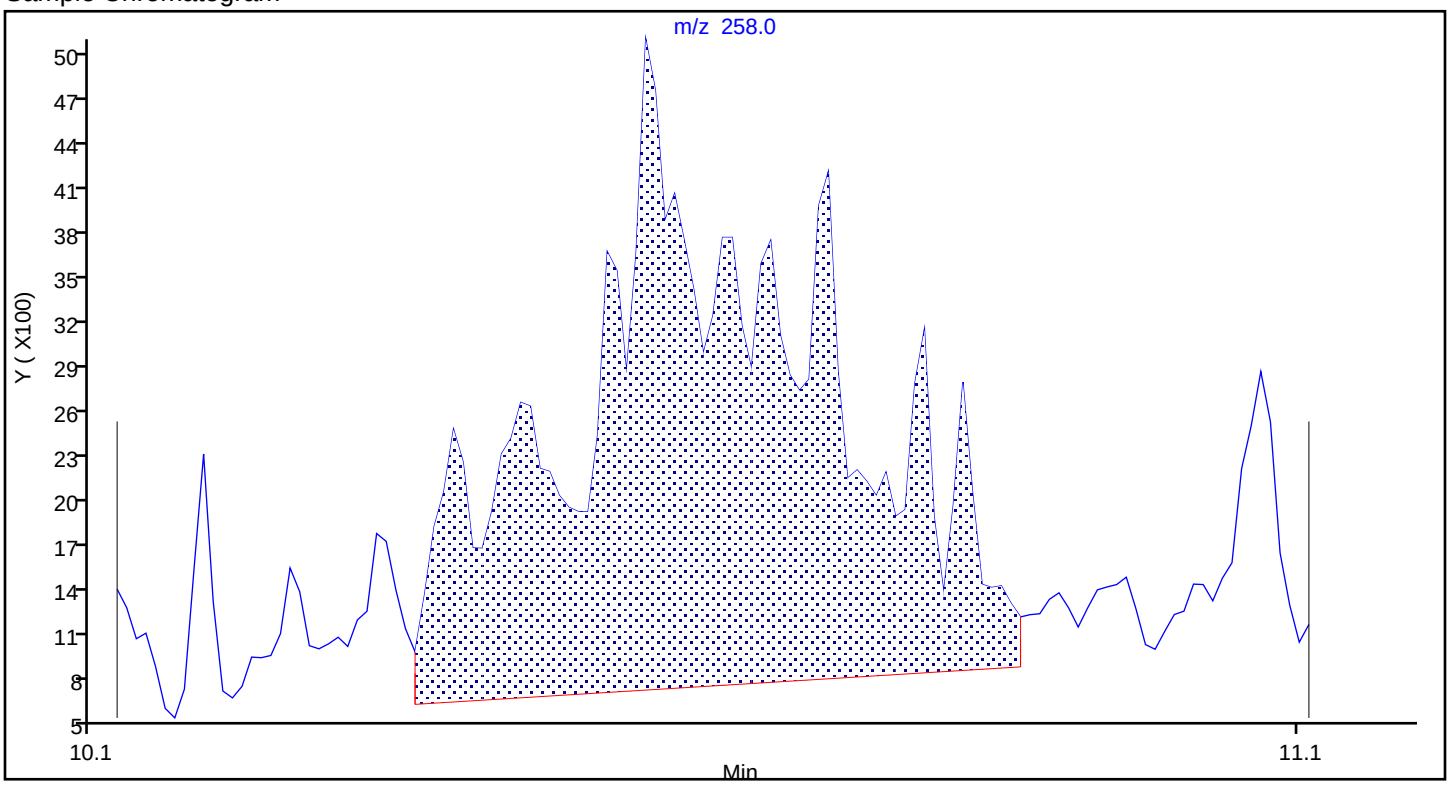
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 56 C4-Fluoranthenes/Pyrene, CAS: STL01791

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
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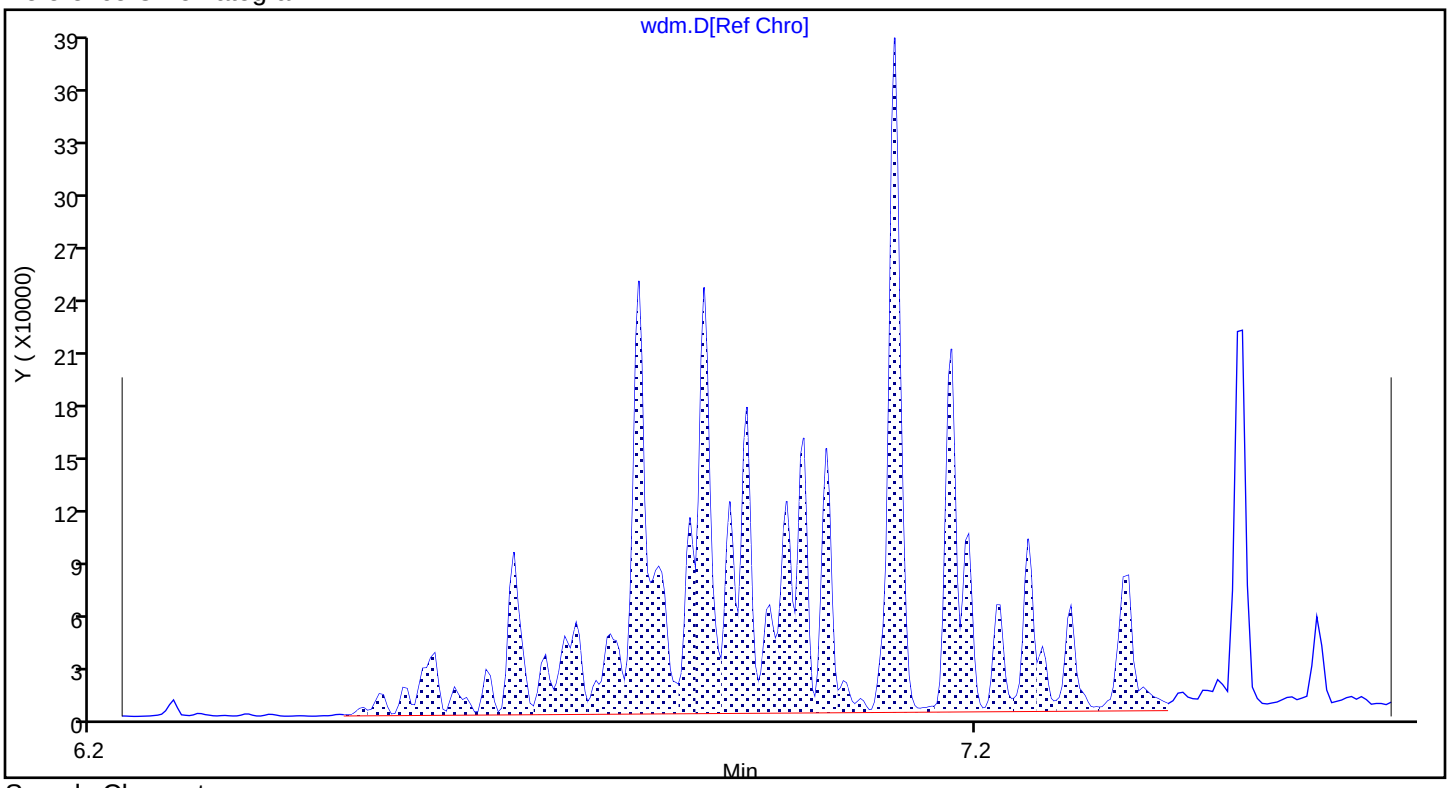
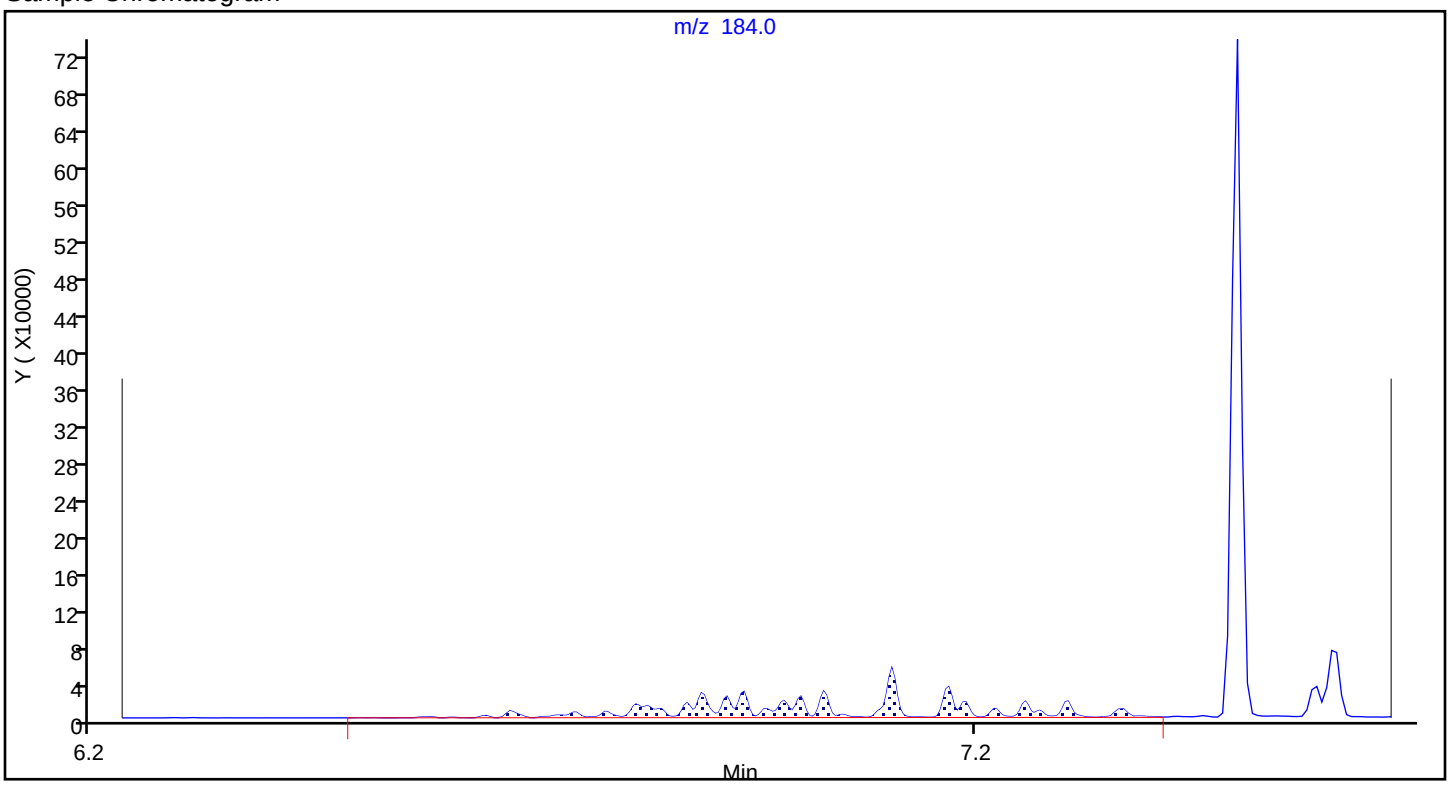
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 41 C4-Naphthalenes, CAS: STL00919

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
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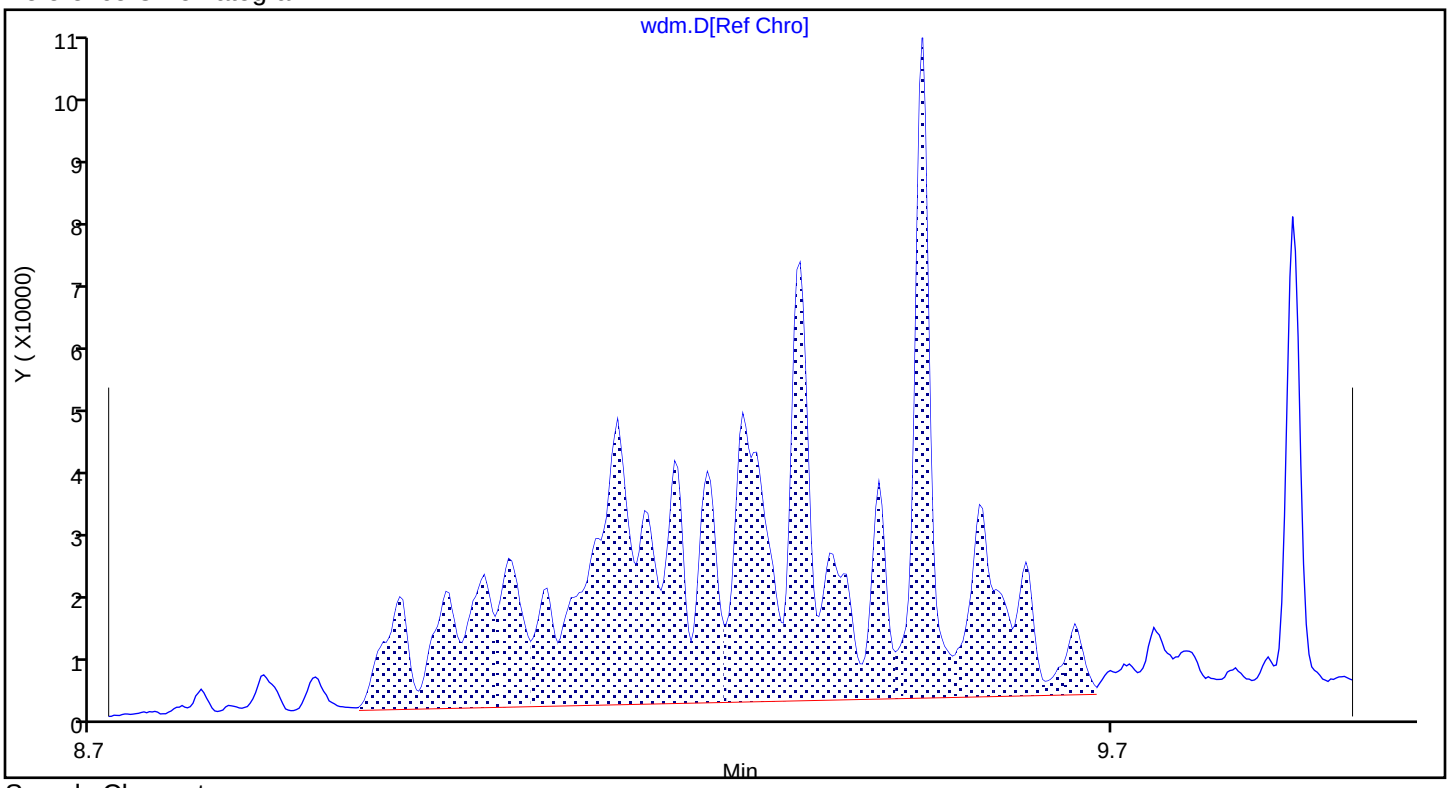
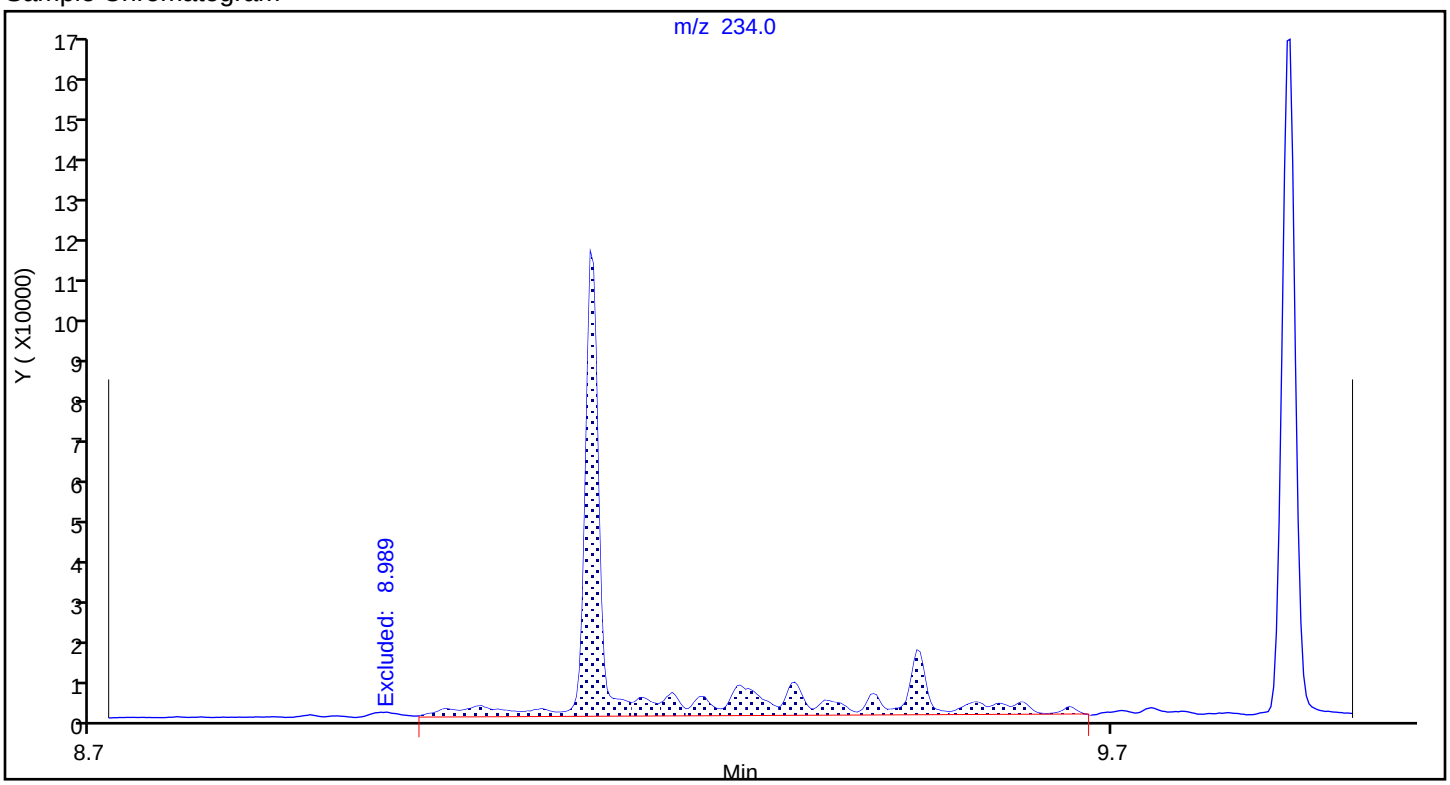
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 52 C4-Phenanthrenes/Anthracenes, CAS: STL00904

Reference Chromatogram



Sample Chromatogram



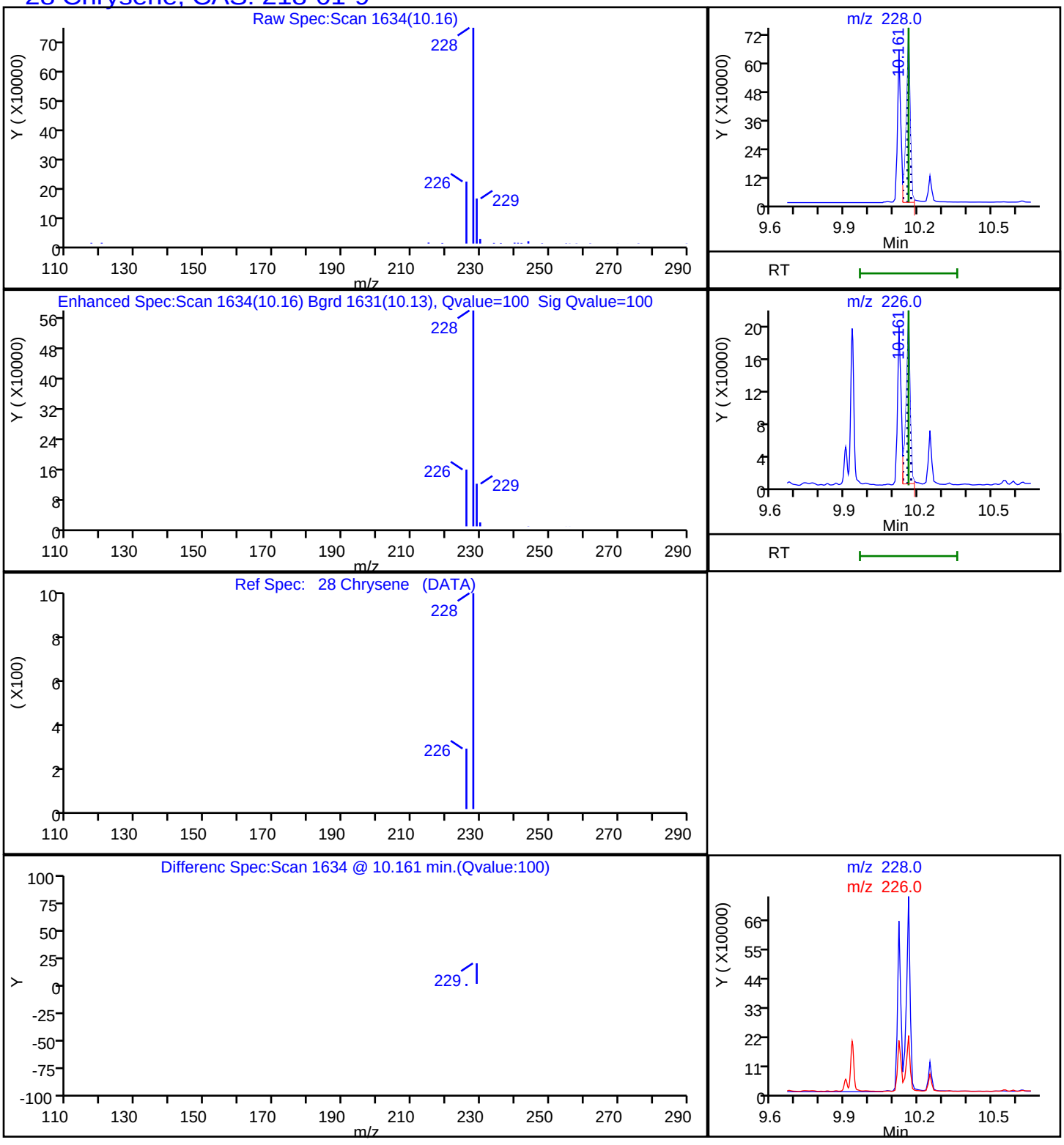
Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D

Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

28 Chrysene, CAS: 218-01-9

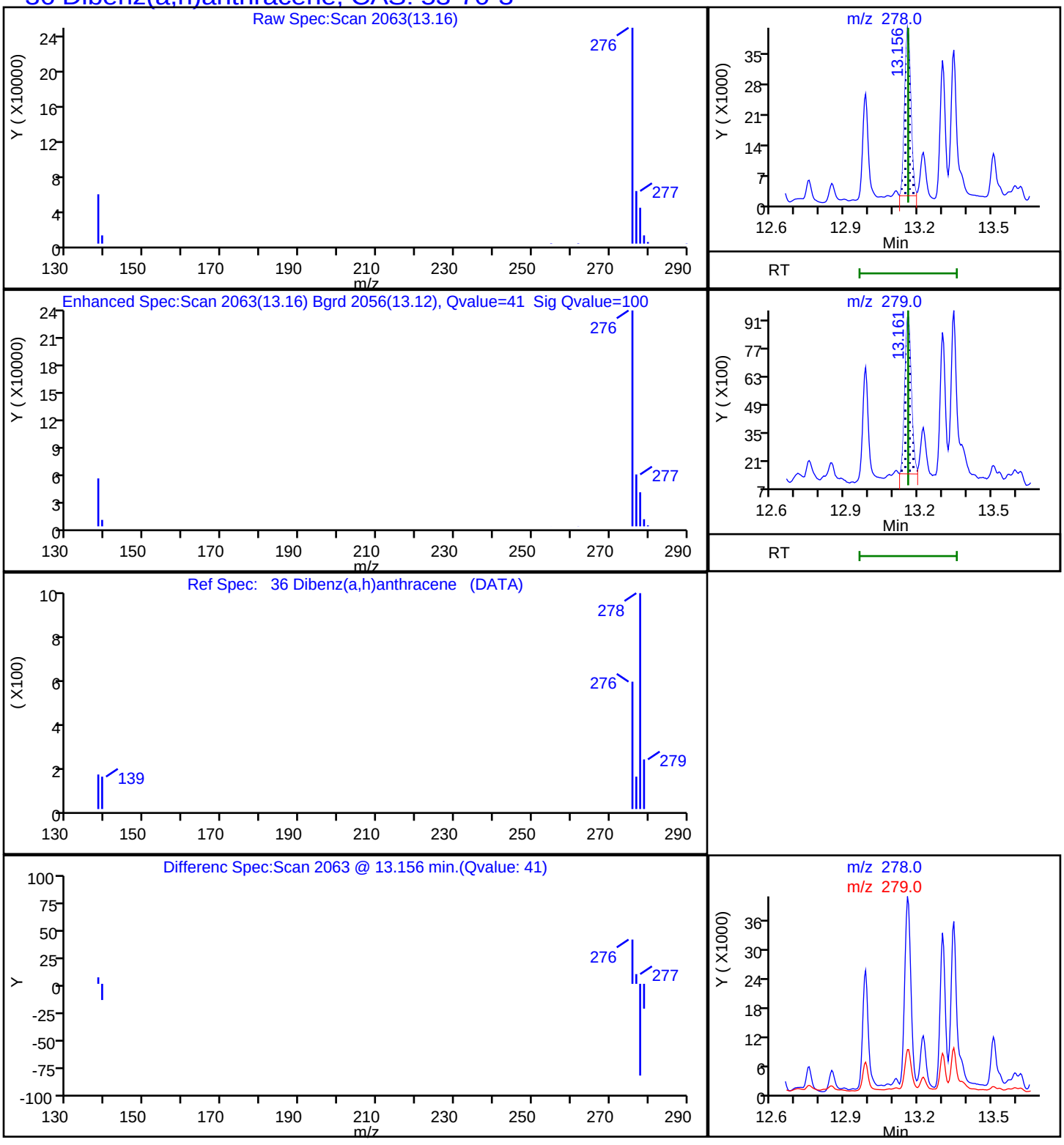


Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

36 Dibenz(a,h)anthracene, CAS: 53-70-3

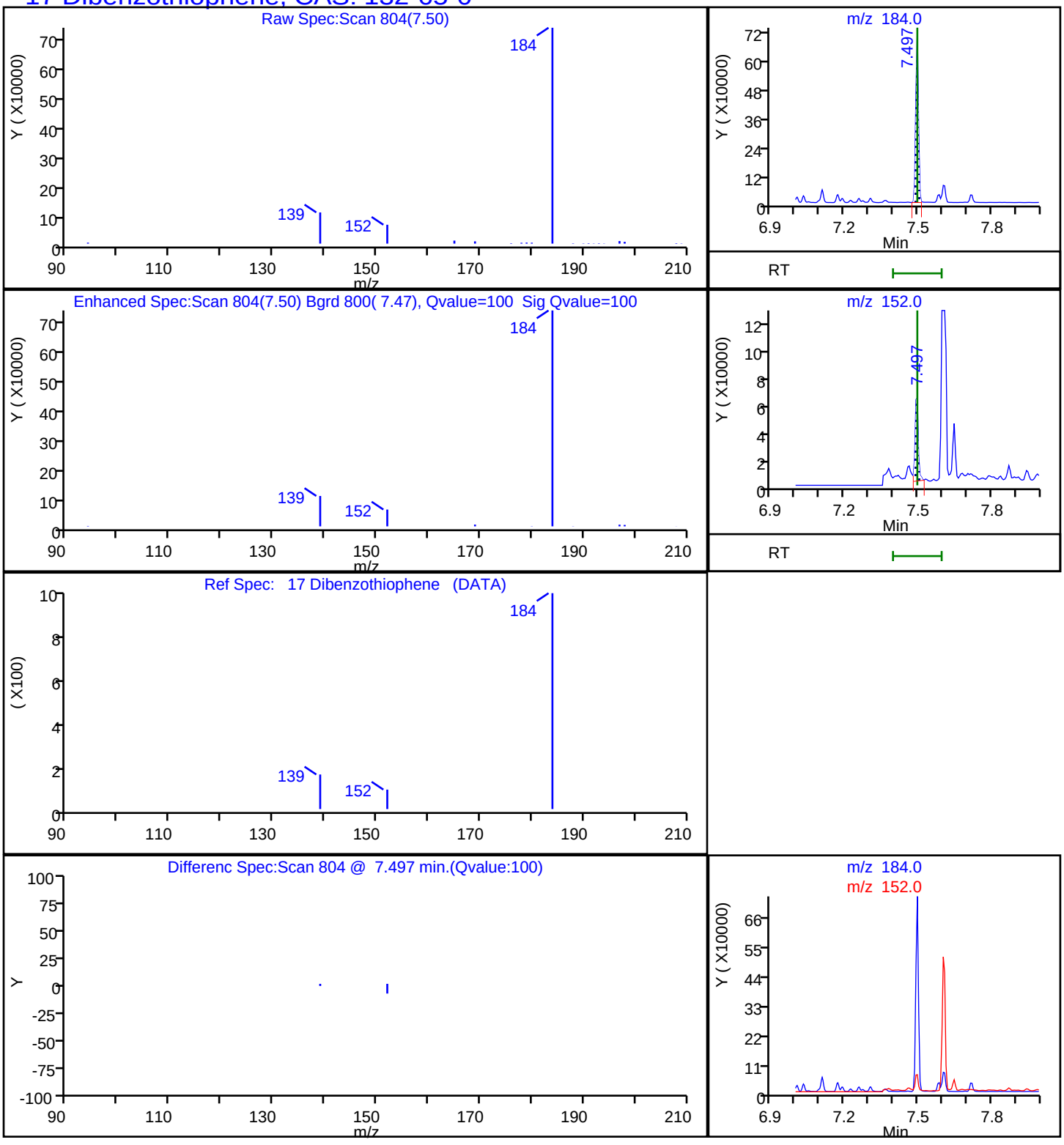


Report Date: 31-Aug-2019 11:48:36 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

17 Dibenzothiophene, CAS: 132-65-0

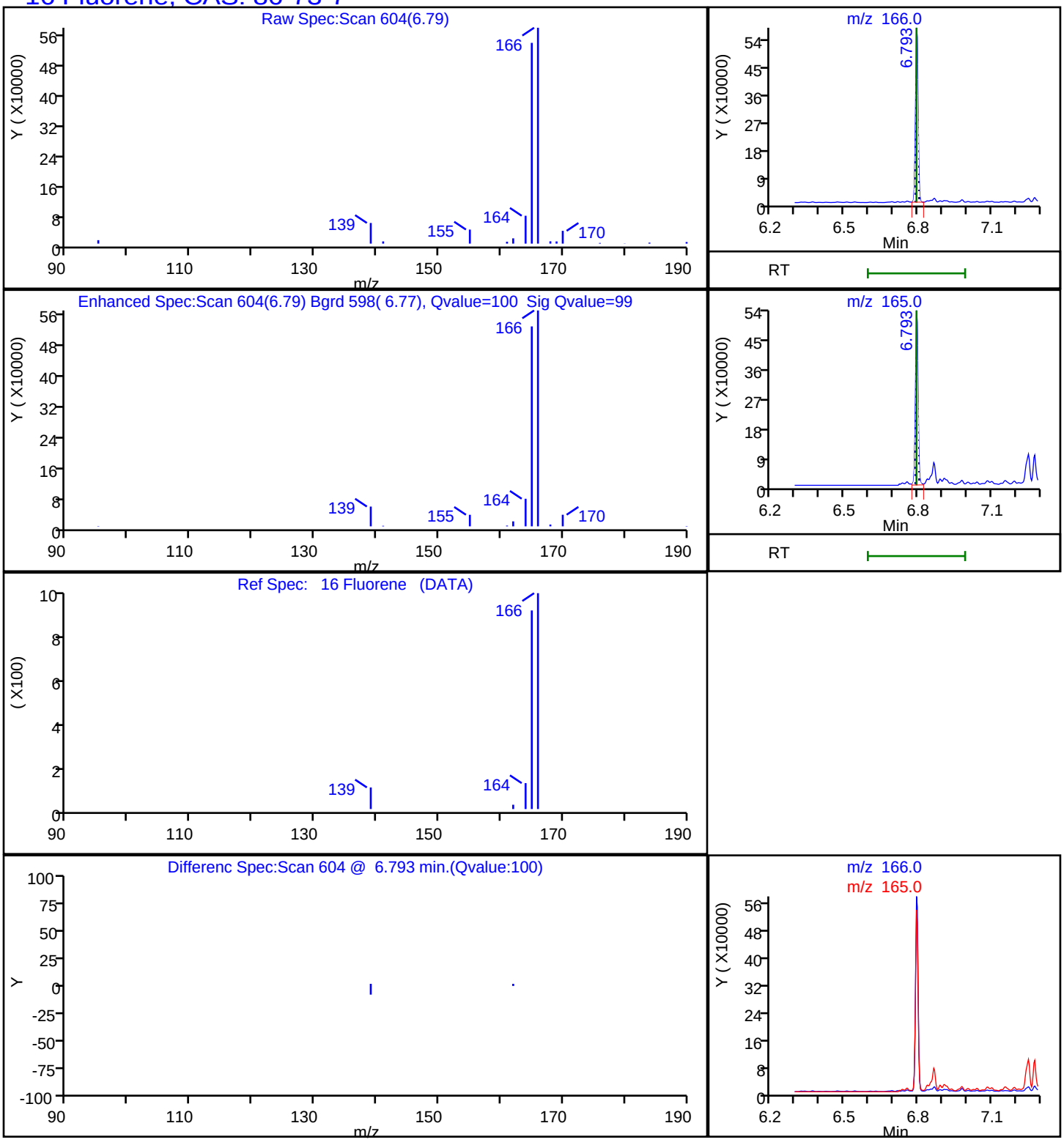


Report Date: 31-Aug-2019 11:48:36 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

16 Fluorene, CAS: 86-73-7

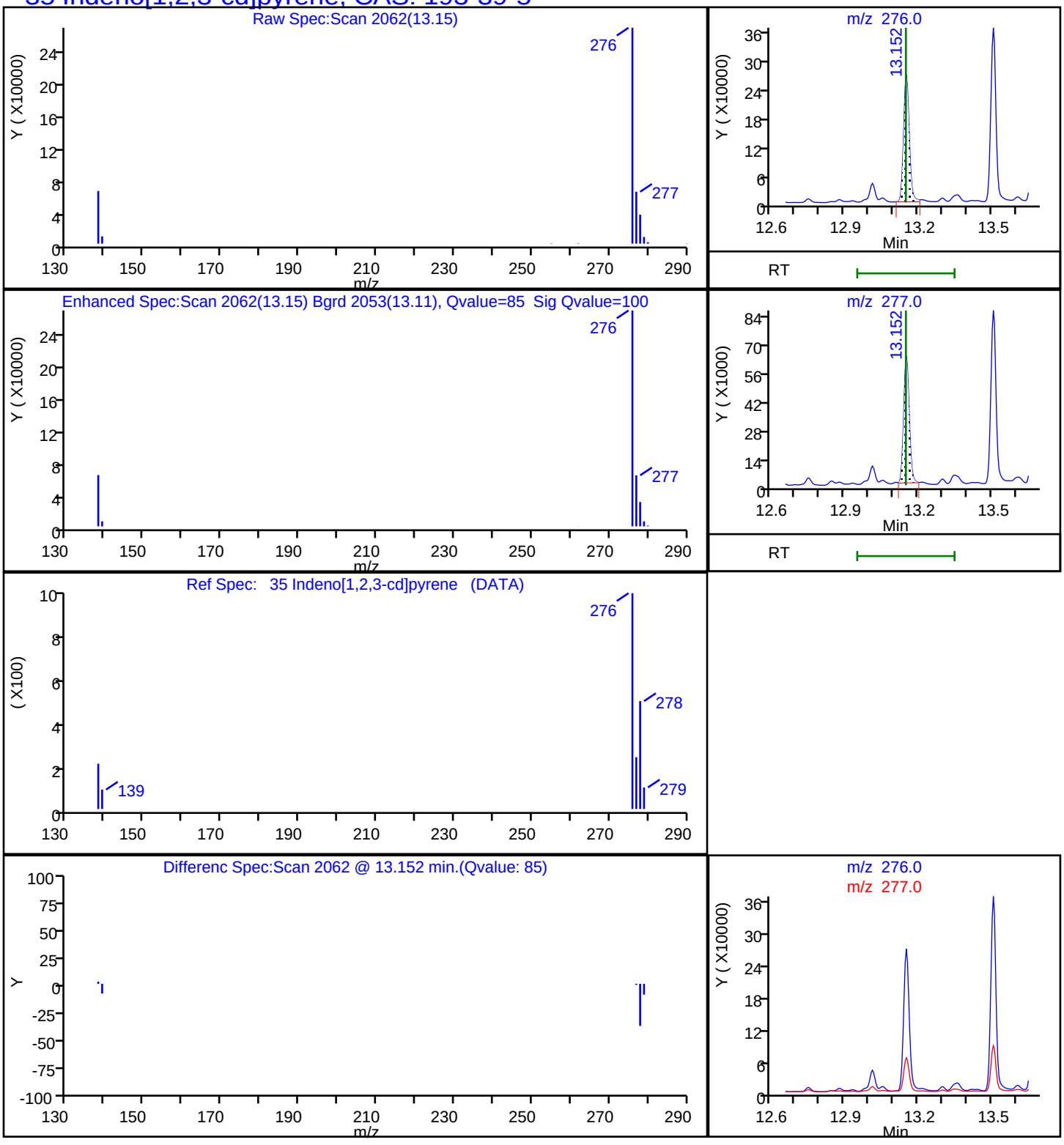


Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

35 Indeno[1,2,3-cd]pyrene, CAS: 193-39-5

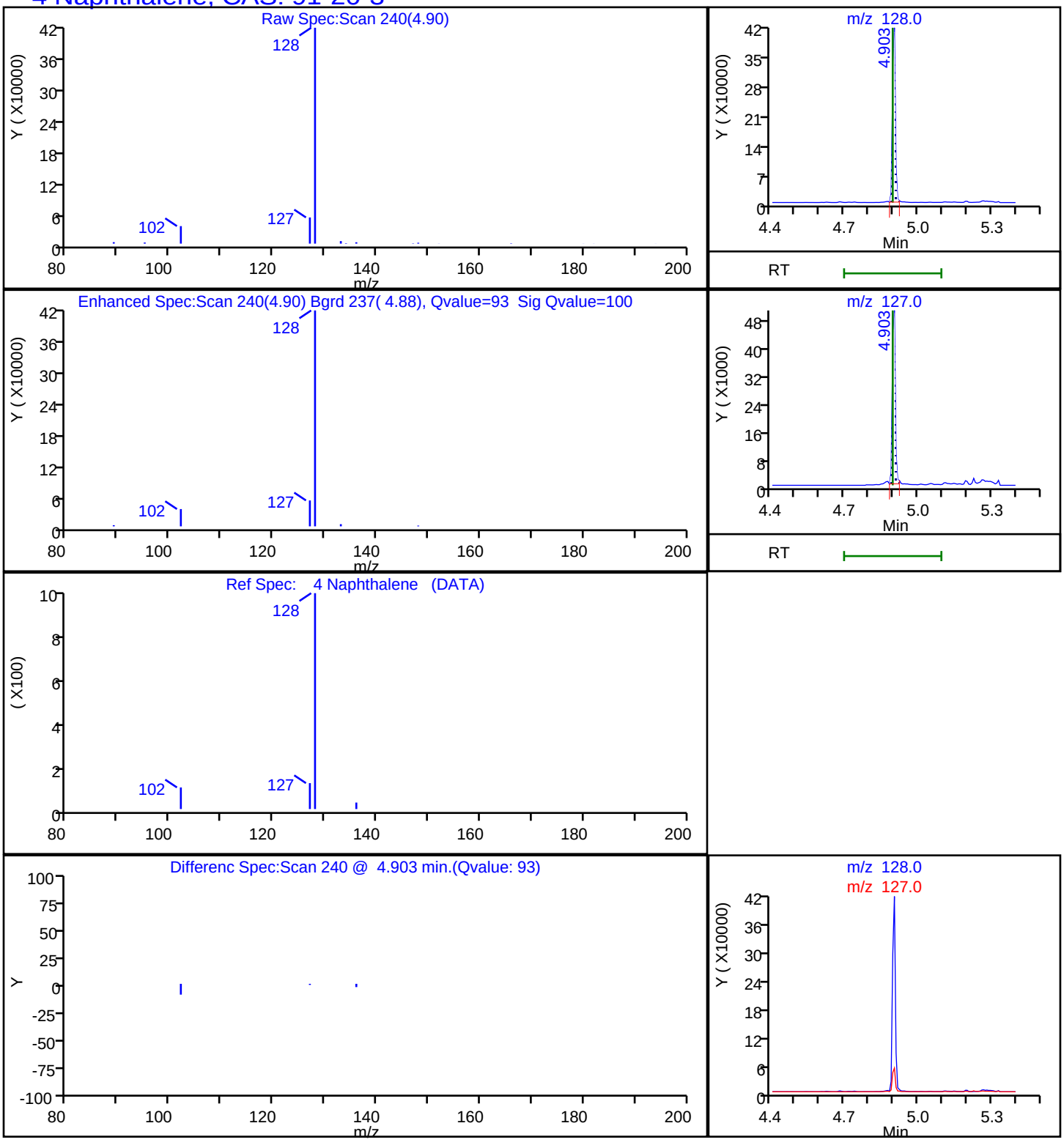


Report Date: 31-Aug-2019 11:48:36 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

4 Naphthalene, CAS: 91-20-3

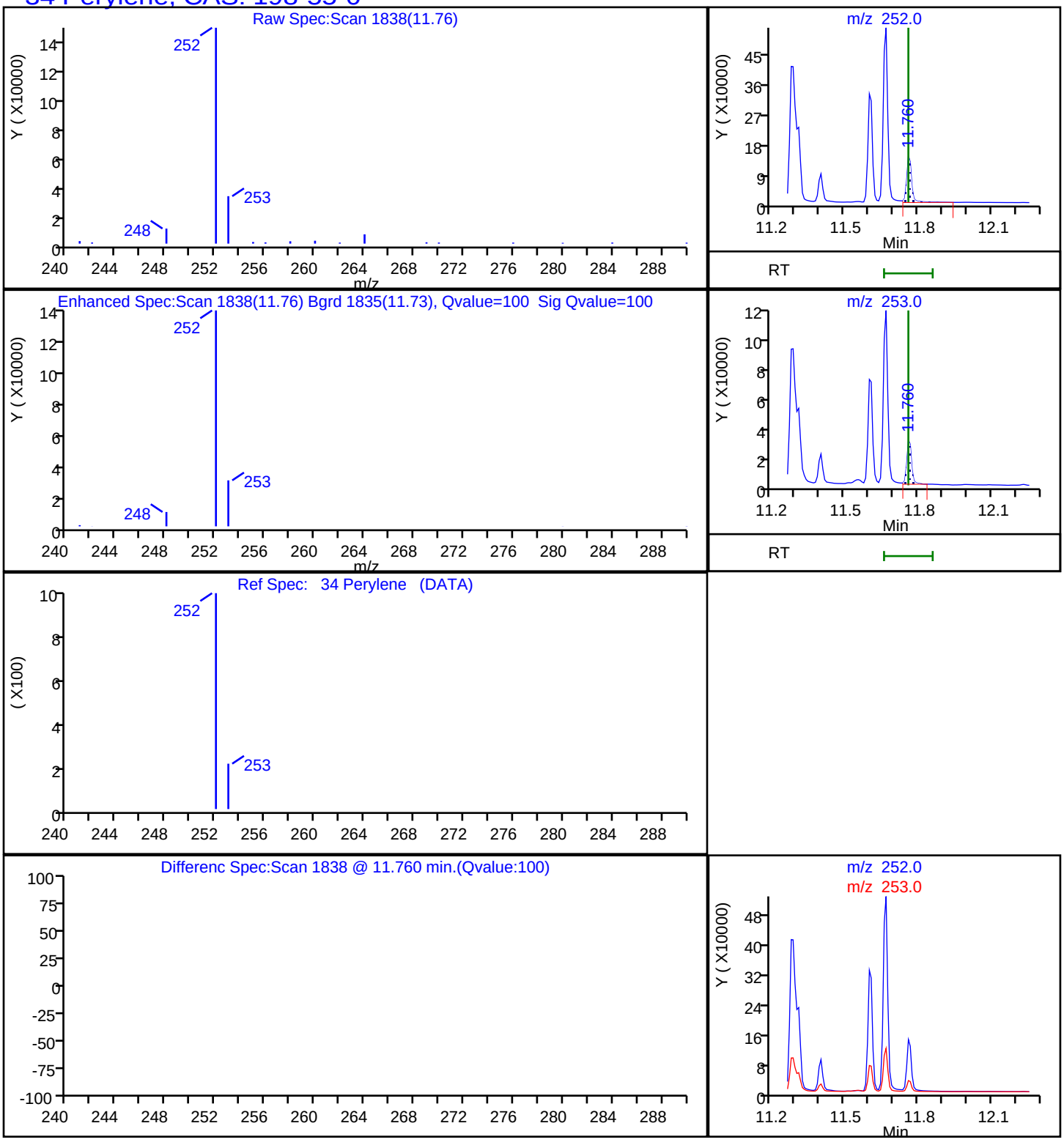


Report Date: 31-Aug-2019 11:48:37 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

34 Perylene, CAS: 198-55-0



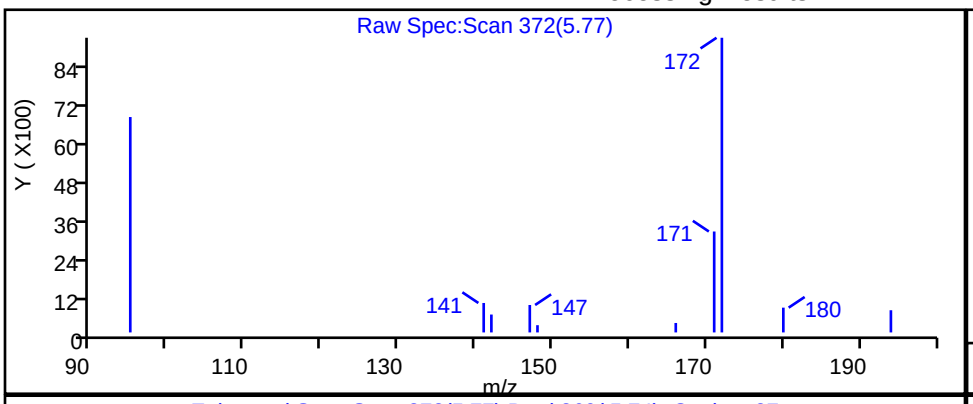
User Disabled Compound Report

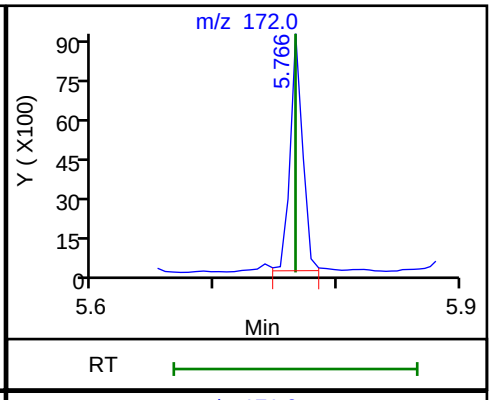
Eurofins TestAmerica, Knoxville

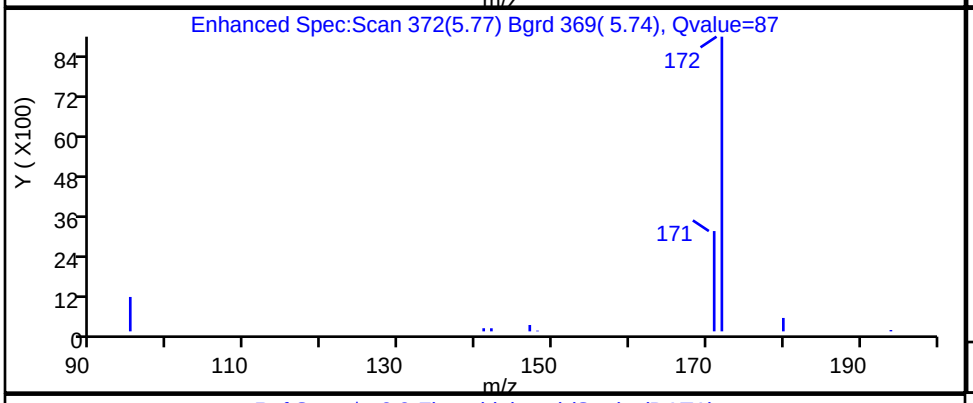
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

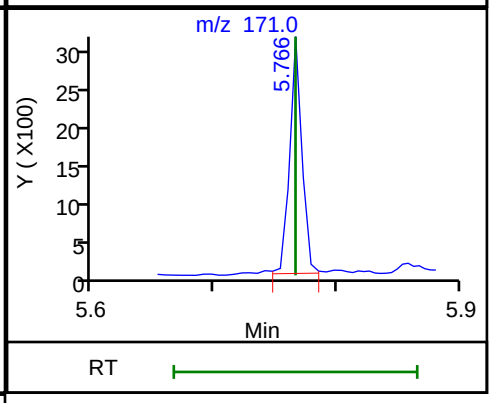
$ 8 2-Fluorobiphenyl (Surr), CAS: 321-60-8

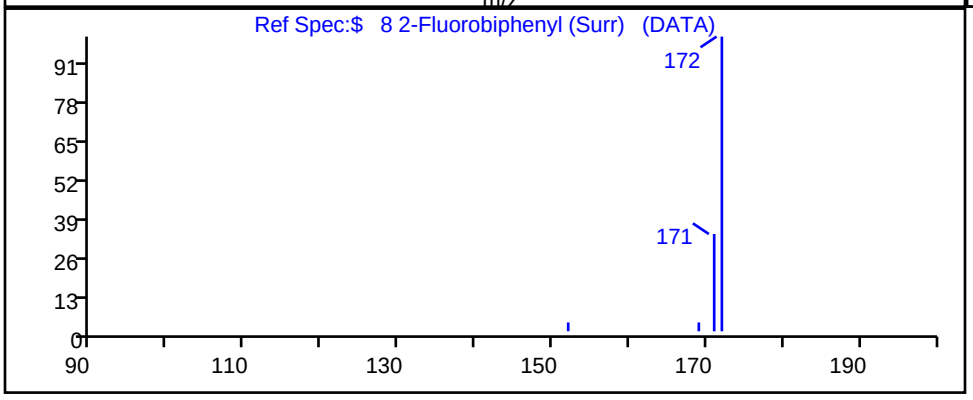
Processing Results











RT	Mass	Response	Amount
5.77	172.00	6411	0.018266
5.77	171.00	2124	

Reviewer: cochranj, 31-Aug-2019 10:56:19

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

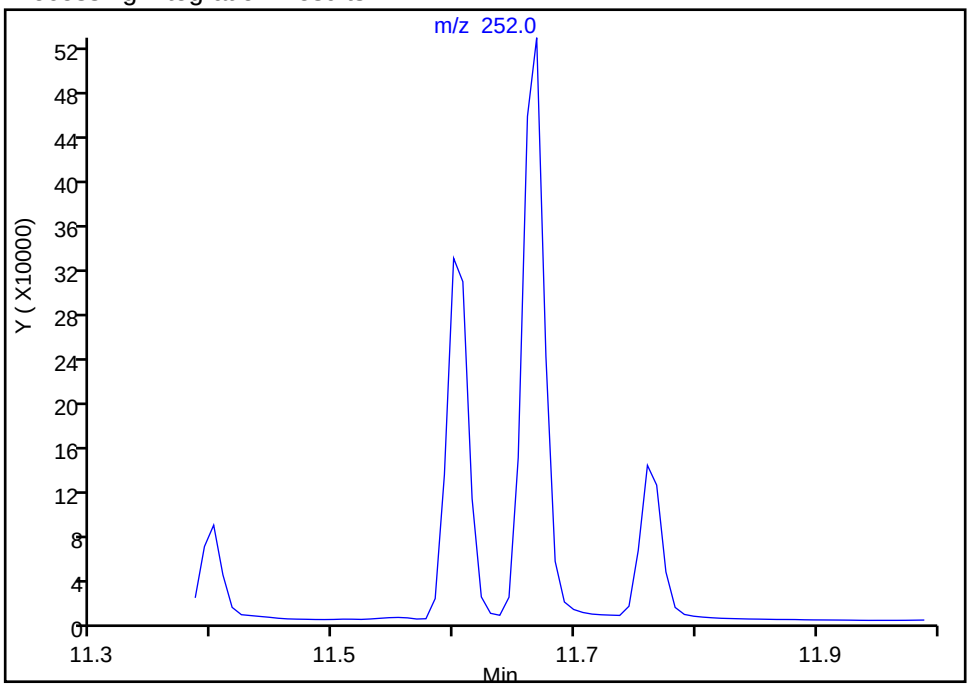
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

32 Benzo[a]pyrene, CAS: 50-32-8

Signal: 1

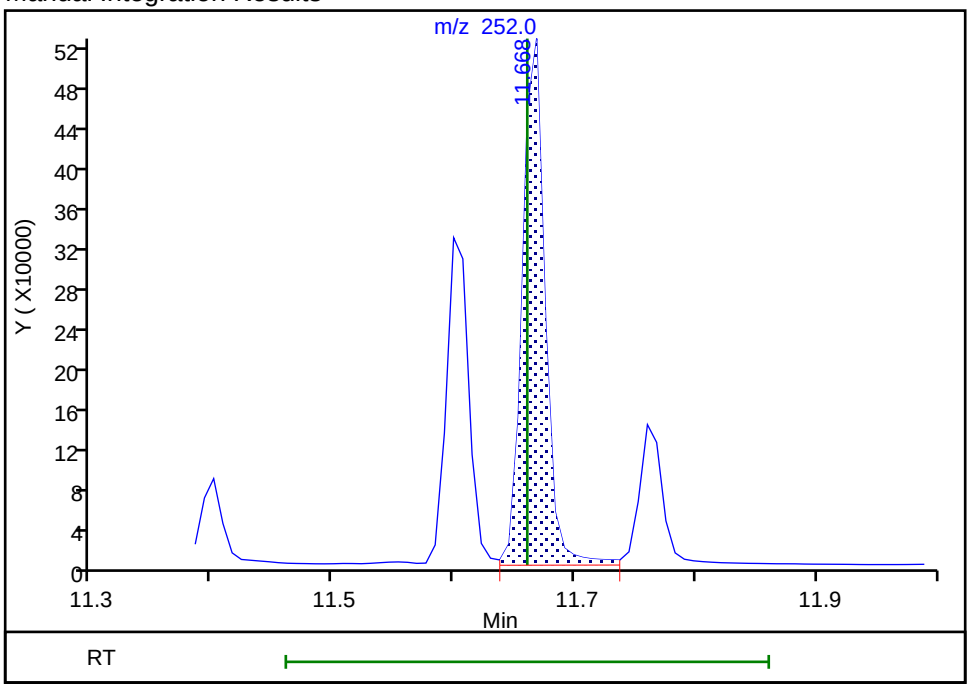
Not Detected
Expected RT: 11.66

Processing Integration Results



Manual Integration Results

RT: 11.67
Area: 686015
Amount: 1.433591
Amount Units: ug/ml



Reviewer: cochranj, 30-Aug-2019 09:39:49
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

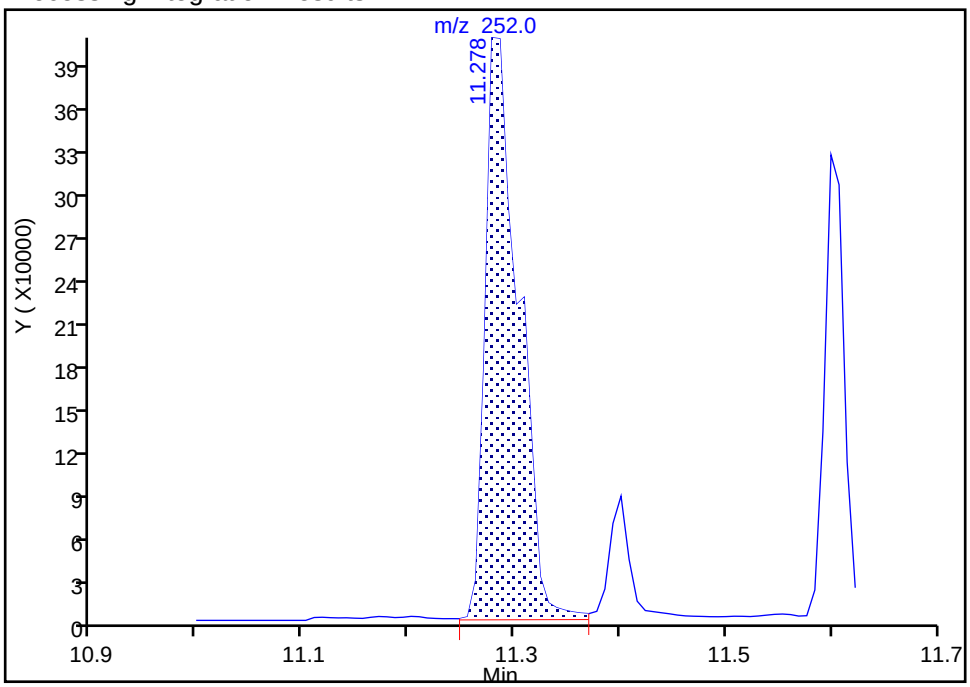
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

29 Benzo[b]fluoranthene, CAS: 205-99-2

Signal: 1

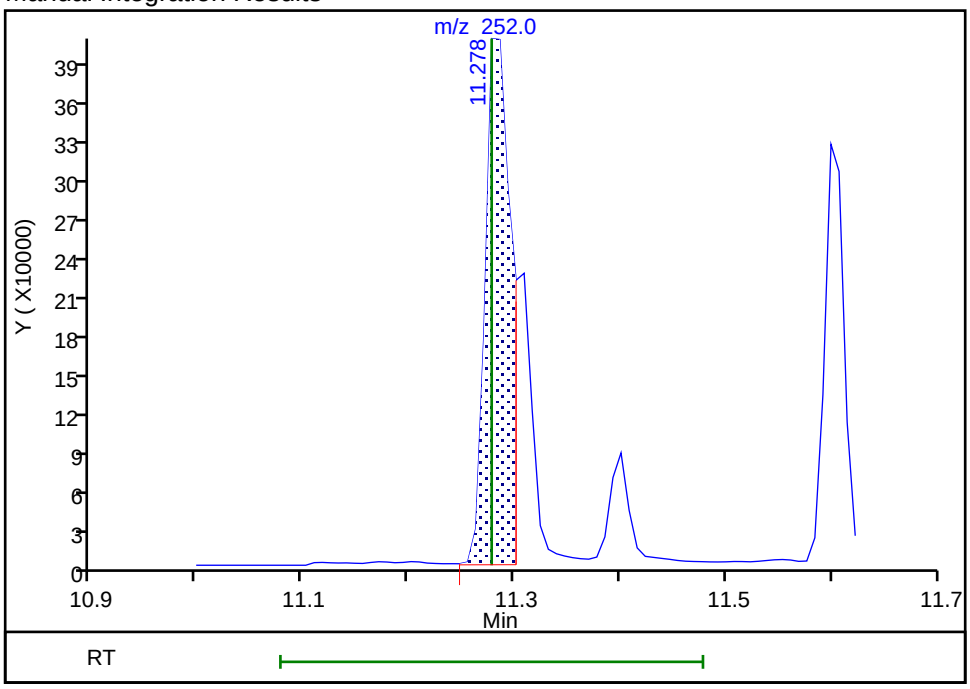
Processing Integration Results

RT: 11.28
Area: 895385
Amount: 1.609798
Amount Units: ug/ml



Manual Integration Results

RT: 11.28
Area: 704177
Amount: 1.266028
Amount Units: ug/ml



Reviewer: cochranj, 30-Aug-2019 09:16:33

Audit Action: Split an Integrated Peak Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

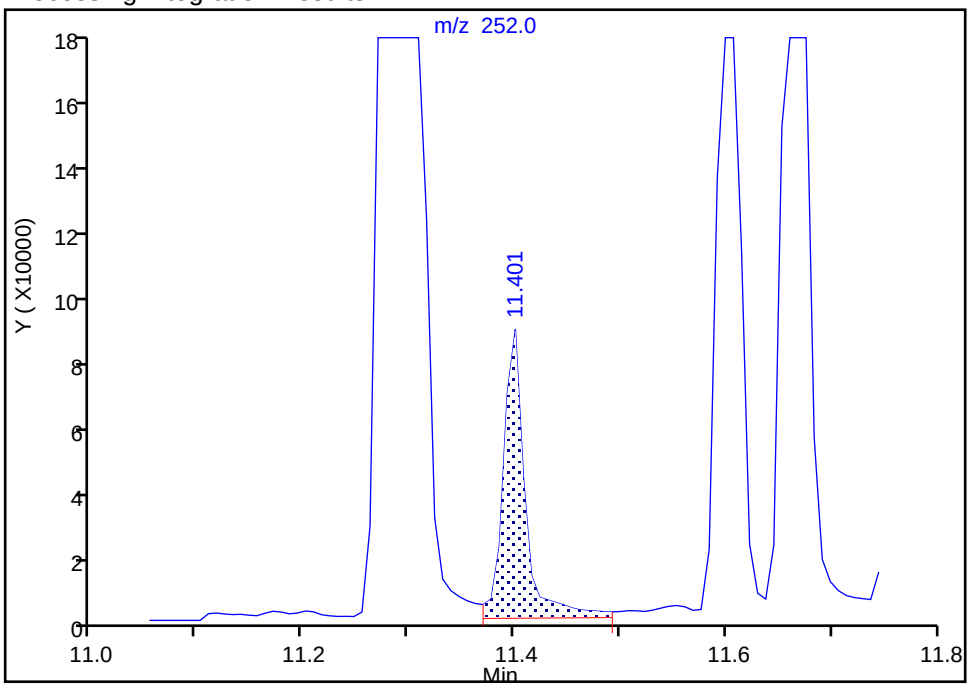
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

30 Benzo[k]fluoranthene, CAS: 207-08-9

Signal: 1

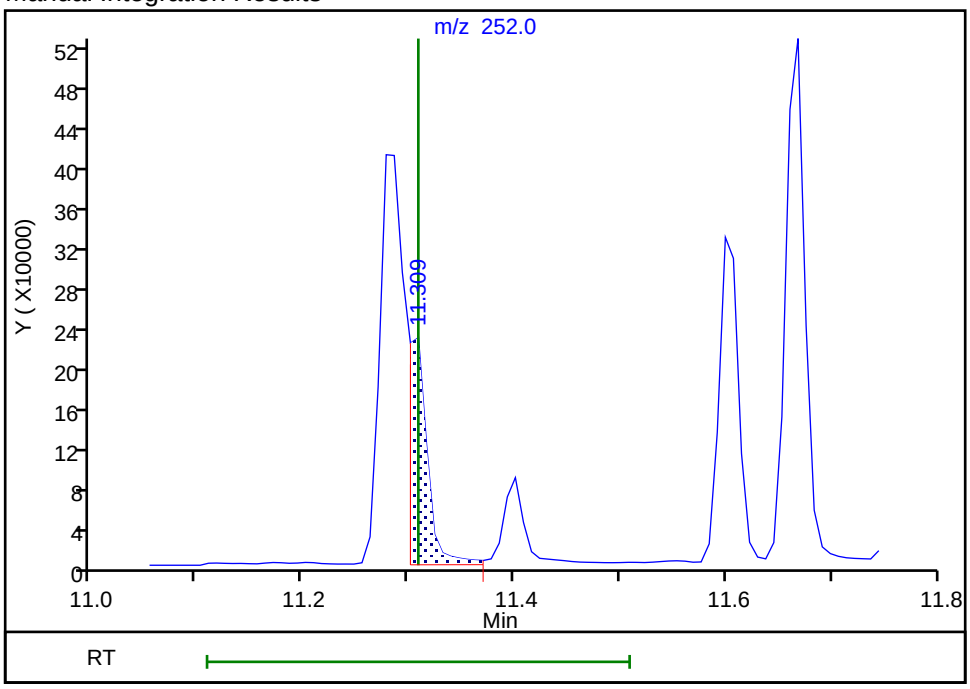
Processing Integration Results

RT: 11.40
Area: 125221
Amount: 0.198511
Amount Units: ug/ml



Manual Integration Results

RT: 11.31
Area: 292424
Amount: 0.463575
Amount Units: ug/ml



Reviewer: cochranj, 30-Aug-2019 09:16:52

Audit Action: Split an Integrated Peak Audit Reason: Split Peak

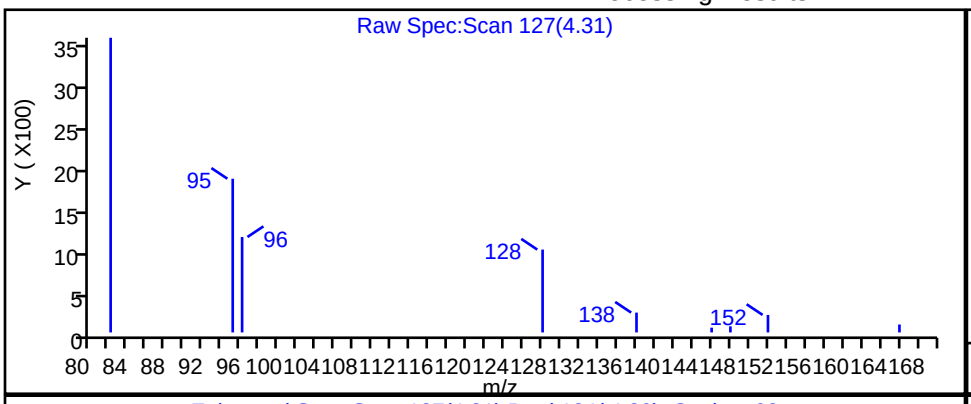
User Disabled Compound Report

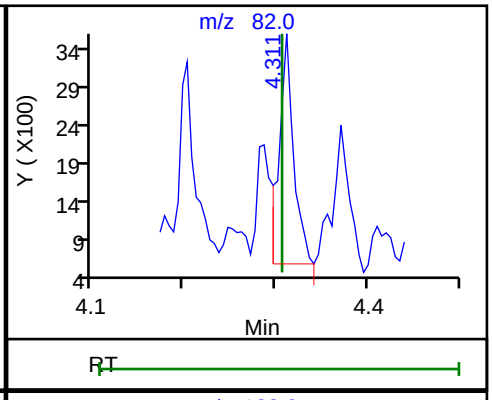
Eurofins TestAmerica, Knoxville

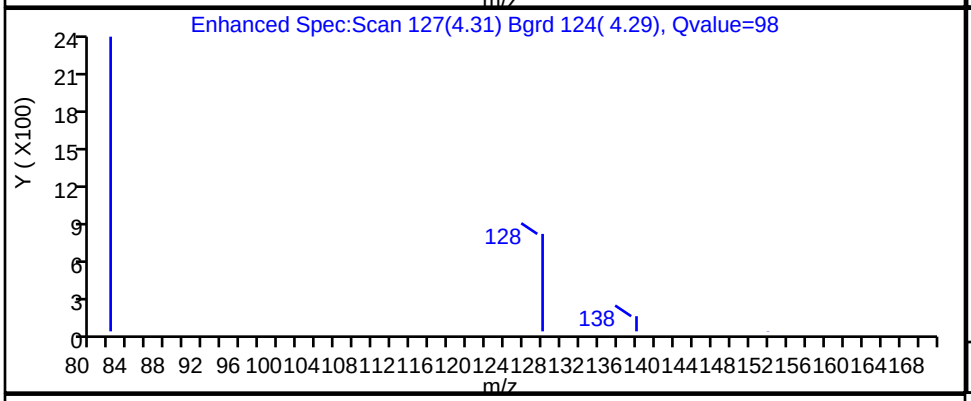
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

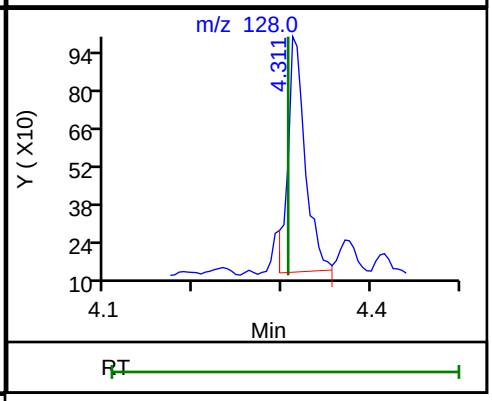
$ 1 Nitrobenzene-d5, CAS: 4165-60-0

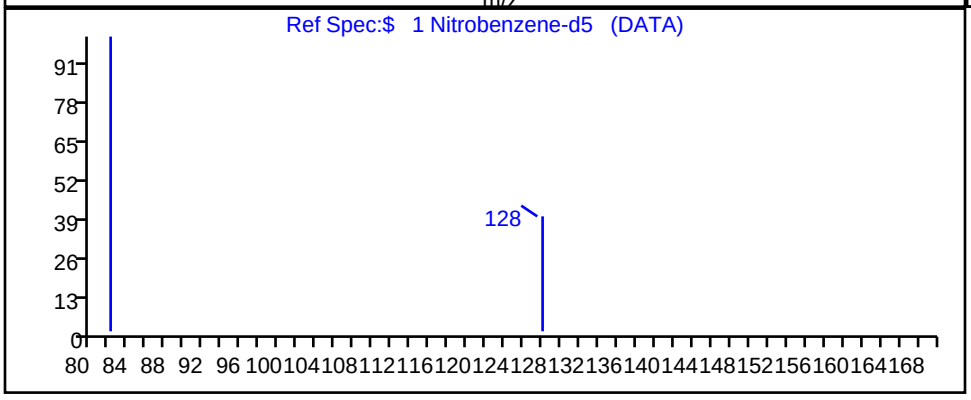
Processing Results











RT	Mass	Response	Amount
4.31	82.00	3295	0.026519
4.31	128.00	1203	

Reviewer: cochranj, 31-Aug-2019 10:56:16

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

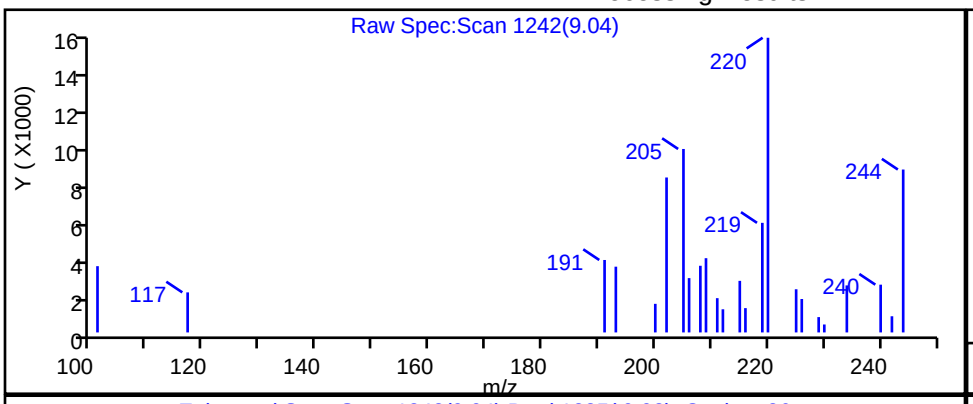
User Disabled Compound Report

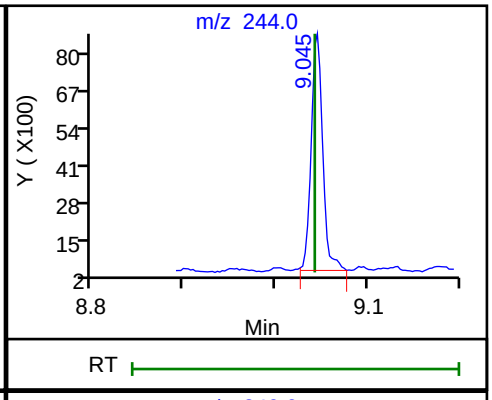
Eurofins TestAmerica, Knoxville

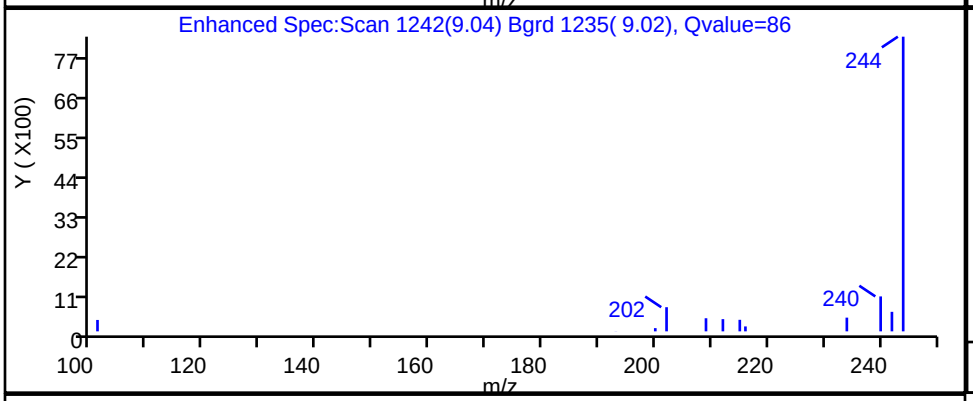
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\580-87706-b-14-a.D				
Injection Date:	29-Aug-2019 16:17:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	4	Worklist Smp#:	12
Injection Vol:	1.0 ul	Dil. Factor:	30.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

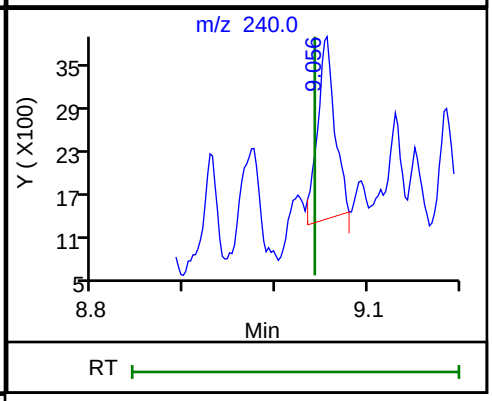
$ 24 Terphenyl-d14, CAS: 1718-51-0

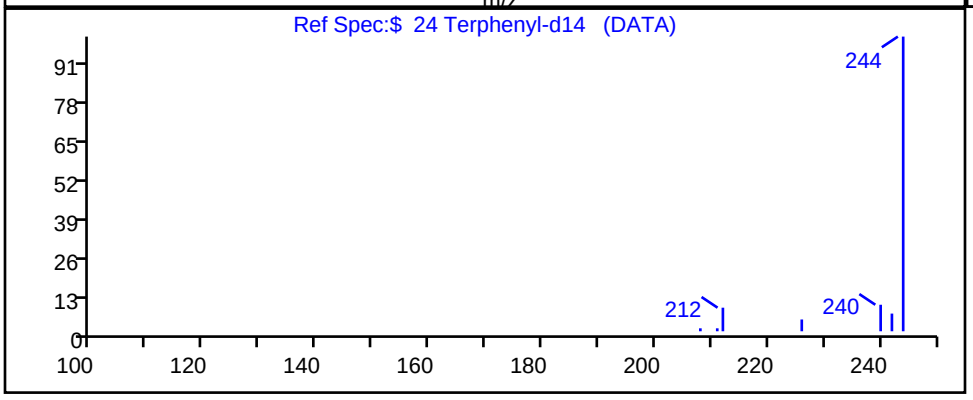
Processing Results











RT	Mass	Response	Amount
9.04	244.00	7265	0.023035
9.06	240.00	3301	

Reviewer: cochranj, 31-Aug-2019 10:56:23

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Client Sample ID: 22T-SG-21_20190716 DL Lab Sample ID: 580-87706-14 DL

Matrix: Solid Lab File ID: 580-87706-b-14-aX.D

Analysis Method: 8270D SIM Date Collected: 07/16/2019 14:08

Extract. Method: 3540C Date Extracted: 08/26/2019 13:35

Sample wt/vol: 20.08(g) Date Analyzed: 08/30/2019 16:59

Con. Extract Vol.: 0.5(mL) Dilution Factor: 100

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: 56.9 GPC Cleanup:(Y/N) N

Analysis Batch No.: 33157 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
206-44-0	Fluoranthene	10000		120	110
85-01-8	Phenanthrene	16000		230	200
129-00-0	Pyrene	12000		230	69

CAS NO.	SURROGATE	%REC	Q	LIMITS
321-60-8	2-Fluorobiphenyl (Surr)	0	X	20-142
4165-60-0	Nitrobenzene-d5	0	X	20-121
1718-51-0	Terphenyl-d14	0	X	35-150

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-14-aX.D
Lims ID: 580-87706-B-14-A
Client ID: 22T-SG-21_20190716
Sample Type: Client
Inject. Date: 30-Aug-2019 16:59:30 ALS Bottle#: 17 Worklist Smp#: 17
Injection Vol: 1.0 ul Dil. Factor: 100.0000
Sample Info: 140-0012910-017
Misc. Info.: P083019(8270)
Operator ID: 11211 Instrument ID: MP

Method: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 13:17:09 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 30-Aug-2019 17:49:18

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Flags
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	190620	0.5000	
4 Naphthalene	128	4.903	4.896	0.006	93	98034	0.2337	
6 2-Methylnaphthalene	142	5.463	5.463	0.000	97	37343	0.1359	
7 1-Methylnaphthalene	142	5.545	5.545	0.000	97	12709	0.0485	
11 Acenaphthylene	152	6.216	6.216	0.000	71	10859	0.0324	
* 12 Acenaphthene-d10	164	6.337	6.333	0.004	99	97462	0.5000	
13 Acenaphthene	153	6.364	6.360	0.004	100	175640	0.6773	
16 Fluorene	166	6.793	6.793	0.000	99	120160	0.4189	
17 Dibenzothiophene	184	7.497	7.491	0.006	100	156106	0.3925	
* 18 Phenanthrene-d10	188	7.587	7.581	0.006	97	166619	0.5000	
19 Phenanthrene	178	7.603	7.603	0.000	100	1218795	2.84	
20 Anthracene	178	7.648	7.648	0.000	100	102076	0.2852	
22 Fluoranthene	202	8.687	8.684	0.003	99	751785	1.80	
23 Pyrene	202	8.909	8.906	0.003	99	925494	2.05	
26 Benzo[a]anthracene	228	10.121	10.121	0.000	96	168932	0.4768	
* 27 Chrysene-d12	240	10.137	10.129	0.008	77	149006	0.5000	
28 Chrysene	228	10.161	10.161	0.000	100	216938	0.5120	
29 Benzo[b]fluoranthene	252	11.278	11.278	0.000	100	194297	0.4472	M
30 Benzo[k]fluoranthene	252	11.301	11.301	0.000	100	73190	0.1485	M
31 Benzo[e]pyrene	252	11.599	11.599	0.000	100	115370	0.2827	
32 Benzo[a]pyrene	252	11.661	11.660	0.001	100	183074	0.4897	a
* 33 Perylene-d12	264	11.729	11.729	0.000	100	159131	0.5000	
34 Perylene	252	11.760	11.760	0.000	100	52927	0.1254	
35 Indeno[1,2,3-cd]pyrene	276	13.152	13.150	0.002	85	118686	0.2582	
36 Dibenz(a,h)anthracene	278	13.156	13.159	-0.003	41	18513	0.0475	M
37 Benzo[g,h,i]perylene	276	13.509	13.508	0.001	99	149294	0.3471	
A 38 C1-Naphthalenes	142	5.507	(5.444-5.596)		0	50223	0.1197	
A 39 C2-Naphthalenes	156	6.076	(5.913-6.239)		0	166429	0.3967	
A 40 C3-Naphthalenes	170	6.558	(6.306-6.809)		0	176128	0.4198	
A 41 C4-Naphthalenes	184	6.932	(6.489-7.384)		0	93194	0.2221	
A 42 C1-Fluorenes	180	7.254	(7.134-7.311)		0	39573	0.1380	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Flags
A 43 C2-Fluorenes	194	7.688	(7.564-7.934)		0	42476	0.1481	
A 44 C3-Fluorenes	208	8.132	(7.985-8.453)		0	26650	0.0929	
A 45 C1-Dibenzothiophenes	198	7.949	(7.822-8.064)		0	58579	0.1473	
A 46 C2-Dibenzothiophenes	212	8.328	(8.193-8.684)		0	50149	0.1261	
A 47 C3-Dibenzothiophenes	226	8.652	(8.524-9.104)		0	32217	0.0810	
A 48 C4-Dibenzothiophenes	240	9.056	(8.810-9.579)		0	15864	0.0399	
A 49 C1-Phenanthrenes/Anthracen	192	8.094	(8.002-8.183)		0	268904	0.6266	
A 50 C2-Phenanthrenes/Anthracen	206	8.563	(8.341-8.770)		0	146959	0.3424	
A 51 C3-Phenanthrenes/Anthracen	220	8.996	(8.743-9.258)		0	71399	0.1664	
A 52 C4-Phenanthrenes/Anthracen	234	9.189	(8.959-9.683)		0	53919	0.1256	
A 53 C1-Fluoranthenes/pyrene	216	9.311	(9.109-9.496)		0	191216	0.4241	
A 54 C2-Fluoranthenes/Pyrene	230	9.814	(9.584-10.051)		0	55255	0.1225	
A 55 C3-Fluoranthenes/Pyrene	244	10.233	(10.030-10.504)		0	28436	0.0631	
A 56 C4-Fluoranthenes/Pyrene	258	10.560	(10.368-10.847)		0	14812	0.0328	
A 57 C1-Chrysenes	242	10.624	(10.504-10.751)		0	59718	0.1409	
A 58 C2-Chrysenes	256	11.038	(10.919-11.248)		0	23864	0.0563	
A 59 C3-Chrysenes	270	11.515	(11.240-11.890)		0	13155	0.0310	
A 60 C4-Chrysenes	284	11.867	(11.332-12.463)		0	8158	0.0193	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

60xx8270simis_00003 Amount Added: 0.01 Units: mL Run Reagent

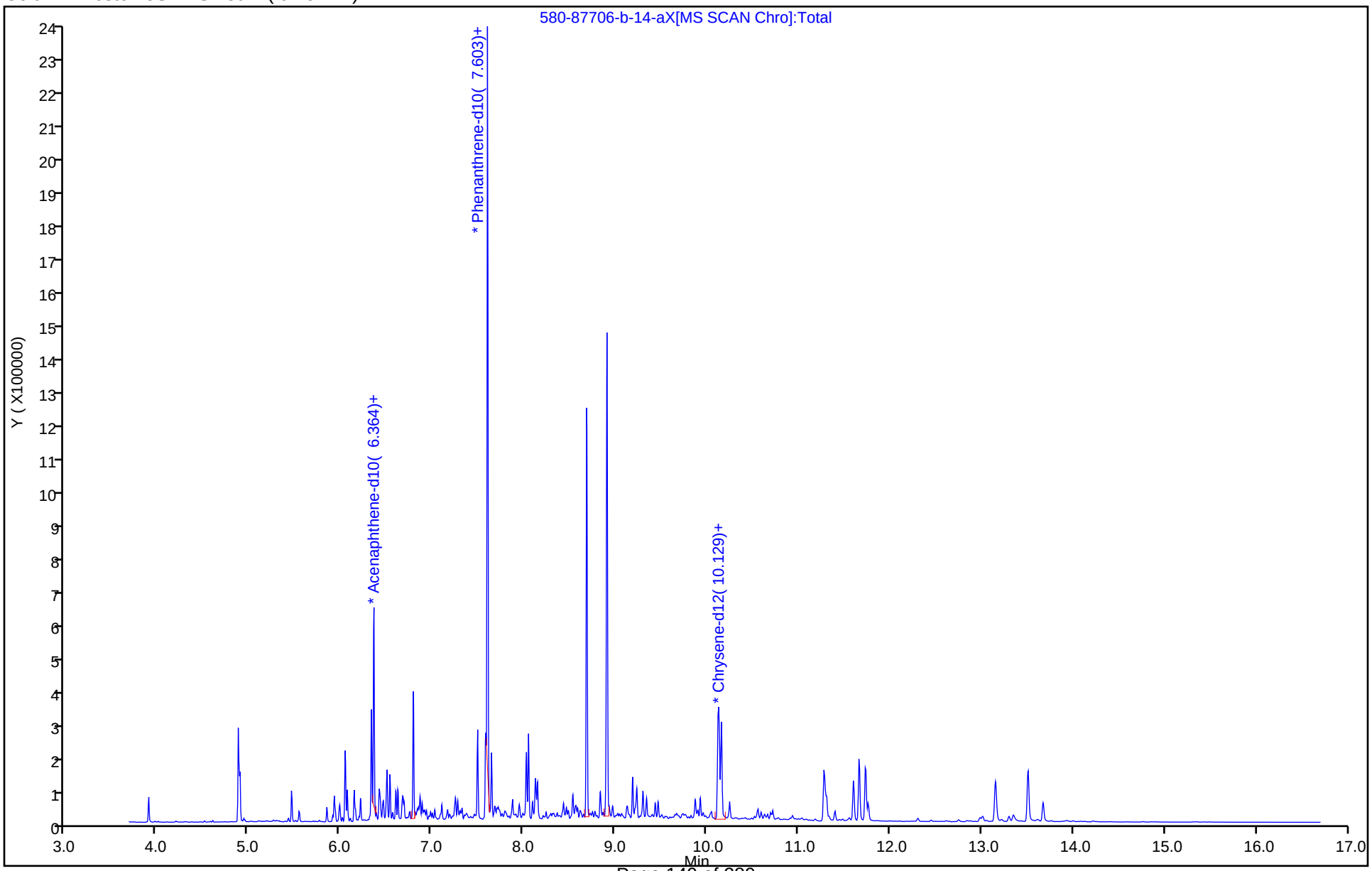
Report Date: 31-Aug-2019 13:18:12 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-14-aX.D

Injection Date:	30-Aug-2019 16:59:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14	Worklist Smp#:	17
Client ID:	22T-SG-21_20190716				
Injection Vol:	1.0 ul	Dil. Factor:	100.0000	ALS Bottle#:	17
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



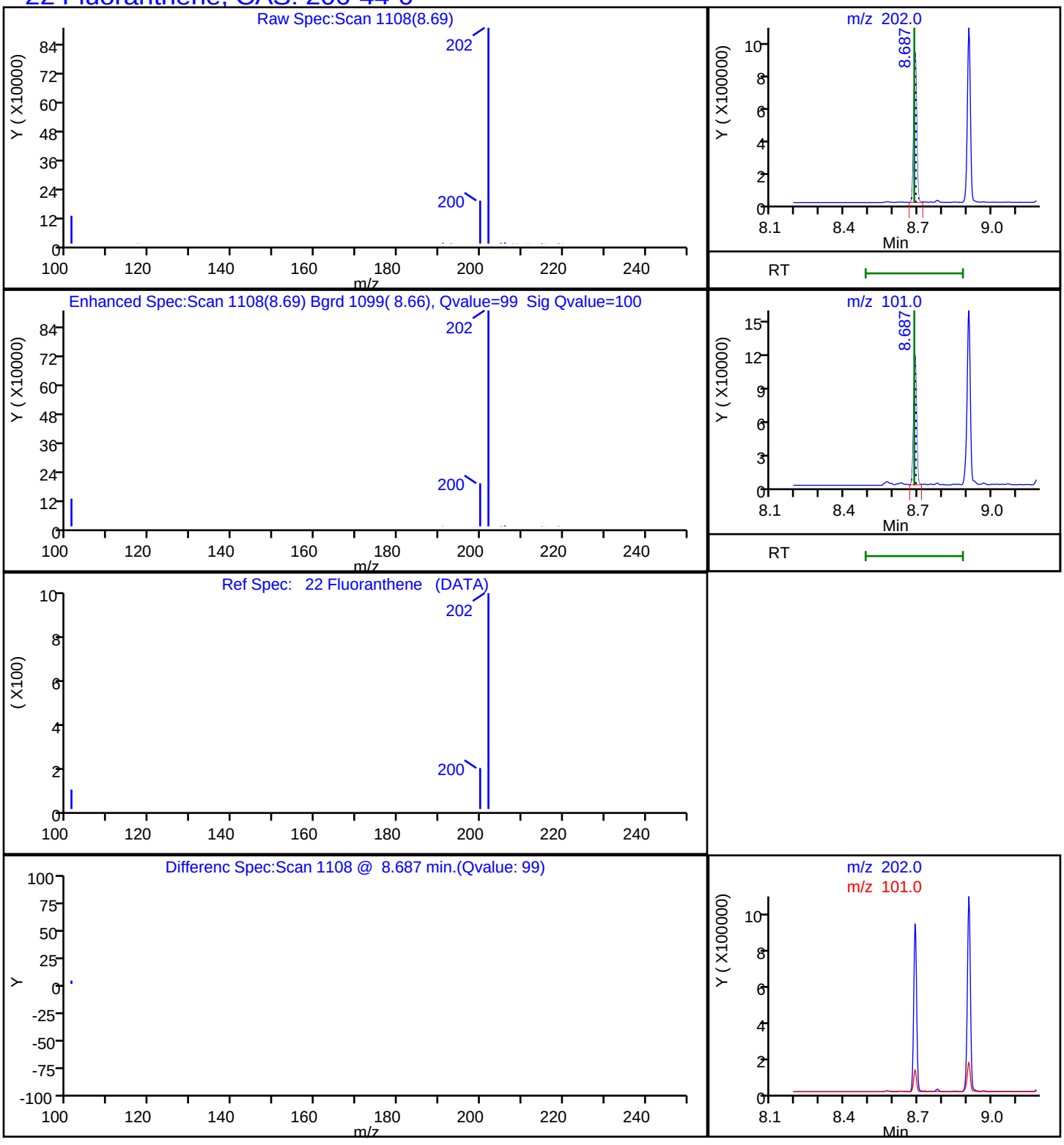
Report Date: 31-Aug-2019 13:18:12 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-14-aX.D

Injection Date:	30-Aug-2019 16:59:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	1.0 ul	Dil. Factor:	100.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

22 Fluoranthene, CAS: 206-44-0

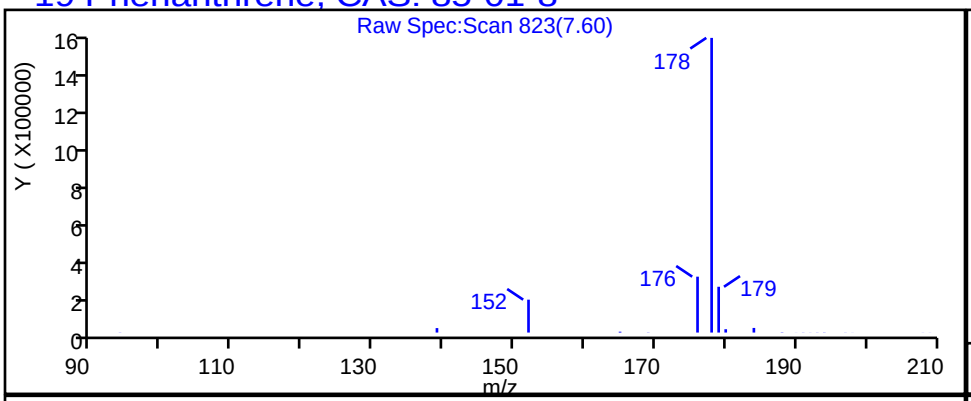


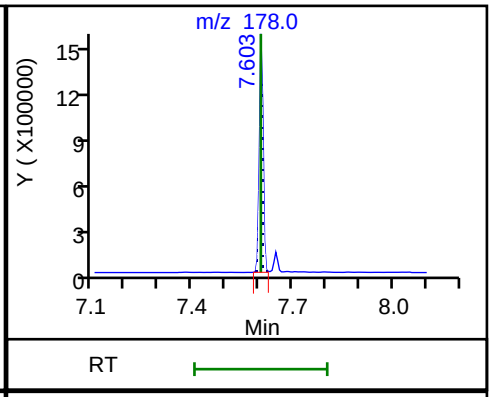
Report Date: 31-Aug-2019 13:18:12 Chrom Revision: 2.3 22-Aug-2019 12:55:36

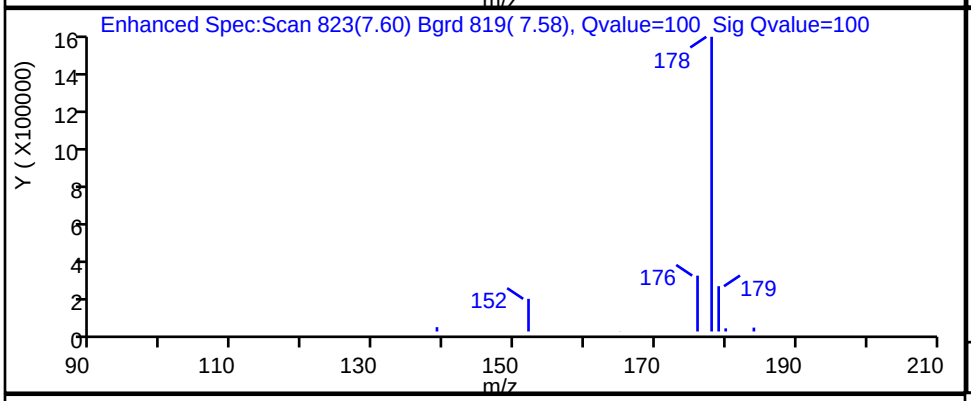
Eurofins TestAmerica, Knoxville

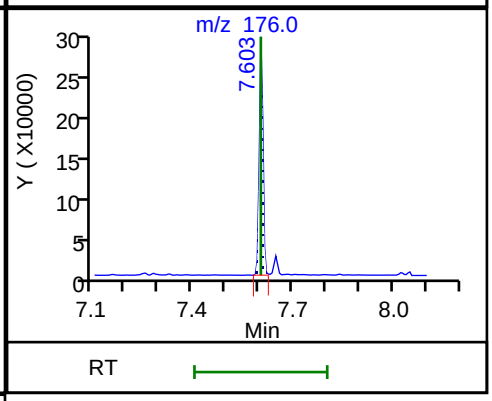
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-14-aX.D				
Injection Date:	30-Aug-2019 16:59:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	1.0 ul	Dil. Factor:	100.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

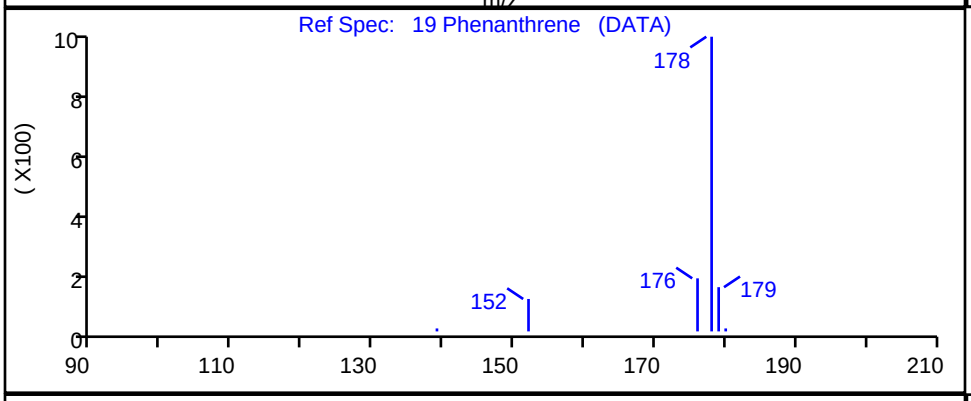
19 Phenanthrene, CAS: 85-01-8

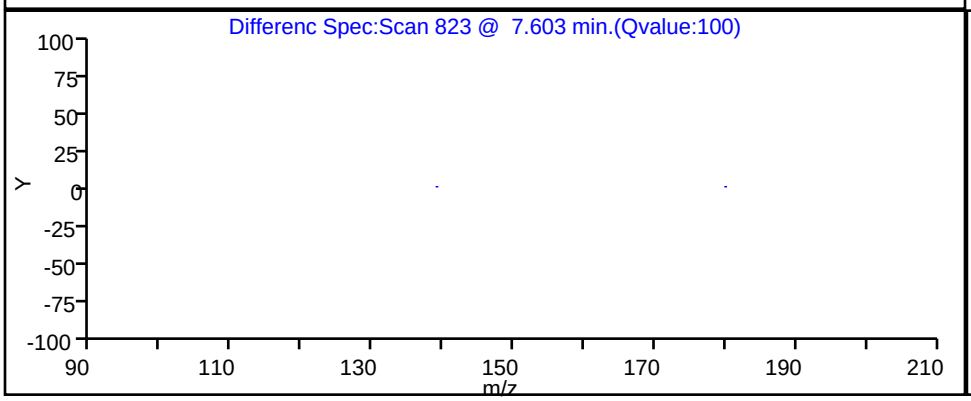


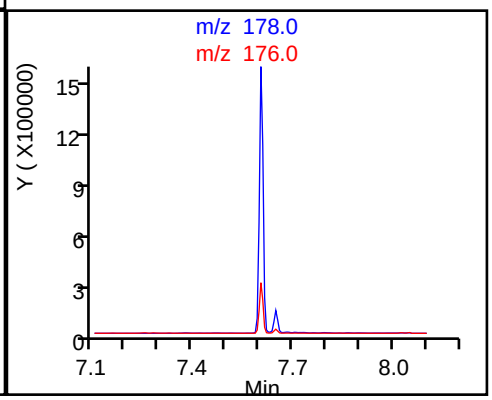










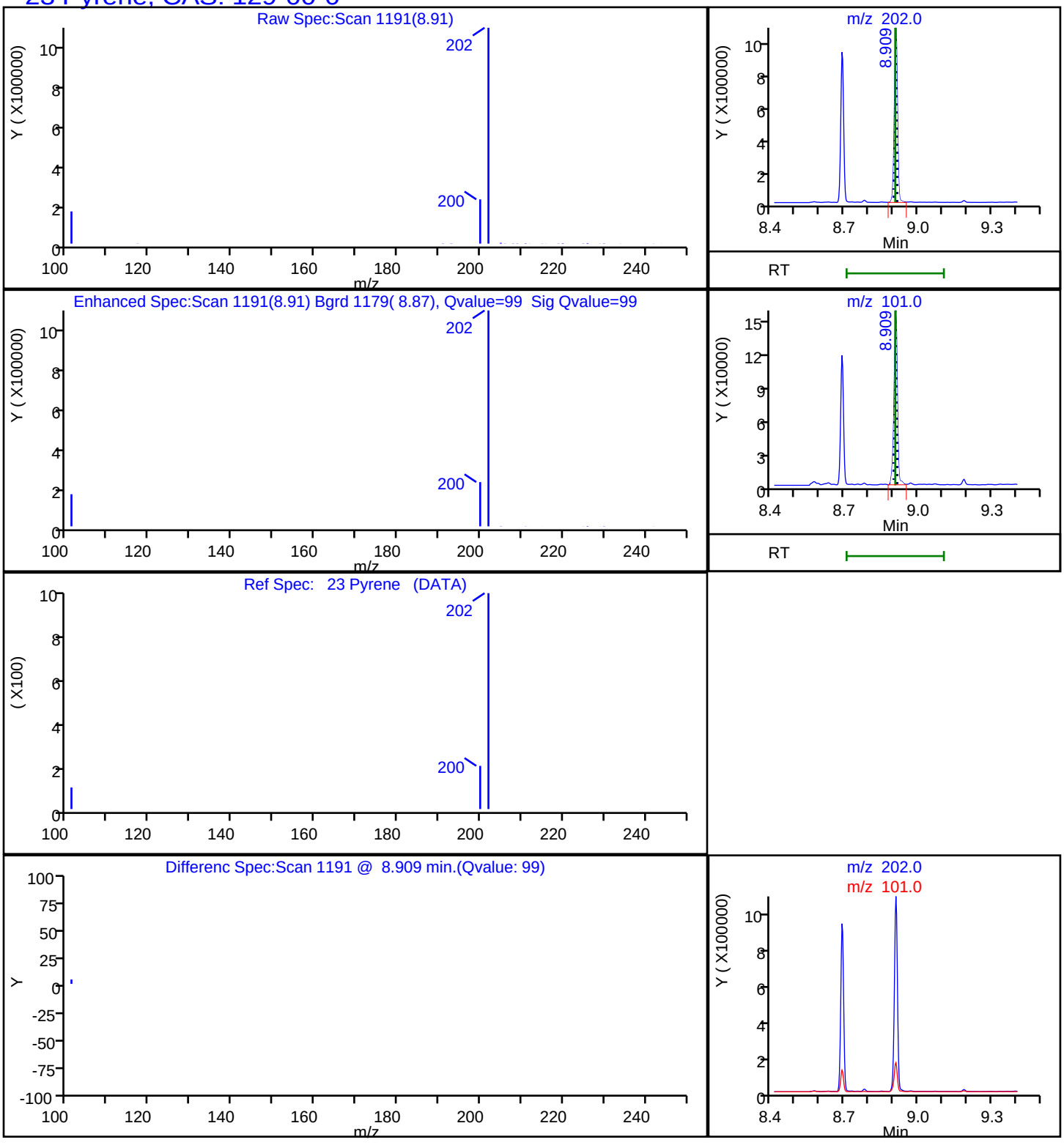


Report Date: 31-Aug-2019 13:18:12 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-14-aX.D				
Injection Date:	30-Aug-2019 16:59:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	1.0 ul	Dil. Factor:	100.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

23 Pyrene, CAS: 129-00-0



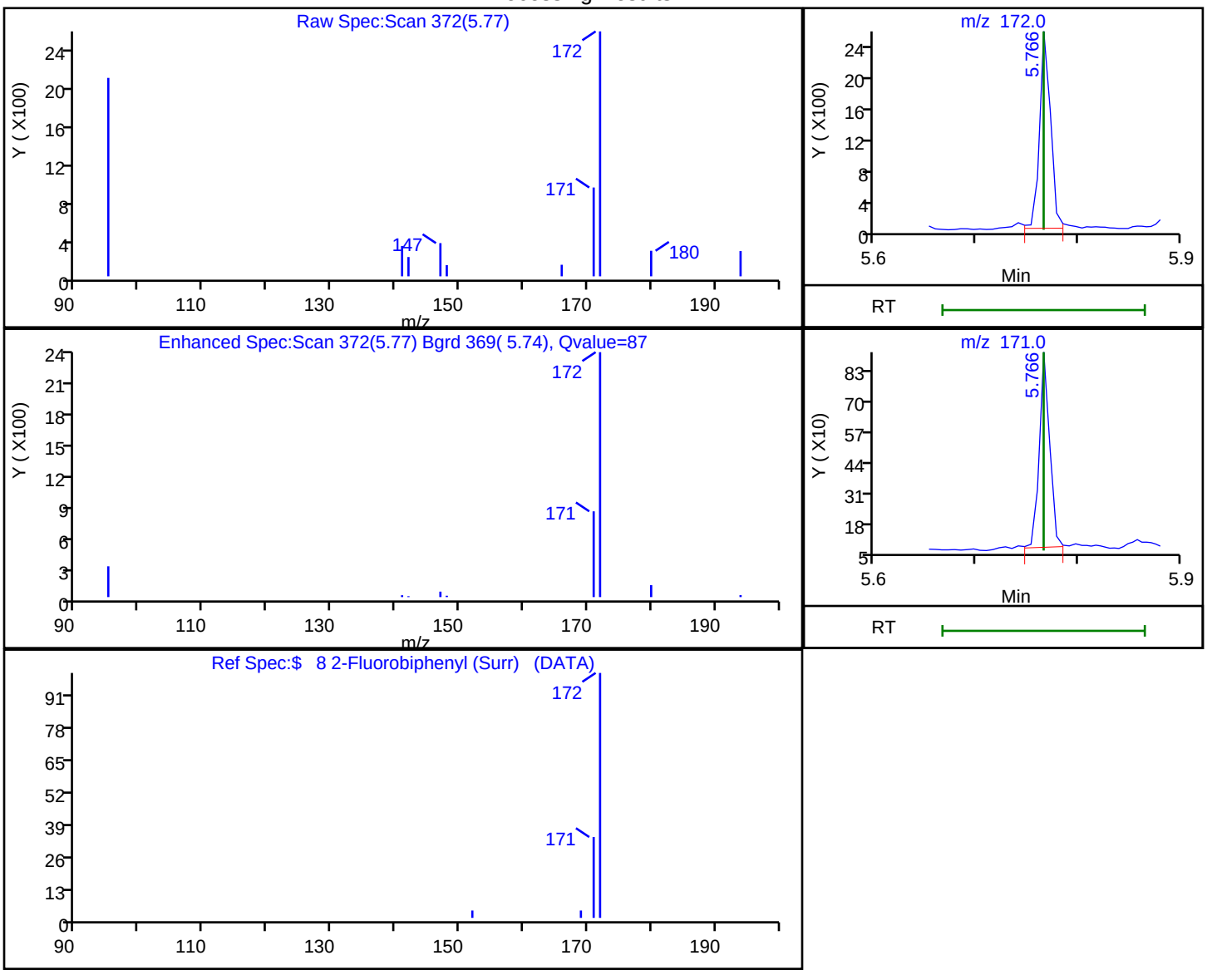
User Disabled Compound Report

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-14-aX.D				
Injection Date:	30-Aug-2019 16:59:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	1.0 ul	Dil. Factor:	100.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

$ 8 2-Fluorobiphenyl (Surr), CAS: 321-60-8

Processing Results



RT	Mass	Response	Amount
5.77	172.00	1829	0.005803
5.77	171.00	596	

Reviewer: cochranj, 31-Aug-2019 13:17:00

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

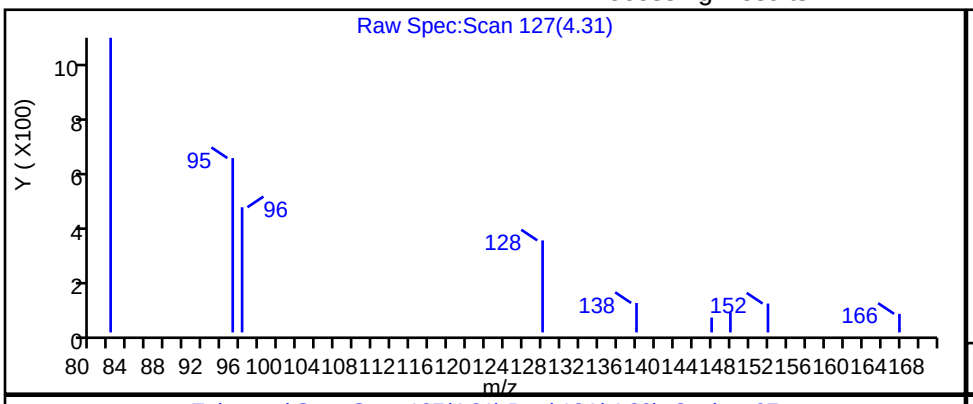
User Disabled Compound Report

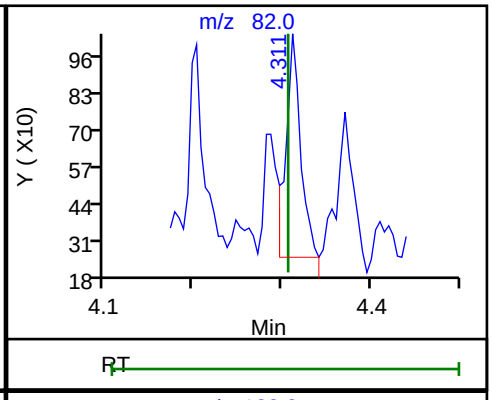
Eurofins TestAmerica, Knoxville

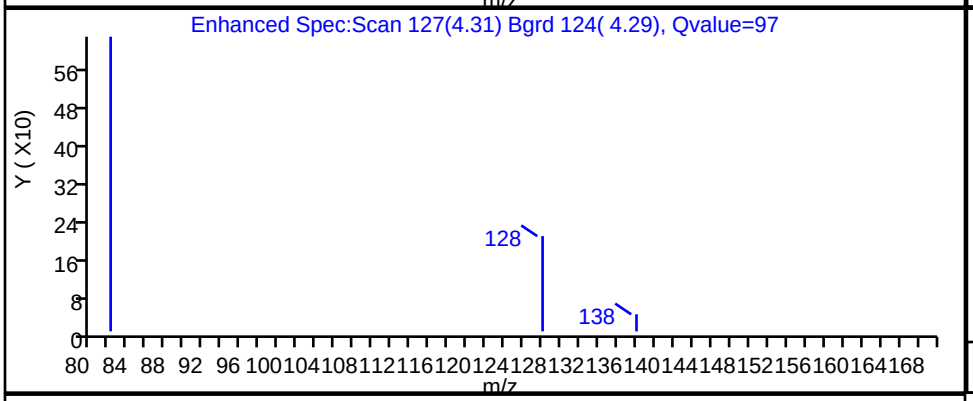
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-14-aX.D				
Injection Date:	30-Aug-2019 16:59:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	1.0 ul	Dil. Factor:	100.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

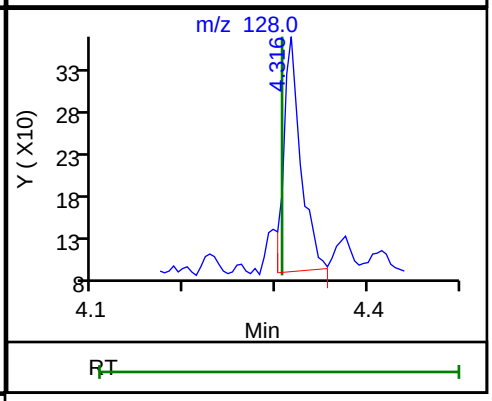
$ 1 Nitrobenzene-d5, CAS: 4165-60-0

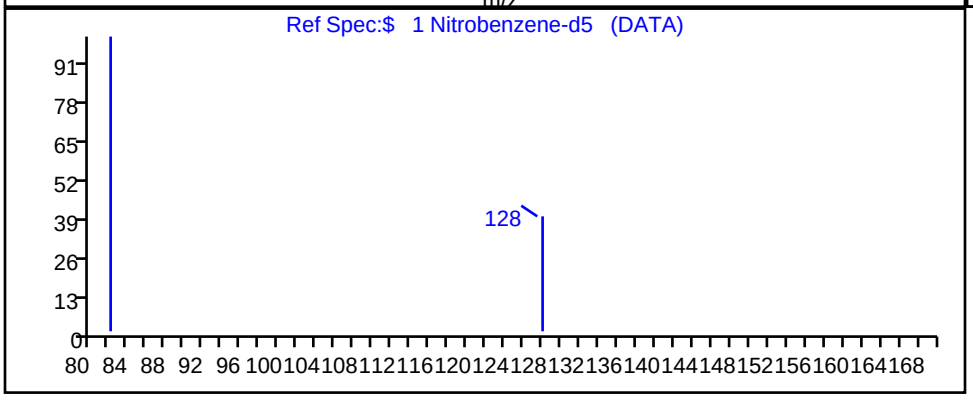
Processing Results











RT	Mass	Response	Amount
4.31	82.00	924	0.008303
4.32	128.00	353	

Reviewer: cochranj, 31-Aug-2019 13:16:58

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

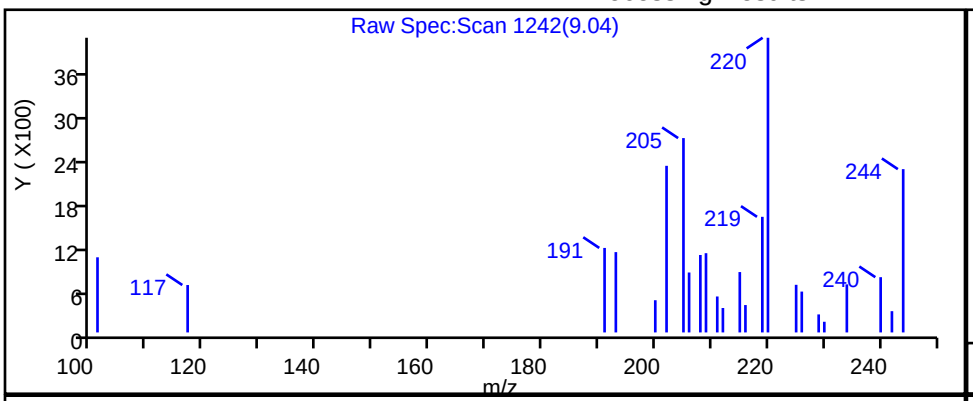
User Disabled Compound Report

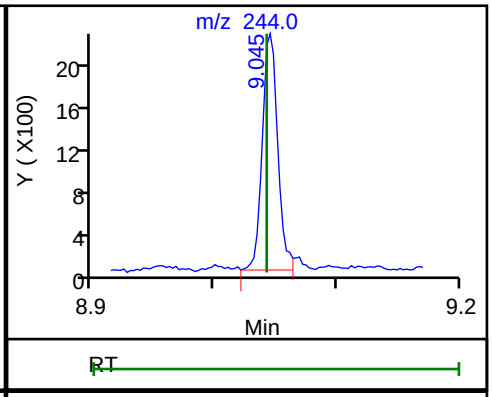
Eurofins TestAmerica, Knoxville

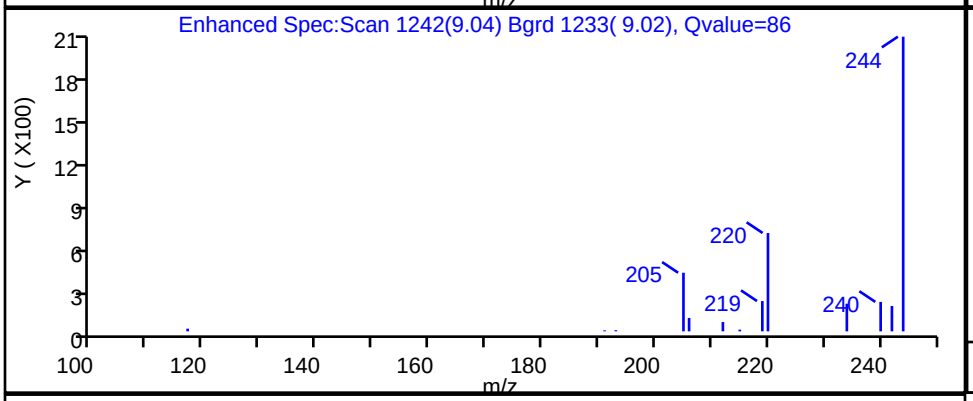
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-14-aX.D				
Injection Date:	30-Aug-2019 16:59:30	Instrument ID:	MP		
Lims ID:	580-87706-B-14-A	Lab Sample ID:	140-87706-14		
Client ID:	22T-SG-21_20190716				
Operator ID:	11211	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	1.0 ul	Dil. Factor:	100.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

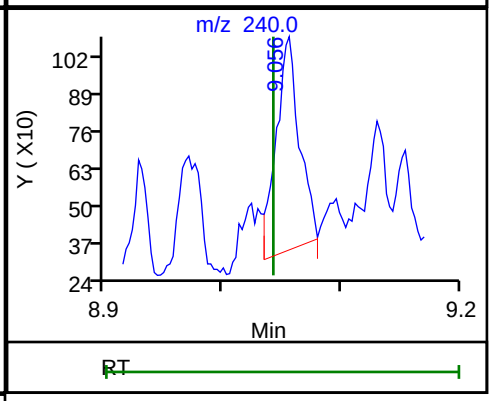
$ 24 Terphenyl-d14, CAS: 1718-51-0

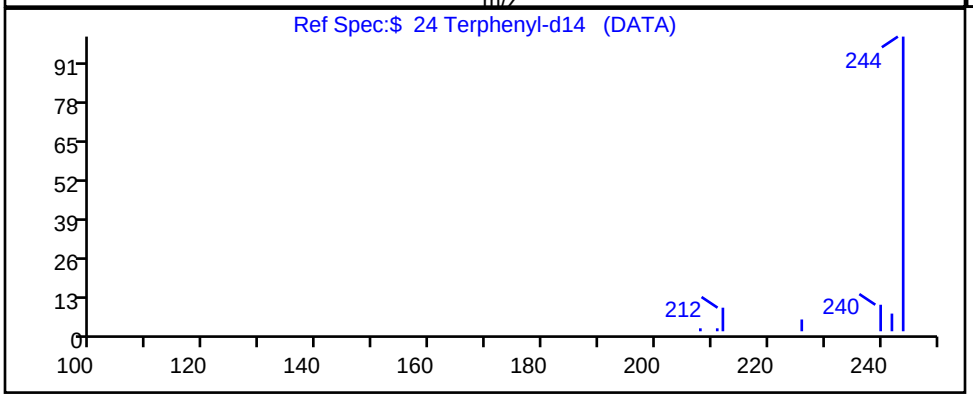
Processing Results











RT	Mass	Response	Amount
9.04	244.00	1908	0.007829
9.06	240.00	1035	

Reviewer: cochranj, 31-Aug-2019 13:17:03

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Client Sample ID: 22T-SG-16_20190716 Lab Sample ID: 580-87706-15

Matrix: Solid Lab File ID: 580-87706-b-15-a.D

Analysis Method: 8270D SIM Date Collected: 07/16/2019 14:24

Extract. Method: 3540C Date Extracted: 08/26/2019 13:35

Sample wt/vol: 20.18(g) Date Analyzed: 08/30/2019 13:11

Con. Extract Vol.: 0.5(mL) Dilution Factor: 5

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: 56.2 GPC Cleanup:(Y/N) N

Analysis Batch No.: 33157 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
90-12-0	1-Methylnaphthalene	23	J	28	4.0
91-57-6	2-Methylnaphthalene	46	J	57	5.7
83-32-9	Acenaphthene	120		5.7	2.6
208-96-8	Acenaphthylene	44		5.7	1.4
120-12-7	Anthracene	110		5.7	4.6
56-55-3	Benzo[a]anthracene	350		5.7	2.3
50-32-8	Benzo[a]pyrene	470		5.7	2.0
205-99-2	Benzo[b]fluoranthene	450		5.7	2.9
192-97-2	Benzo[e]pyrene	280		5.7	1.9
191-24-2	Benzo[g,h,i]perylene	370		5.7	3.3
207-08-9	Benzo[k]fluoranthene	160		5.7	2.6
STL00905	C1-Chrysenes	150		5.7	1.5
STL00909	C1-Dibenzothiophenes	42		5.7	3.7
STL00912	C1-Fluoranthenes/pyrene	280		5.7	2.9
STL00913	C1-Fluorenes	38		5.7	3.2
STL00916	C1-Naphthalenes	45	J	57	4.5
STL00901	C1-Phenanthrenes/Anthracenes	200		11	6.3
STL00906	C2-Chrysenes	76		5.7	1.8
STL00910	C2-Dibenzothiophenes	66		5.7	5.3
STL00968	C2-Fluoranthenes/Pyrene	120		5.7	2.5
STL00914	C2-Fluorenes	59		11	6.8
STL00917	C2-Naphthalenes	71		11	4.3
STL00902	C2-Phenanthrenes/Anthracenes	180		23	14
STL00907	C3-Chrysenes	48		5.7	1.7
STL00911	C3-Dibenzothiophenes	63		11	6.3
STL00969	C3-Fluoranthenes/Pyrene	76		5.7	3.1
STL00915	C3-Fluorenes	74		11	6.1
STL00918	C3-Naphthalenes	99		11	5.5
STL00903	C3-Phenanthrenes/Anthracenes	130		11	8.9
STL00908	C4-Chrysenes	28		5.7	1.9
STL00967	C4-Dibenzothiophenes	39		5.7	5.4
STL01791	C4-Fluoranthenes/Pyrene	40		5.7	2.2
STL00919	C4-Naphthalenes	91		23	12
STL00904	C4-Phenanthrenes/Anthracenes	89	AP	11	11

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Client Sample ID: 22T-SG-16_20190716 Lab Sample ID: 580-87706-15

Matrix: Solid Lab File ID: 580-87706-b-15-a.D

Analysis Method: 8270D SIM Date Collected: 07/16/2019 14:24

Extract. Method: 3540C Date Extracted: 08/26/2019 13:35

Sample wt/vol: 20.18(g) Date Analyzed: 08/30/2019 13:11

Con. Extract Vol.: 0.5(mL) Dilution Factor: 5

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: 56.2 GPC Cleanup:(Y/N) N

Analysis Batch No.: 33157 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
218-01-9	Chrysene	350		5.7	2.2
53-70-3	Dibenz(a,h)anthracene	57		5.7	3.2
132-65-0	Dibenzothiophene	58		5.7	1.9
206-44-0	Fluoranthene	780		5.7	5.2
86-73-7	Fluorene	93		5.7	2.7
193-39-5	Indeno[1,2,3-cd]pyrene	270		5.7	4.0
91-20-3	Naphthalene	100	J	110	10
198-55-0	Perylene	190		5.7	1.1
85-01-8	Phenanthrene	550		11	10
129-00-0	Pyrene	800		11	3.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
321-60-8	2-Fluorobiphenyl (Surr)	61		20-142
4165-60-0	Nitrobenzene-d5	63		20-121
1718-51-0	Terphenyl-d14	79		35-150

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D
Lims ID: 580-87706-B-15-A
Client ID: 22T-SG-16_20190716
Sample Type: Client
Inject. Date: 30-Aug-2019 13:11:30 ALS Bottle#: 8 Worklist Smp#: 8
Injection Vol: 1.0 ul Dil. Factor: 5.0000
Sample Info: 140-0012910-008
Misc. Info.: P083019(8270)
Operator ID: 11211 Instrument ID: MP

Method: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 13:01:04 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 30-Aug-2019 15:47:08

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.311	4.306	0.005	95	14779	0.1258	
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	201290	0.5000	
4 Naphthalene	128	4.896	4.896	0.000	93	162264	0.3662	
6 2-Methylnaphthalene	142	5.463	5.463	0.000	98	47670	0.1642	
7 1-Methylnaphthalene	142	5.545	5.545	0.000	98	22834	0.0826	
$ 8 2-Fluorobiphenyl (Surr)	172	5.766	5.766	0.000	87	42154	0.1222	
11 Acenaphthylene	152	6.216	6.216	0.000	100	57688	0.1571	
* 12 Acenaphthene-d10	164	6.337	6.333	0.004	98	106693	0.5000	
13 Acenaphthene	153	6.360	6.360	0.000	100	117989	0.4156	
16 Fluorene	166	6.793	6.793	0.000	100	103607	0.3299	
17 Dibenzothiophene	184	7.497	7.491	0.006	100	94419	0.2061	
* 18 Phenanthrene-d10	188	7.581	7.581	0.000	97	191914	0.5000	
19 Phenanthrene	178	7.603	7.603	0.000	100	965740	1.95	
20 Anthracene	178	7.648	7.648	0.000	100	166350	0.4035	
22 Fluoranthene	202	8.687	8.684	0.003	99	1331320	2.77	
23 Pyrene	202	8.909	8.906	0.003	99	1570083	2.84	
$ 24 Terphenyl-d14	244	9.042	9.042	0.000	98	47099	0.1576	
26 Benzo[a]anthracene	228	10.121	10.121	0.000	93	536918	1.24	
* 27 Chrysene-d12	240	10.137	10.129	0.008	77	182783	0.5000	
28 Chrysene	228	10.161	10.161	0.000	97	644652	1.24	
29 Benzo[b]fluoranthene	252	11.278	11.278	0.000	100	880436	1.58	M
30 Benzo[k]fluoranthene	252	11.309	11.301	0.008	99	357183	0.5647	M
31 Benzo[e]pyrene	252	11.599	11.599	0.000	100	514334	0.9820	
32 Benzo[a]pyrene	252	11.668	11.660	0.008	100	792940	1.65	a
* 33 Perylene-d12	264	11.737	11.729	0.008	100	204261	0.5000	
34 Perylene	252	11.768	11.760	0.008	100	370729	0.6841	
35 Indeno[1,2,3-cd]pyrene	276	13.154	13.150	0.004	85	573279	0.9717	
36 Dibenz(a,h)anthracene	278	13.159	13.159	0.000	41	101156	0.2020	M
37 Benzo[g,h,i]perylene	276	13.512	13.508	0.004	99	719475	1.30	
A 38 C1-Naphthalenes	142	5.507	(5.444-5.596)		0	70125	0.1583	
A 39 C2-Naphthalenes	156	6.073	(5.913-6.239)		0	111032	0.2506	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Flags
A 40 C3-Naphthalenes	170	6.552	(6.306-6.809)		0	155502	0.3510	
A 41 C4-Naphthalenes	184	6.949	(6.489-7.384)		0	142870	0.3225	
A 42 C1-Fluorenes	180	7.253	(7.134-7.311)		0	42570	0.1356	
A 43 C2-Fluorenes	194	7.688	(7.564-7.934)		0	65520	0.2087	
A 44 C3-Fluorenes	208	8.239	(7.985-8.453)		0	81591	0.2598	
A 45 C1-Dibenzothiophenes	198	7.950	(7.822-8.064)		0	67846	0.1481	
A 46 C2-Dibenzothiophenes	212	8.244	(8.193-8.684)		0	107496	0.2347	
A 47 C3-Dibenzothiophenes	226	8.652	(8.524-9.104)		0	102485	0.2237	
A 48 C4-Dibenzothiophenes	240	9.045	(8.810-9.579)		0	62571	0.1366	
A 49 C1-Phenanthrenes/Anthracen	192	8.052	(8.002-8.183)		0	347404	0.7028	
A 50 C2-Phenanthrenes/Anthracen	206	8.554	(8.341-8.770)		0	311910	0.6310	
A 51 C3-Phenanthrenes/Anthracen	220	8.993	(8.743-9.258)		0	221889	0.4489	
A 52 C4-Phenanthrenes/Anthracen	234	9.189	(8.959-9.683)		0	155998	0.3156	
A 53 C1-Fluoranthenes/pyrene	216	9.301	(9.109-9.496)		0	544055	0.9836	
A 54 C2-Fluoranthenes/Pyrene	230	9.806	(9.584-10.051)		0	232427	0.4202	
A 55 C3-Fluoranthenes/Pyrene	244	10.233	(10.030-10.504)		0	148256	0.2680	
A 56 C4-Fluoranthenes/Pyrene	258	10.703	(10.368-10.847)		0	78575	0.1421	
A 57 C1-Chrysenes	242	10.608	(10.504-10.751)		0	267007	0.5137	
A 58 C2-Chrysenes	256	11.038	(10.919-11.248)		0	139284	0.2680	
A 59 C3-Chrysenes	270	11.515	(11.240-11.890)		0	88064	0.1694	
A 60 C4-Chrysenes	284	11.867	(11.332-12.463)		0	51548	0.0992	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

60xx8270simis_00003 Amount Added: 0.01 Units: mL Run Reagent

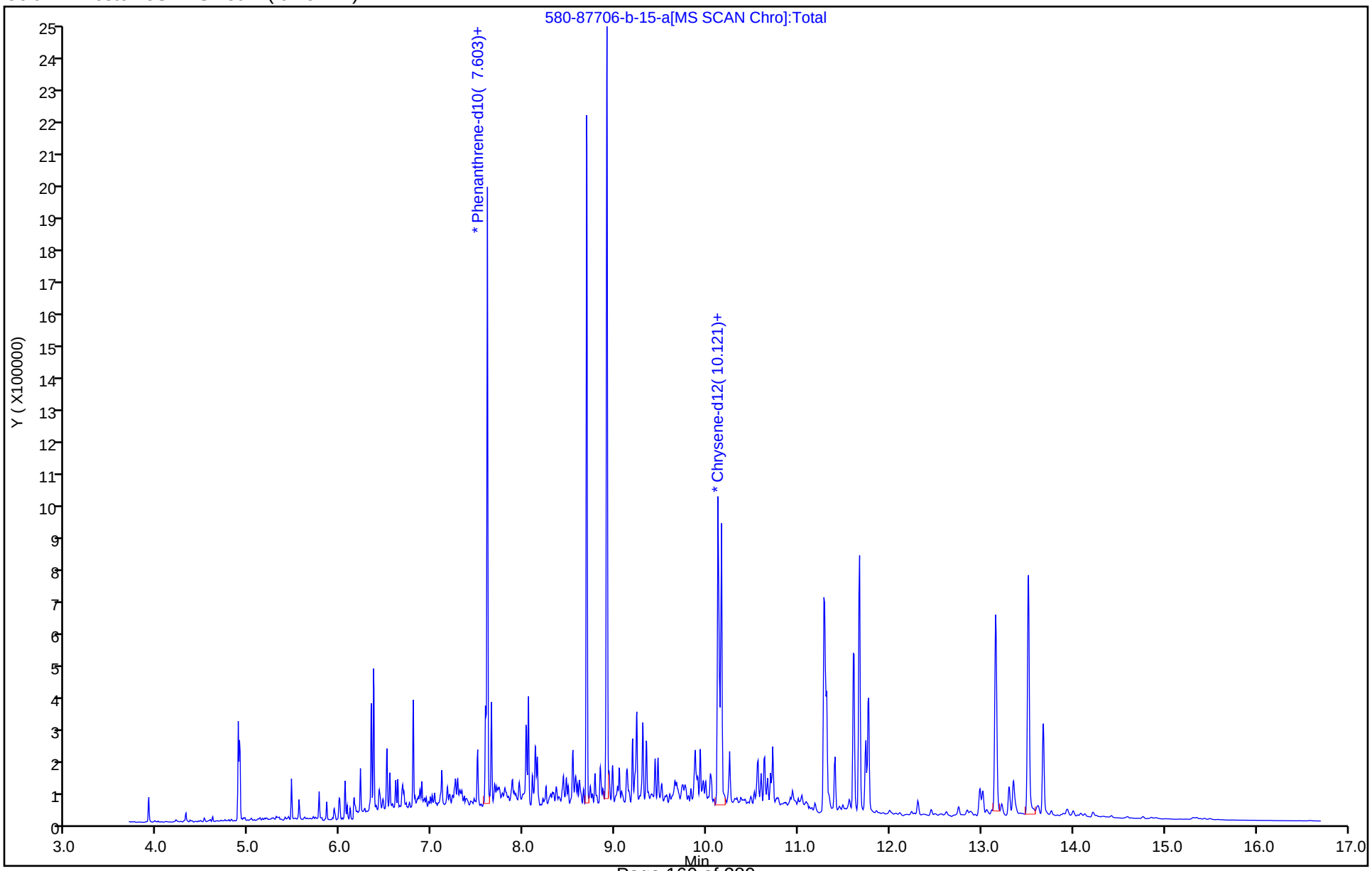
Report Date: 31-Aug-2019 13:01:07 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D

Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15	Worklist Smp#:	8
Client ID:	22T-SG-16_20190716				
Injection Vol:	1.0 ul	Dil. Factor:	5.0000	ALS Bottle#:	8
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Recovery Report

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Lims ID:	580-87706-B-15-A				
Client ID:	22T-SG-16_20190716				
Sample Type:	Client				
Inject. Date:	30-Aug-2019 13:11:30	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Sample Info:	140-0012910-008				
Misc. Info.:	P083019(8270)				
Operator ID:	11211	Instrument ID:	MP		
Method:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\8270D_SIM_MP.m				
Limit Group:	MSS - 8270D_SIM ICAL				
Last Update:	31-Aug-2019 13:01:04	Calib Date:	21-Jul-2019 14:26:30		
Integrator:	RTE	ID Type:	RT Order ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D				
Column 1 :	Restek-5Sil MS 25um (0.25 mm)		Det: MS SCAN		
Process Host:	CTX0318				

First Level Reviewer: cochranj Date: 30-Aug-2019 15:47:08

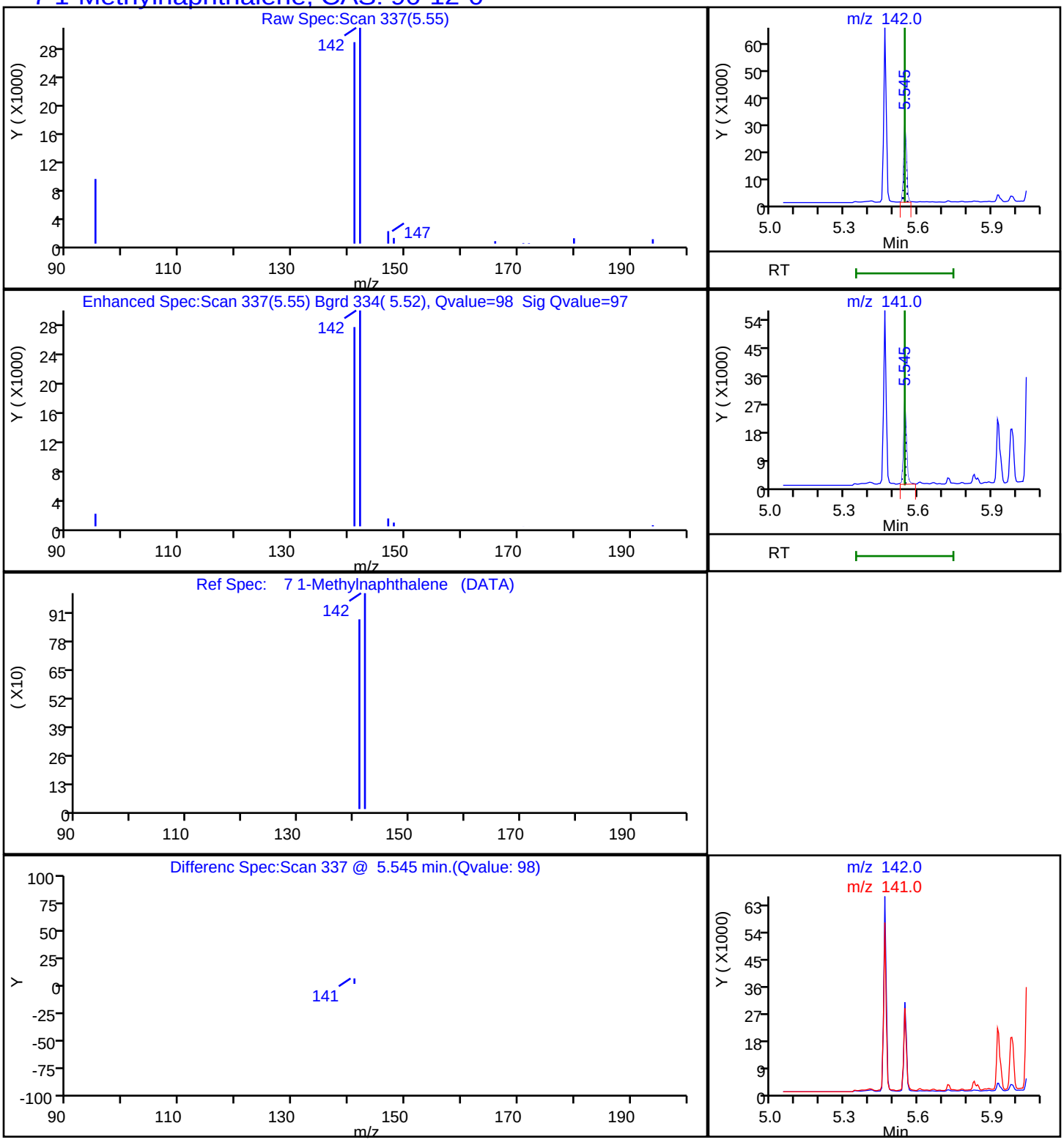
Compound	Amount Added	Amount Recovered	% Rec.
$ 1 Nitrobenzene-d5	1.00	0.1258	62.88
$ 8 2-Fluorobiphenyl (Surr)	1.00	0.1222	61.09
$ 24 Terphenyl-d14	1.00	0.1576	78.78

Report Date: 31-Aug-2019 13:01:07 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

7 1-Methylnaphthalene, CAS: 90-12-0

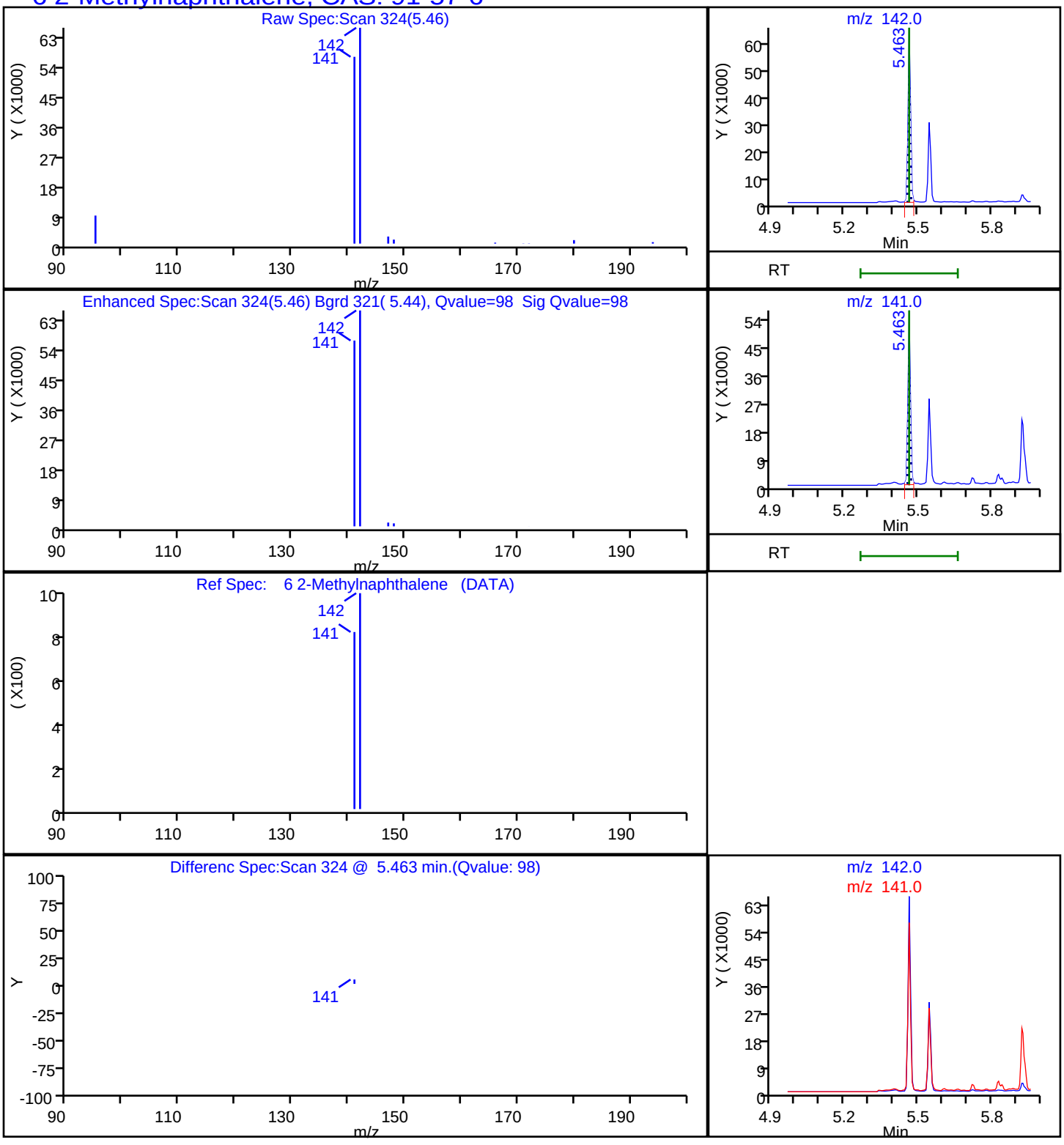


Report Date: 31-Aug-2019 13:01:07 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

6 2-Methylnaphthalene, CAS: 91-57-6

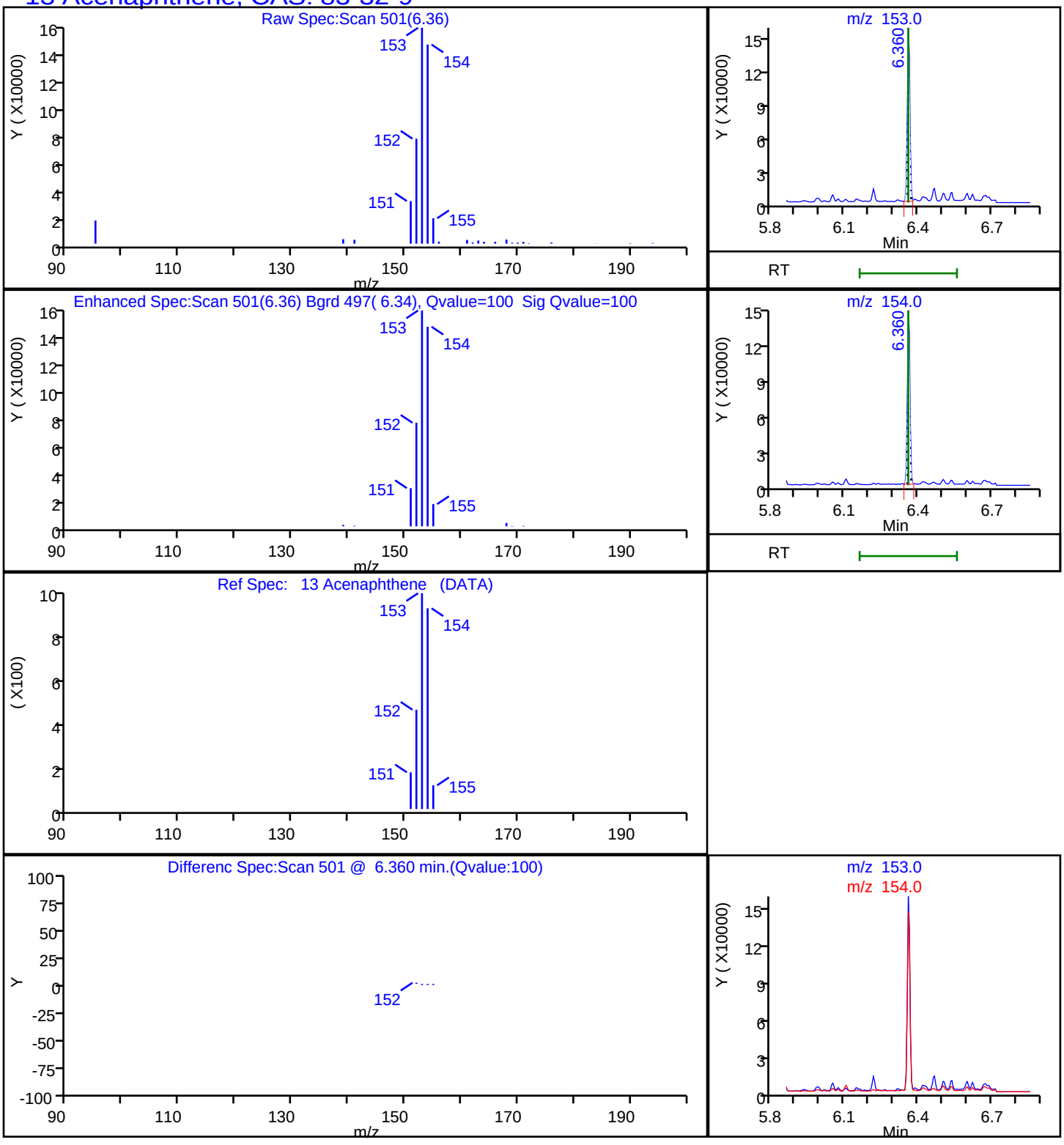


Report Date: 31-Aug-2019 13:01:07 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

13 Acenaphthene, CAS: 83-32-9

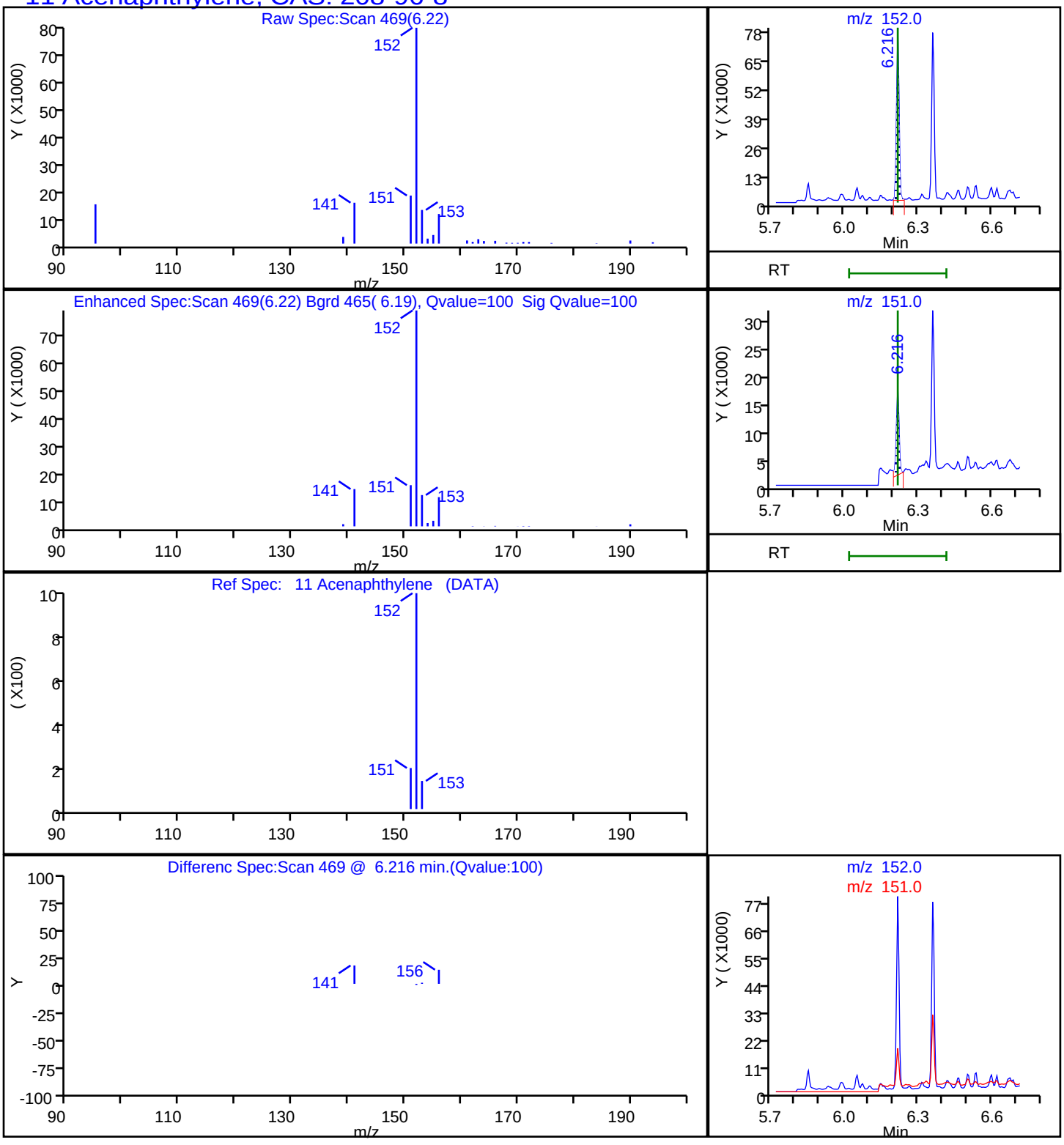


Report Date: 31-Aug-2019 13:01:07 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

11 Acenaphthylene, CAS: 208-96-8



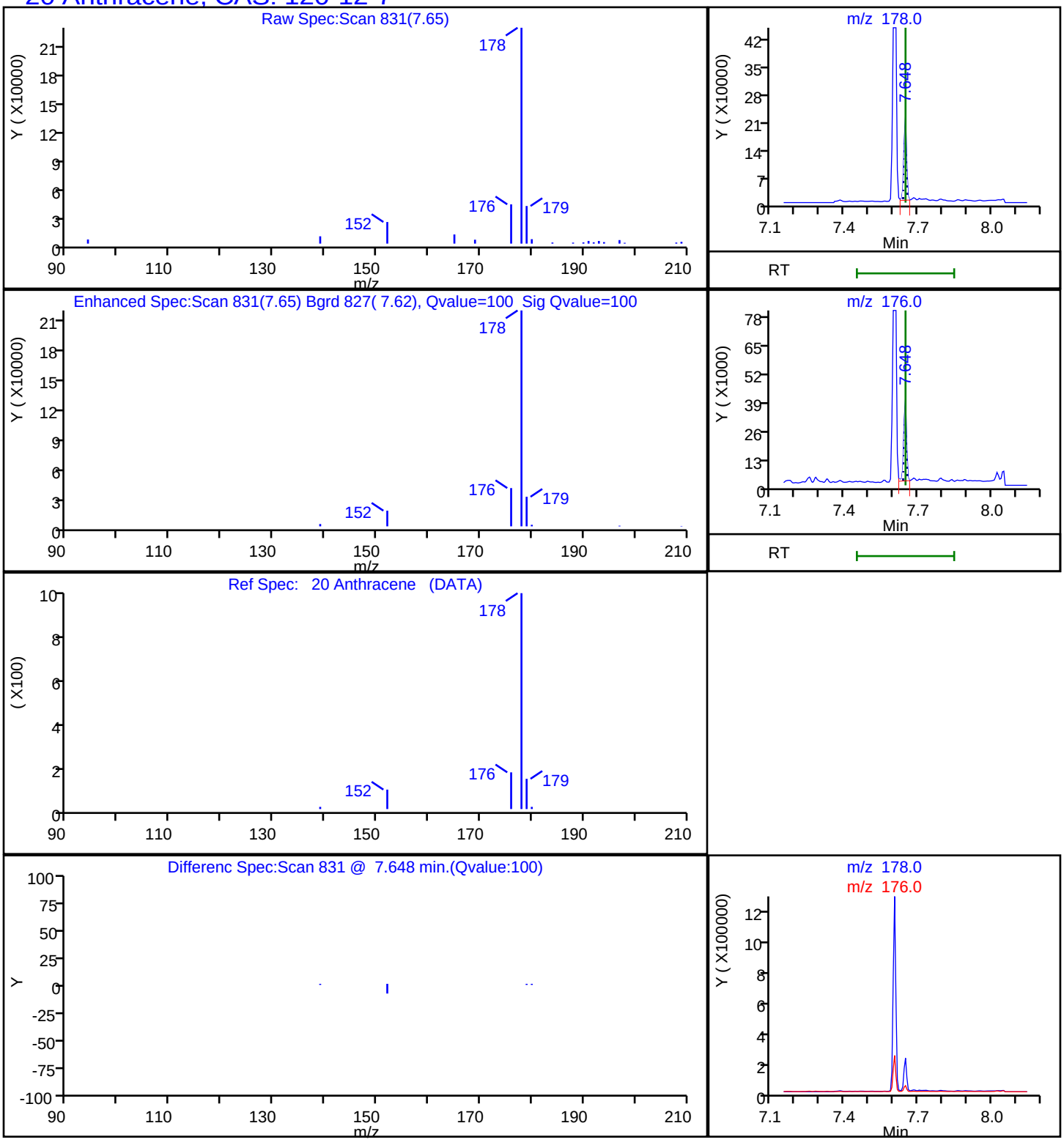
Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D

Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

20 Anthracene, CAS: 120-12-7



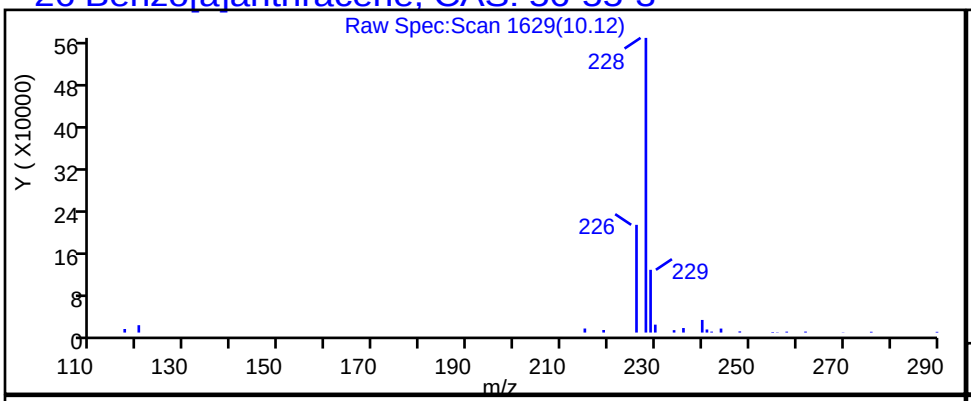
Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

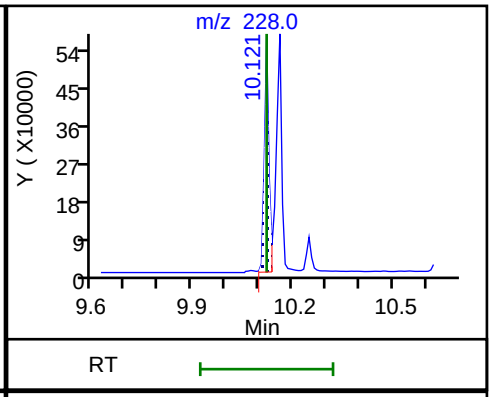
Eurofins TestAmerica, Knoxville

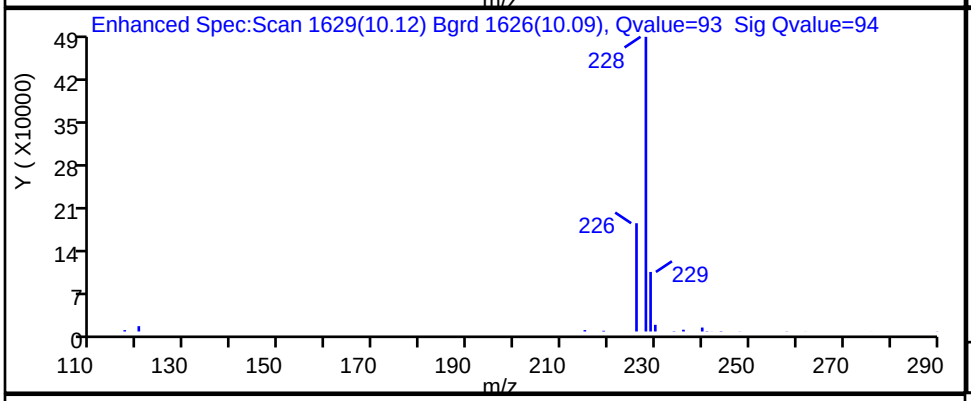
Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D

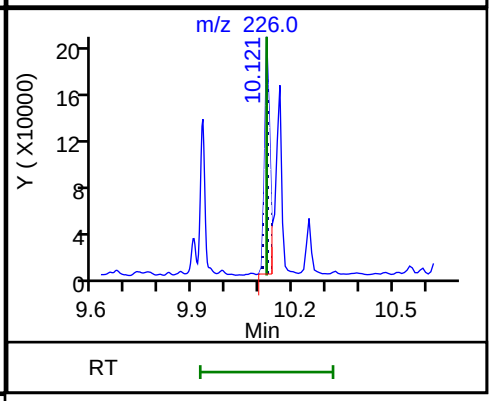
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

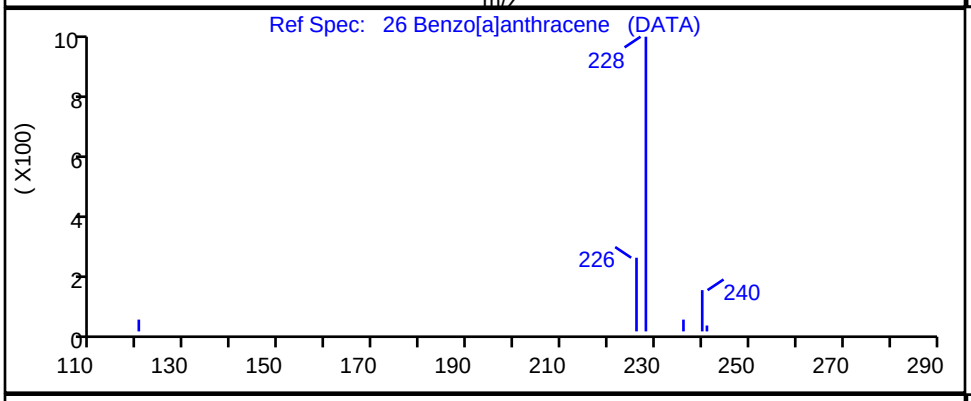
26 Benzo[a]anthracene, CAS: 56-55-3

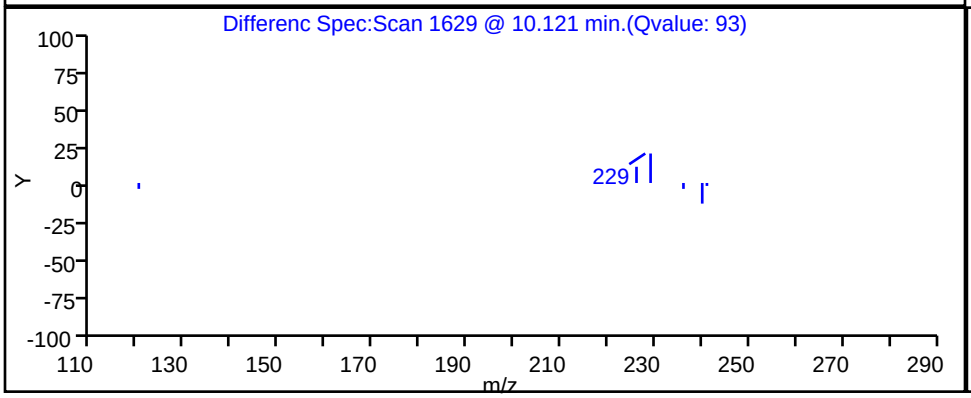


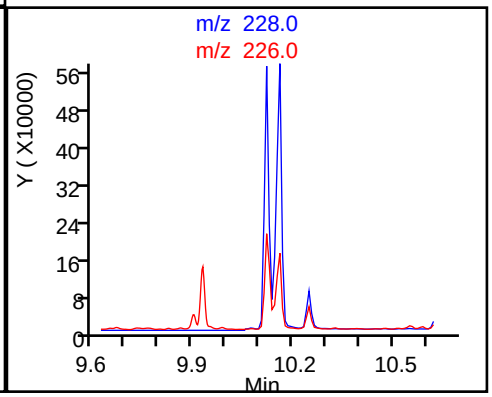










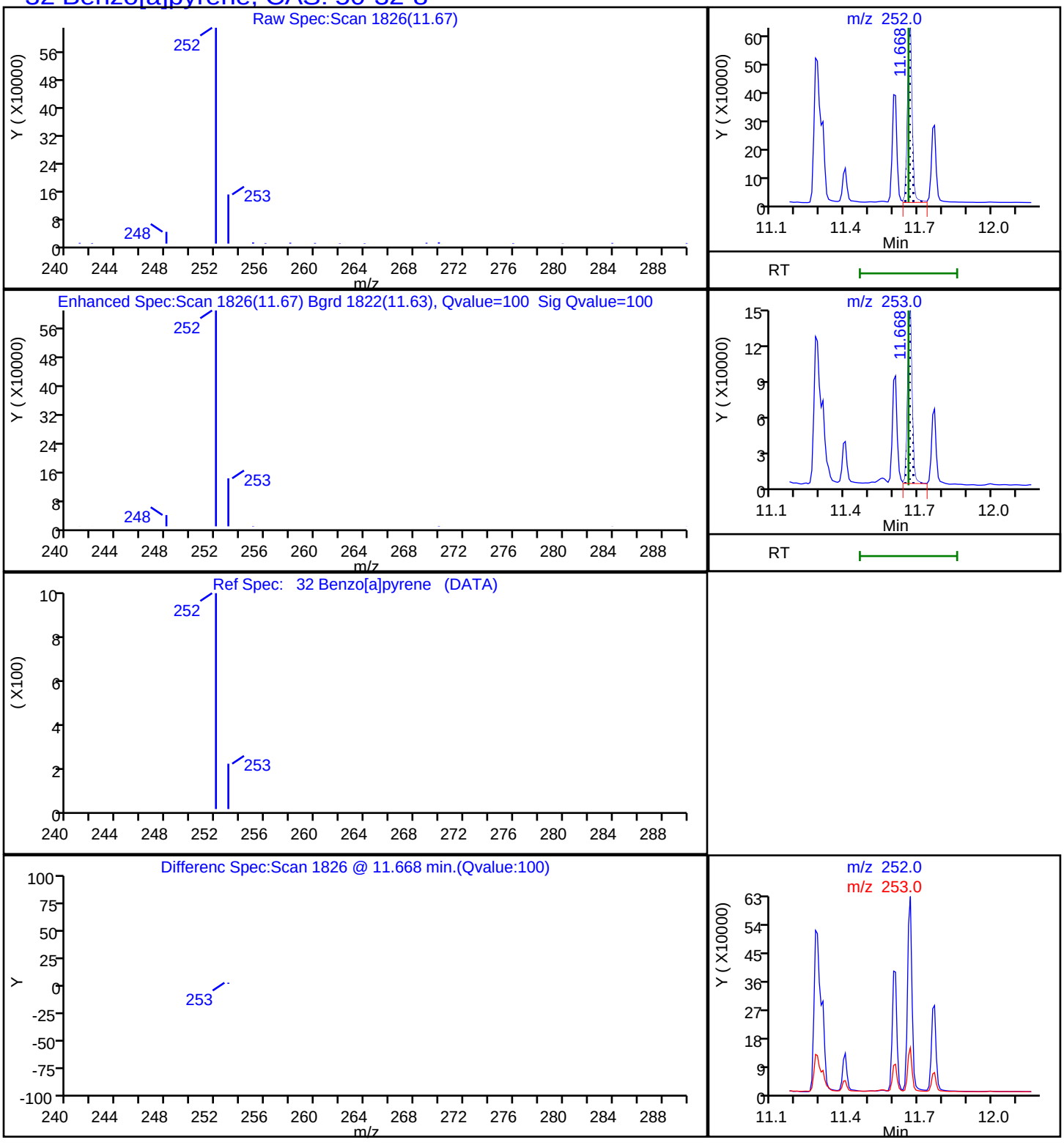


Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D		
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15
Client ID:	22T-SG-16_20190716		
Operator ID:	11211	ALS Bottle#:	8 Worklist Smp#: 8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN

32 Benzo[a]pyrene, CAS: 50-32-8

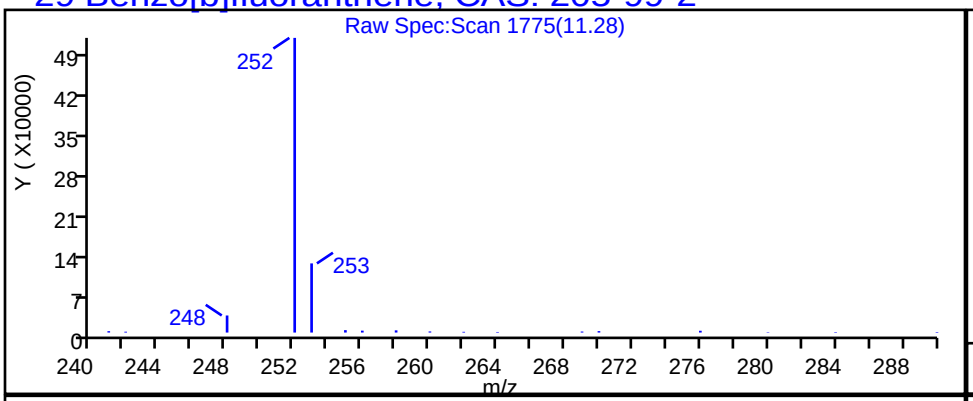


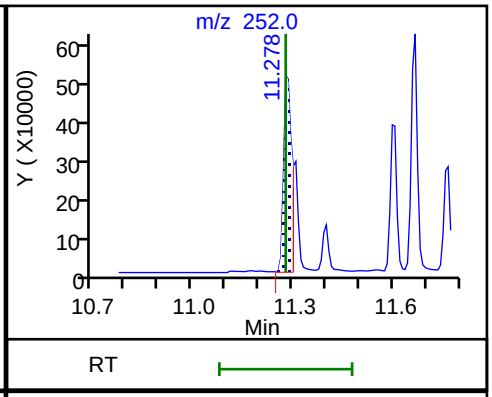
Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

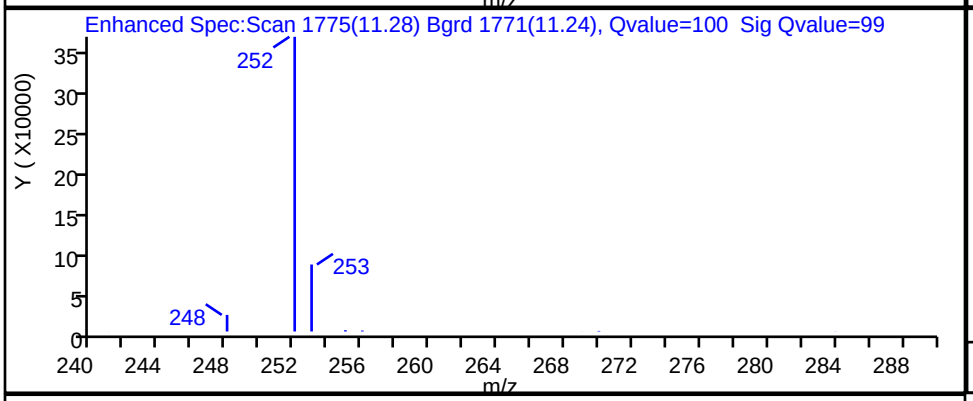
Eurofins TestAmerica, Knoxville

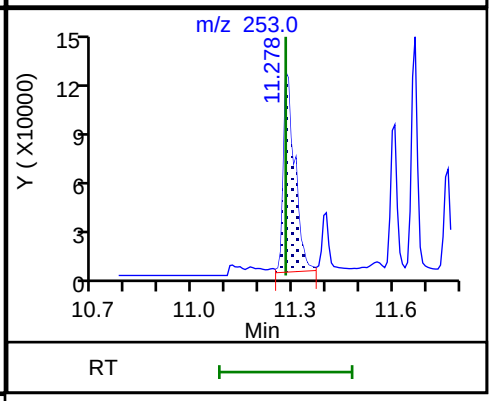
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

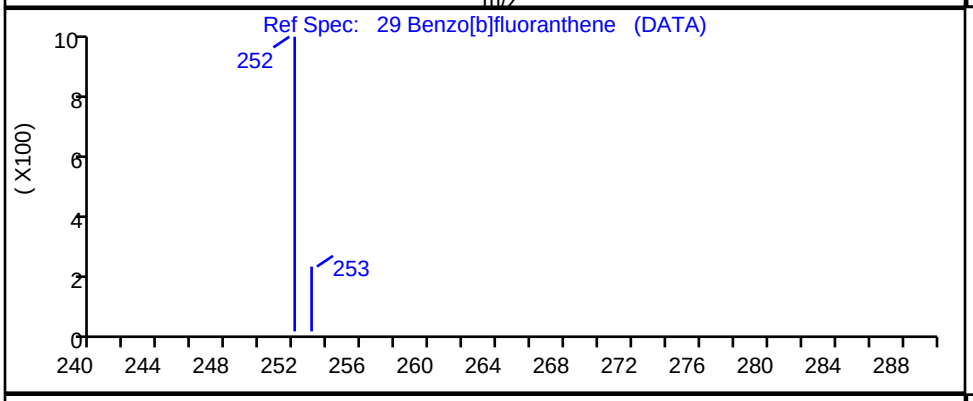
29 Benzo[b]fluoranthene, CAS: 205-99-2

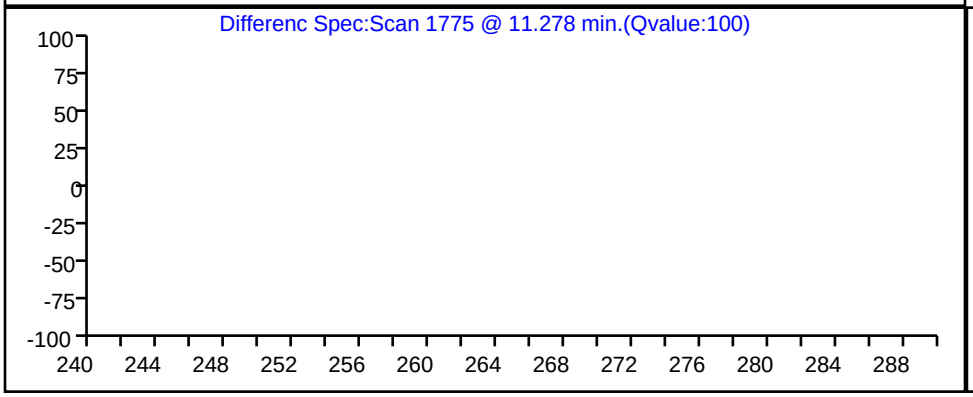


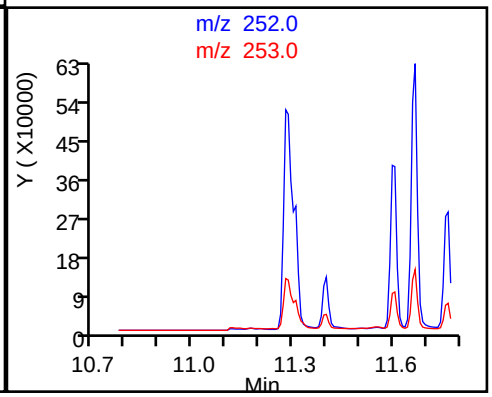










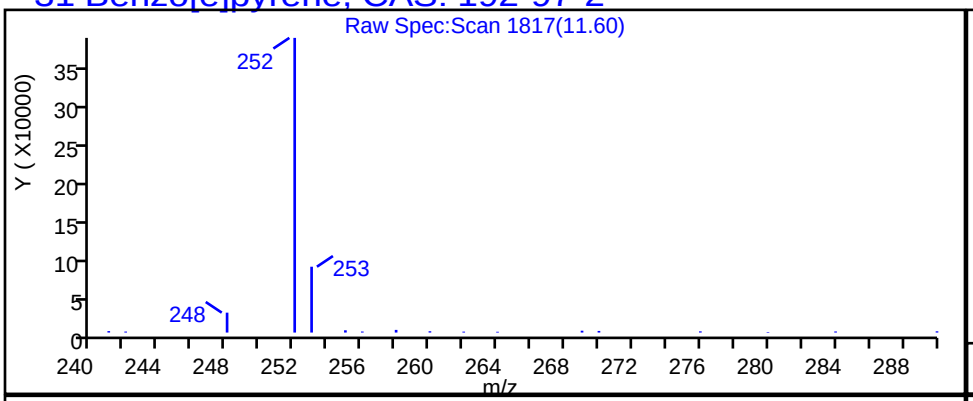


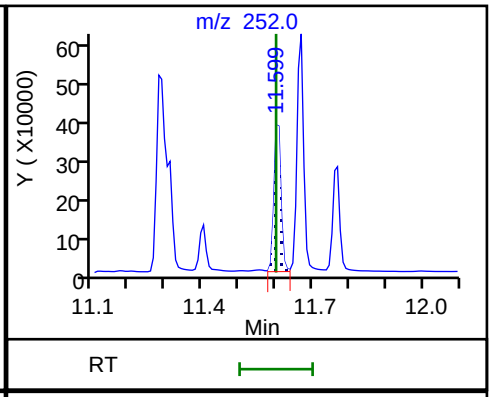
Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

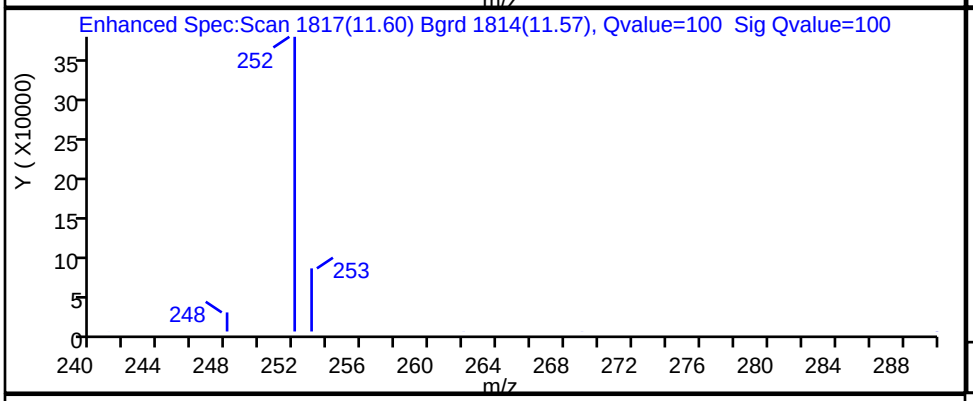
Eurofins TestAmerica, Knoxville

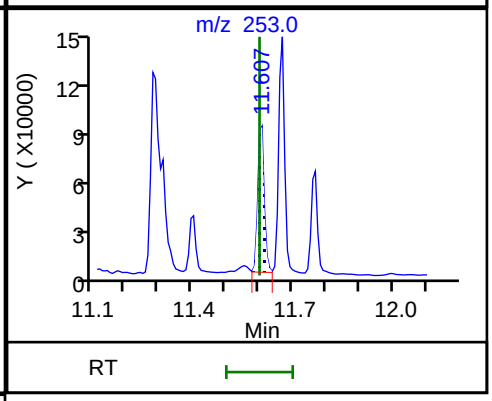
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

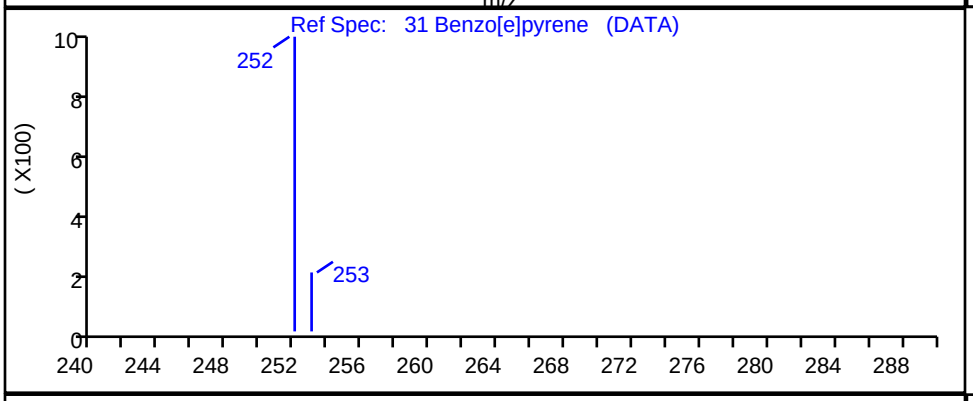
31 Benzo[e]pyrene, CAS: 192-97-2

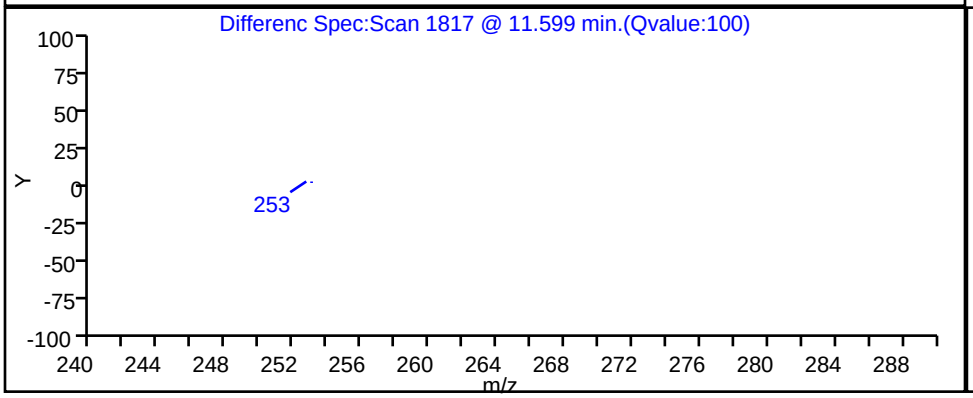


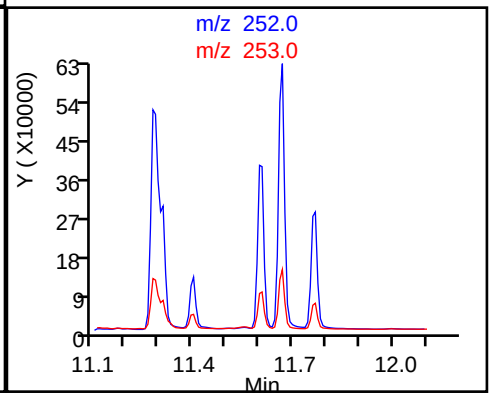










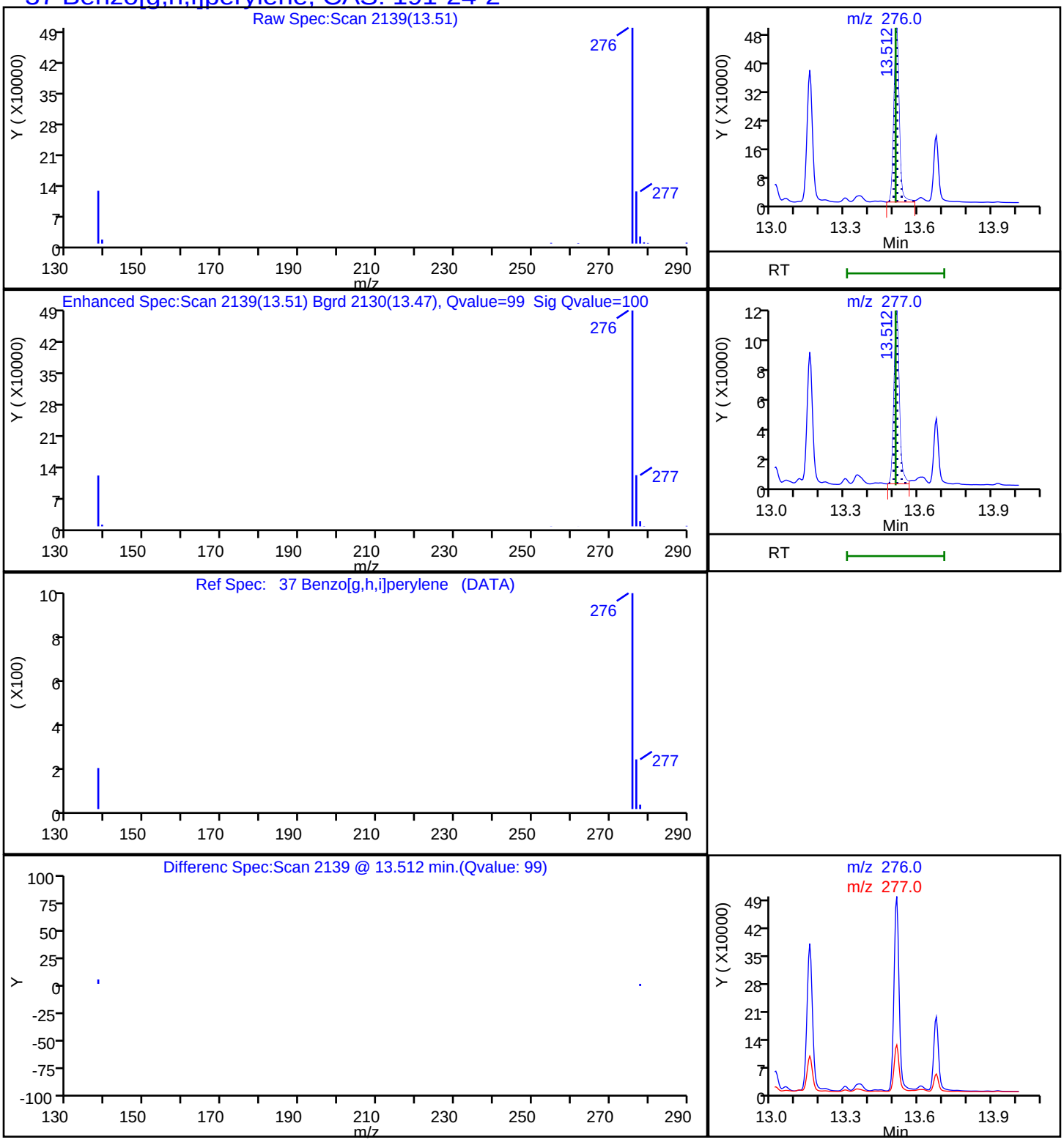


Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

37 Benzo[g,h,i]perylene, CAS: 191-24-2



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
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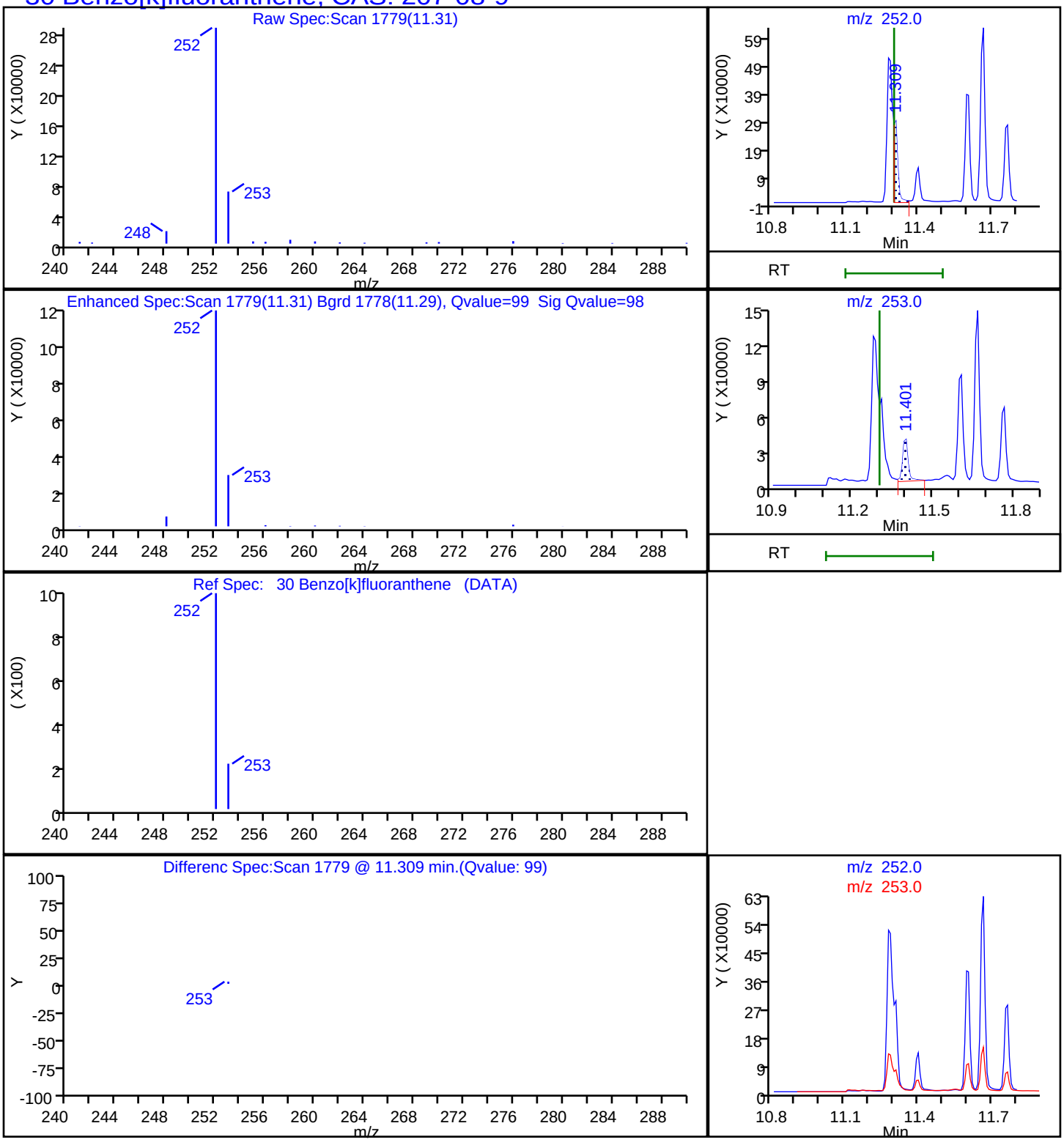
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

30 Benzo[k]fluoranthene, CAS: 207-08-9



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
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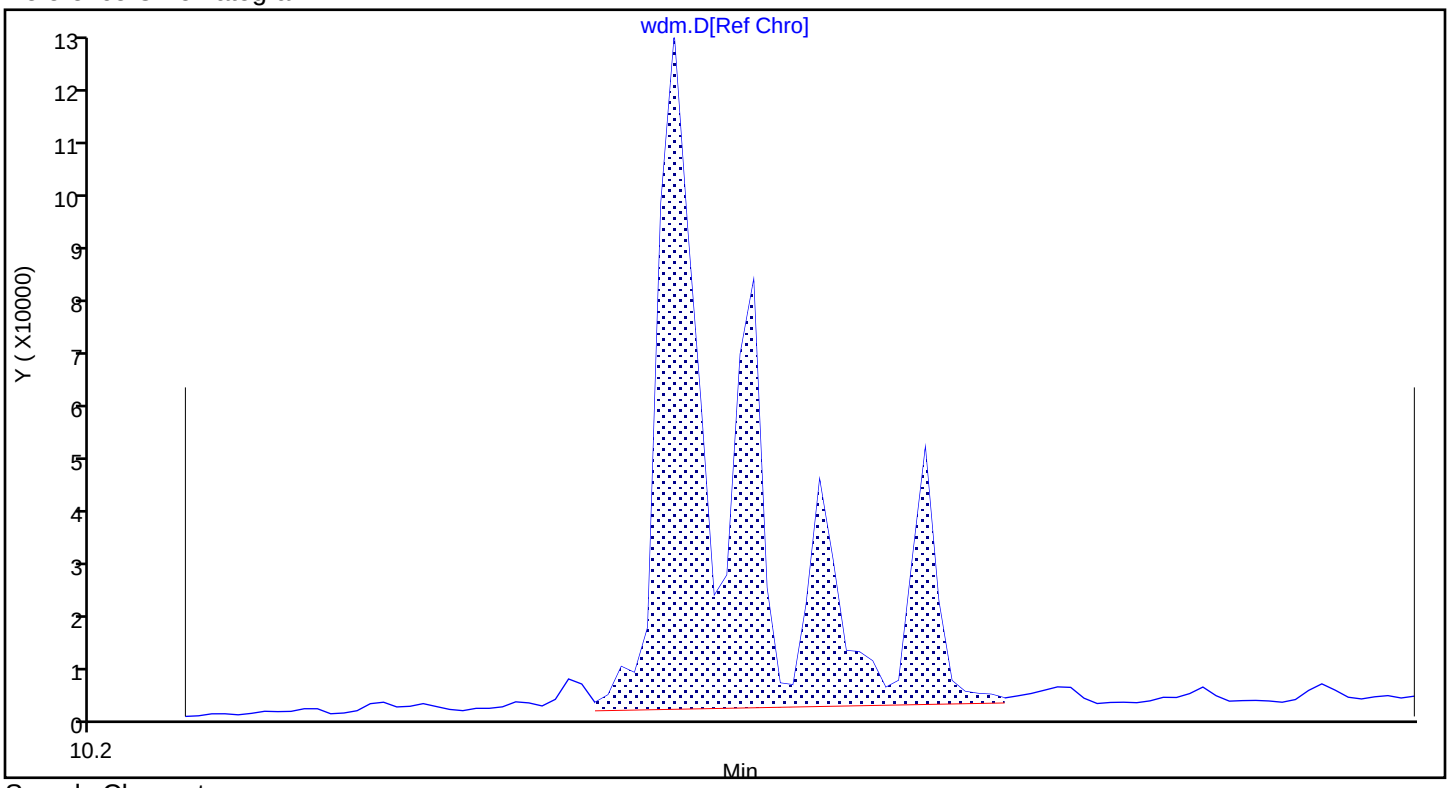
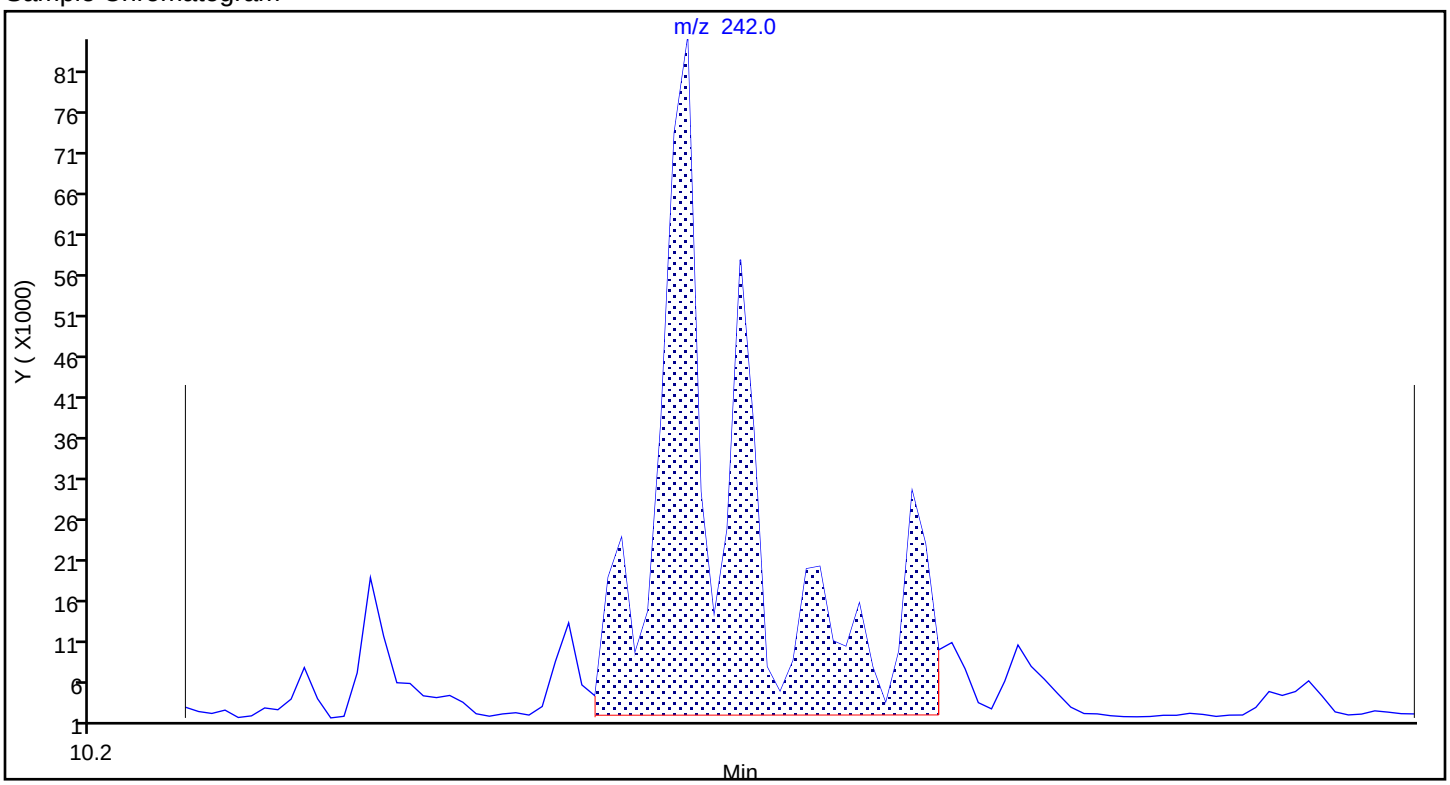
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 57 C1-Chrysenes, CAS: STL00905

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
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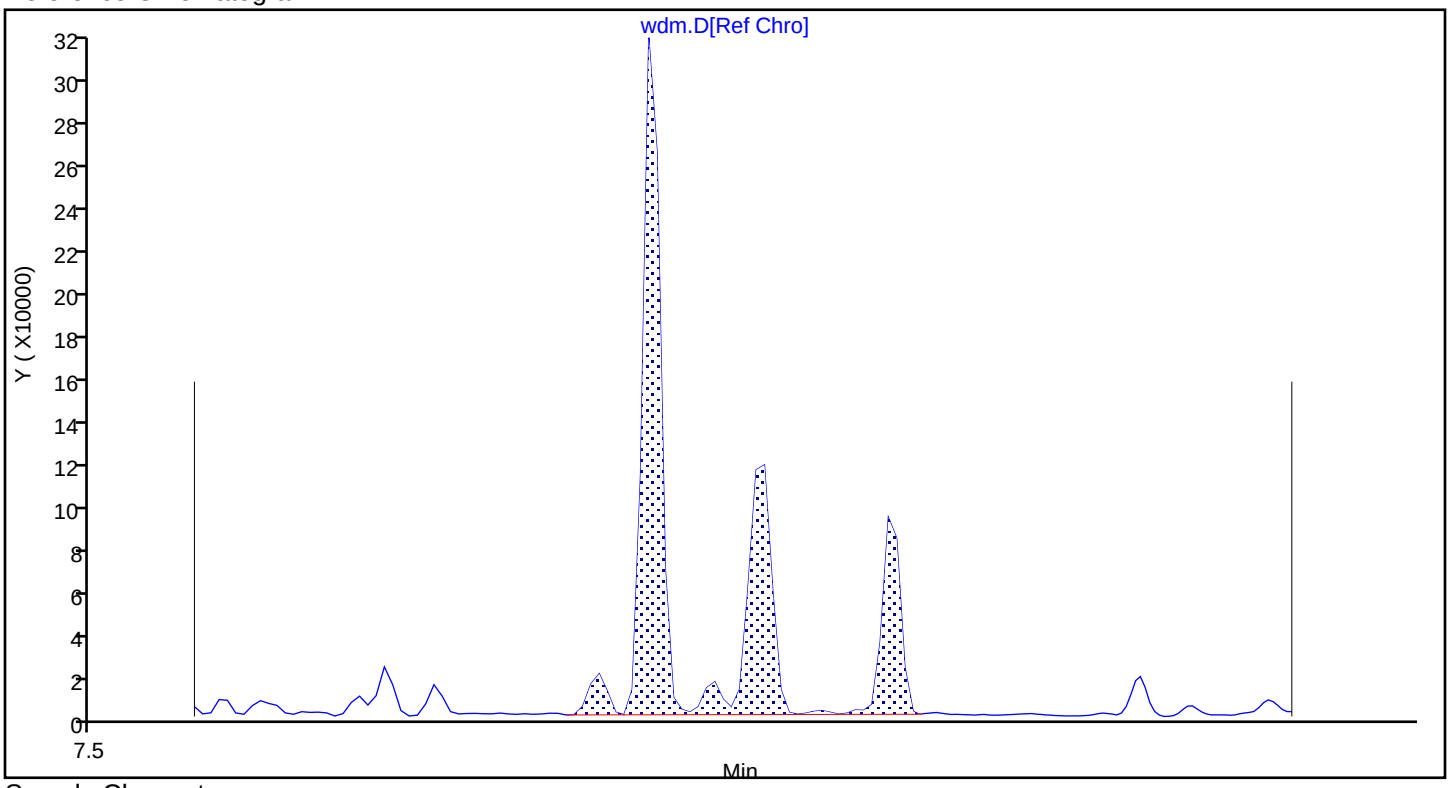
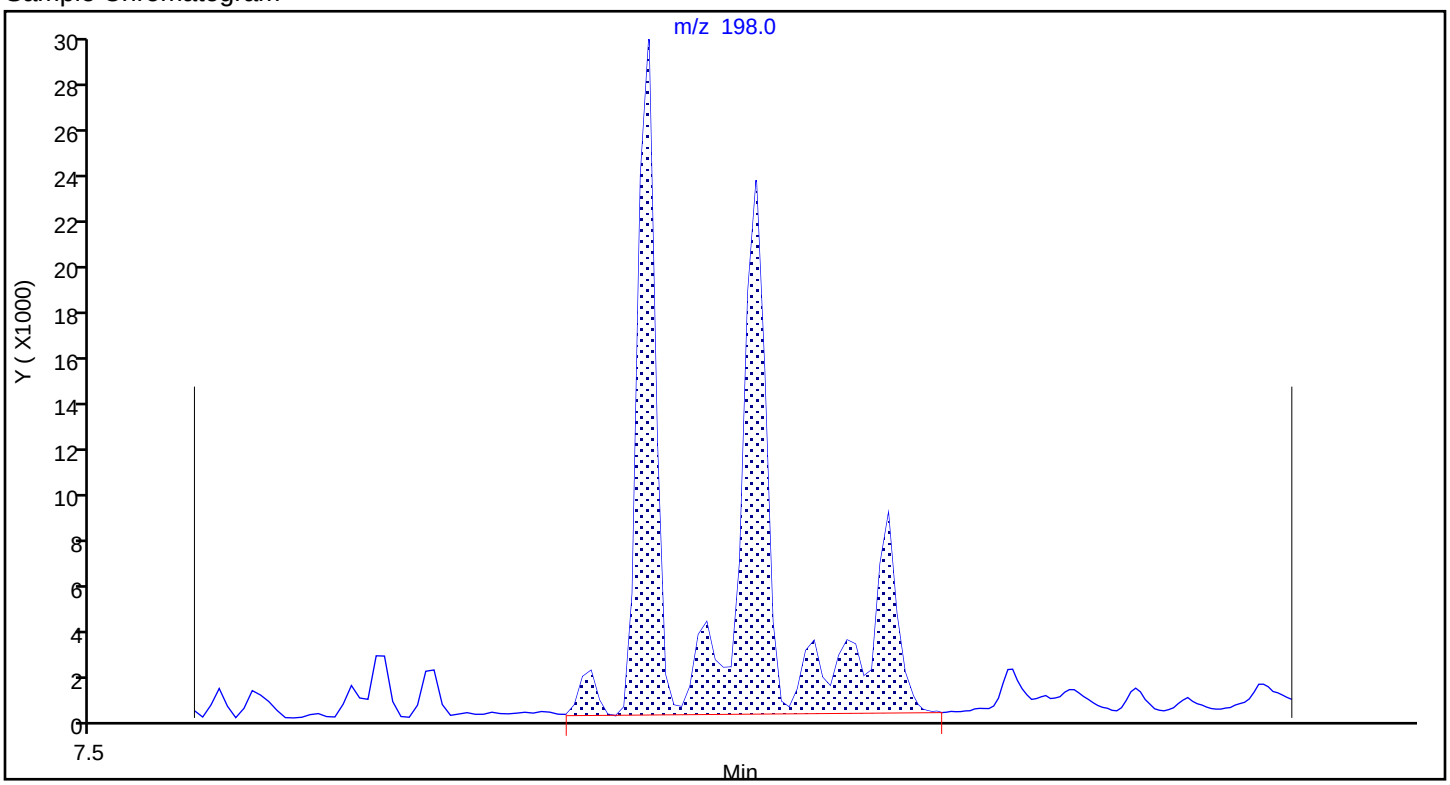
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 45 C1-Dibenzothiophenes, CAS: STL00909

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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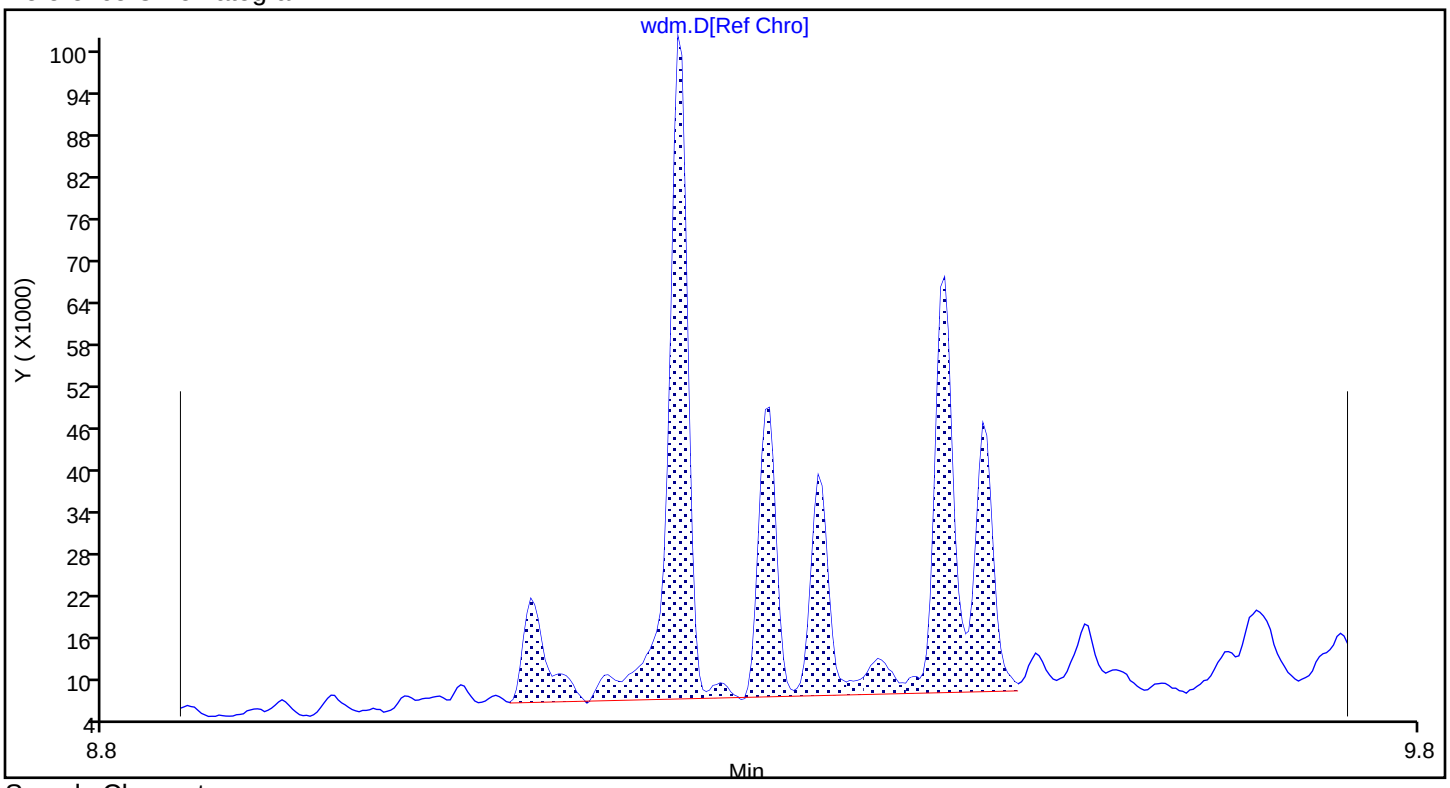
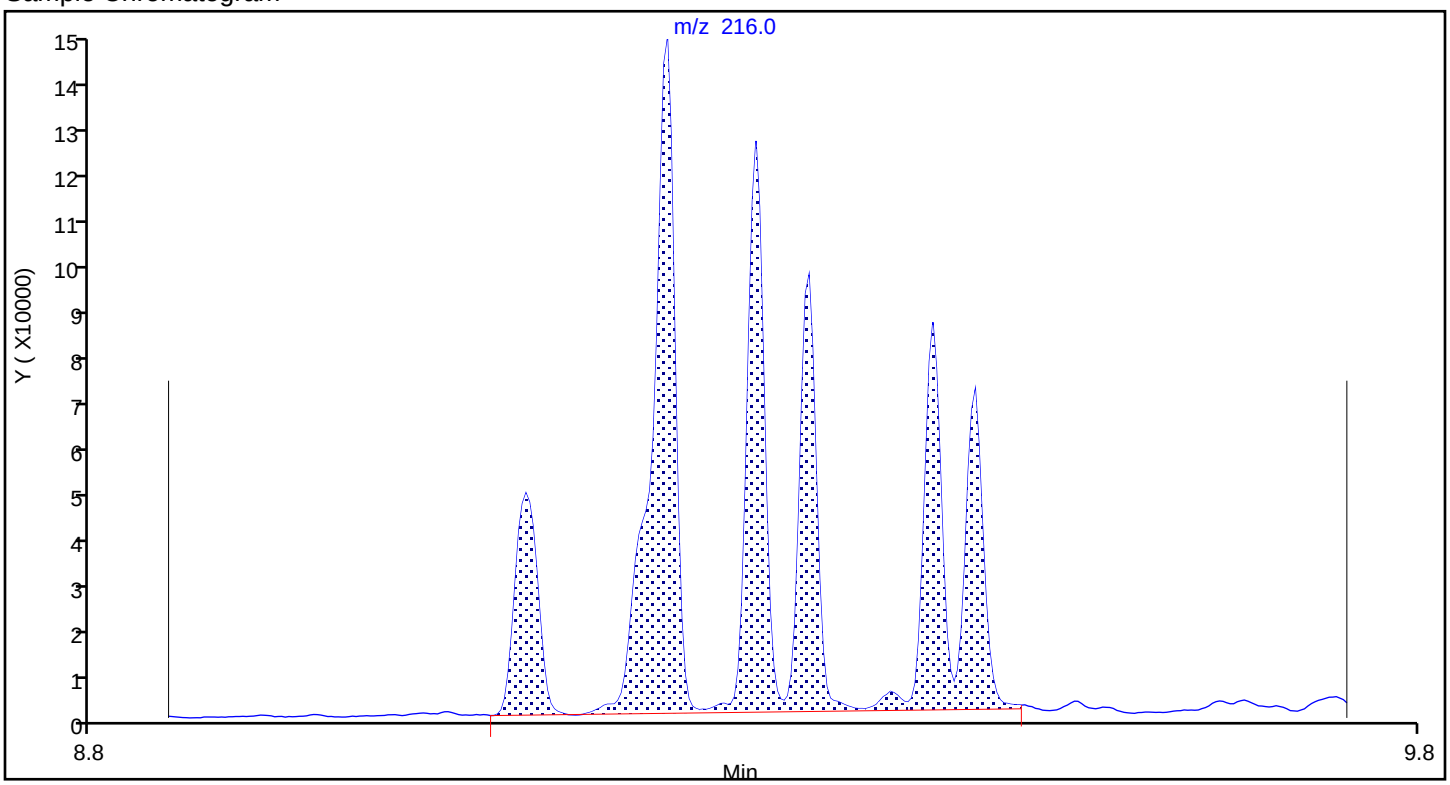
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 53 C1-Fluoranthenes/pyrene, CAS: STL00912

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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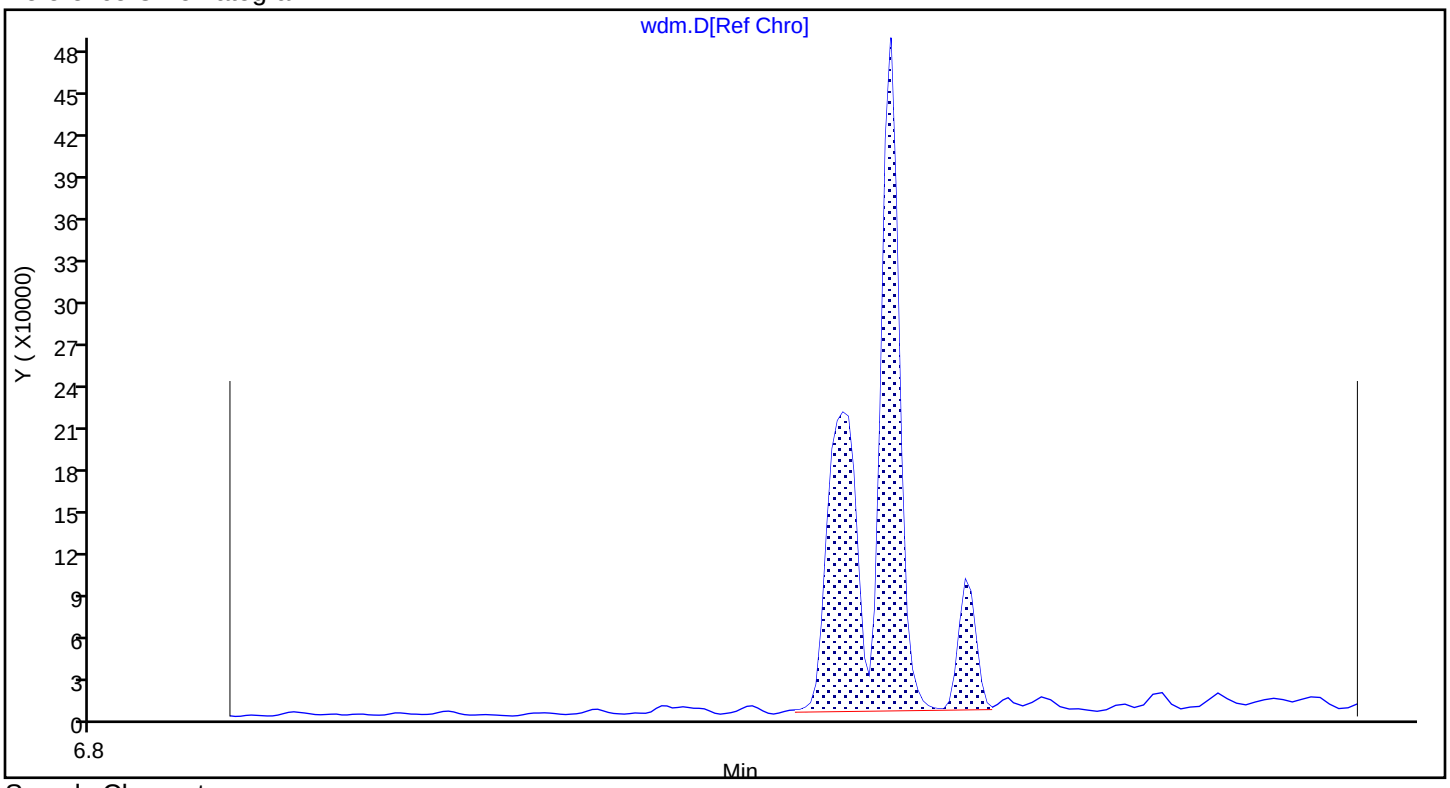
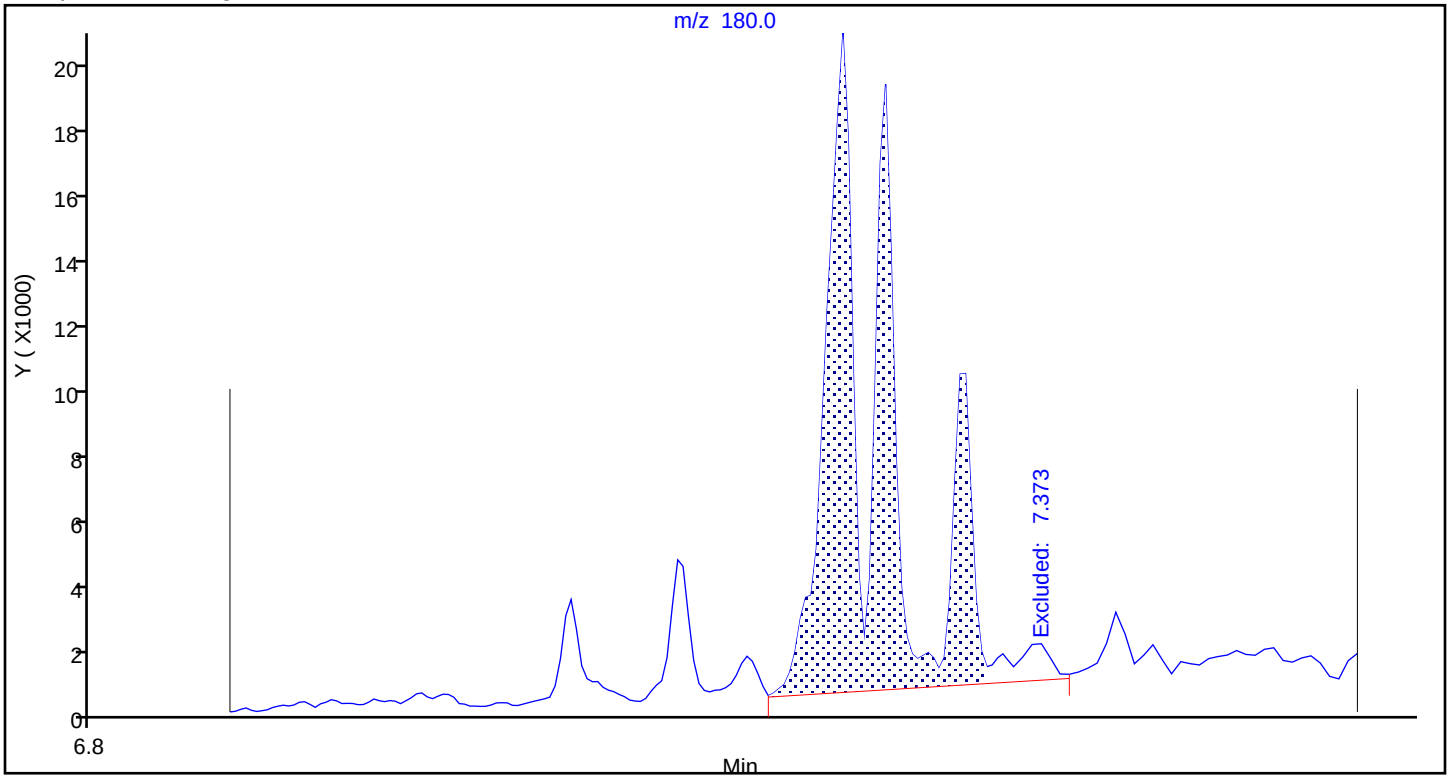
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 42 C1-Fluorenes, CAS: STL00913

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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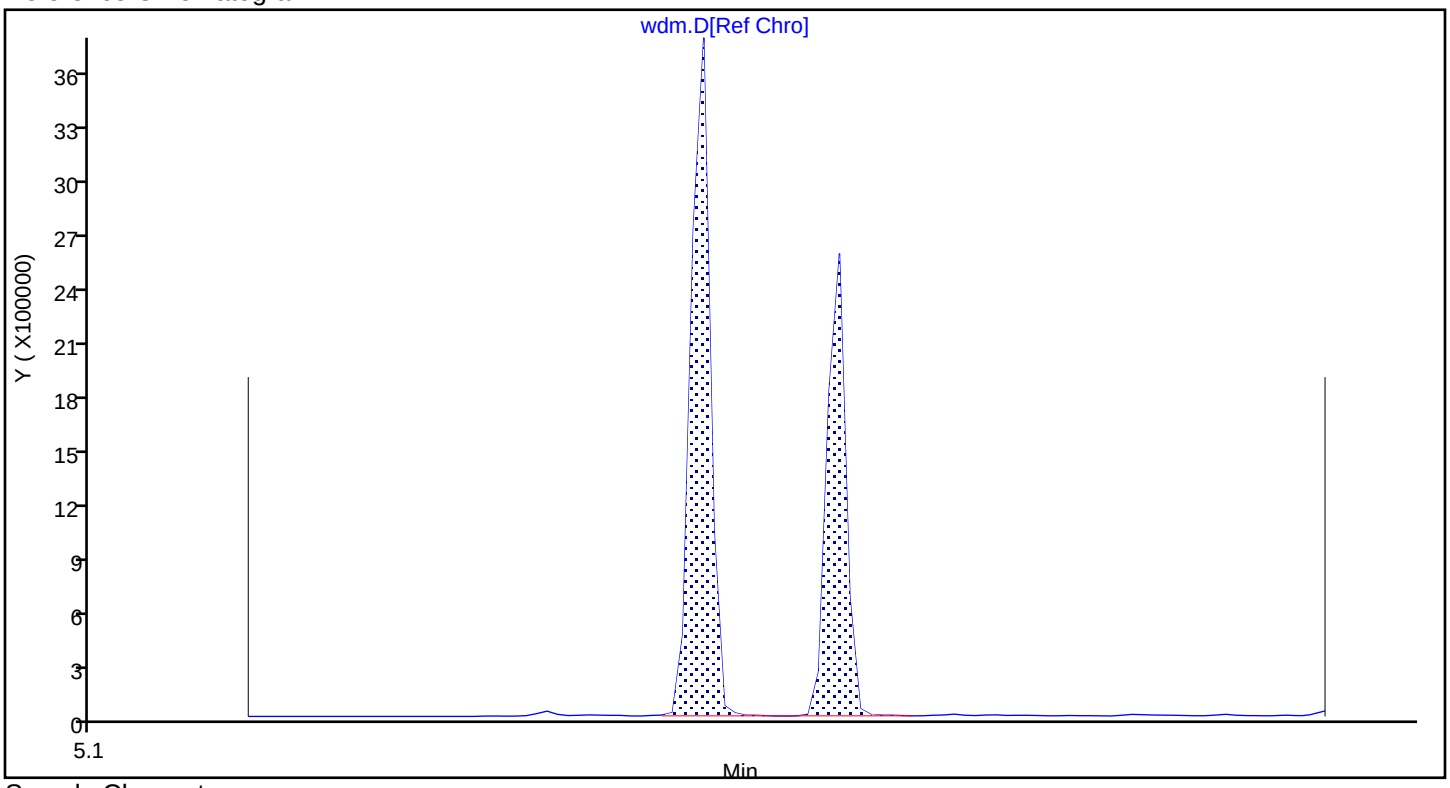
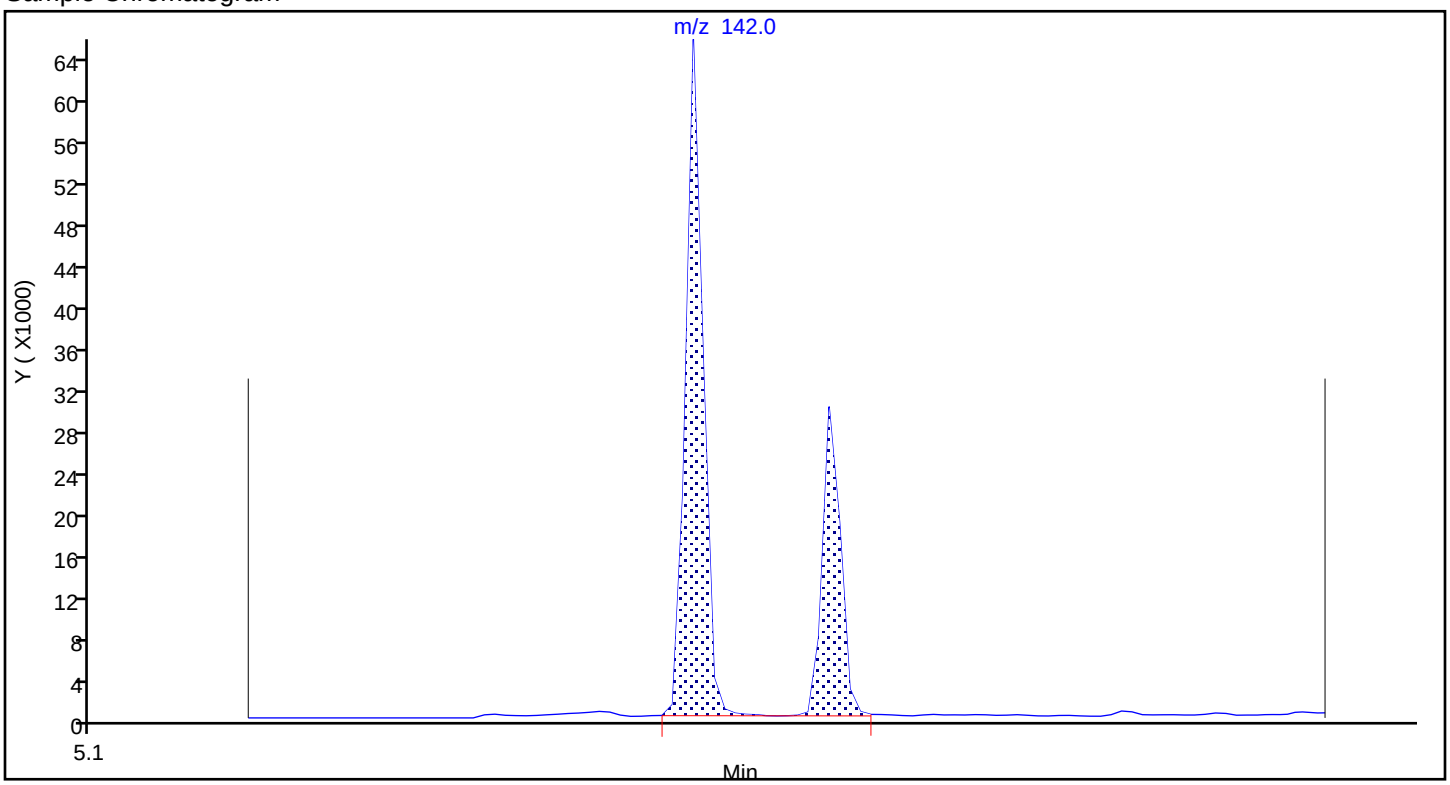
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 38 C1-Naphthalenes, CAS: STL00916

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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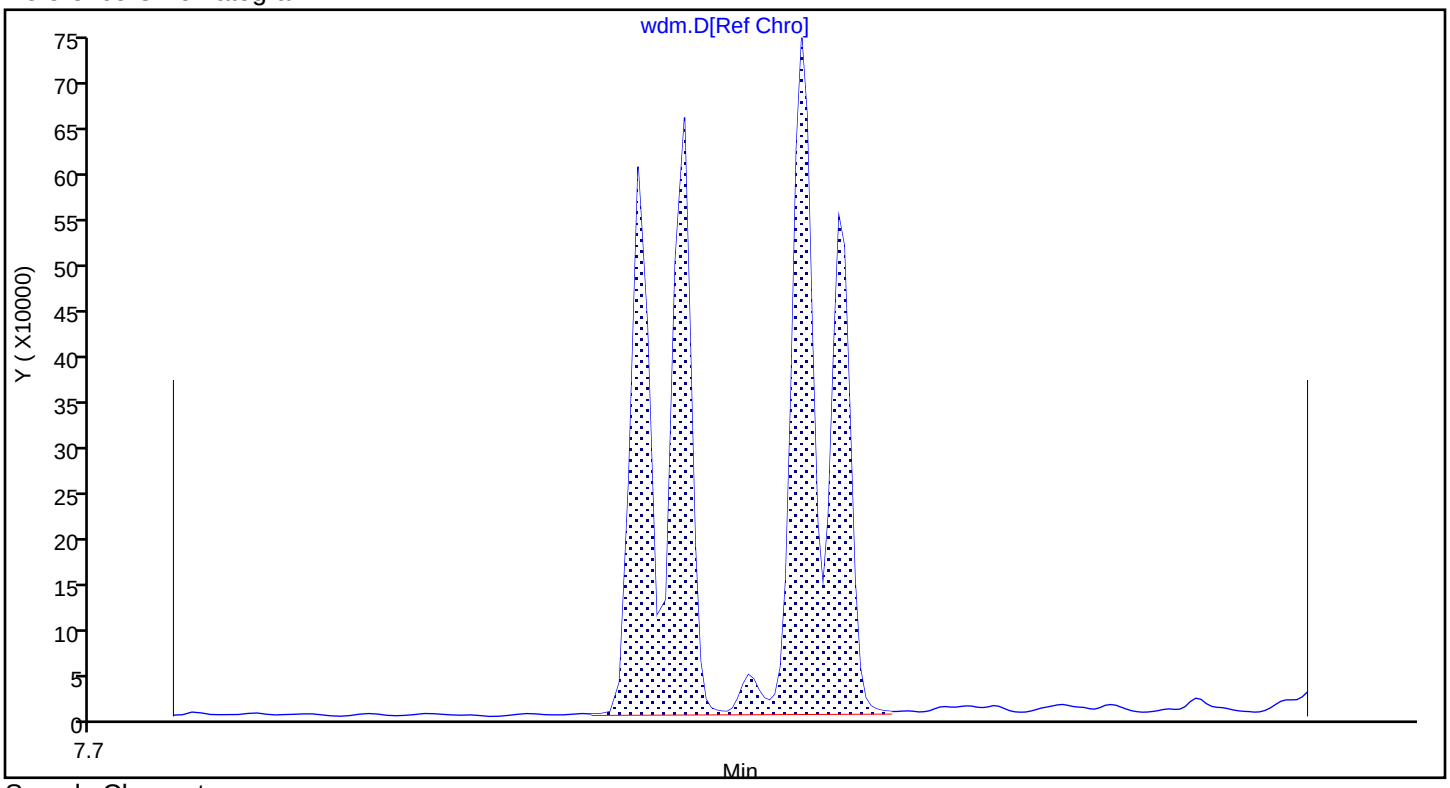
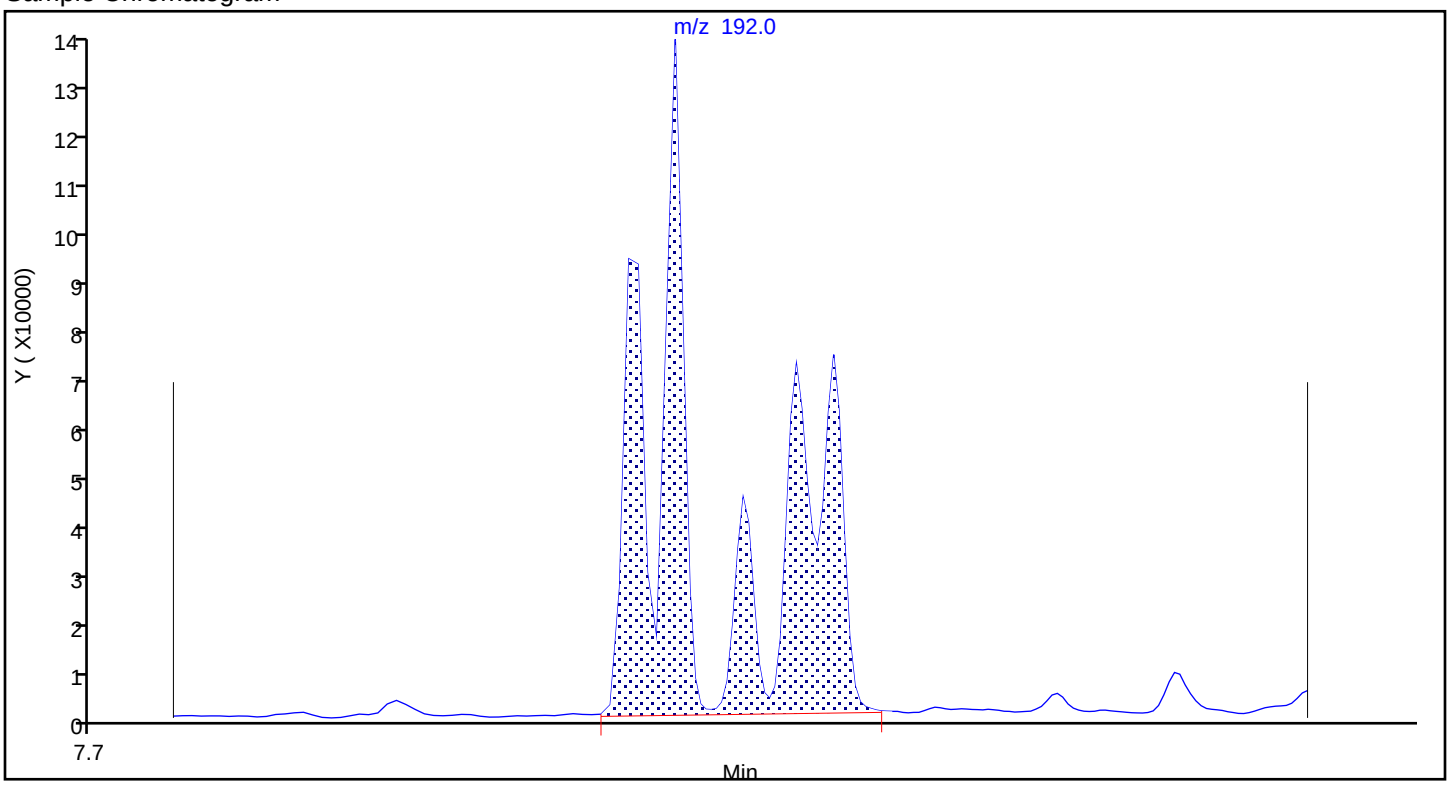
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 49 C1-Phenanthrenes/Anthracenes, CAS: STL00901

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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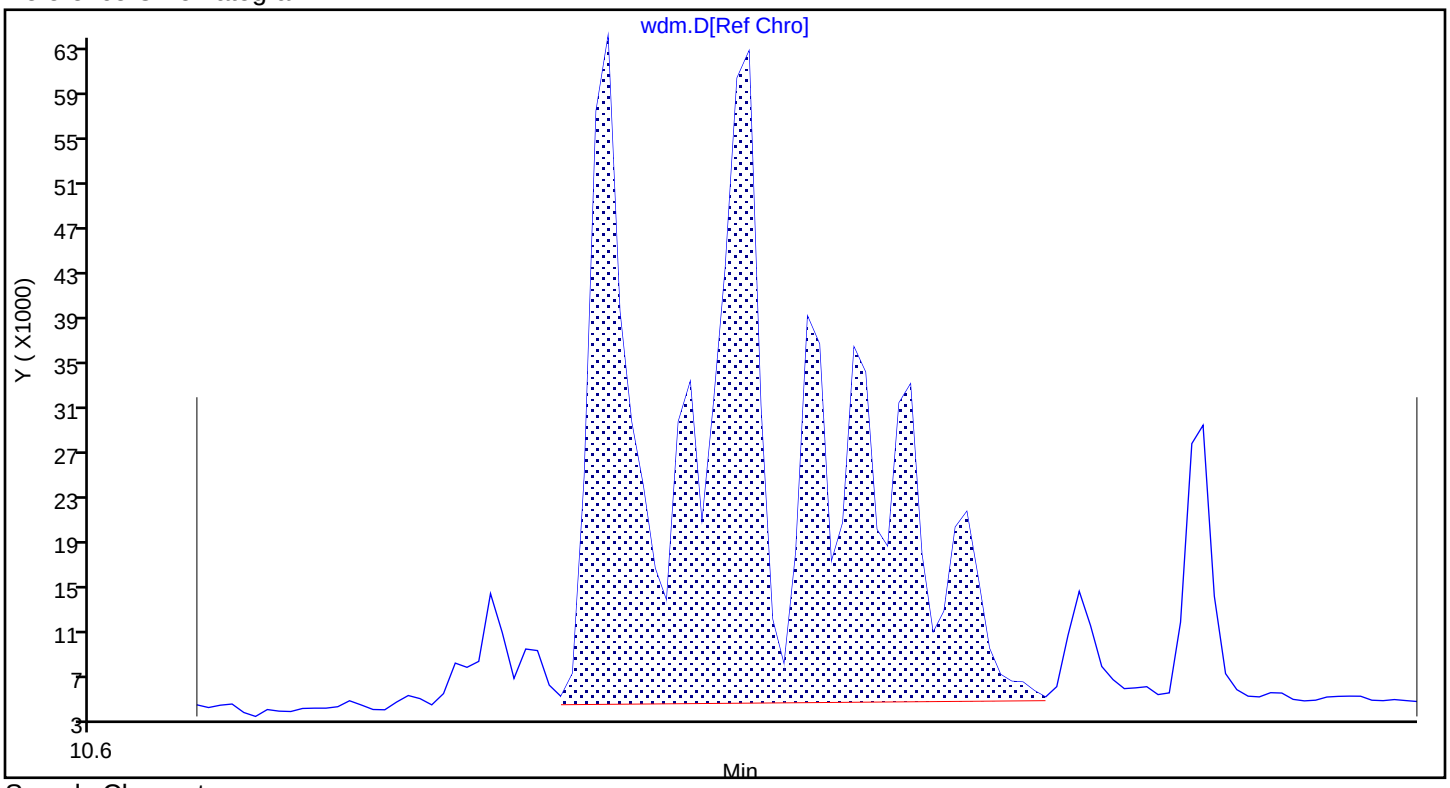
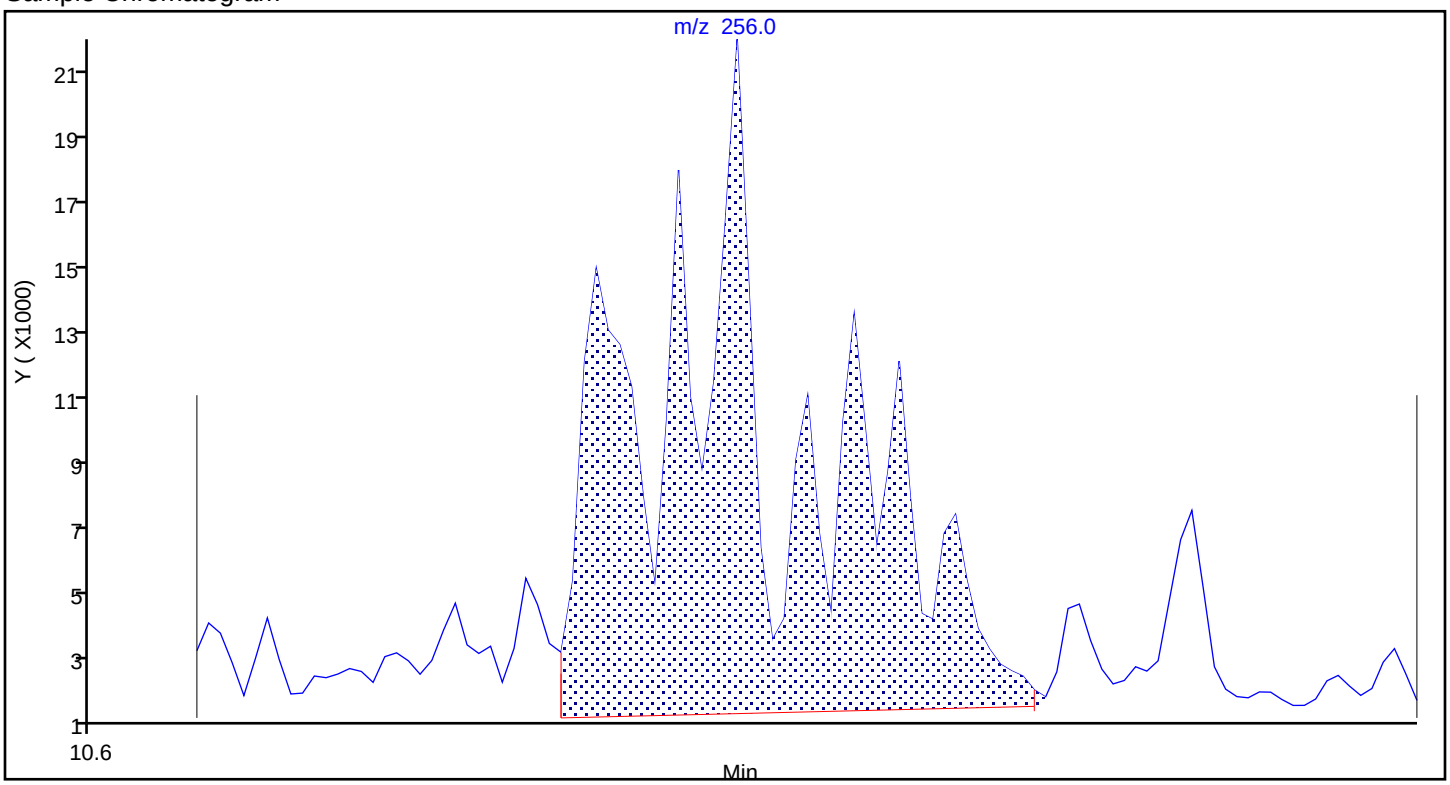
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 58 C2-Chrysenes, CAS: STL00906

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
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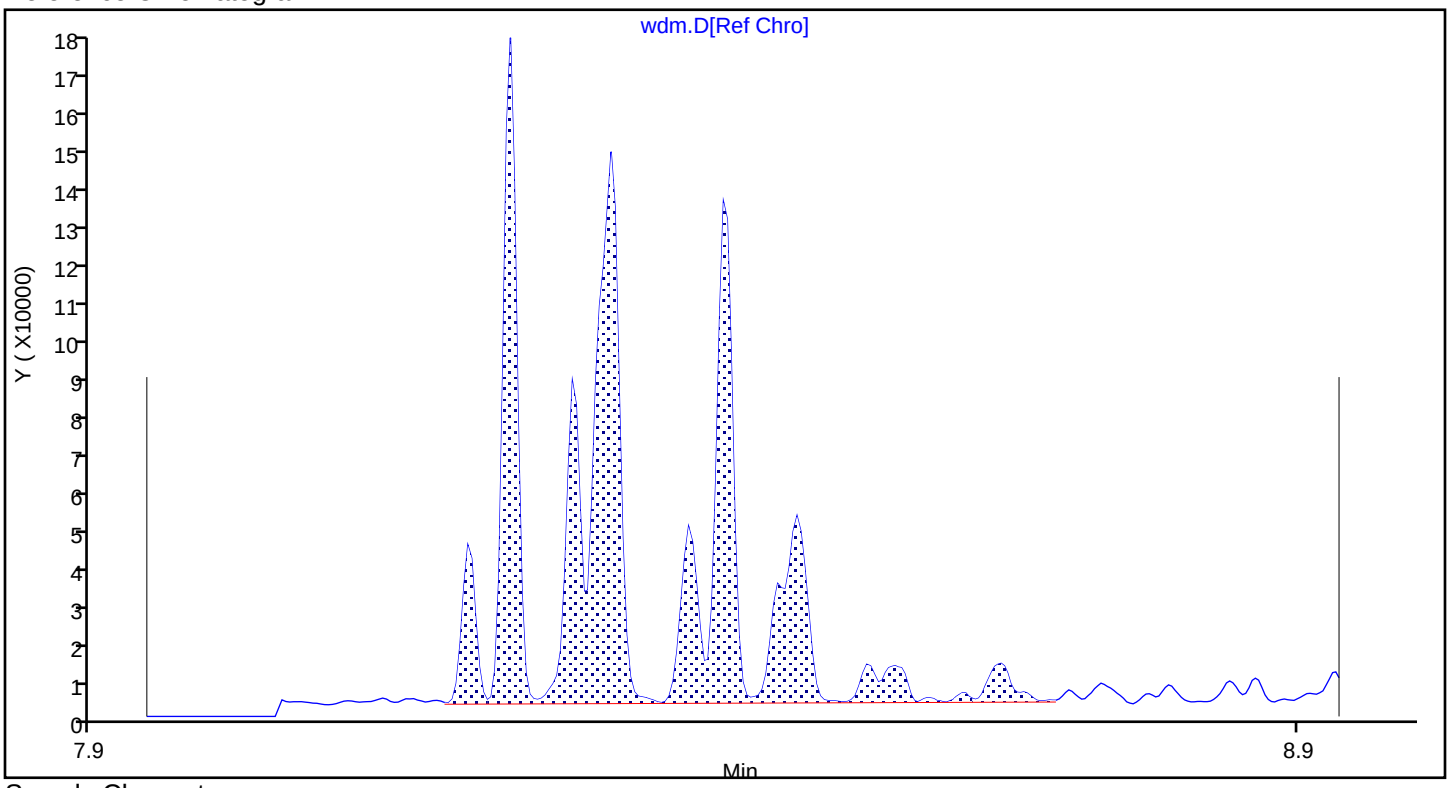
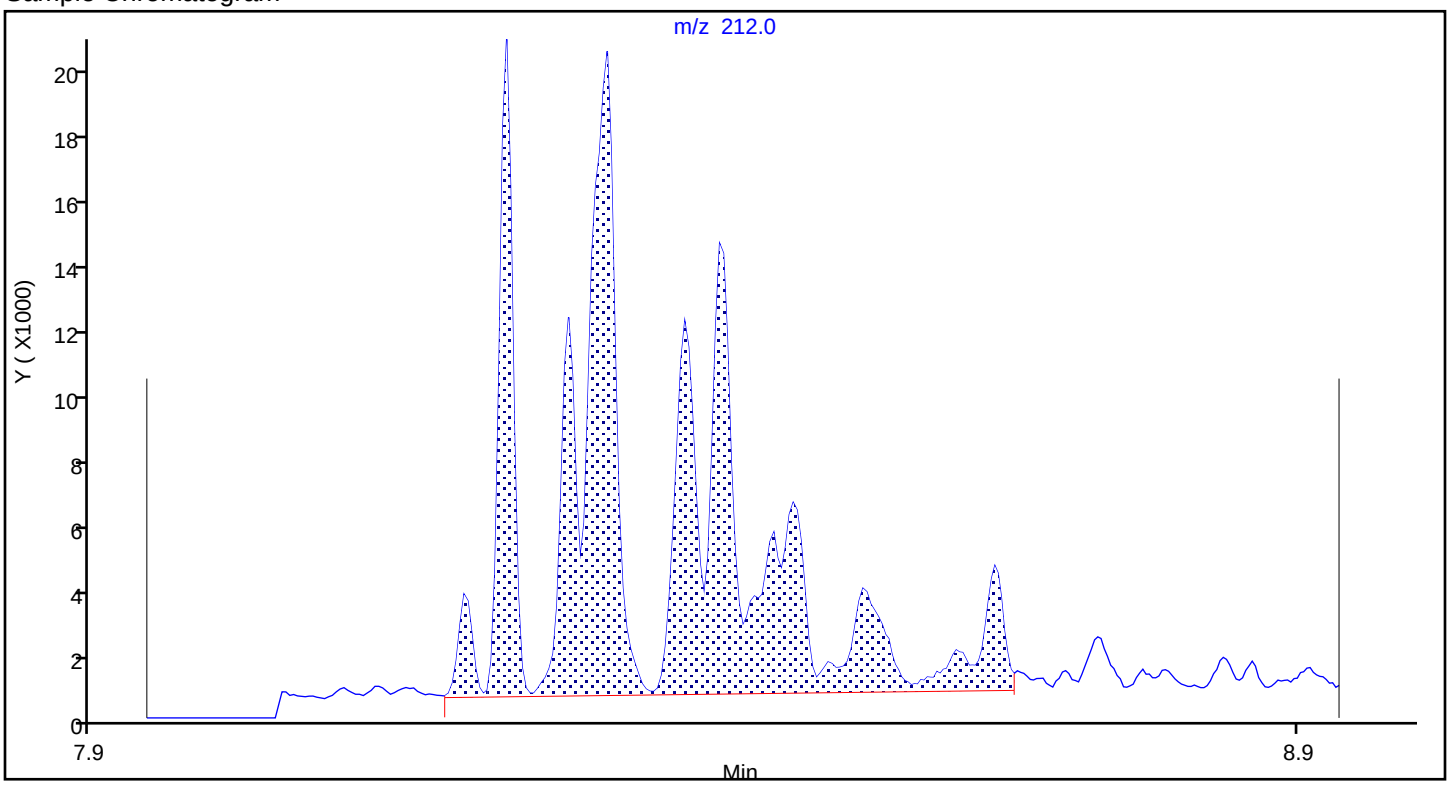
A 46 C2-Dibenzothiophenes, CAS: STL00910

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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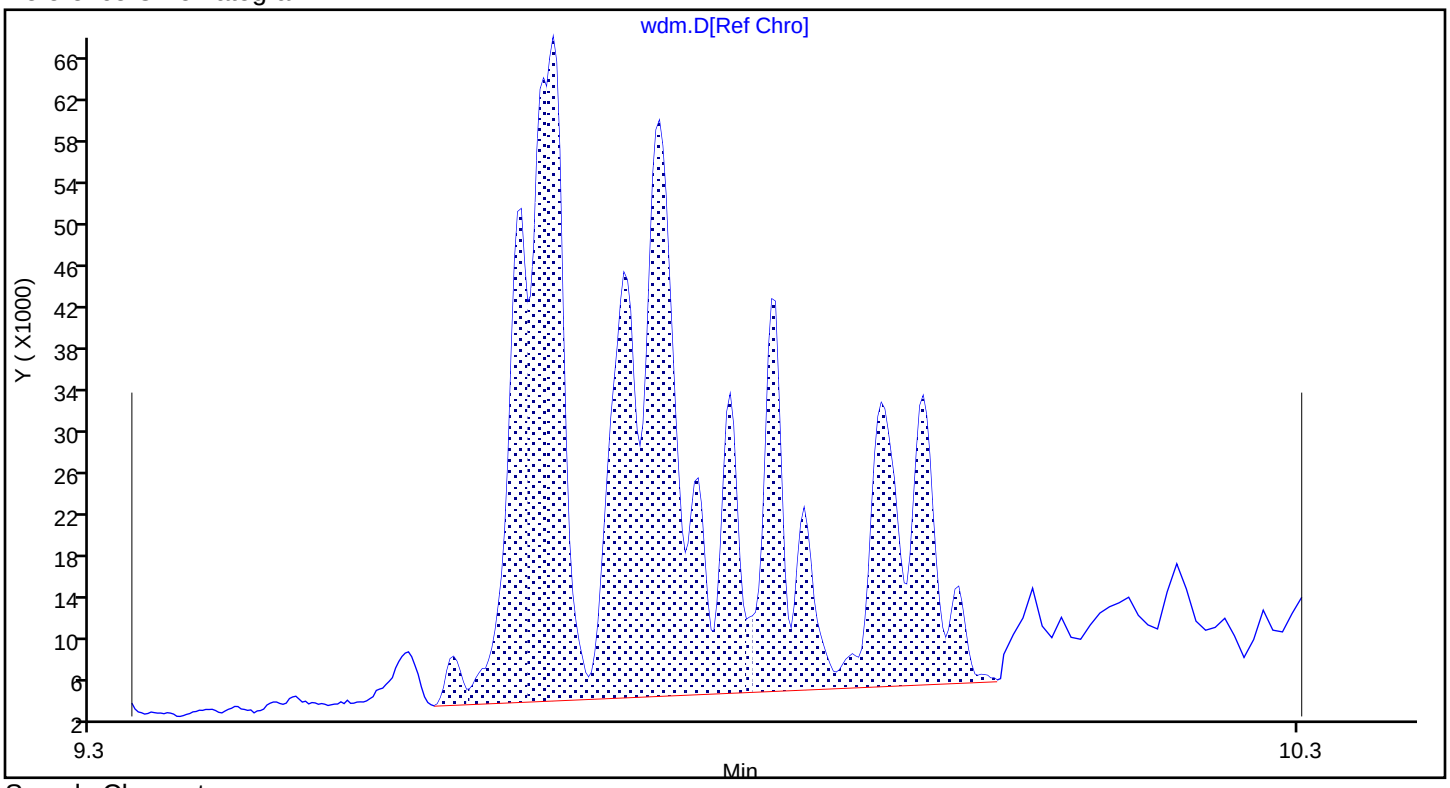
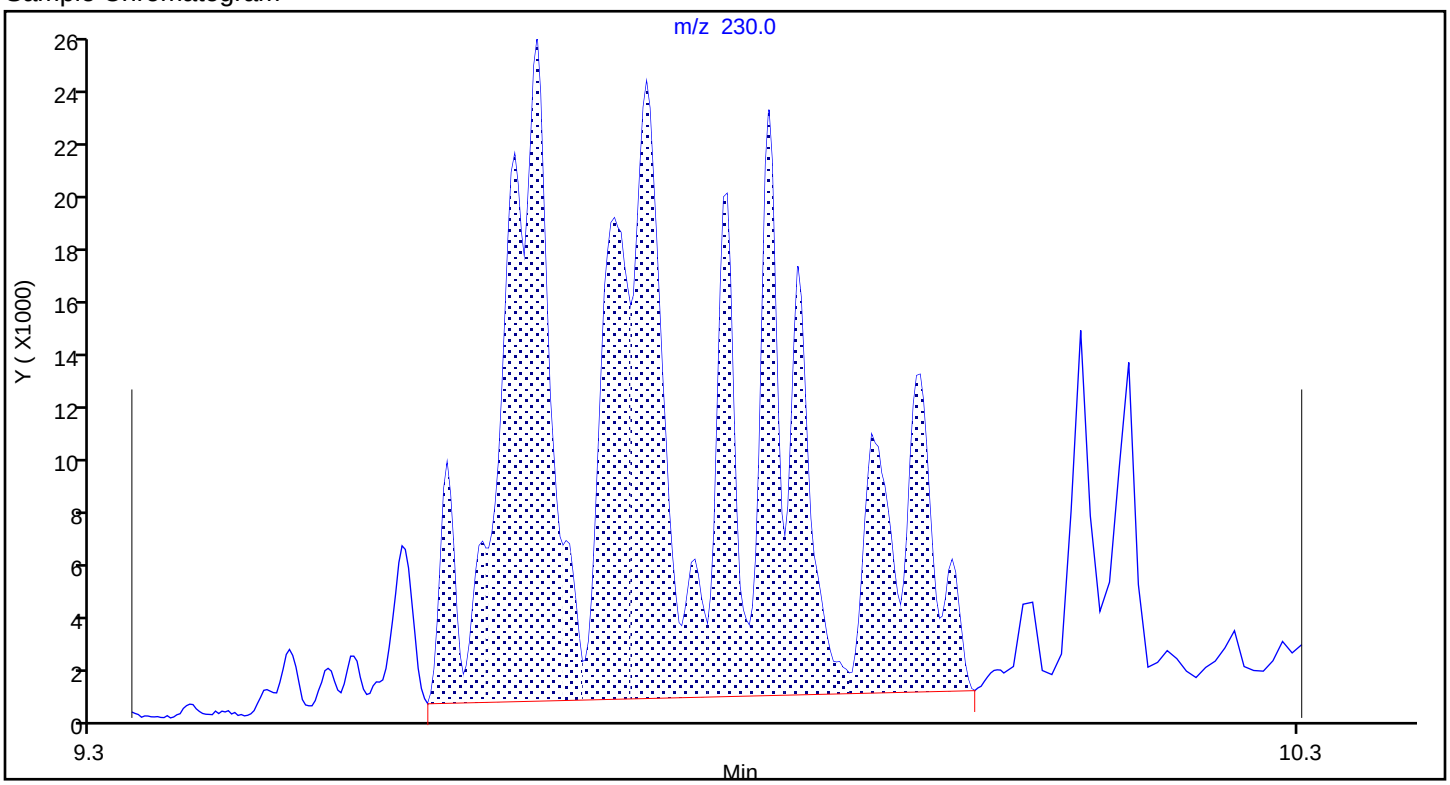
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 54 C2-Fluoranthenes/Pyrene, CAS: STL00968

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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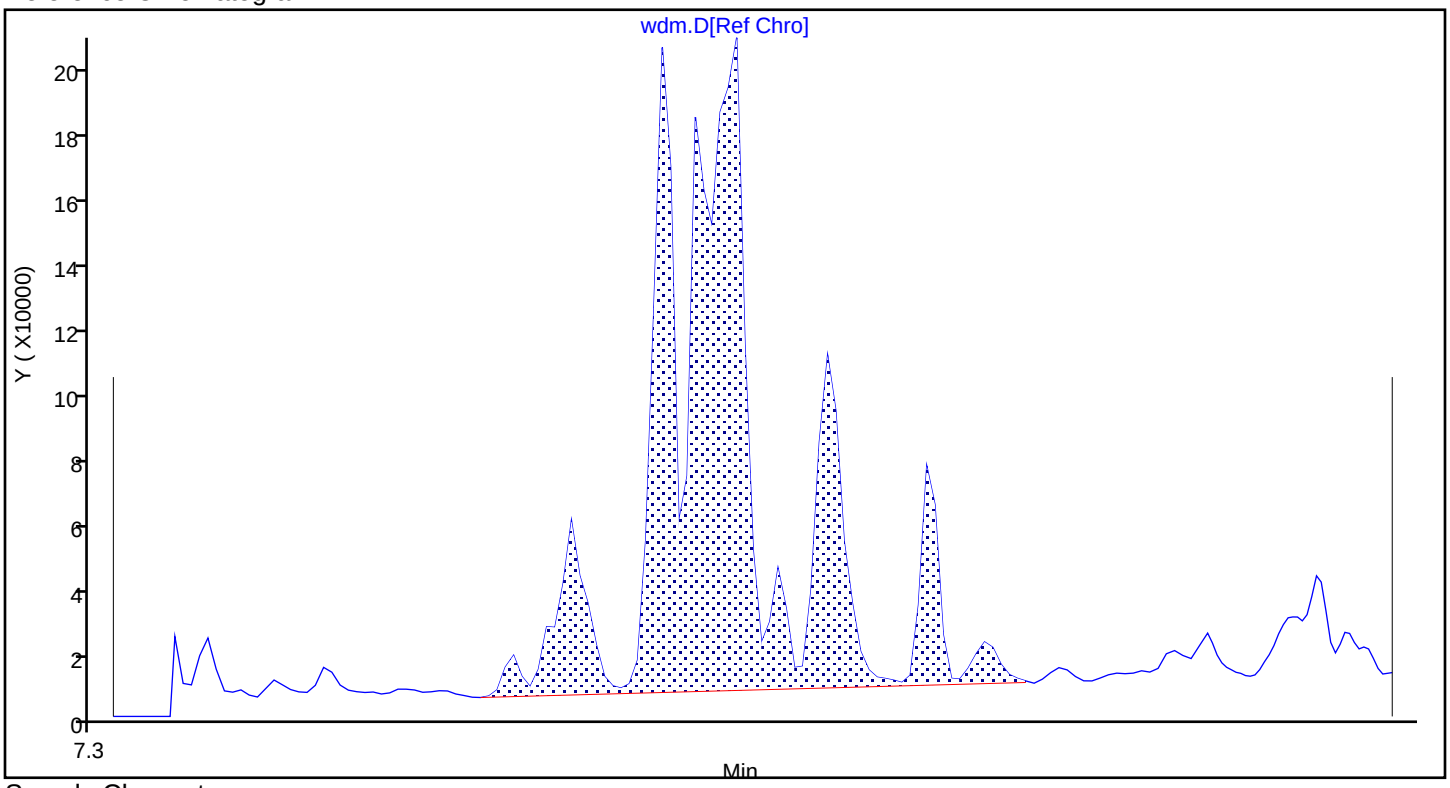
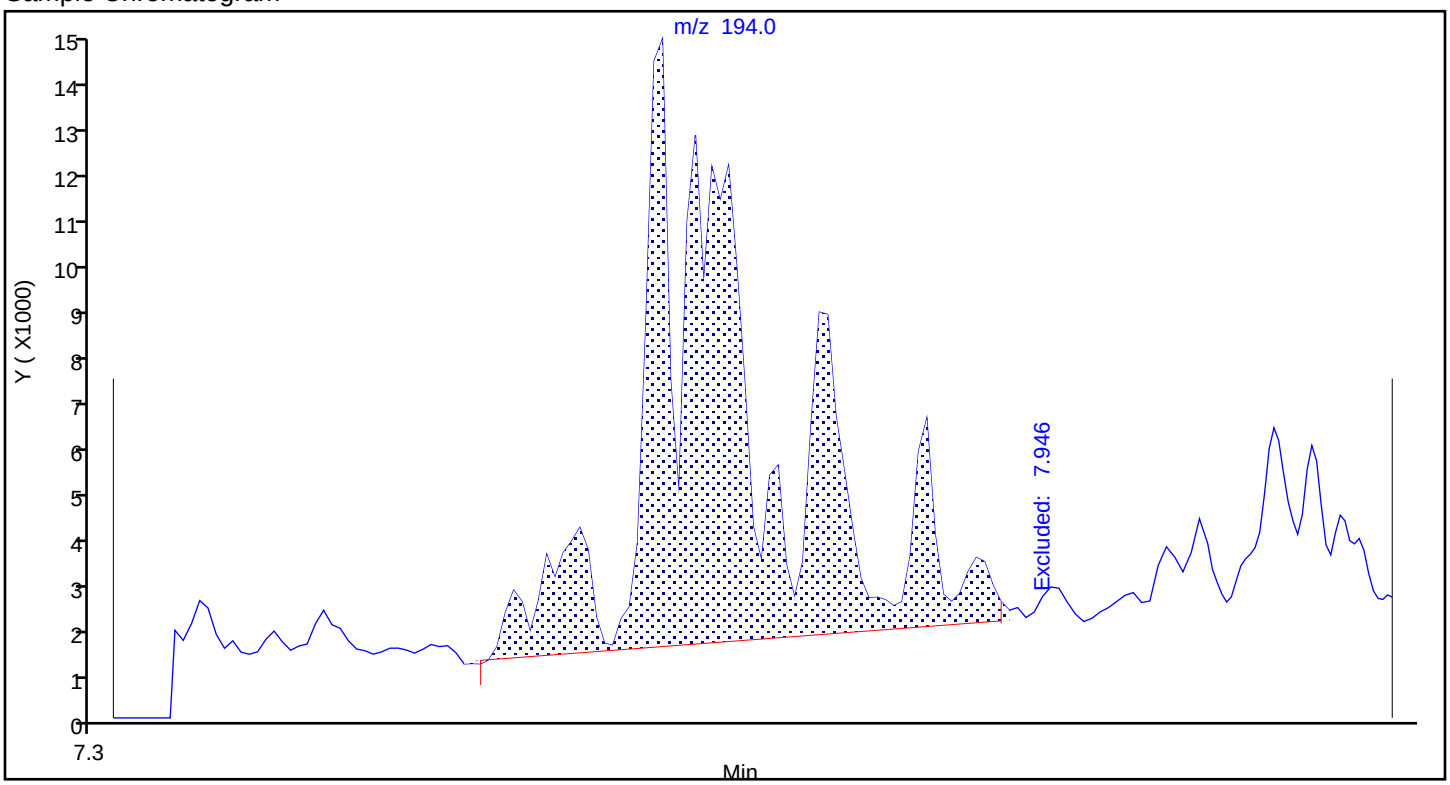
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 43 C2-Fluorenes, CAS: STL00914

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
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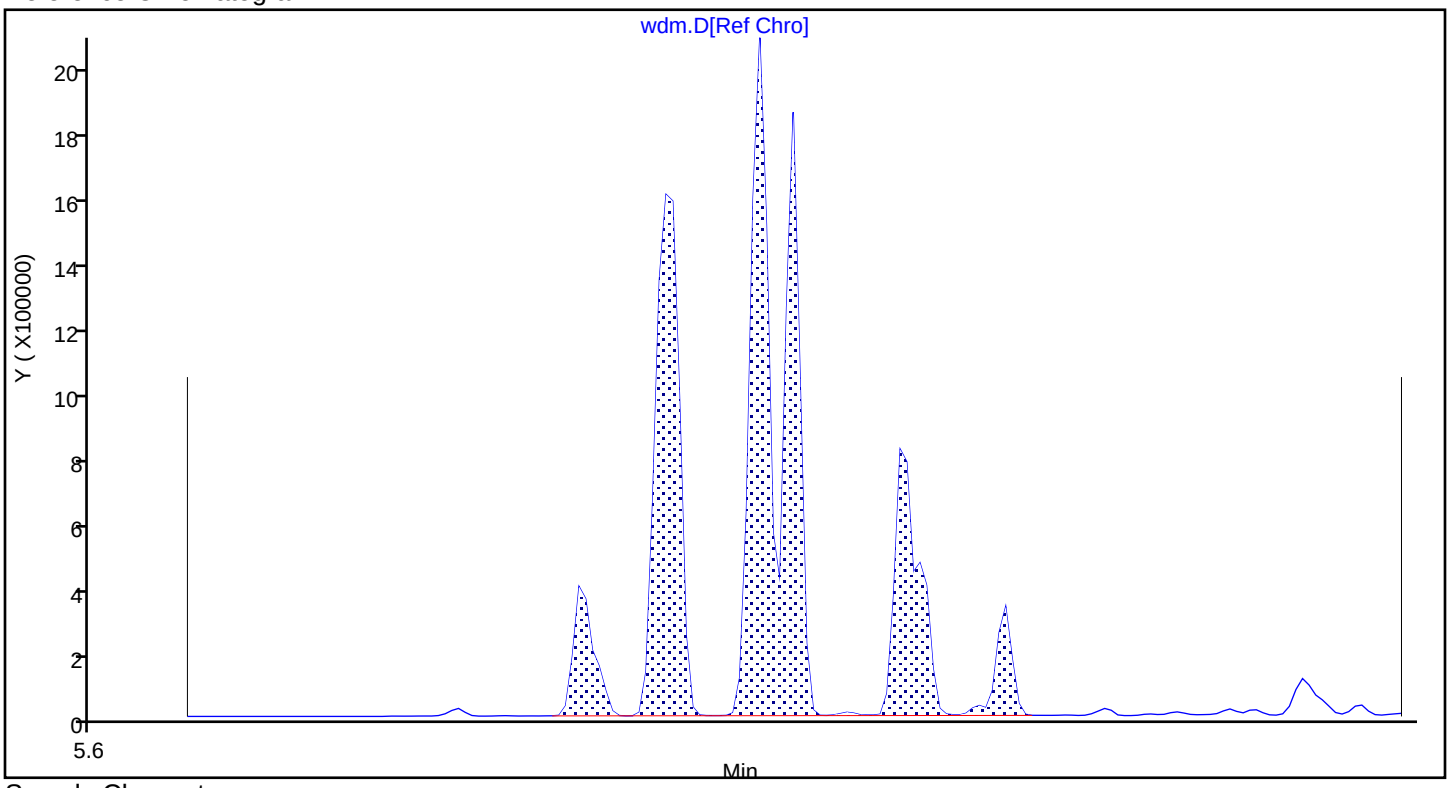
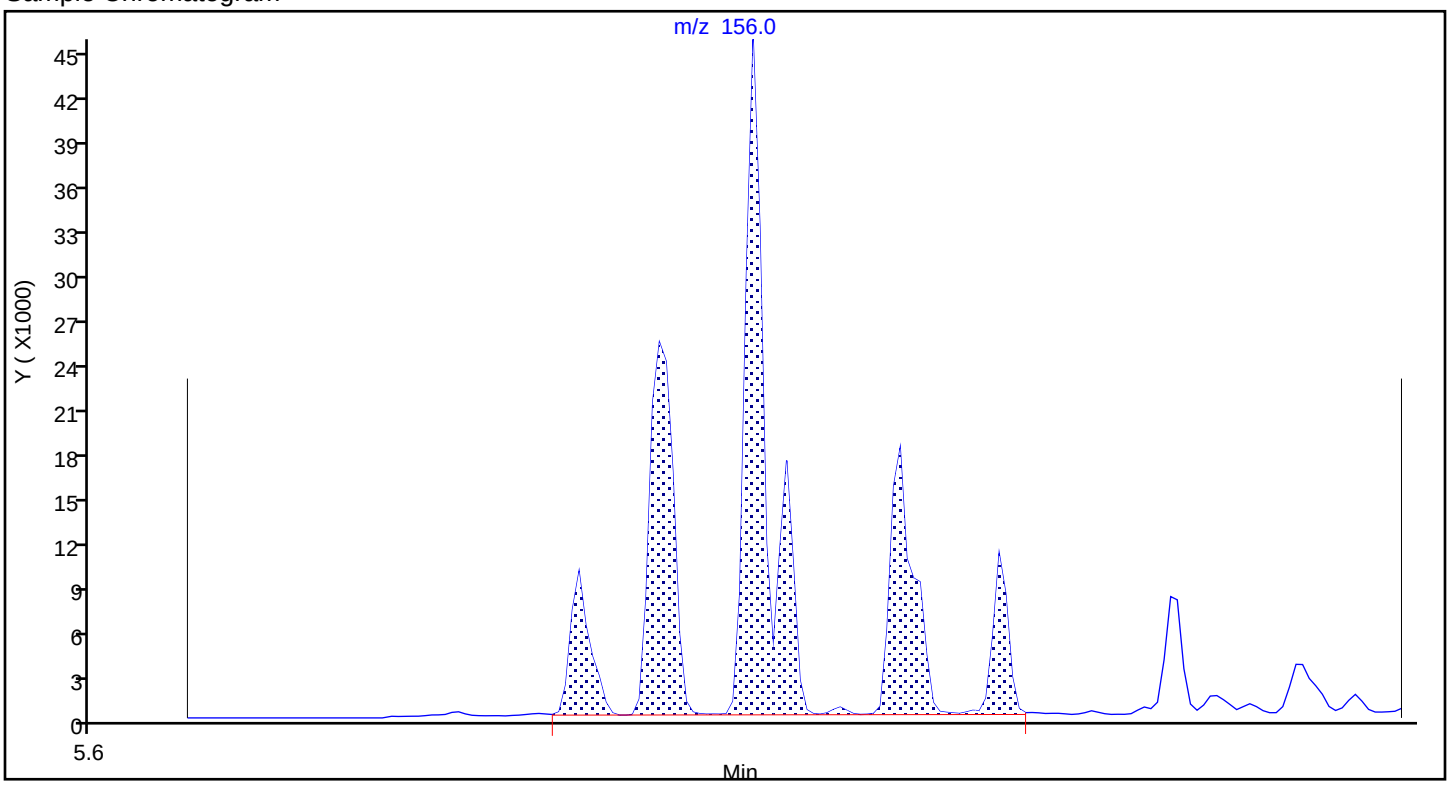
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 39 C2-Naphthalenes, CAS: STL00917

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
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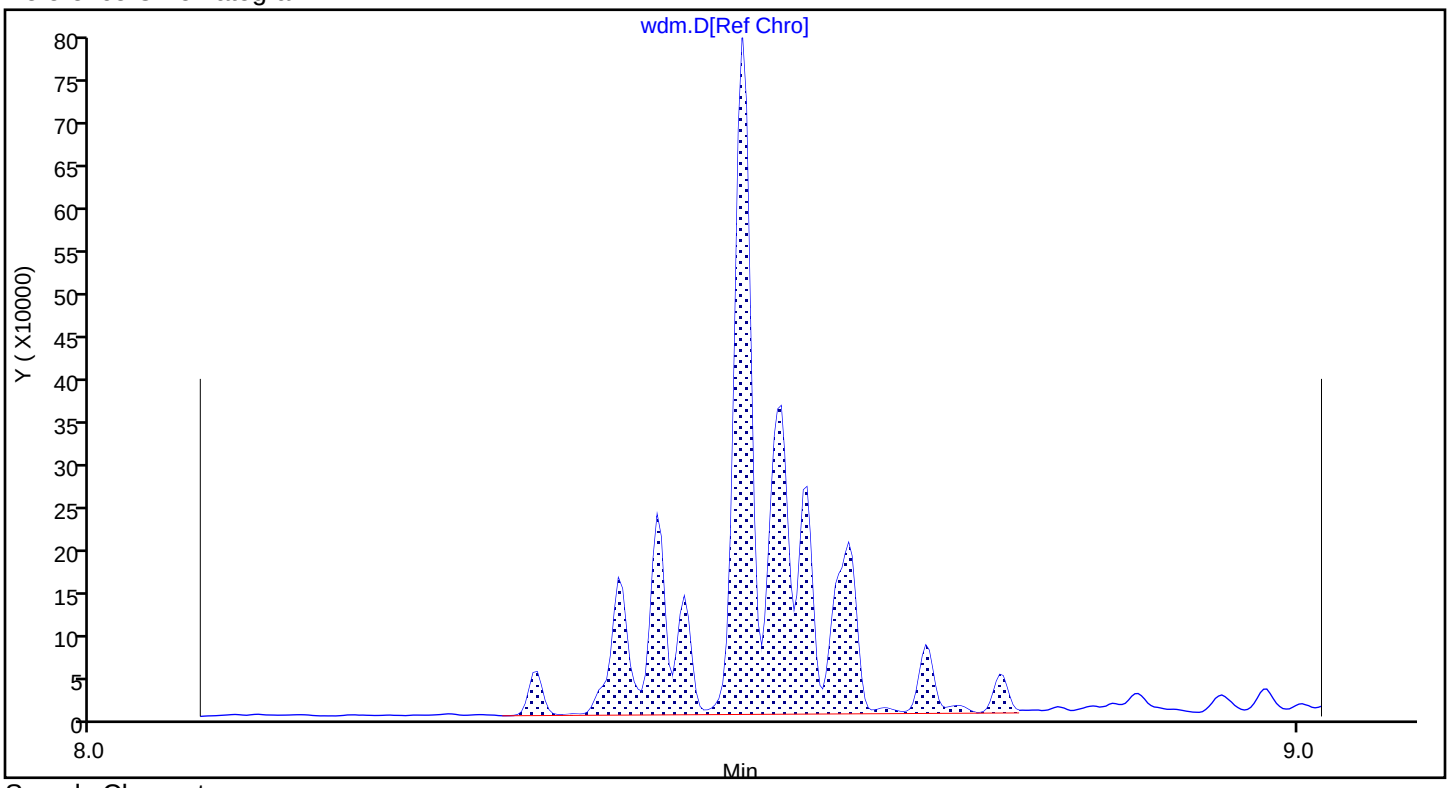
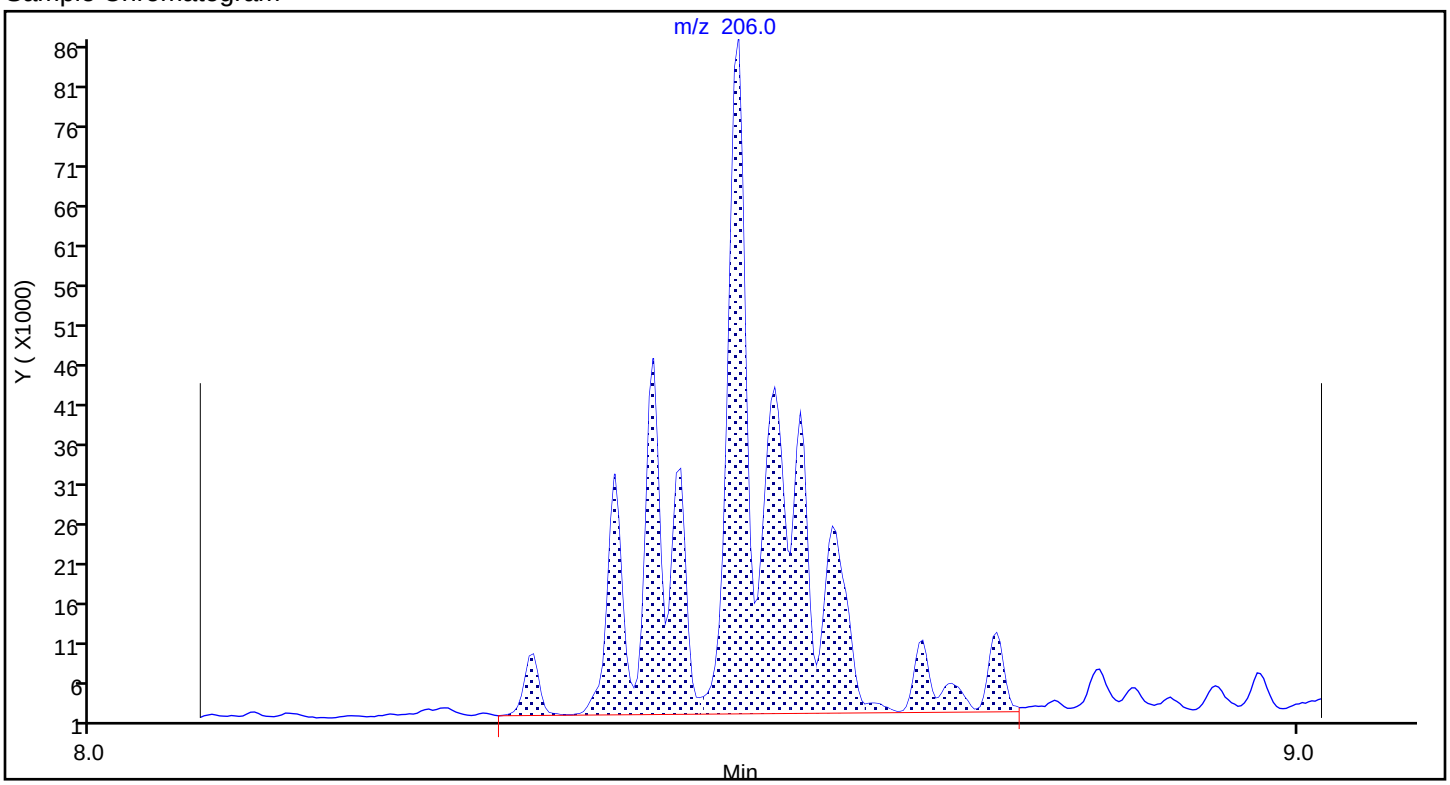
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 50 C2-Phenanthrenes/Anthracenes, CAS: STL00902

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
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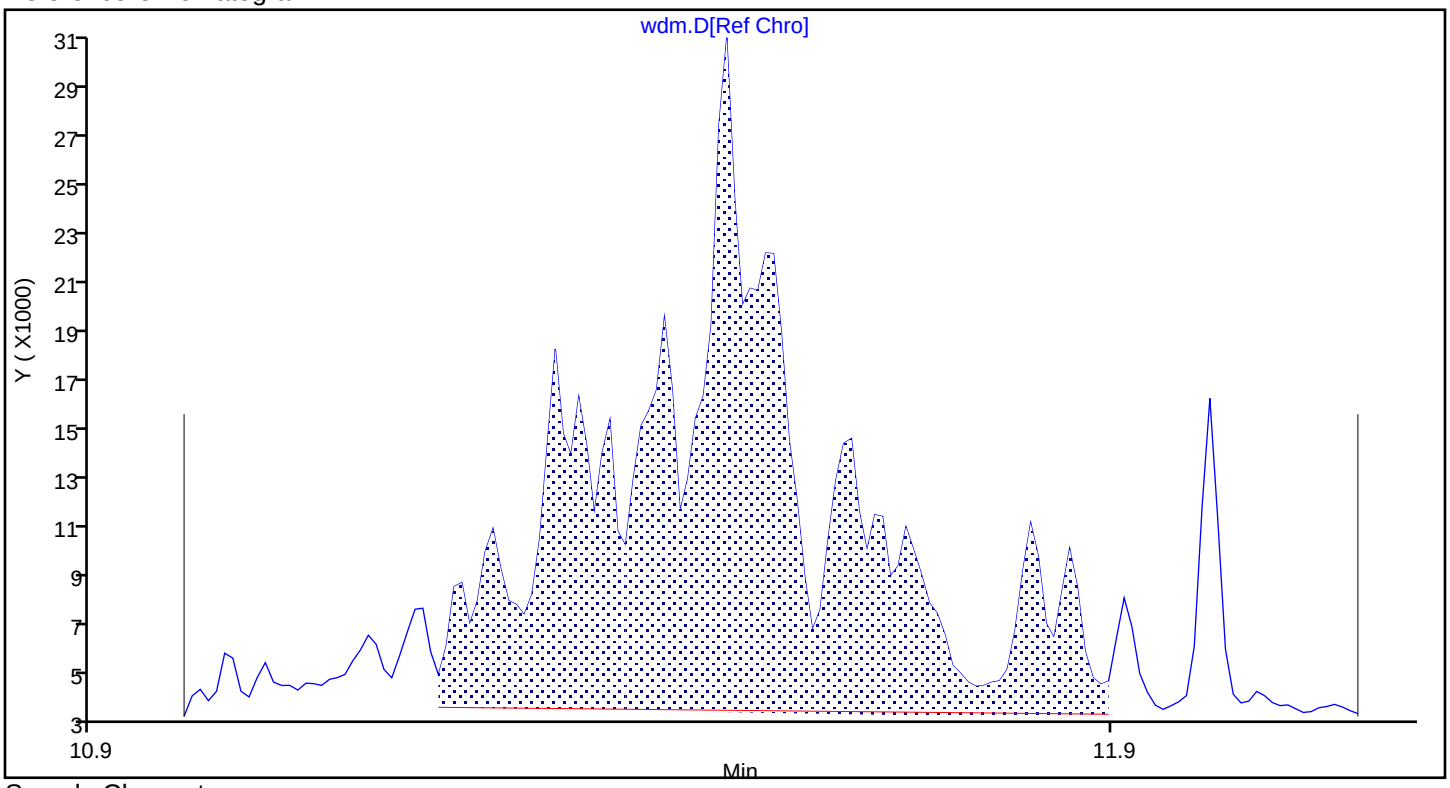
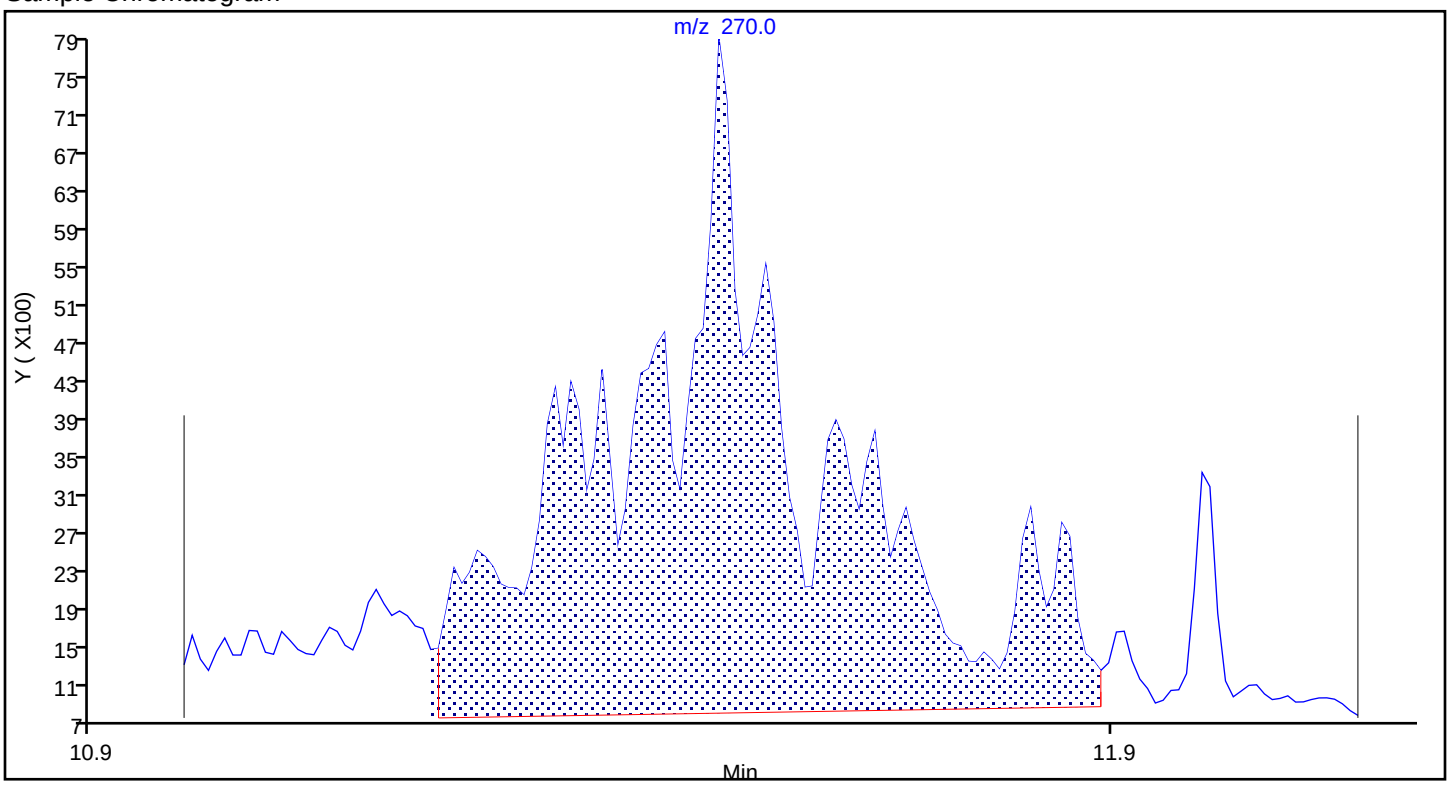
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 59 C3-Chrysenes, CAS: STL00907

Reference Chromatogram



Sample Chromatogram



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Eurofins TestAmerica, Knoxville

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Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
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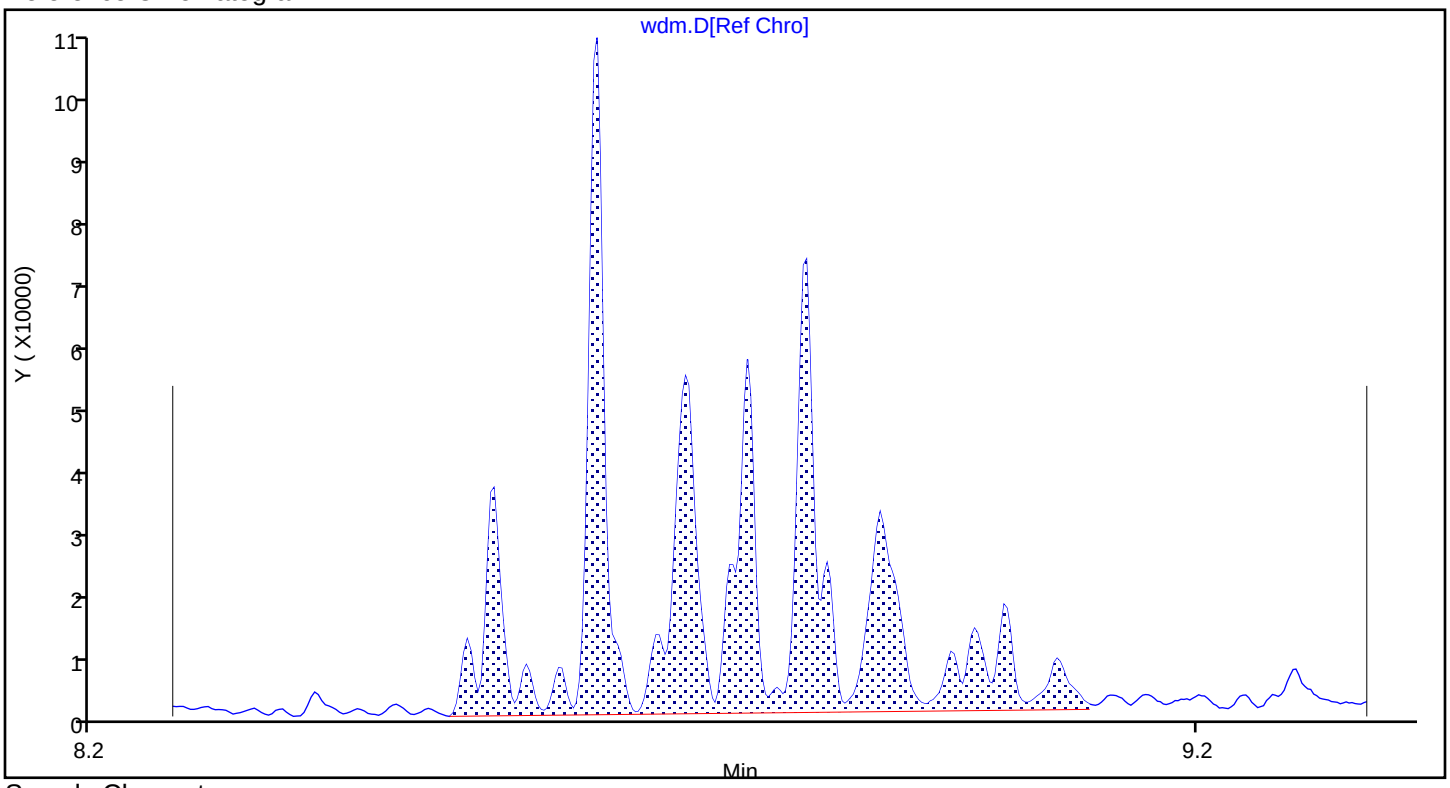
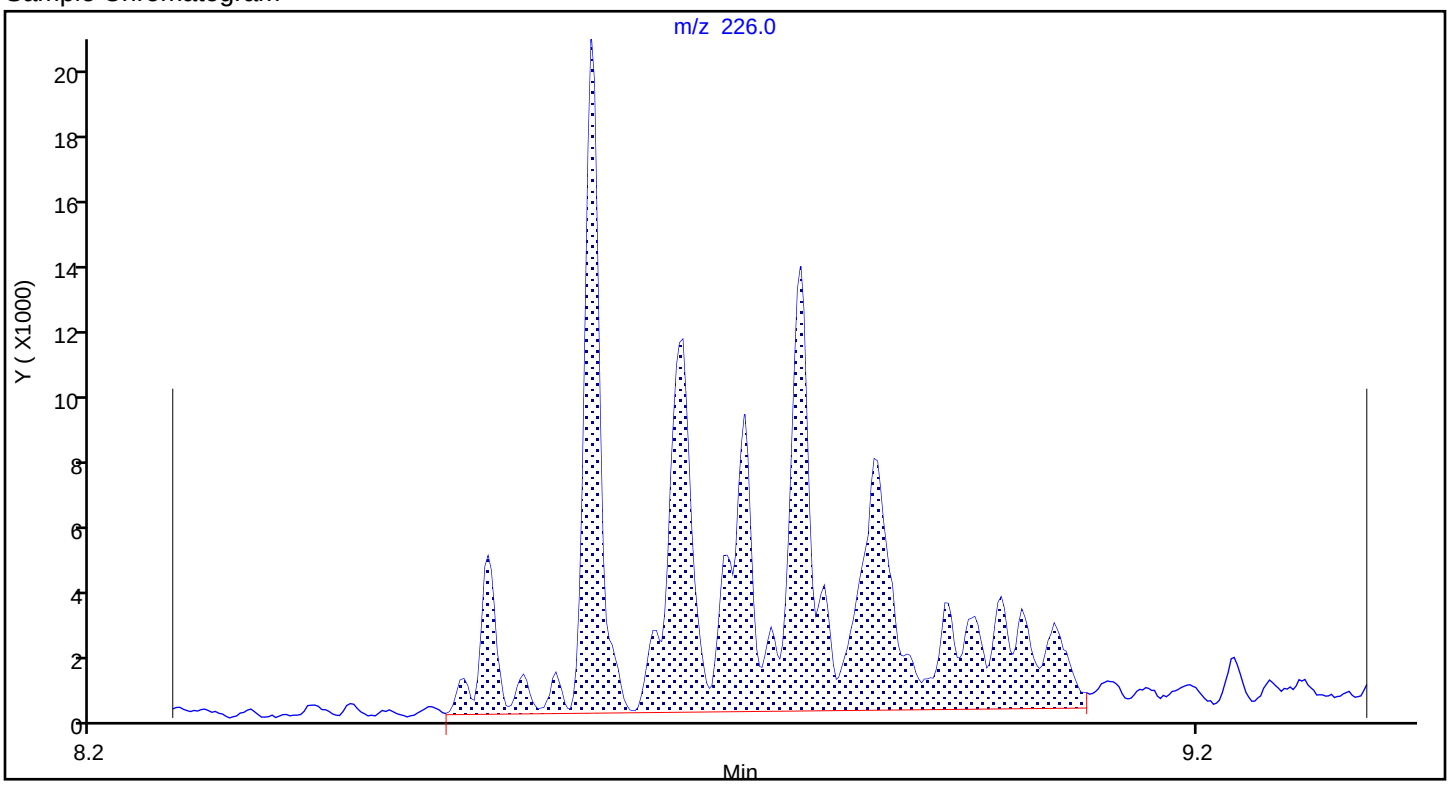
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 47 C3-Dibenzothiophenes, CAS: STL00911

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
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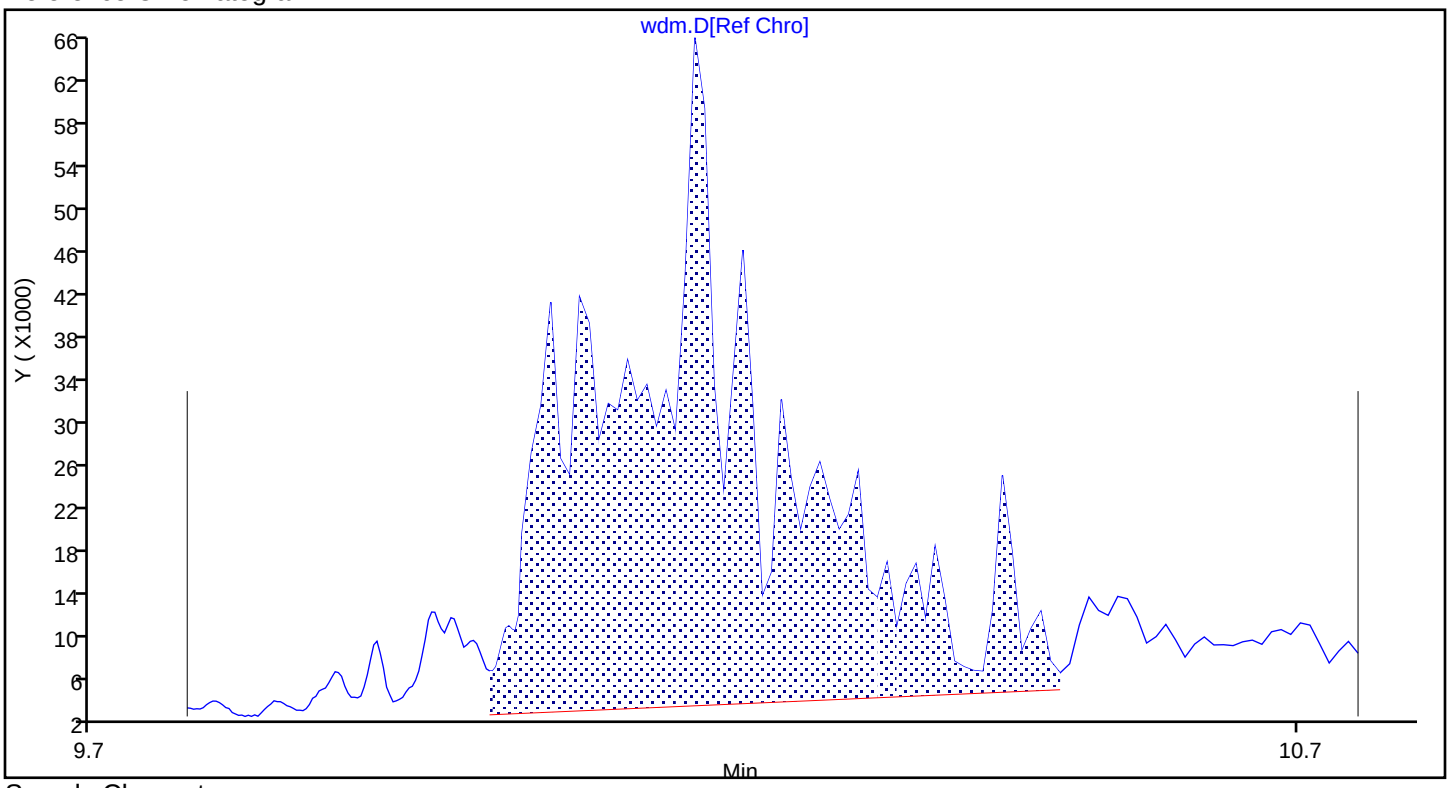
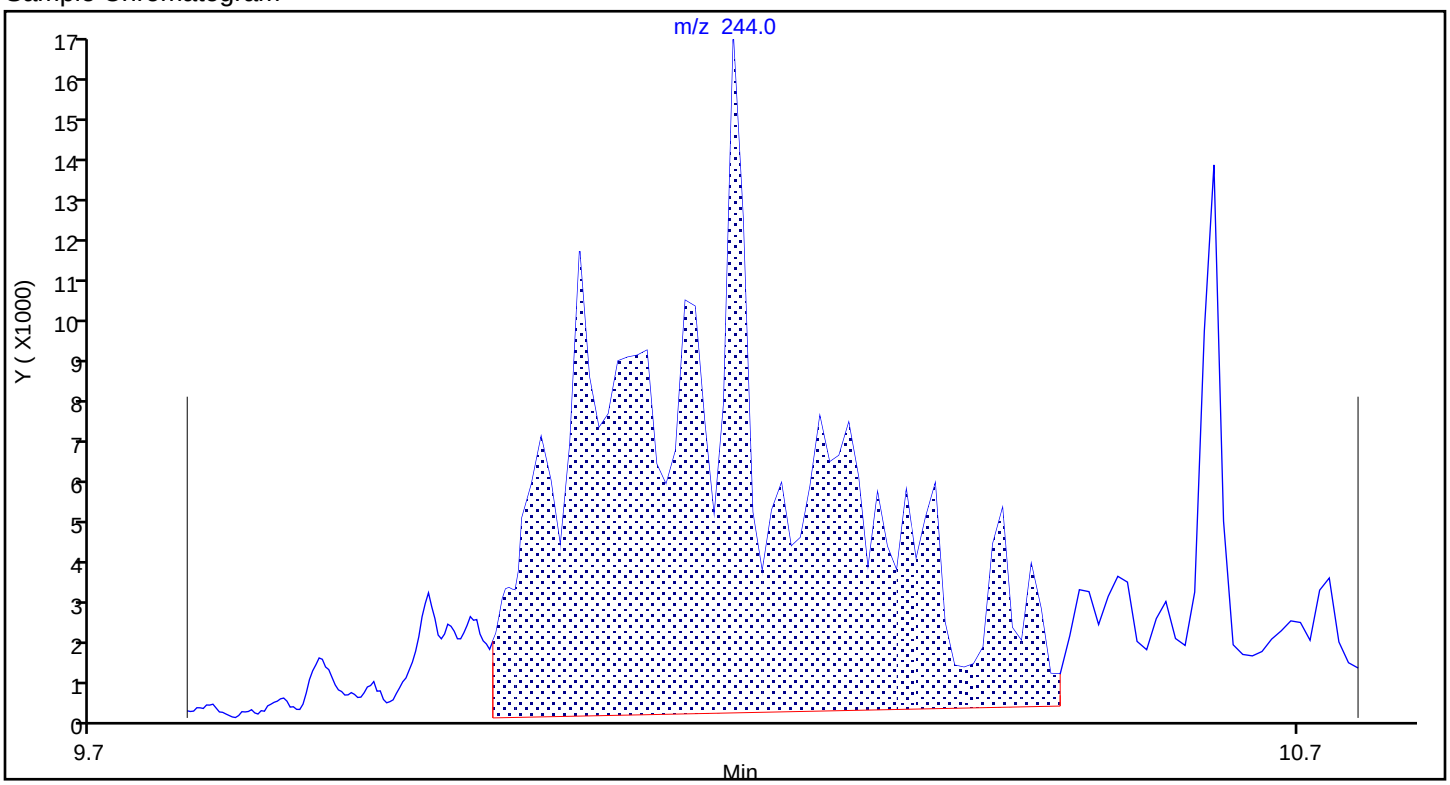
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 55 C3-Fluoranthenes/Pyrene, CAS: STL00969

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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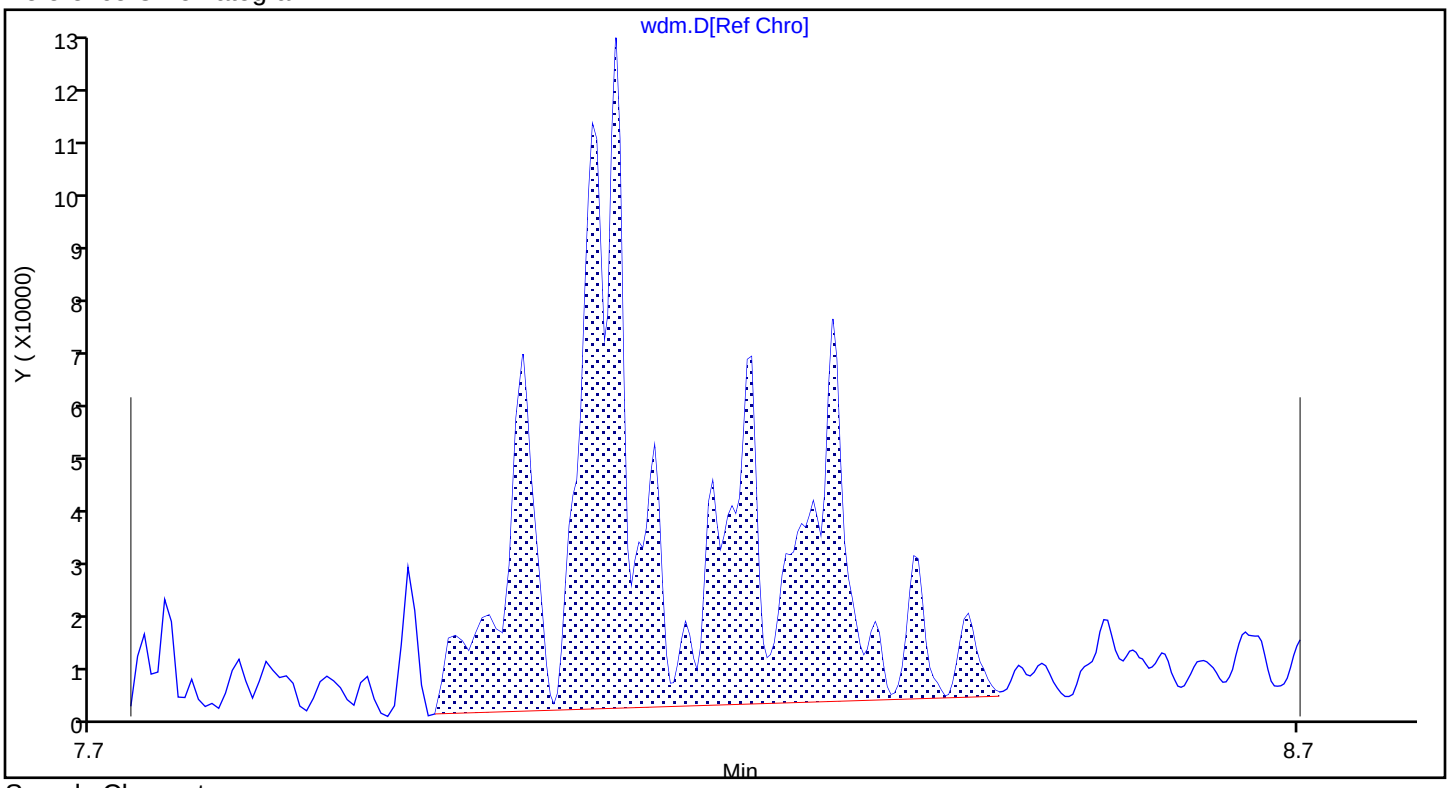
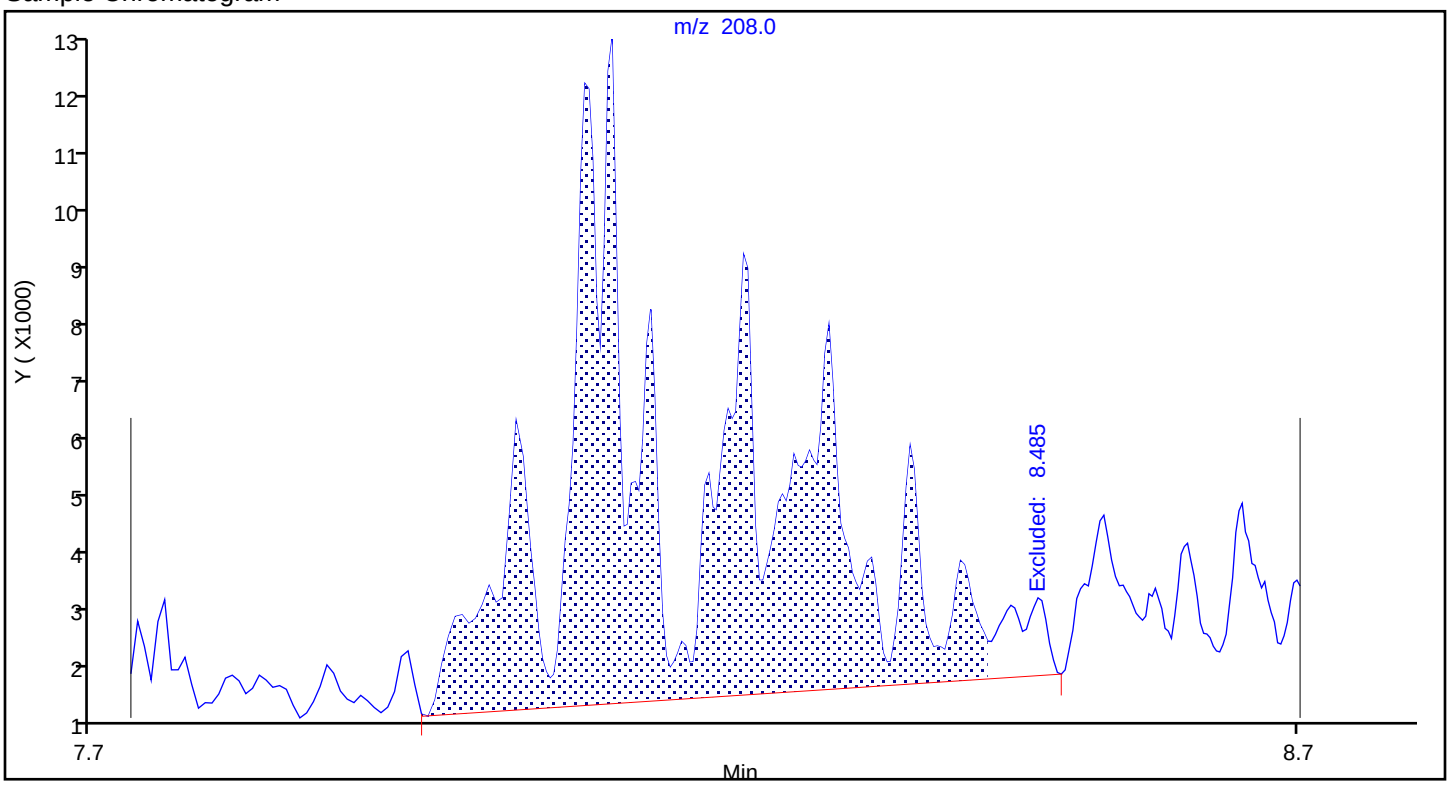
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 44 C3-Fluorenes, CAS: STL00915

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
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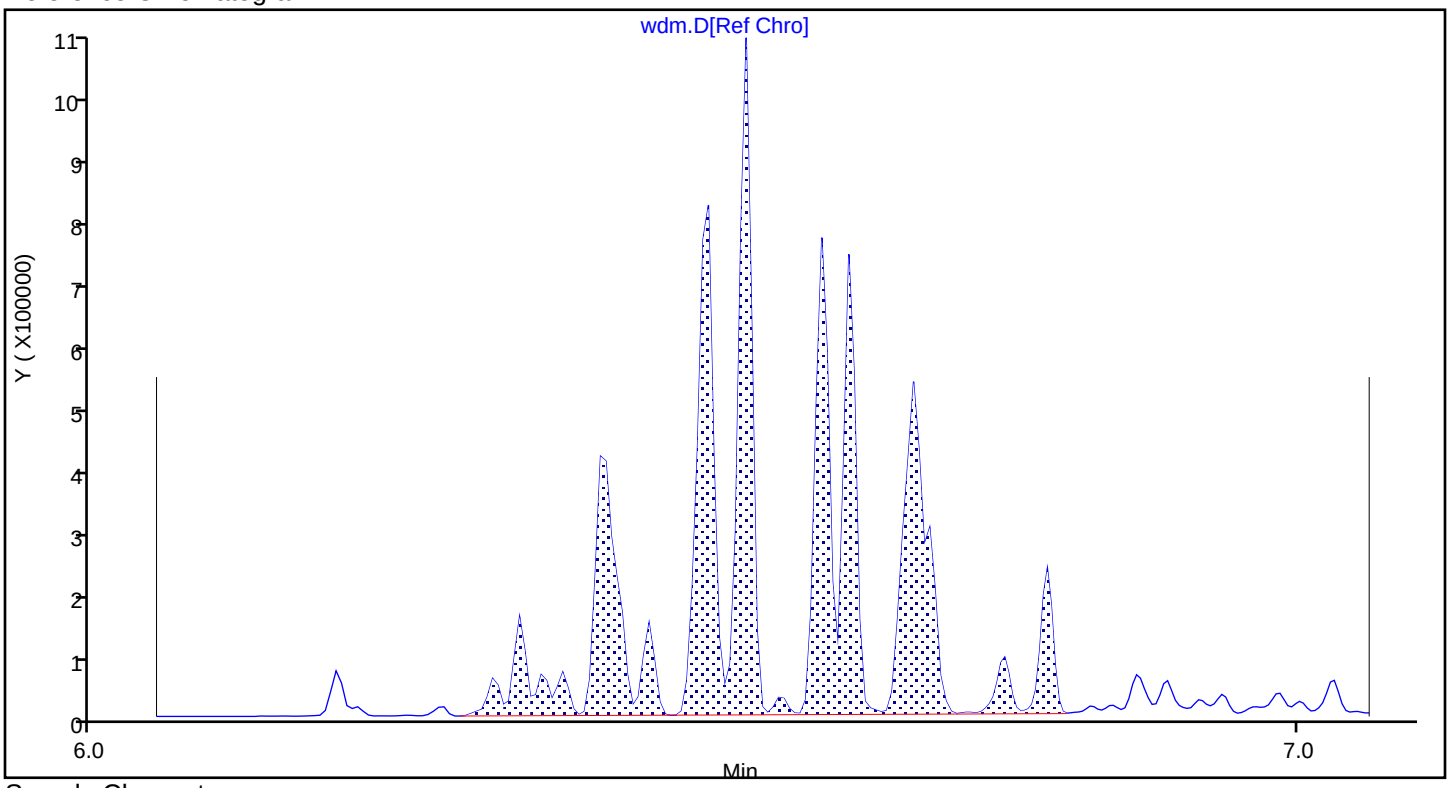
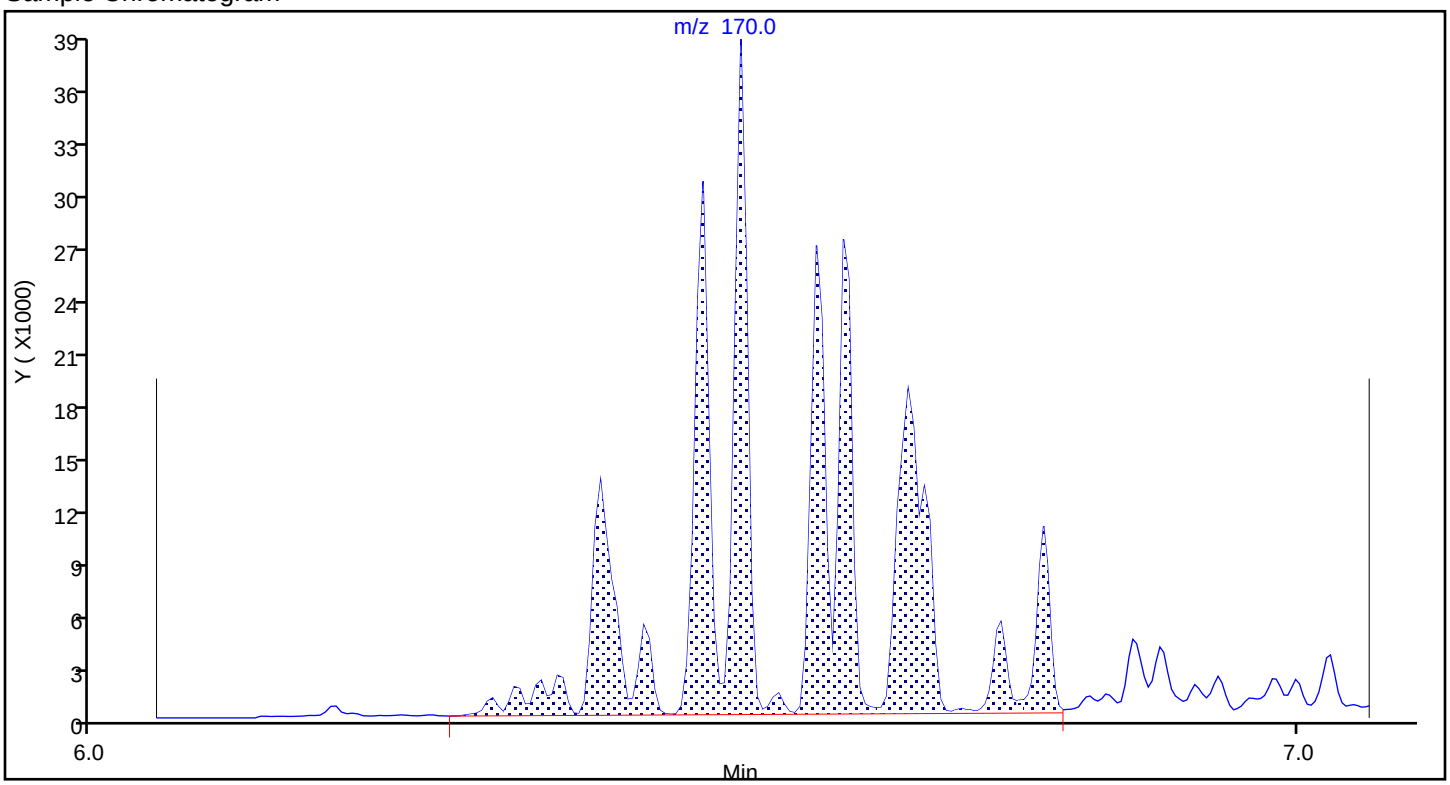
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 40 C3-Naphthalenes, CAS: STL00918

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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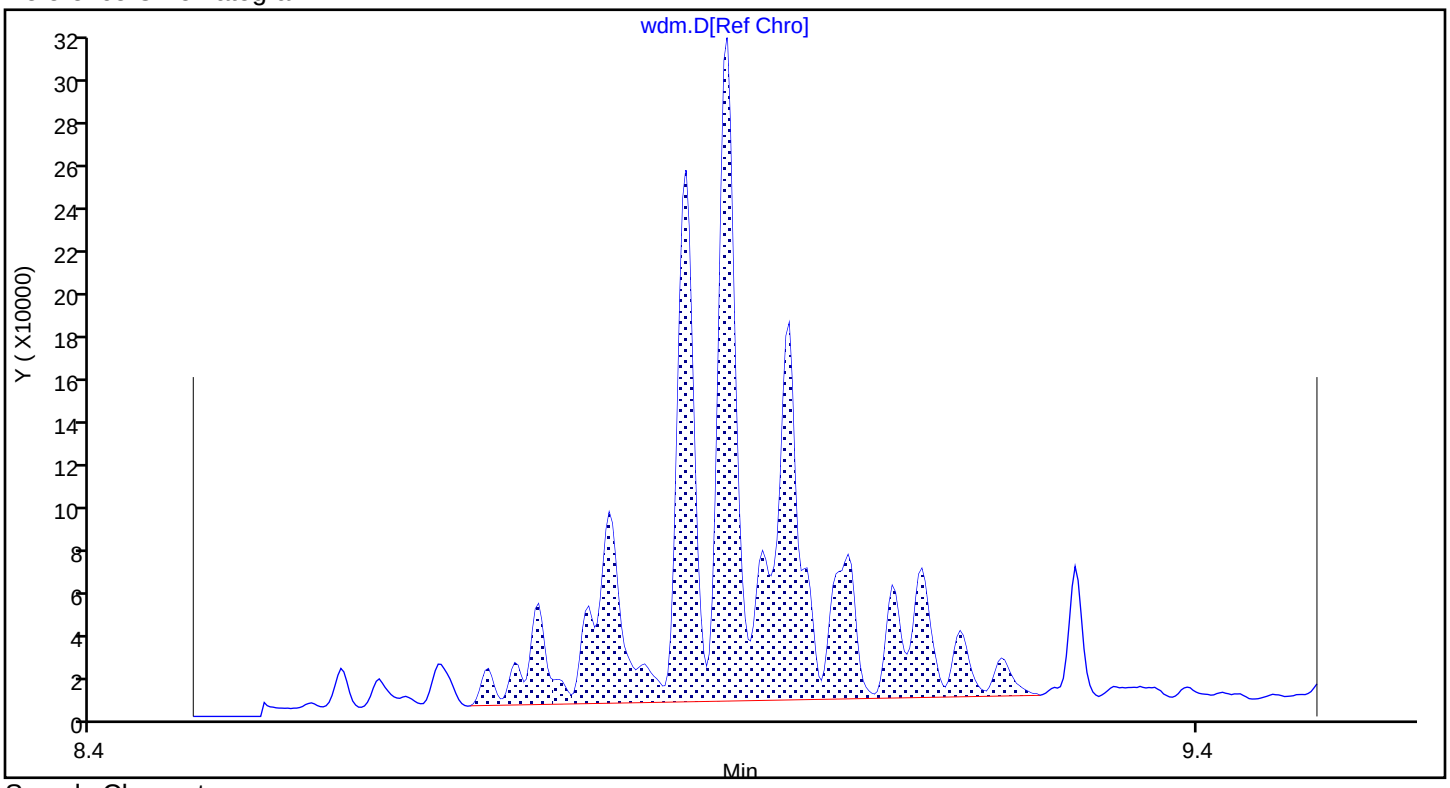
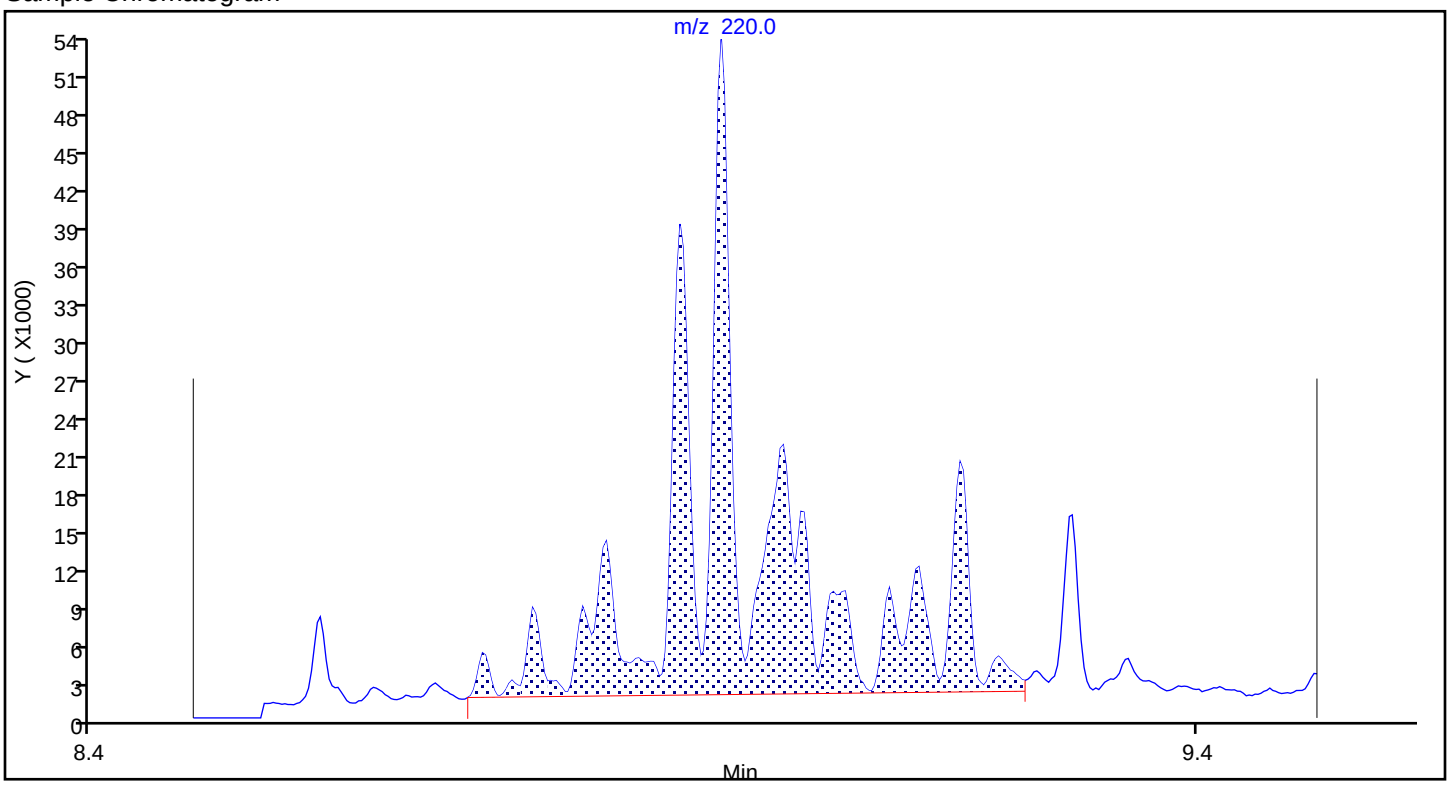
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 51 C3-Phenanthrenes/Anthracenes, CAS: STL00903

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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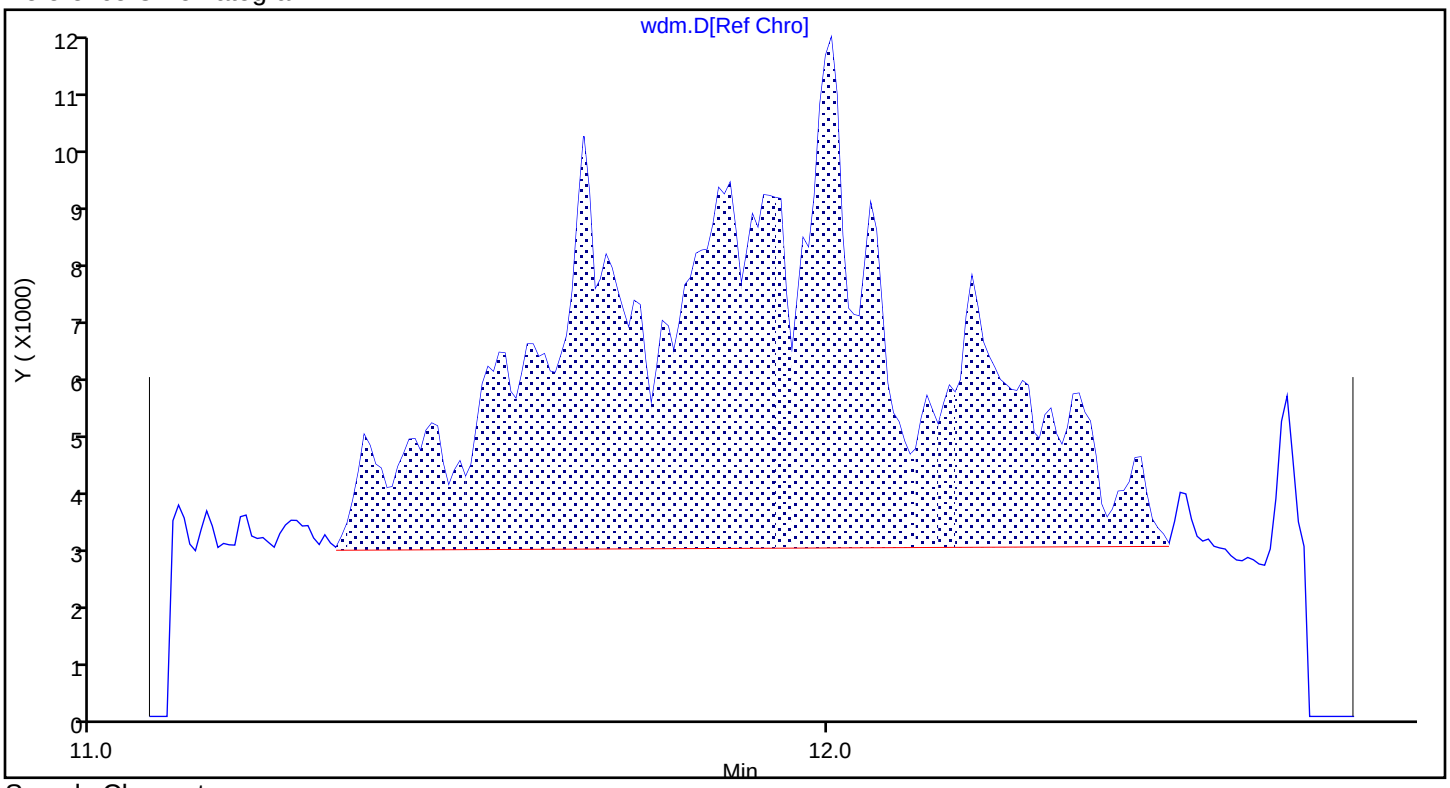
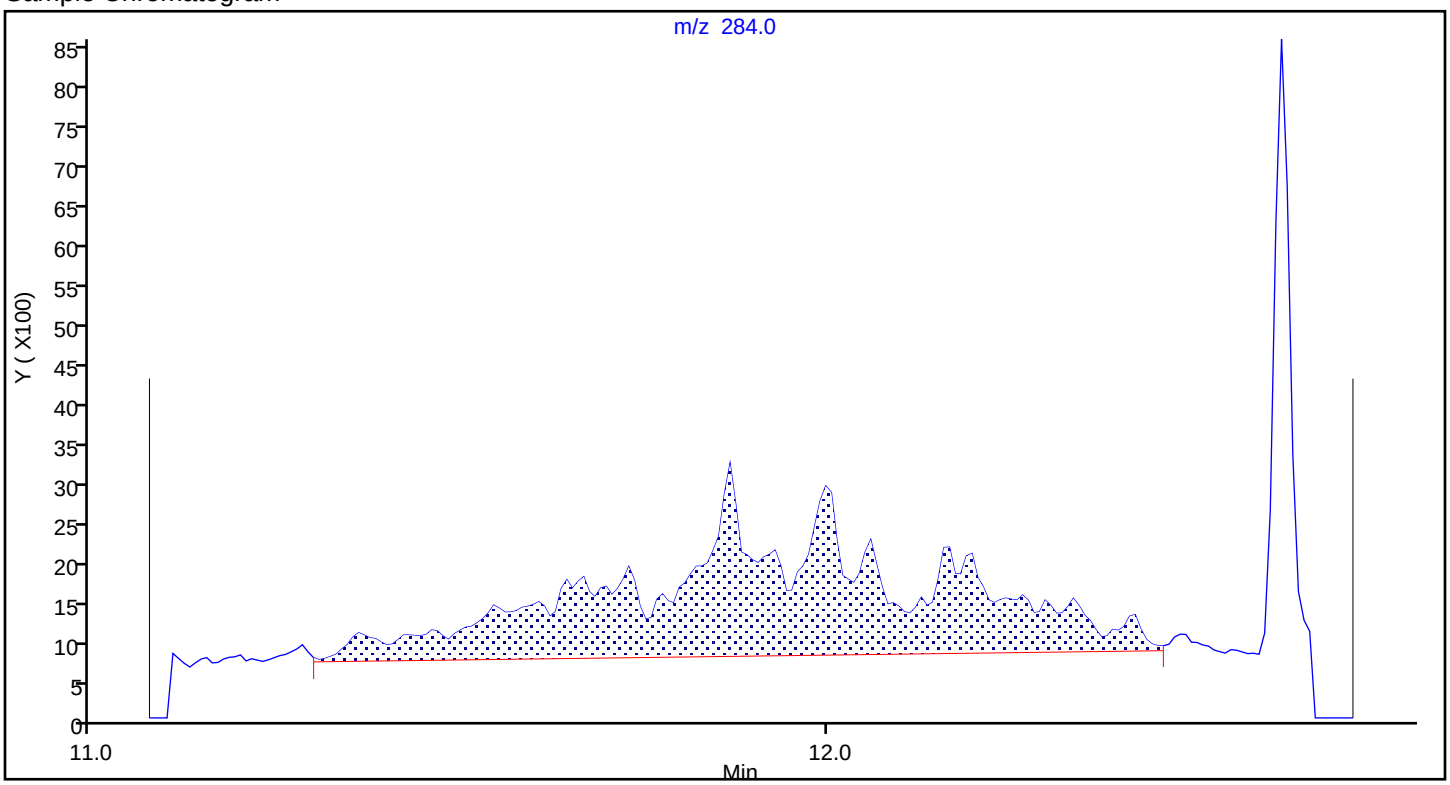
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 60 C4-Chrysenes, CAS: STL00908

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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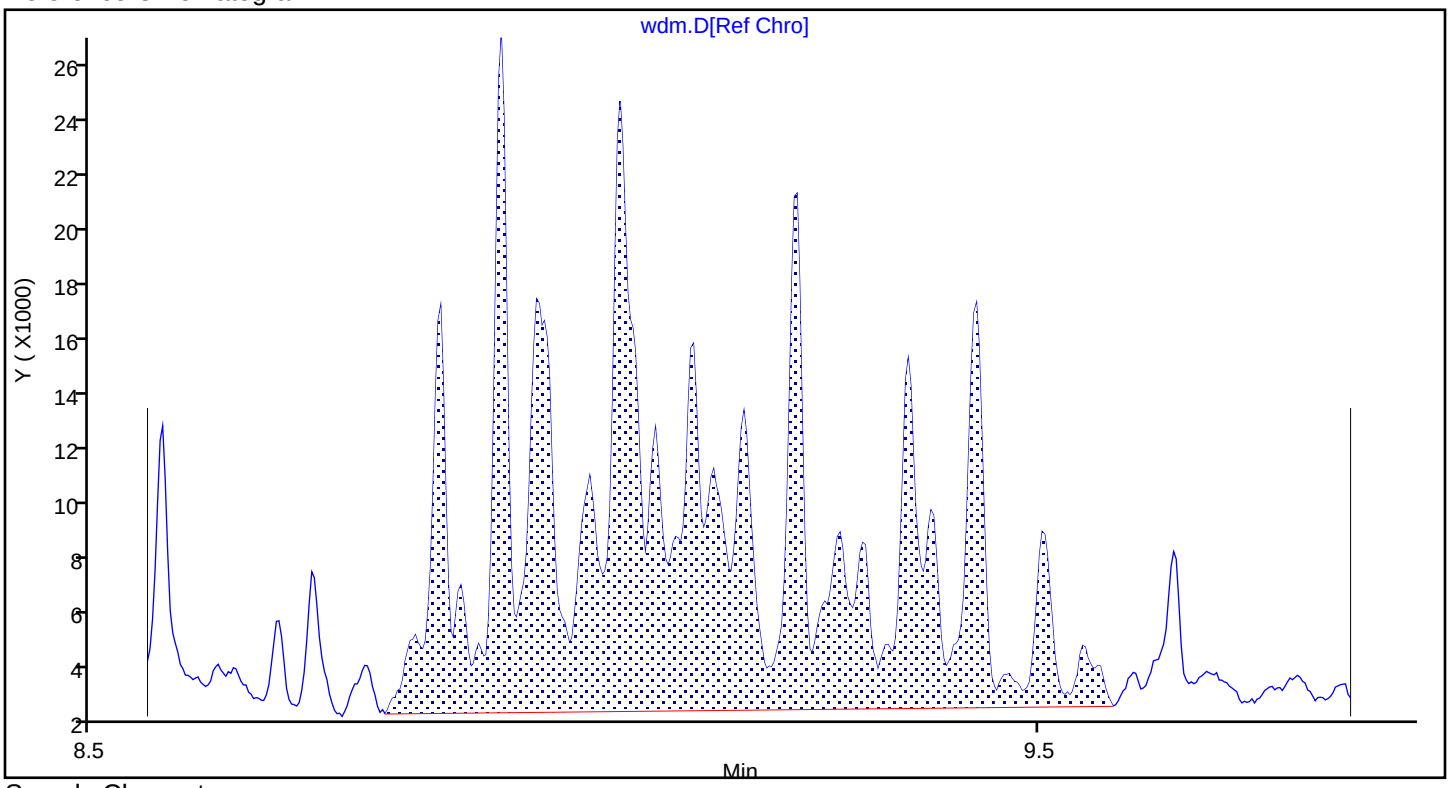
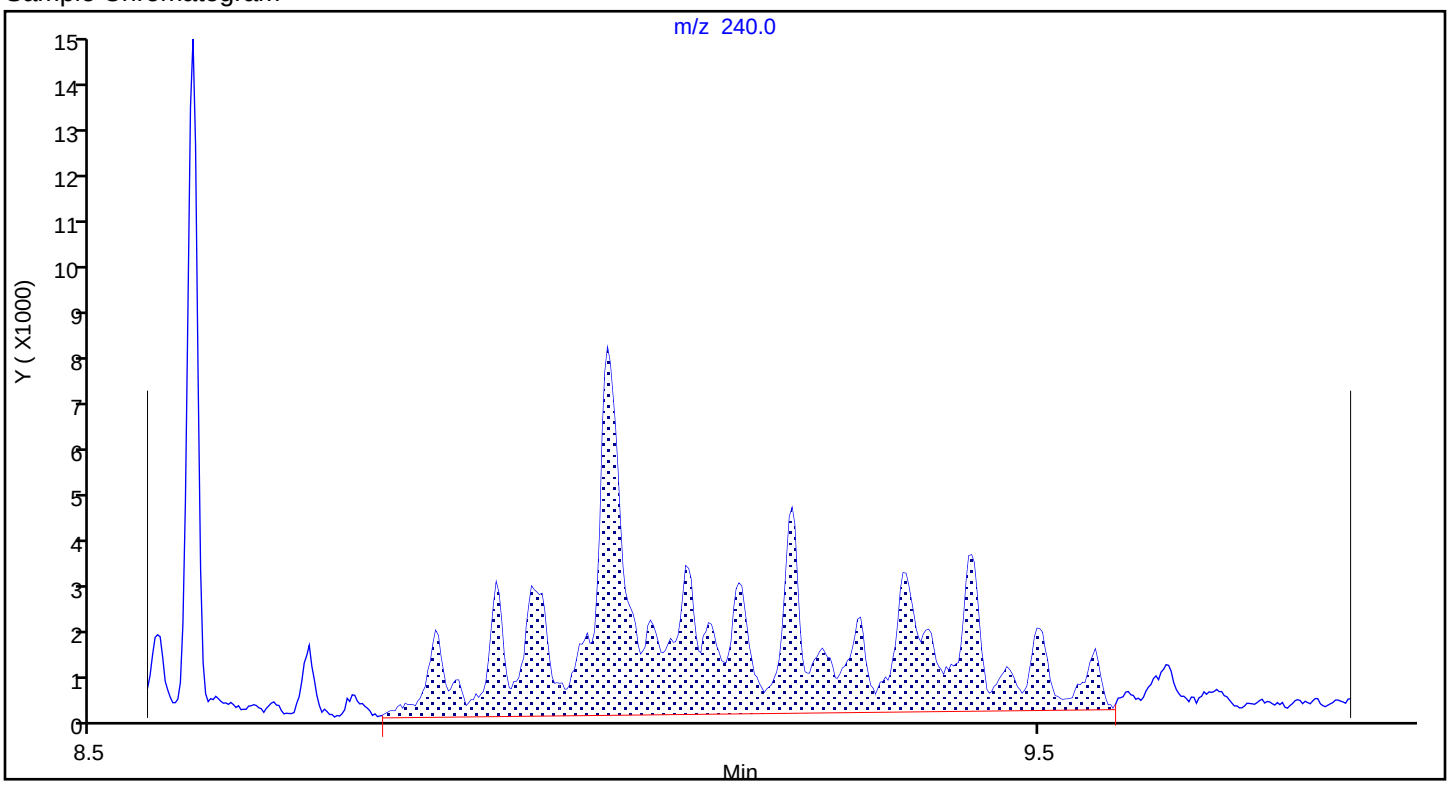
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 48 C4-Dibenzothiophenes, CAS: STL00967

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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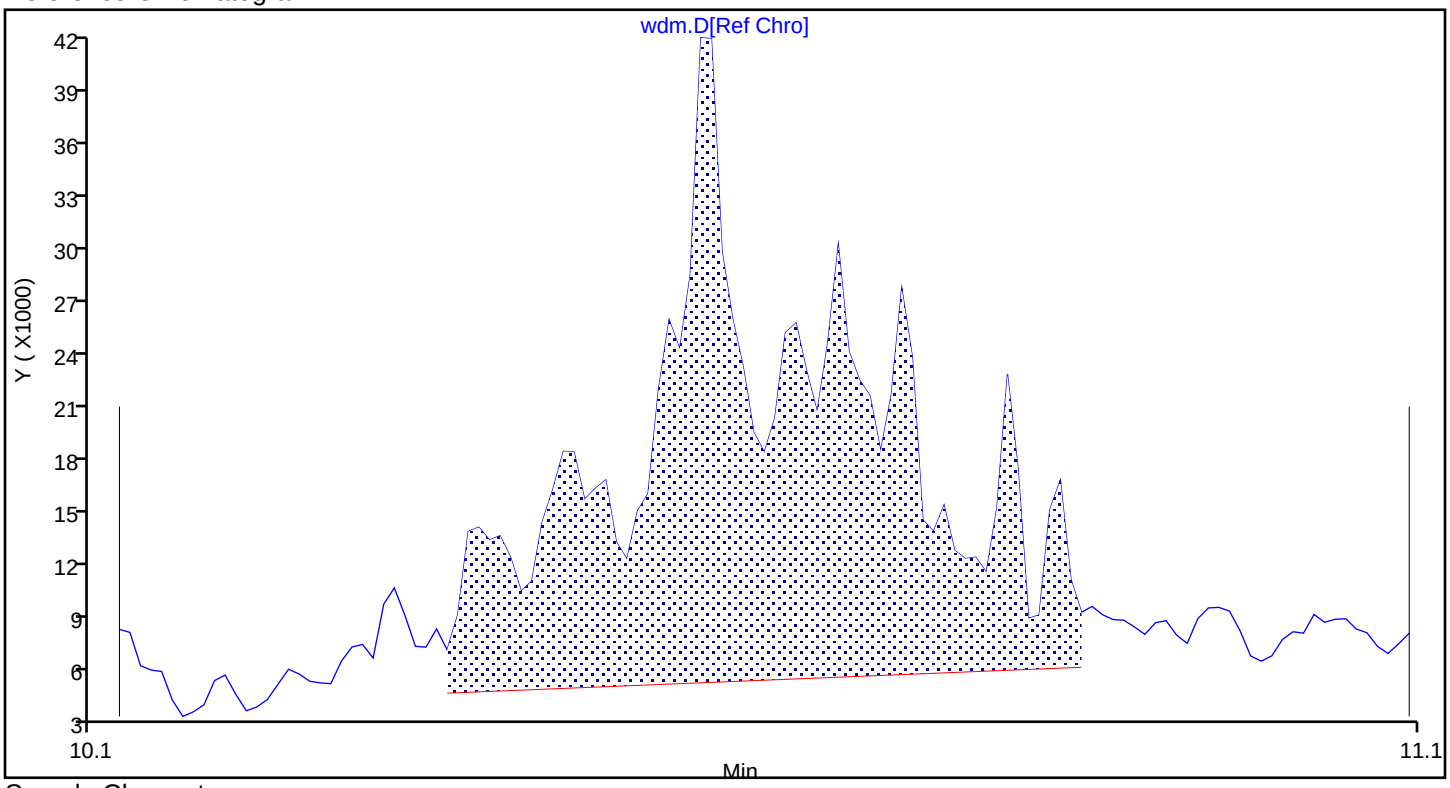
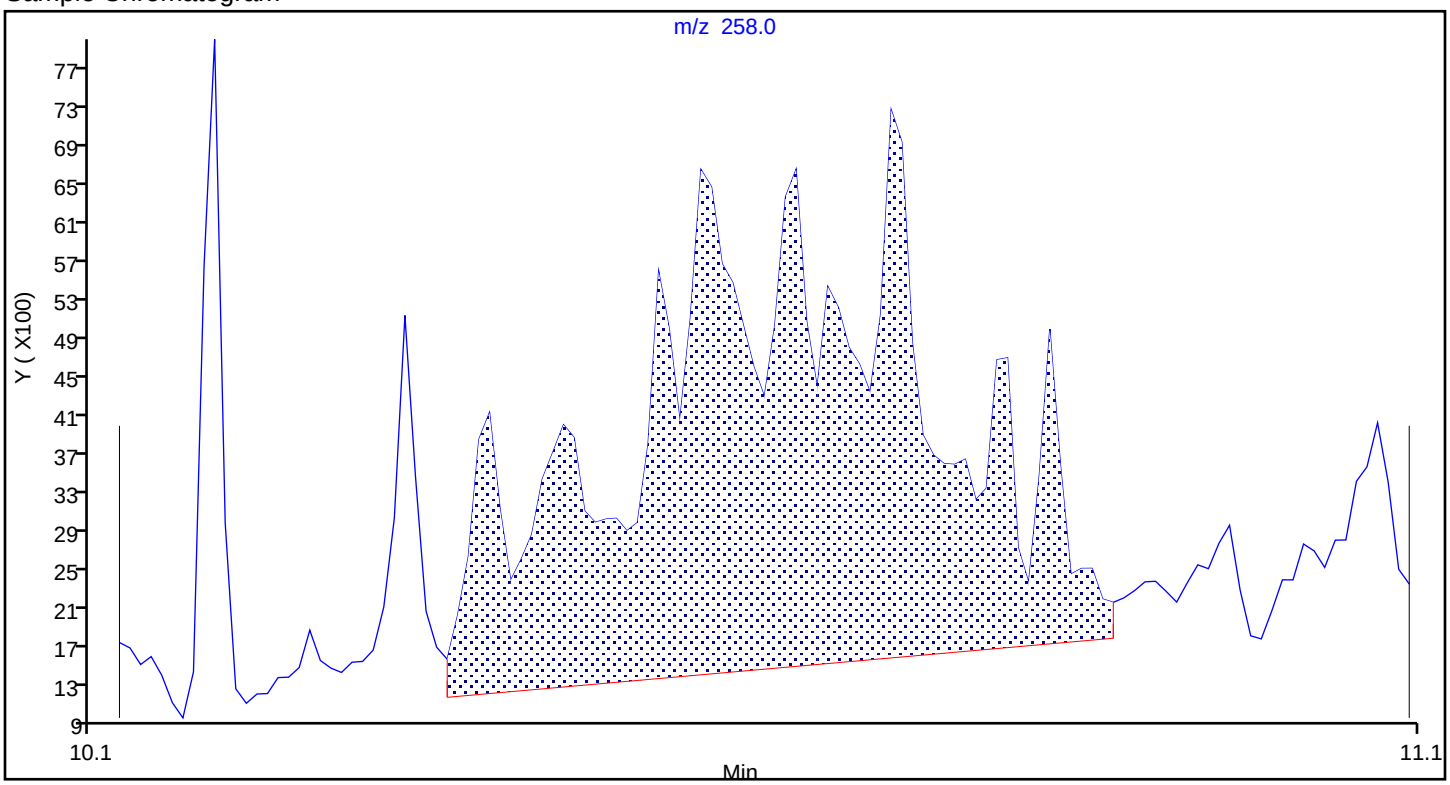
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 56 C4-Fluoranthenes/Pyrene, CAS: STL01791

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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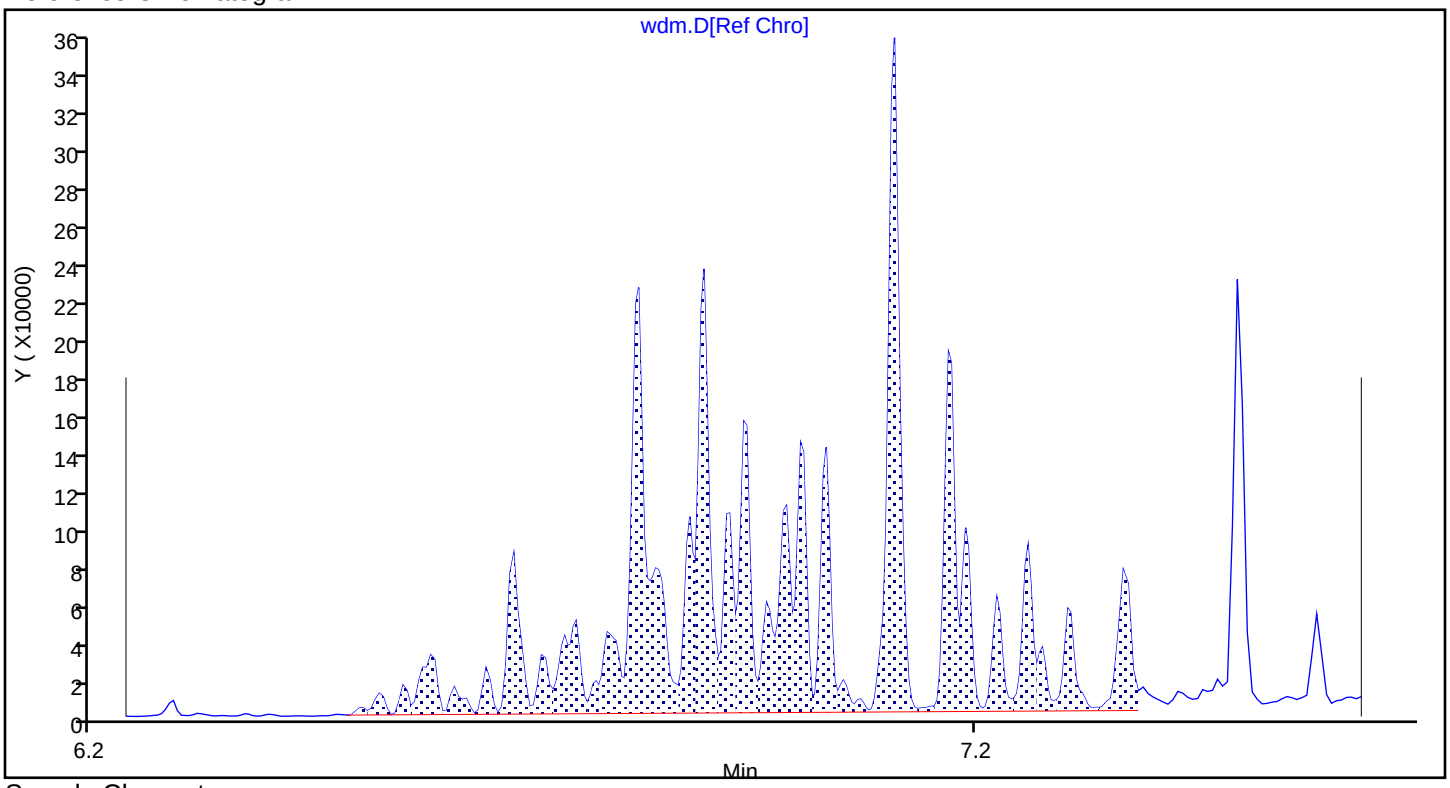
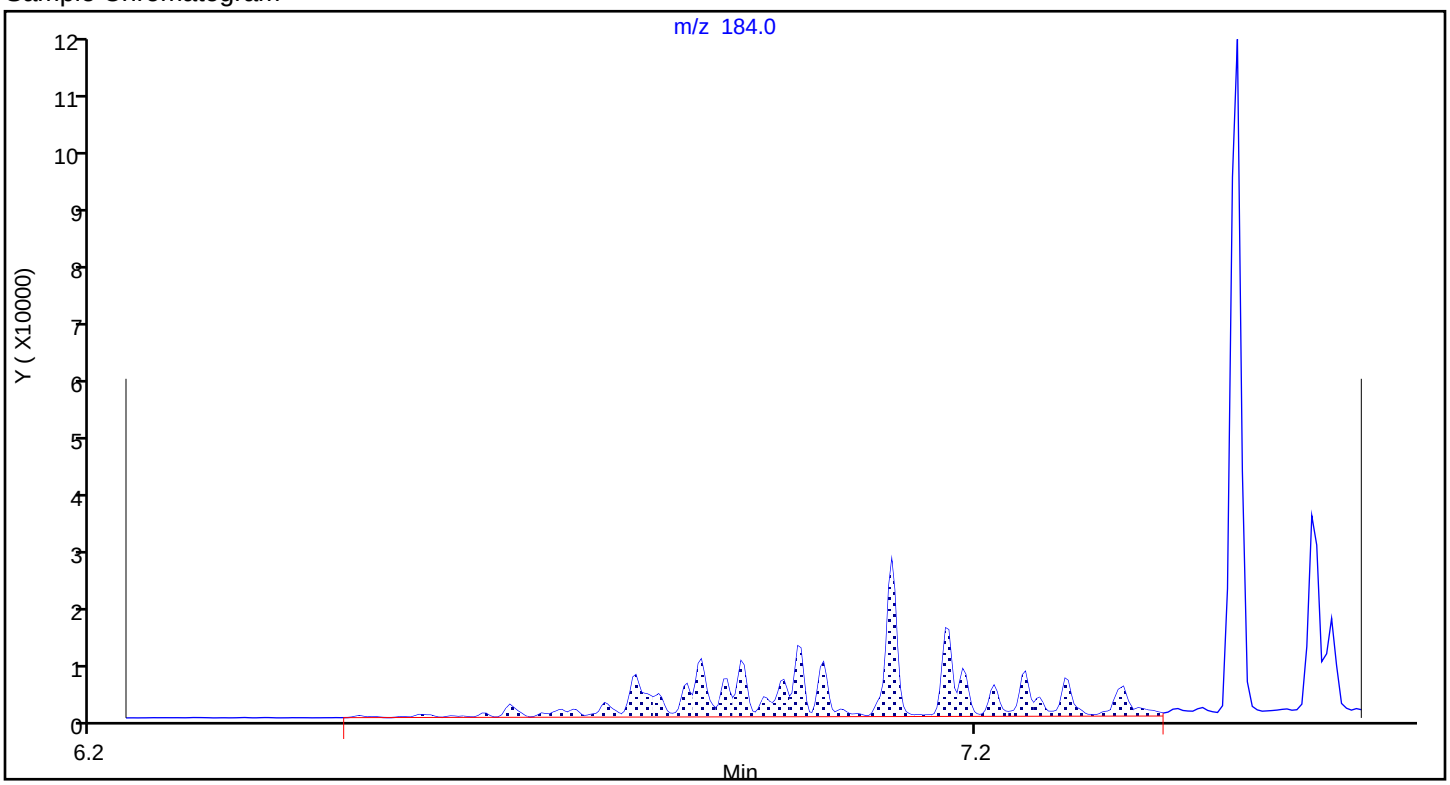
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 41 C4-Naphthalenes, CAS: STL00919

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:09 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
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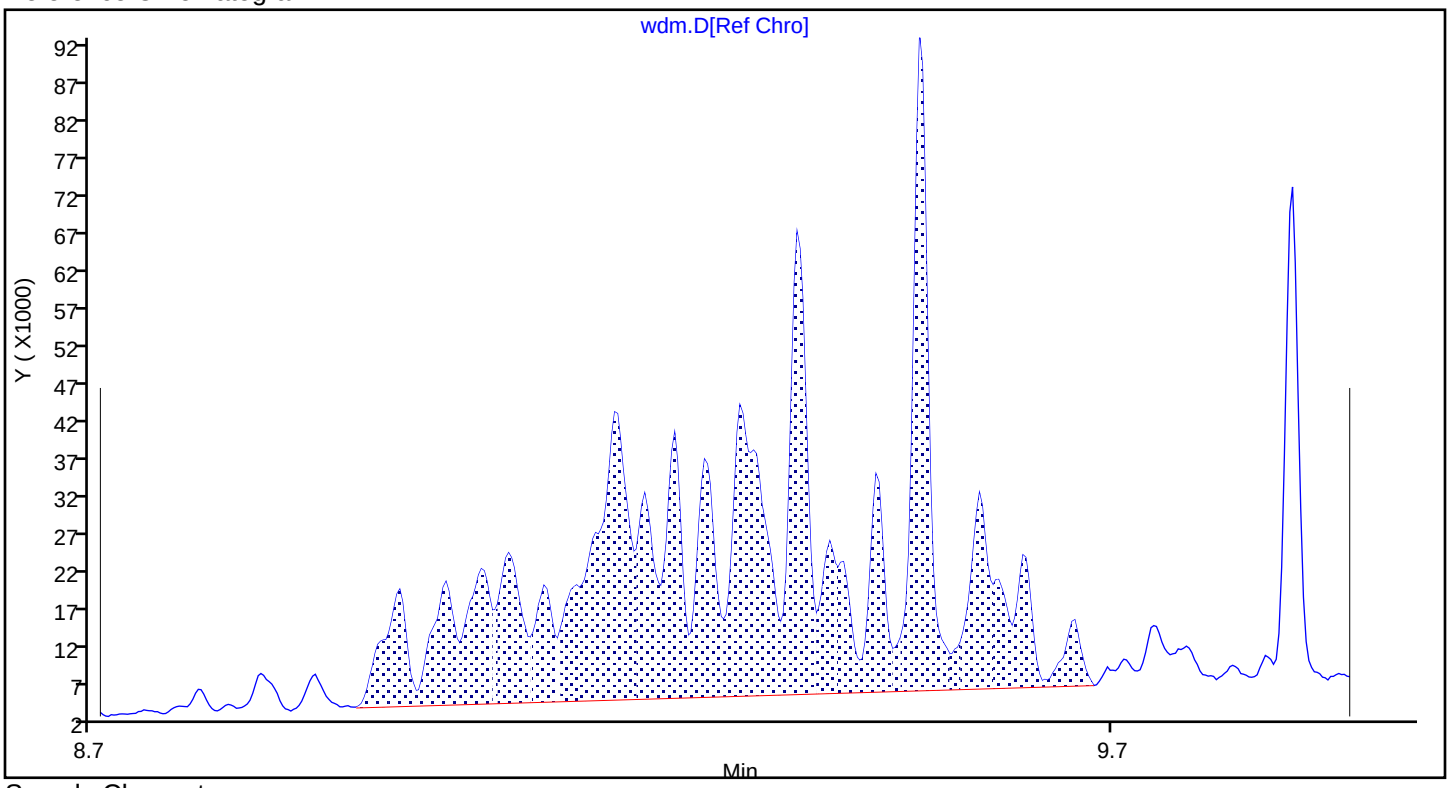
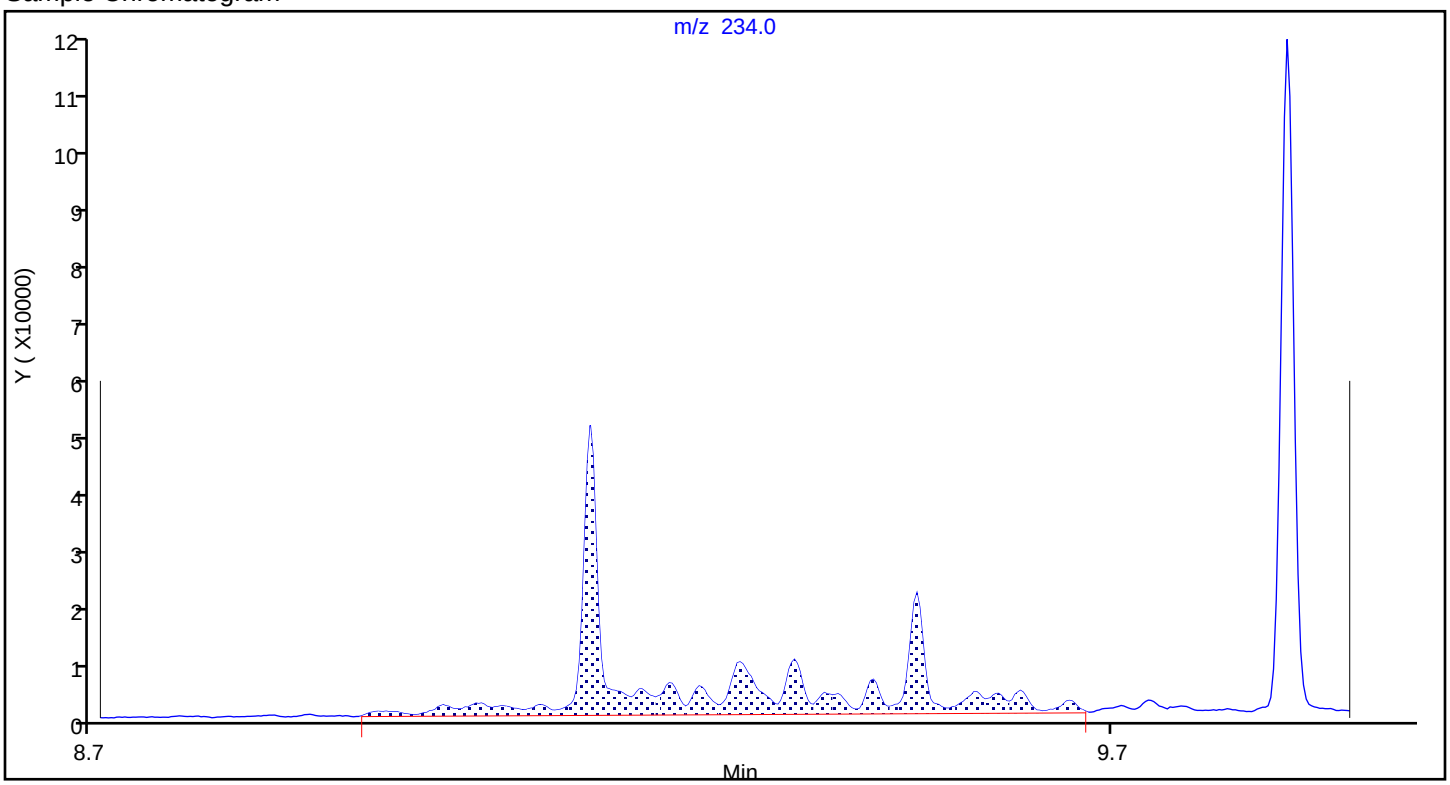
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

A 52 C4-Phenanthrenes/Anthracenes, CAS: STL00904

Reference Chromatogram



Sample Chromatogram



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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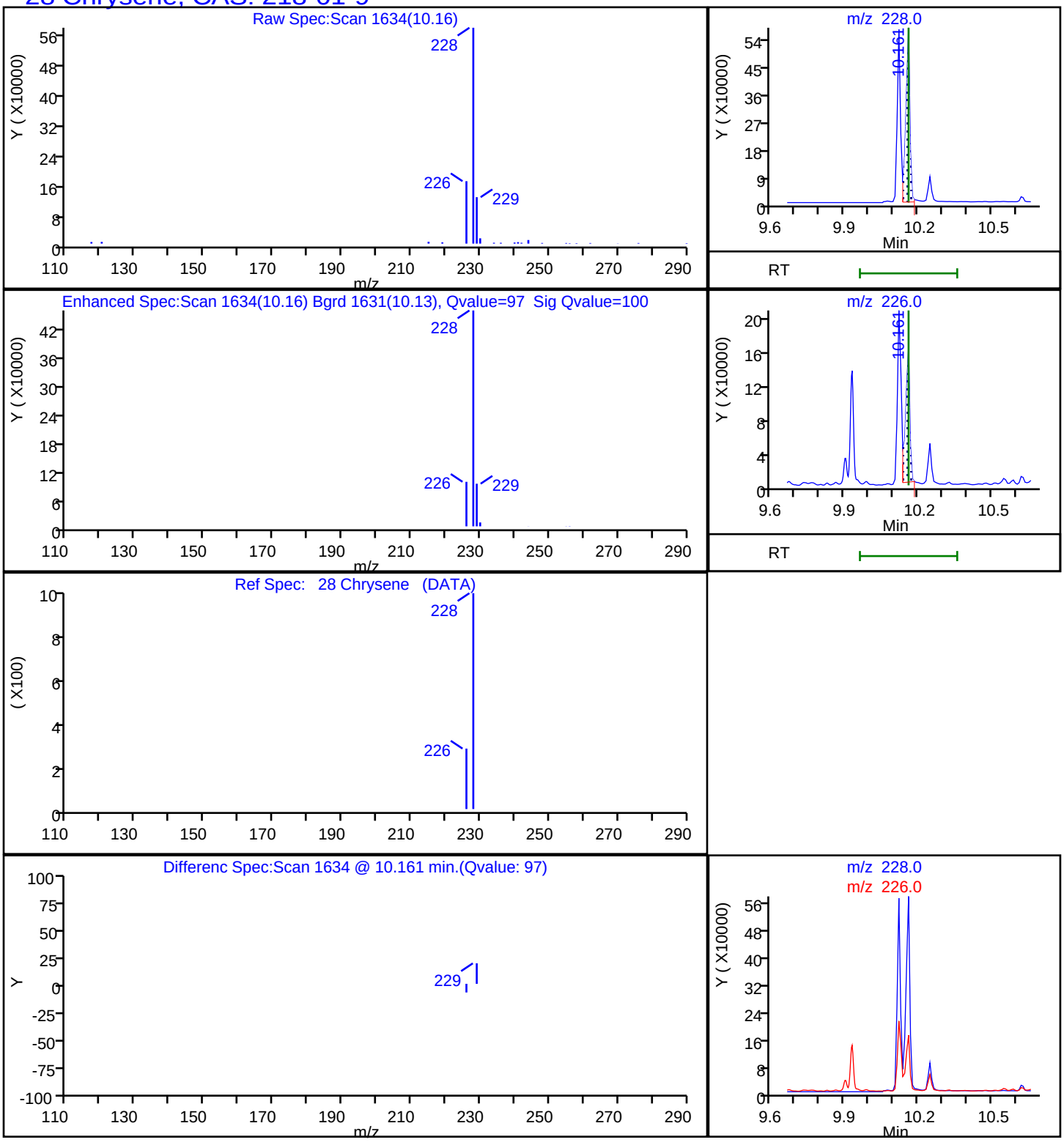
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

28 Chrysene, CAS: 218-01-9



Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

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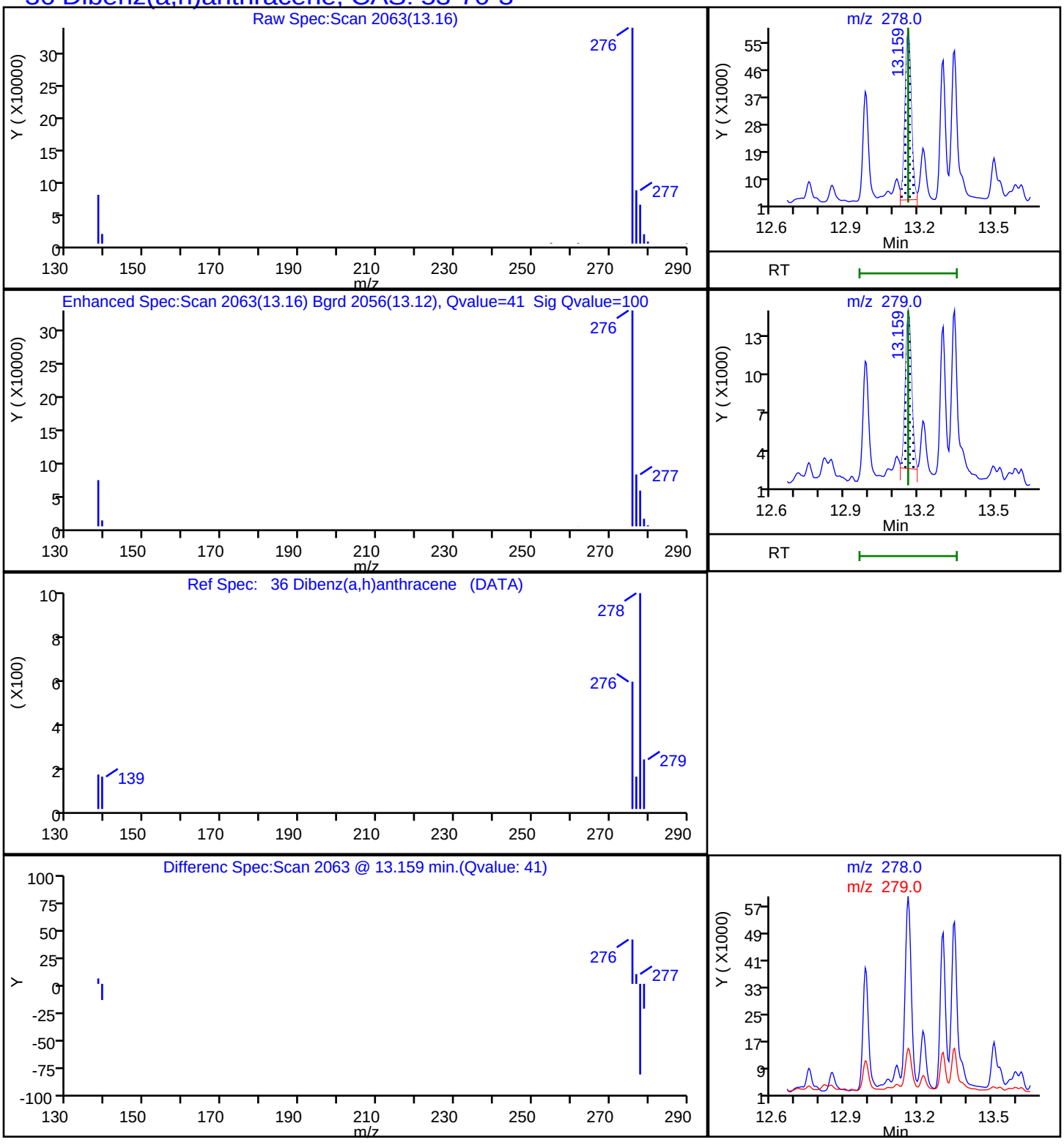
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

36 Dibenz(a,h)anthracene, CAS: 53-70-3



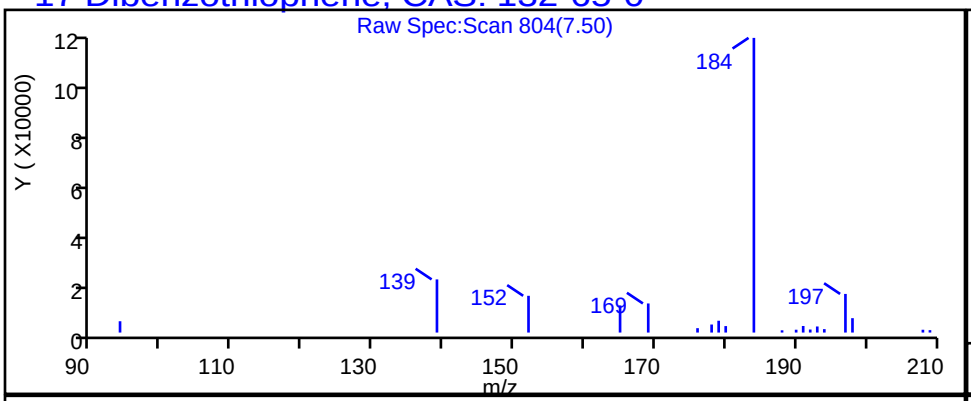
Report Date: 31-Aug-2019 13:01:07 Chrom Revision: 2.3 22-Aug-2019 12:55:36

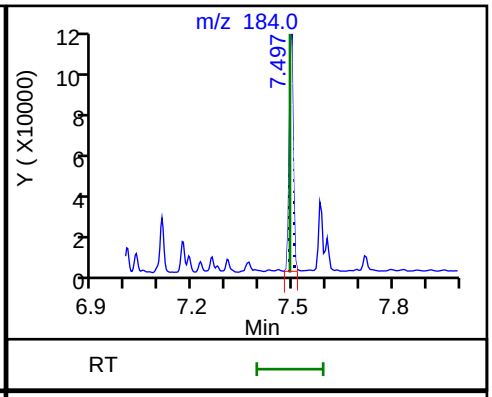
Eurofins TestAmerica, Knoxville

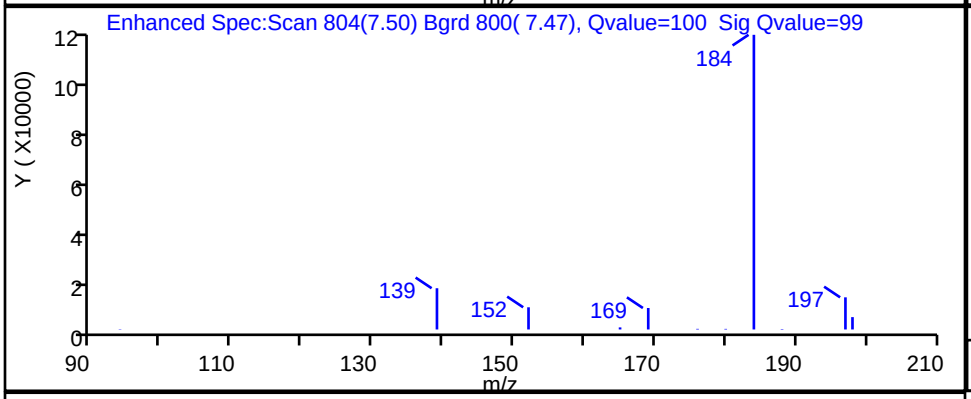
Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D

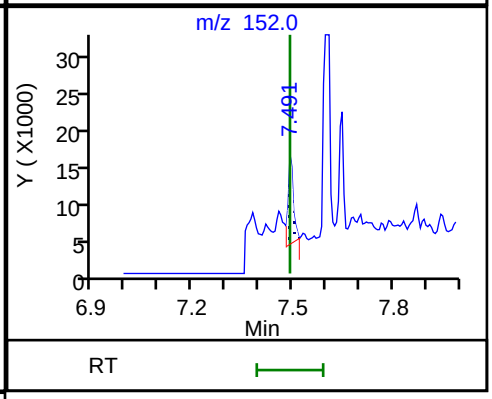
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15
Client ID:	22T-SG-16_20190716		
Operator ID:	11211	ALS Bottle#:	8 Worklist Smp#: 8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN

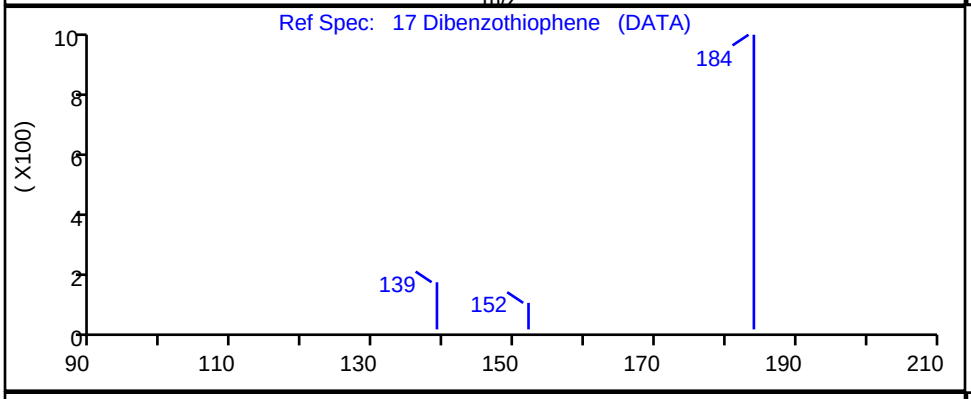
17 Dibenzothiophene, CAS: 132-65-0

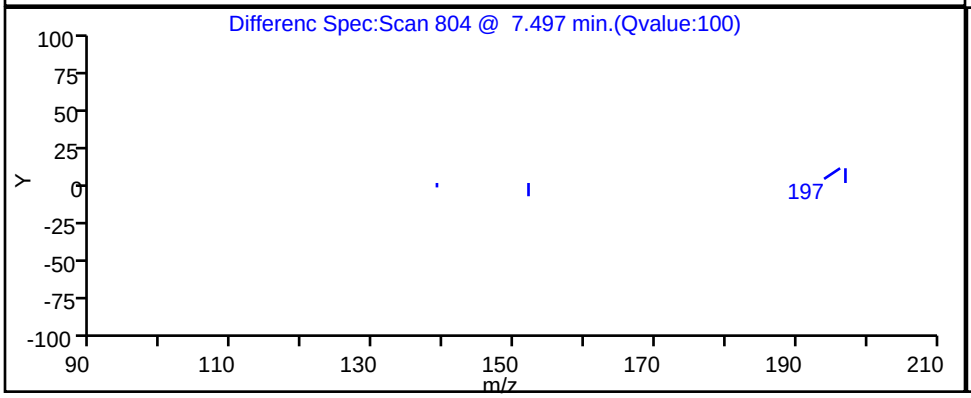


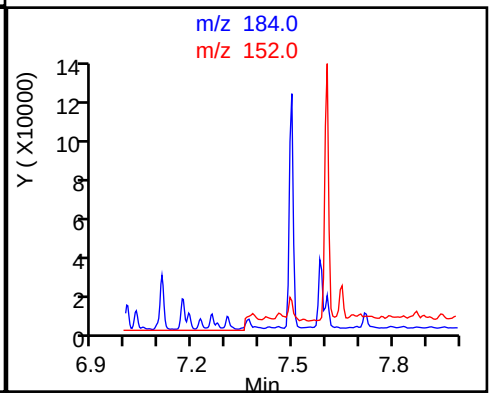












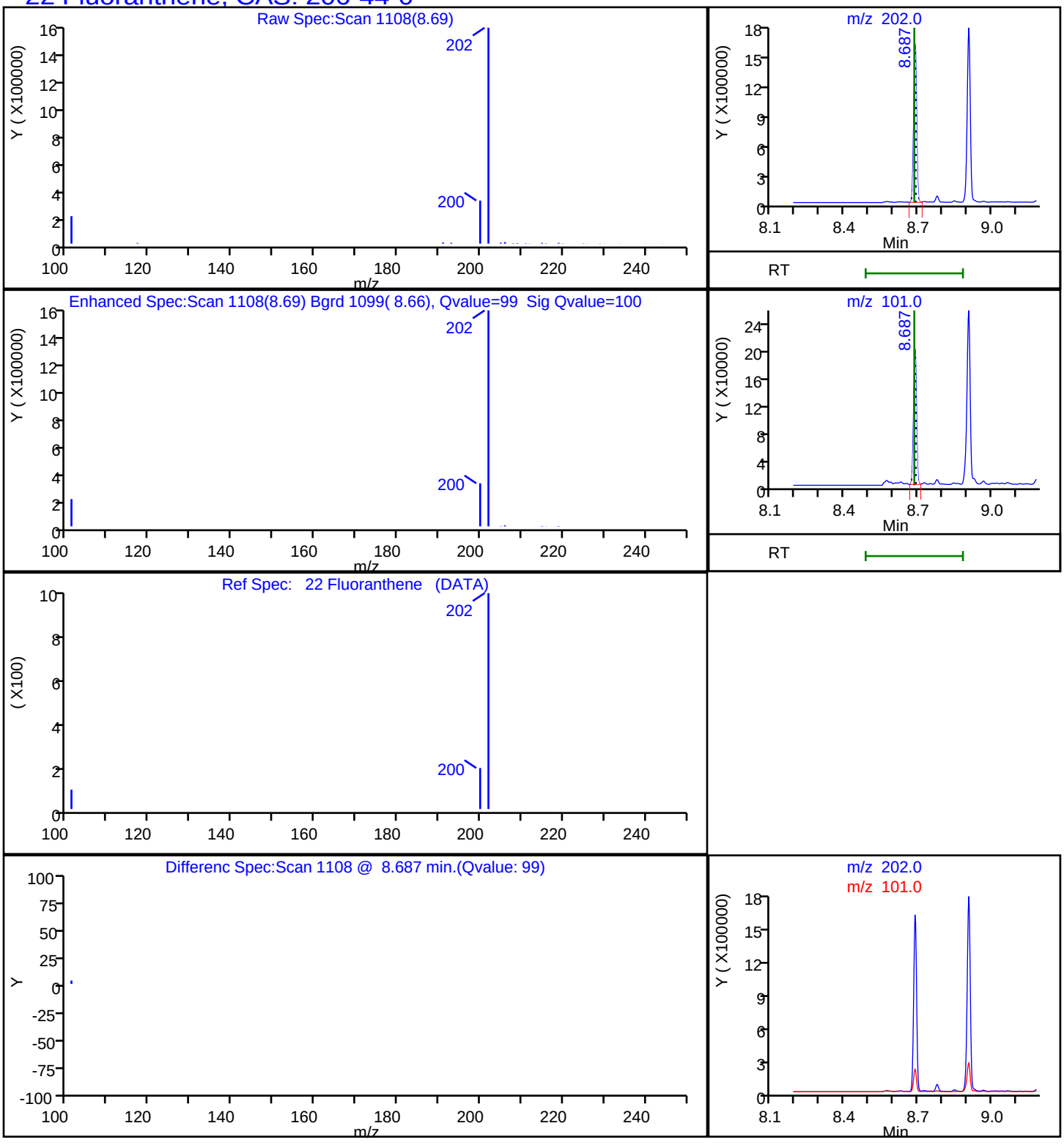
Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D

Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

22 Fluoranthene, CAS: 206-44-0

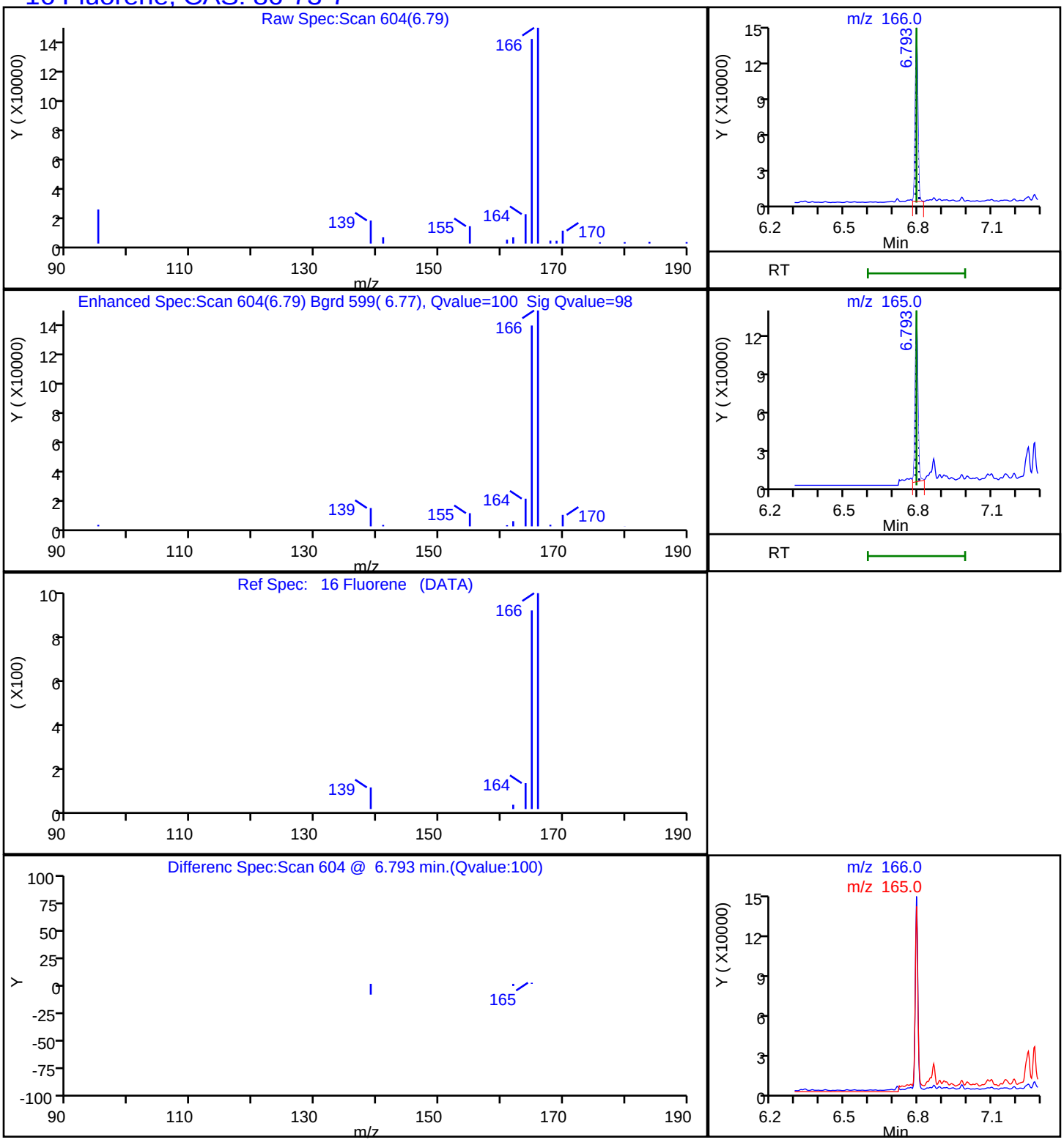


Report Date: 31-Aug-2019 13:01:07 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D		
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15
Client ID:	22T-SG-16_20190716		
Operator ID:	11211	ALS Bottle#:	8 Worklist Smp#: 8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN

16 Fluorene, CAS: 86-73-7

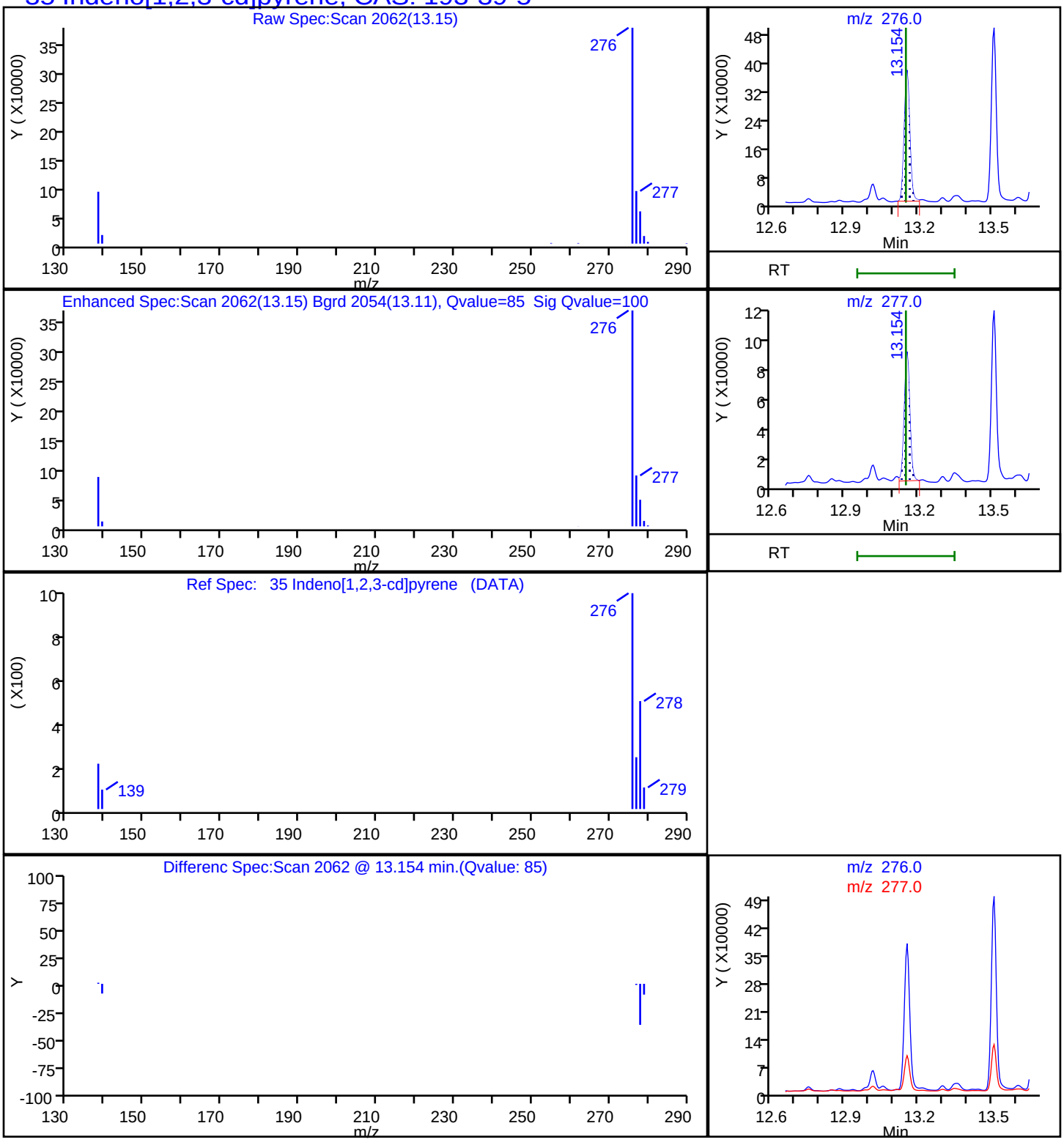


Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

35 Indeno[1,2,3-cd]pyrene, CAS: 193-39-5

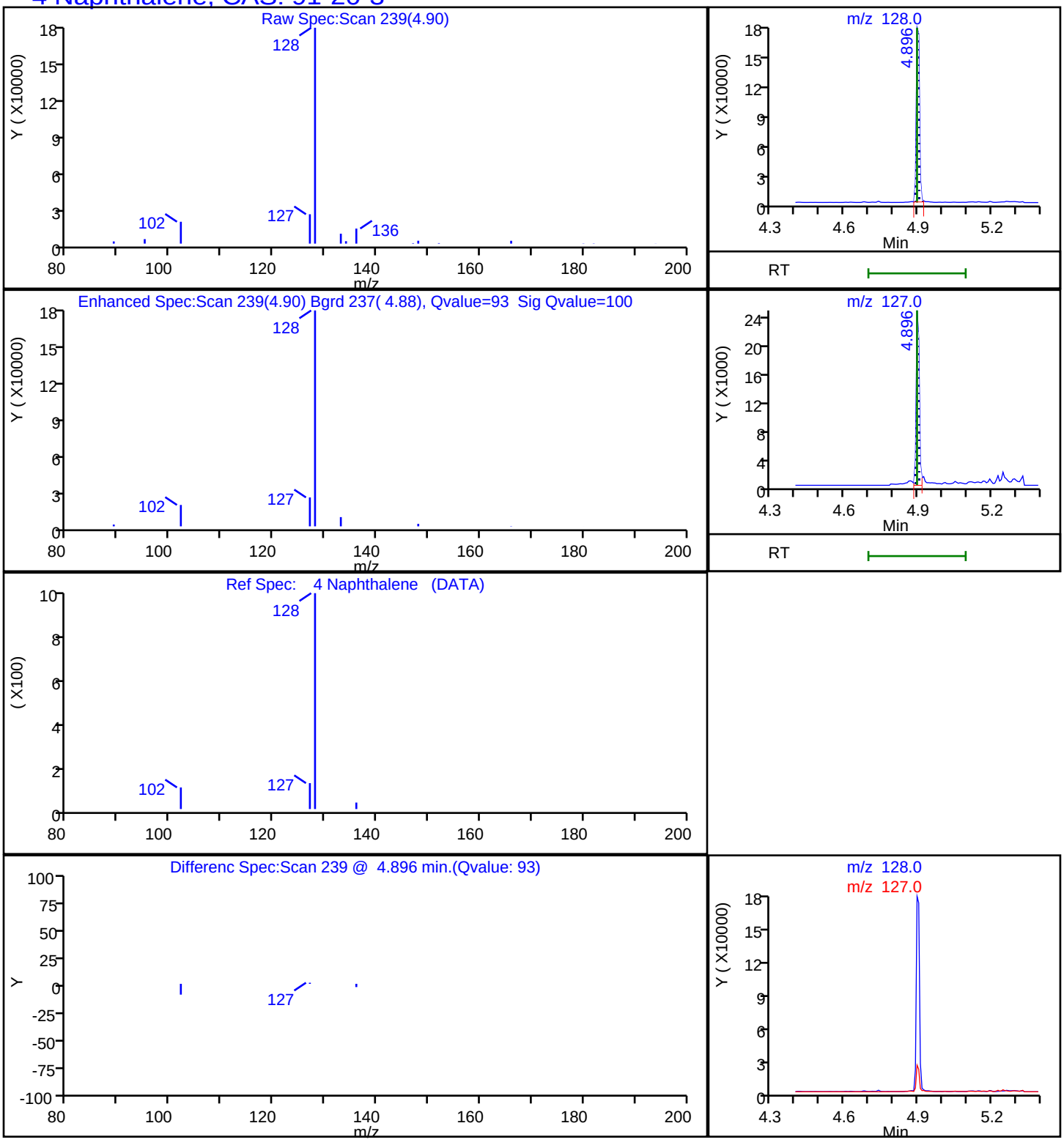


Report Date: 31-Aug-2019 13:01:07 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

4 Naphthalene, CAS: 91-20-3

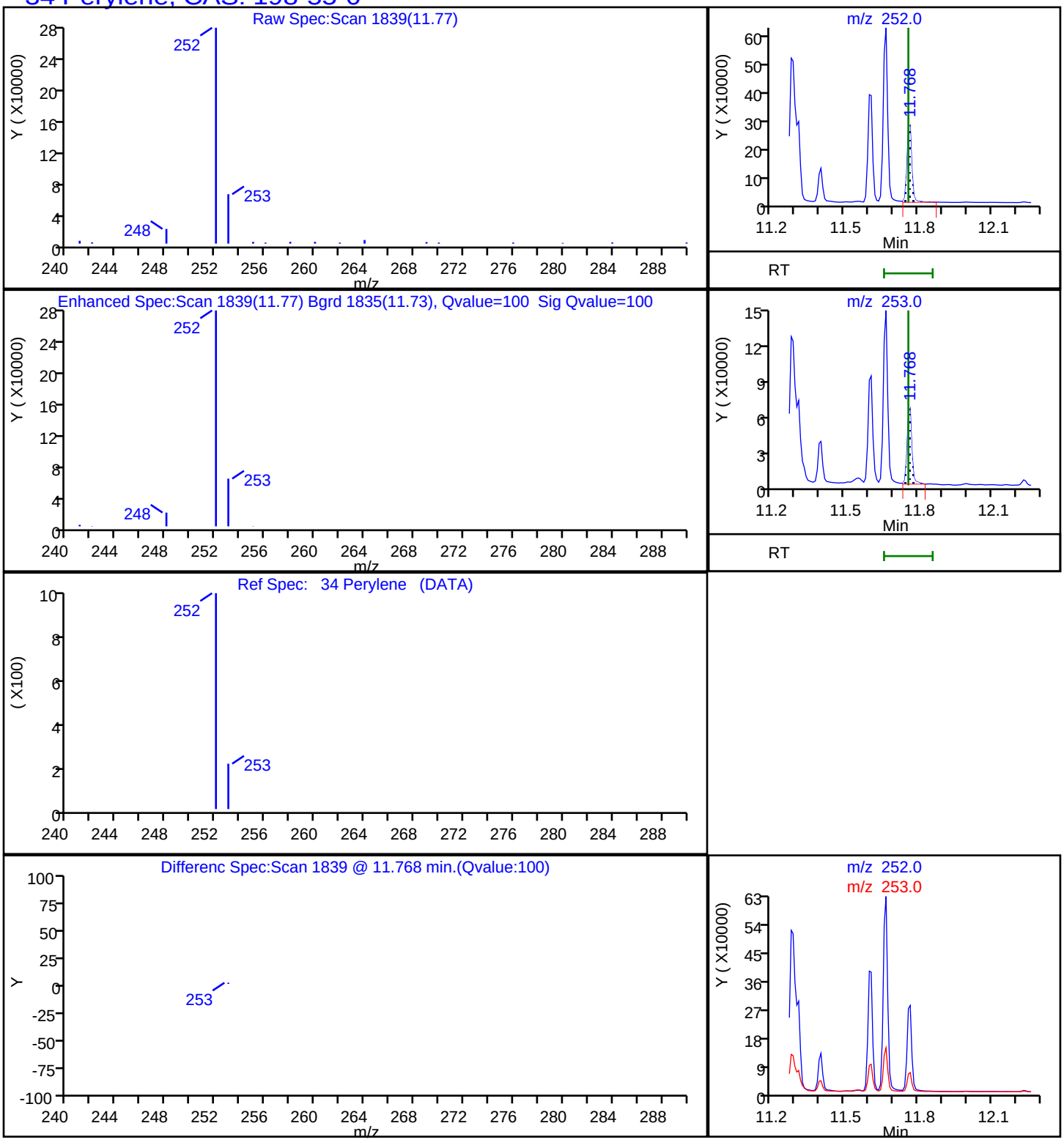


Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

34 Perylene, CAS: 198-55-0

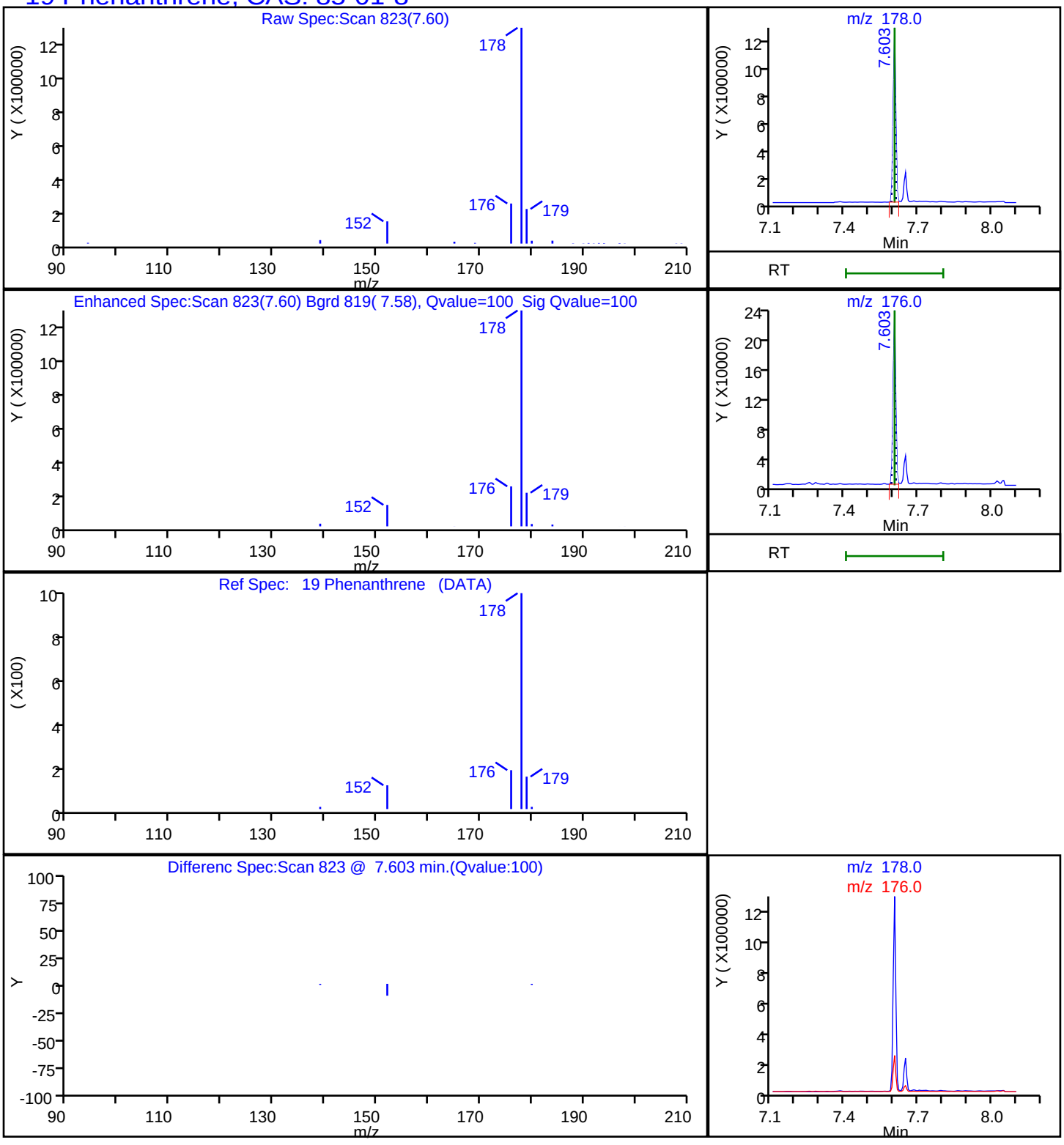


Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

19 Phenanthrene, CAS: 85-01-8



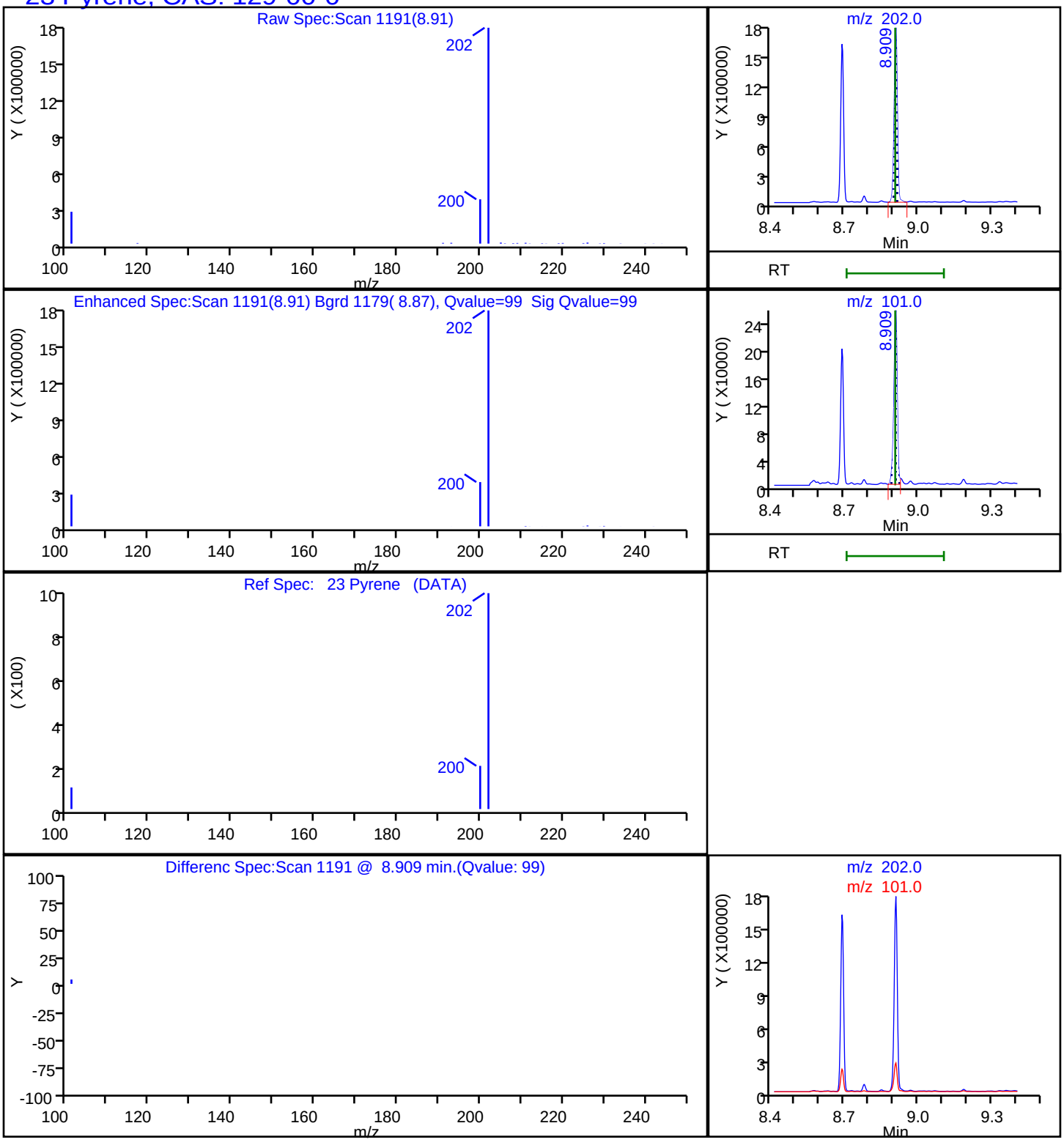
Report Date: 31-Aug-2019 13:01:08 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D

Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

23 Pyrene, CAS: 129-00-0



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

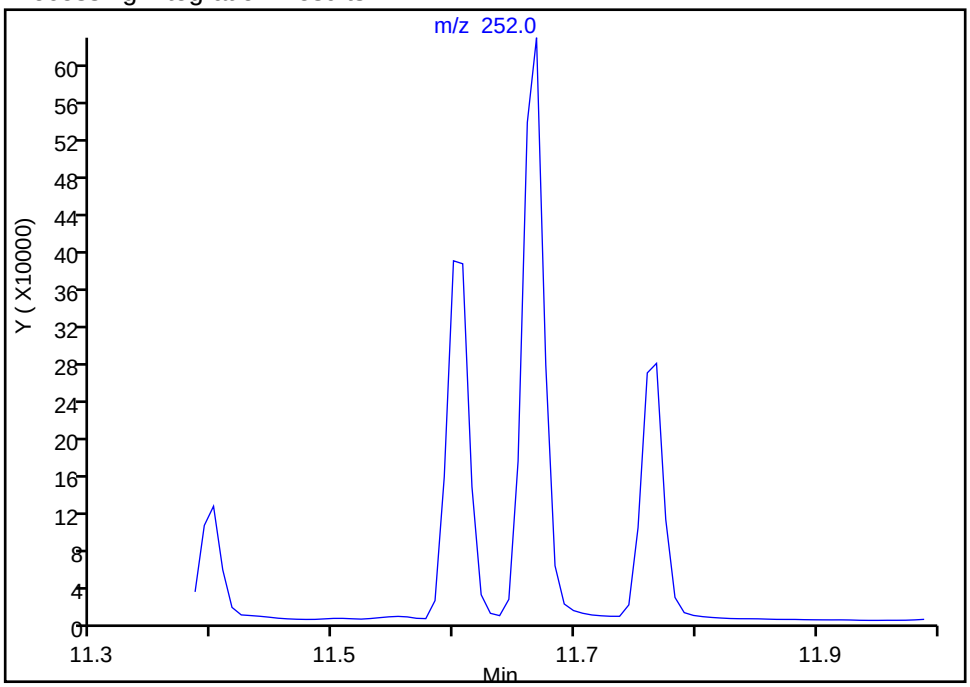
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

32 Benzo[a]pyrene, CAS: 50-32-8

Signal: 1

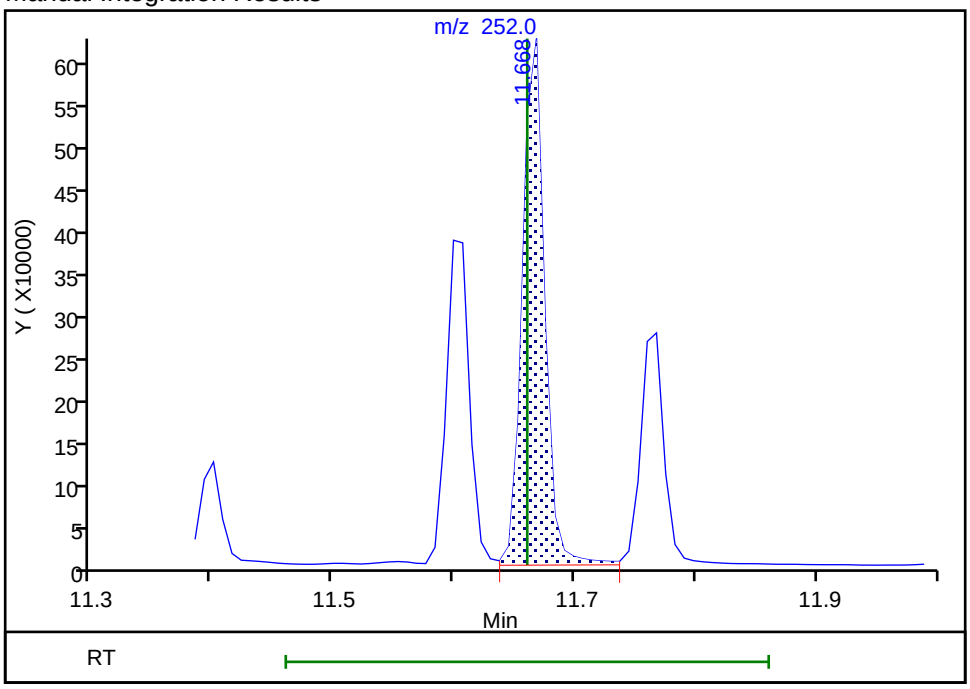
Not Detected
Expected RT: 11.66

Processing Integration Results



Manual Integration Results

RT: 11.67
Area: 792940
Amount: 1.652542
Amount Units: ug/ml



Reviewer: cochranj, 30-Aug-2019 15:41:48
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

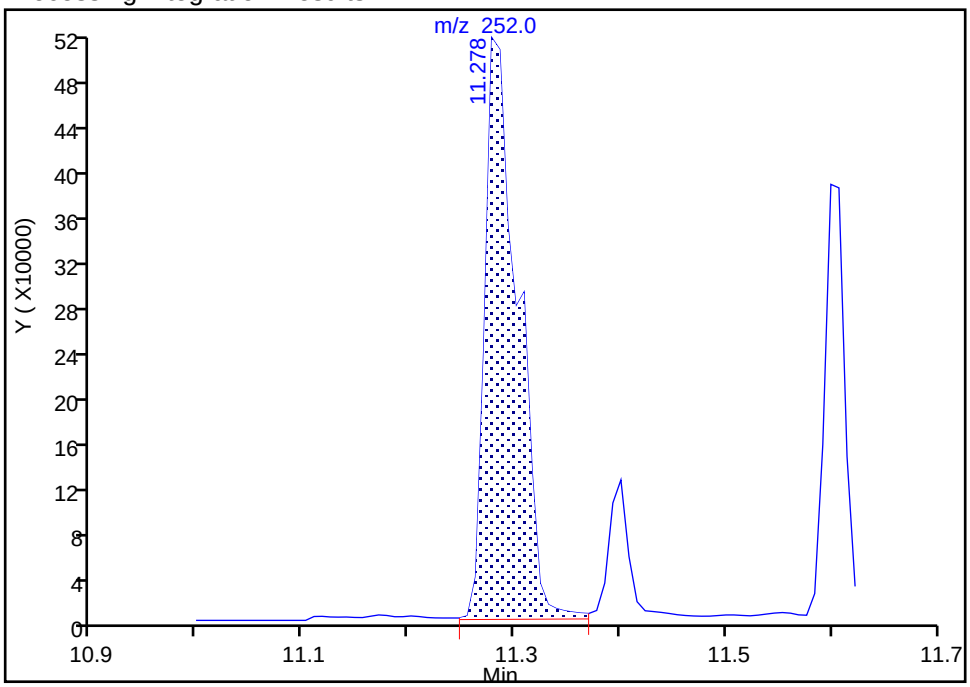
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

29 Benzo[b]fluoranthene, CAS: 205-99-2

Signal: 1

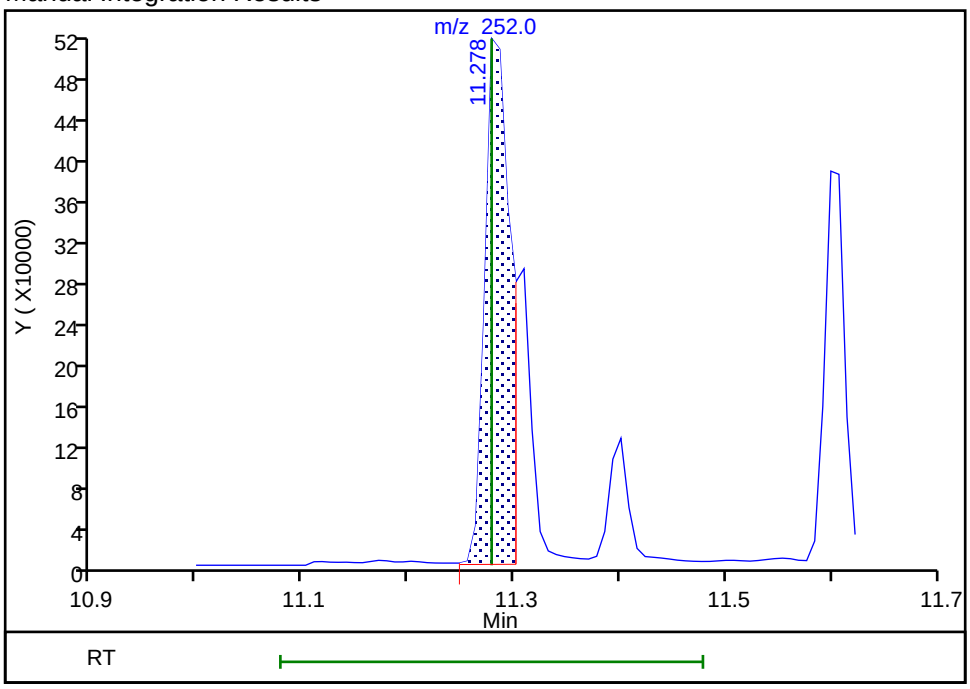
Processing Integration Results

RT: 11.28
Area: 1108660
Amount: 1.987835
Amount Units: ug/ml



Manual Integration Results

RT: 11.28
Area: 880436
Amount: 1.578628
Amount Units: ug/ml



Reviewer: cochranj, 30-Aug-2019 15:41:27

Audit Action: Split an Integrated Peak Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

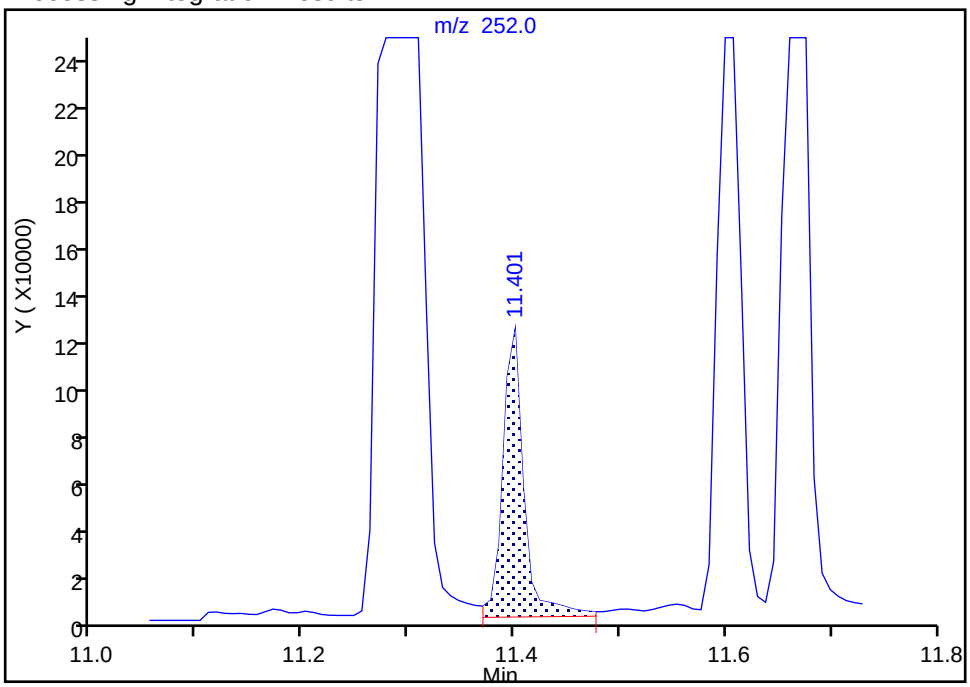
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

30 Benzo[k]fluoranthene, CAS: 207-08-9

Signal: 1

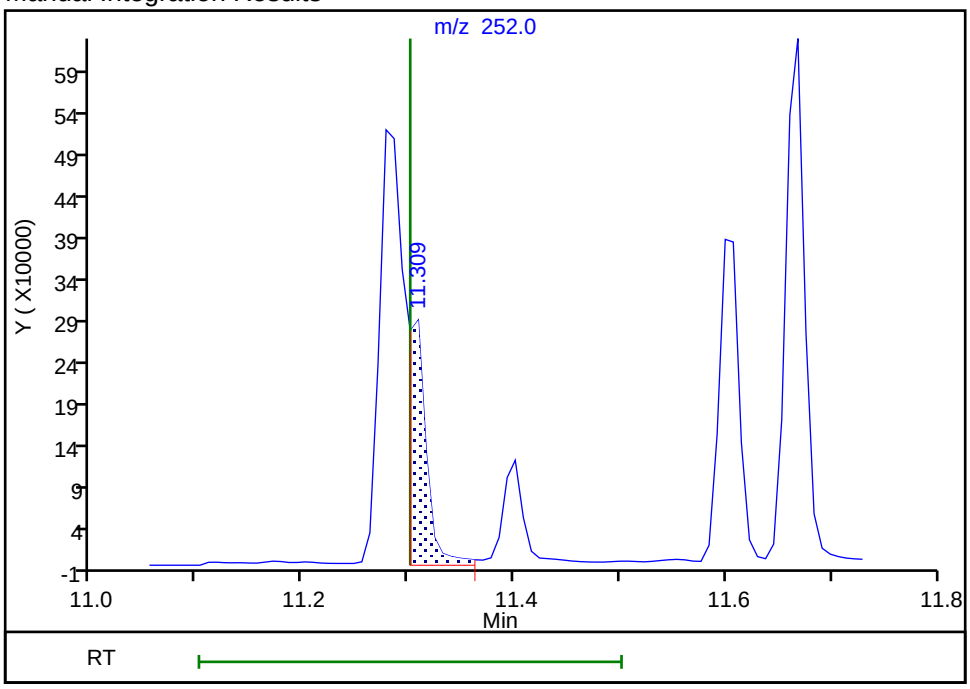
Processing Integration Results

RT: 11.40
Area: 170465
Amount: 0.269503
Amount Units: ug/ml



Manual Integration Results

RT: 11.31
Area: 357183
Amount: 0.564701
Amount Units: ug/ml



Reviewer: cochranj, 30-Aug-2019 15:41:38

Audit Action: Manually Integrated Audit Reason: Missed Peak

Eurofins TestAmerica, Knoxville

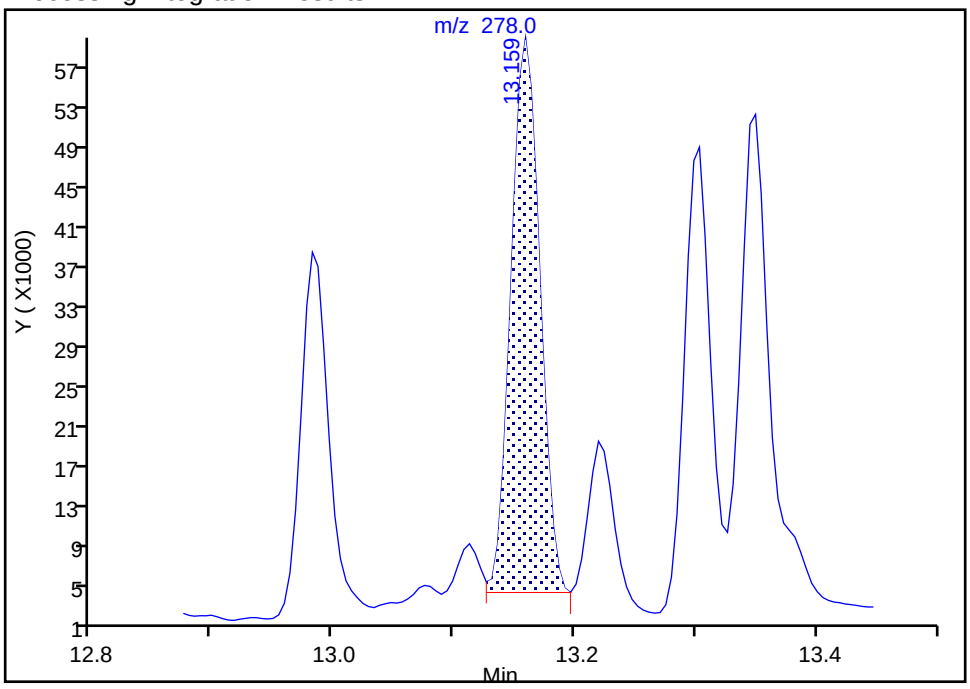
Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\580-87706-b-15-a.D				
Injection Date:	30-Aug-2019 13:11:30	Instrument ID:	MP		
Lims ID:	580-87706-B-15-A	Lab Sample ID:	140-87706-15		
Client ID:	22T-SG-16_20190716				
Operator ID:	11211	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

36 Dibenz(a,h)anthracene, CAS: 53-70-3

Signal: 1

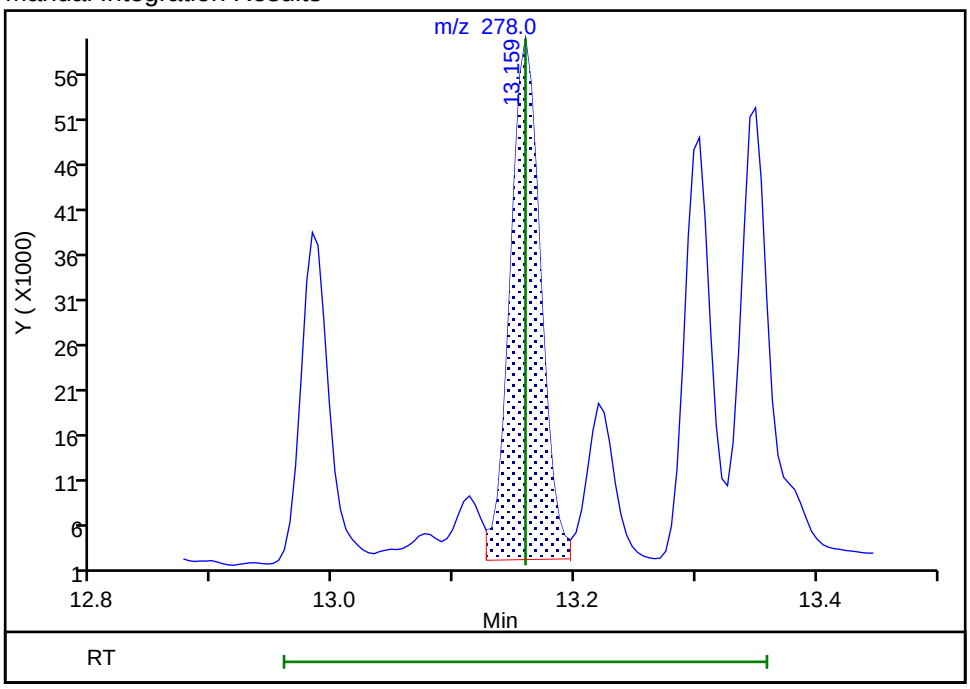
Processing Integration Results

RT: 13.16
Area: 91619
Amount: 0.182964
Amount Units: ug/ml



Manual Integration Results

RT: 13.16
Area: 101156
Amount: 0.202009
Amount Units: ug/ml



Reviewer: cochranj, 30-Aug-2019 15:42:06
Audit Action: Assigned New Baseline Audit Reason: Baseline

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2 Analy Batch No.: 32163

SDG No.:

Instrument ID: MP GC Column: Rxi-5SilMS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/21/2019 11:55 Calibration End Date: 07/21/2019 14:26 Calibration ID: 2060

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 140-32163/2	ic 1XC.D
Level 2	IC 140-32163/3	ic 2X.D
Level 3	IC 140-32163/4	ic 3X.D
Level 4	ICIS 140-32163/5	icis 4X.D
Level 5	IC 140-32163/6	ic 5X.D
Level 6	IC 140-32163/7	ic 6X.D
Level 7	IC 140-32163/8	ic 7X.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
cis-Decalin	0.1811 0.1636	0.1561 0.1556	0.1621	0.1660	0.1659	Ave		0.1643				5.2		20.0			
Naphthalene	1.2007 1.0653	1.1375 0.9625	1.1127	1.1218	1.1030	Ave		1.1005			0.7000	6.7		20.0			
Benzo(b)thiophene	1.0487 0.9012	0.8972 0.8337	0.9228	0.9387	0.9320	Ave		0.9249				7.0		20.0			
2-Methylnaphthalene	0.7710 0.7069	0.7285 0.6501	0.7254	0.7332	0.7319	Ave		0.7210			0.4000	5.1		20.0			
1-Methylnaphthalene	0.7309 0.6710	0.7029 0.6189	0.6968	0.7025	0.6860	Ave		0.6870				5.1		20.0			
1,1'-Biphenyl	1.9450 1.7421	1.8654 1.5885	1.8143	1.8403	1.8080	Ave		1.8005				6.2		20.0			
2,6-Dimethylnaphthalene	1.2582 1.1980	1.1988 1.1190	1.1855	1.2166	1.2122	Ave		1.1983				3.5		20.0			
Acenaphthylene	1.8082 1.8700	1.6332 1.8244	1.5357	1.6621	1.7122	Ave		1.7208			0.9000	7.0		20.0			
Acenaphthene	1.4357 1.2993	1.3620 1.1922	1.3358	1.3520	1.3357	Ave		1.3304			0.9000	5.5		20.0			
Dibenzofuran	2.1400 1.9699	2.0319 1.8198	2.0166	2.0379	2.0137	Ave		2.0042			0.8000	4.8		20.0			
2,3,5-Trimethylnaphthalene	1.0750 1.1000	0.9911 1.0371	1.0517	1.0917	1.0926	Ave		1.0627				3.7		20.0			
Fluorene	1.5516 1.4718	1.4684 1.3738	1.4571	1.4879	1.4904	Ave		1.4716			0.9000	3.6		20.0			
Dibenzothiophene	1.2619 1.1955	1.1906 1.1140	1.1733	1.2024	1.2162	Ave		1.1934				3.8		20.0			
Phenanthrene	1.4130 1.2515	1.3144 1.1550	1.2827	1.3052	1.2932	Ave		1.2878			0.7000	6.0		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2 Analy Batch No.: 32163

SDG No.:

Instrument ID: MP GC Column: Rxi-5SilMS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/21/2019 11:55 Calibration End Date: 07/21/2019 14:26 Calibration ID: 2060

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Anthracene	1.0921 1.1524	0.9959 1.0947	0.9963	1.0756	1.1116	Ave		1.0741			0.7000	5.4		20.0			
1-Methylphenanthrene	0.8508 0.8745	0.8095 0.8217	0.8193	0.8551	0.8719	Ave		0.8433				3.1		20.0			
Fluoranthene	1.2567 1.3377	1.1689 1.2666	1.1779	1.2561	1.3029	Ave		1.2524			0.6000	4.9		20.0			
Pyrene	1.6186 1.5458	1.4831 1.4520	1.4585	1.5190	1.5148	Ave		1.5131			0.6000	3.8		20.0			
Naphthobenzothiophene	0.9909 0.9156	0.8150 0.9094	0.8290	0.8486	0.8836	Ave		0.8846				6.9		20.0			
Benzo[a]anthracene	1.3037 1.2733	1.1187 1.2247	1.0639	1.1396	1.1988	Ave		1.1889			0.8000	7.3		20.0			
Chrysene	1.6602 1.3486	1.4602 1.2462	1.4267	1.4240	1.3865	Ave		1.4218			0.7000	8.9		20.0			
Benzo[b]fluoranthene	1.3442 1.4996	1.2601 1.3297	1.2142	1.3324	1.5764	Ave		1.3652			0.7000	9.4		20.0			
Benzo[k]fluoranthene	1.5633 1.5427	1.4725 1.4880	1.5913	1.6185	1.5618	Ave		1.5483			0.7000	3.4		20.0			
Benzo[e]pyrene	1.2881 1.3519	1.1949 1.2495	1.2545	1.2730	1.3630	Ave		1.2821				4.6		20.0			
Benzo[a]pyrene	1.1265 1.3334	1.0329 1.2880	1.0017	1.1997	1.2397	Ave		1.1746			0.7000	10.7		20.0			
Perylene	1.3122 1.3903	1.2741 1.2996	1.2992	1.3169	1.3932	Ave		1.3265				3.5		20.0			
Indeno[1,2,3-cd]pyrene	1.4633 1.5302	1.3403 1.4372	1.3612	1.4386	1.5388	Ave		1.4442			0.5000	5.2		20.0			
Dibenz(a,h)anthracene	1.2101 1.2820	1.1481 1.1933	1.1963	1.2352	1.3153	Ave		1.2258			0.4000	4.6		20.0			
Benzo[g,h,i]perylene	1.5311 1.3490	1.3231 1.2685	1.2739	1.3335	1.3816	Ave		1.3515			0.5000	6.6		20.0			
Nitrobenzene-d5	0.3323 0.3070	0.2694 0.3049	0.2618	0.2792	0.2889	Ave		0.2919				8.4		20.0			
2-Fluorobiphenyl (Surr)	1.8616 1.5574	1.6040 1.4332	1.6154	1.6307	1.6154	Ave		1.6168				7.9		20.0			
Terphenyl-d14	0.9399 0.7952	0.8033 0.7406	0.8091	0.8234	0.8128	Ave		0.8177				7.4		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2 Analy Batch No.: 32163

SDG No.:

Instrument ID: MP GC Column: Rxi-5SilMS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/21/2019 11:55 Calibration End Date: 07/21/2019 14:26 Calibration ID: 2060

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 140-32163/2	ic 1XC.D
Level 2	IC 140-32163/3	ic 2X.D
Level 3	IC 140-32163/4	ic 3X.D
Level 4	ICIS 140-32163/5	icis 4X.D
Level 5	IC 140-32163/6	ic 5X.D
Level 6	IC 140-32163/7	ic 6X.D
Level 7	IC 140-32163/8	ic 7X.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
cis-Decalin	NPT	Ave	1515 174790	6855 341828	18083	35517	72025	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Naphthalene	NPT	Ave	10043 1138352	49952 2114072	124160	239975	478933	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Benzo(b)thiophene	NPT	Ave	8771 962993	39401 1831105	102966	200794	404704	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
2-Methylnaphthalene	NPT	Ave	6449 755402	31992 1427865	80935	156847	317802	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
1-Methylnaphthalene	NPT	Ave	6113 717030	30870 1359311	77744	150276	297864	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
1,1'-Biphenyl	ANT	Ave	8088 937053	40741 1753733	100883	194867	390720	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
2,6-Dimethylnaphthalene	ANT	Ave	5232 644421	26182 1235396	65921	128831	261961	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Acenaphthylene	ANT	Ave	7519 1005879	35669 2014135	85393	176002	370007	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Acenaphthene	ANT	Ave	5970 698905	29745 1316249	74278	143164	288656	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Dibenzofuran	ANT	Ave	8899 1059581	44376 2009087	112131	215794	435159	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
2,3,5-Trimethylnaphthalene	ANT	Ave	4470 591687	21645 1145006	58477	115603	236115	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Fluorene	ANT	Ave	6452 791685	32069 1516700	81020	157549	322076	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Dibenzothiophene	PHN	Ave	8922 1098885	43885 2115730	111190	217069	445228	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Phenanthrene	PHN	Ave	9990 1150340	48449 2193728	121561	235615	473402	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Anthracene	PHN	Ave	7721 1059249	36710 2079069	94415	194178	406940	0.0200 2.50	0.100 5.00	0.250	0.500	1.00

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2 Analy Batch No.: 32163

SDG No.:

Instrument ID: MP GC Column: Rxi-5SilMS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/21/2019 11:55 Calibration End Date: 07/21/2019 14:26 Calibration ID: 2060

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
1-Methylphenanthrene	PHN	Ave	6015 803844	29838 1560700	77645	154372	319197	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Fluoranthene	PHN	Ave	8885 1229602	43087 2405679	111627	226763	476969	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Pyrene	CRY	Ave	9329 1286874	45374 2501407	117477	240127	503278	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Naphthobenzothiophene	CRY	Ave	5711 762257	24933 1566646	66774	134156	293581	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Benzo[a]anthracene	CRY	Ave	7514 1059968	34225 2109714	85690	180154	398285	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Chrysene	CRY	Ave	9569 1122677	44673 2146798	114916	225110	460660	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Benzo[b]fluoranthene	PRY	Ave	7687 1148803	37758 2168983	88756	199208	459515	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Benzo[k]fluoranthene	PRY	Ave	8940 1181881	44122 2427192	116322	241982	455269	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Benzo[e]pyrene	PRY	Ave	7366 1035672	35804 2038126	91702	190336	397305	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Benzo[a]pyrene	PRY	Ave	6442 1021484	30951 2100916	73223	179370	361370	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Perylene	PRY	Ave	7504 1065065	38177 2119821	94970	196892	406114	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Indeno[1,2,3-cd]pyrene	PRY	Ave	8368 1172244	40160 2344306	99498	215083	448572	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Dibenz(a,h)anthracene	PRY	Ave	6920 982147	34402 1946519	87445	184681	383410	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Benzo[g,h,i]perylene	PRY	Ave	8756 1033468	39646 2069141	93120	199375	402739	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Nitrobenzene-d5	NPT	Ave	2779 328062	11829 669758	29211	59715	125430	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
2-Fluorobiphenyl (Surr)	ANT	Ave	7741 837706	35031 1582268	89825	172674	349096	0.0200 2.50	0.100 5.00	0.250	0.500	1.00
Terphenyl-d14	CRY	Ave	5417 661955	24577 1275914	65167	130168	270035	0.0200 2.50	0.100 5.00	0.250	0.500	1.00

Curve Type Legend:
Ave = Average ISTD

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 1XC.D
Lims ID: ic 1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 21-Jul-2019 11:55:30 ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012421-002
Misc. Info.: P072119(8270)ICSC
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 29-Jul-2019 18:38:32 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX1022

First Level Reviewer: cochranj Date: 29-Jul-2019 14:33:19

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.316	4.316	0.000	99	2779	0.0200	0.0228	
2 cis-Decalin	138	4.465	4.465	0.000	95	1515	0.0200	0.0220	
* 3 Naphthalene-d8	136	4.889	4.889	0.000	95	209099	0.5000	0.5000	
4 Naphthalene	128	4.909	4.909	0.000	92	10043	0.0200	0.0218	
5 Benzo(b)thiophene	134	4.950	4.950	0.000	100	8771	0.0200	0.0227	
6 2-Methylnaphthalene	142	5.470	5.469	0.001	98	6449	0.0200	0.0214	
7 1-Methylnaphthalene	142	5.552	5.558	-0.006	97	6113	0.0200	0.0213	
$ 8 2-Fluorobiphenyl (Surr)	172	5.772	5.772	0.000	87	7741	0.0200	0.0230	
9 1,1'-Biphenyl	154	5.858	5.858	0.000	100	8088	0.0200	0.0216	
10 2,6-Dimethylnaphthalene	156	5.990	5.990	0.000	98	5232	0.0200	0.0210	
11 Acenaphthylene	152	6.225	6.225	0.000	100	7519	0.0200	0.0210	
* 12 Acenaphthene-d10	164	6.342	6.342	0.000	98	103958	0.5000	0.5000	
13 Acenaphthene	153	6.369	6.368	0.001	99	5970	0.0200	0.0216	
14 Dibenzofuran	168	6.516	6.516	0.000	98	8899	0.0200	0.0214	
15 2,3,5-Trimethylnaphthalene	170	6.687	6.687	0.000	91	4470	0.0200	0.0202	
16 Fluorene	166	6.803	6.803	0.000	100	6452	0.0200	0.0211	
17 Dibenzothiophene	184	7.502	7.502	0.000	100	8922	0.0200	0.0211	
* 18 Phenanthrene-d10	188	7.592	7.592	0.000	100	176754	0.5000	0.5000	
19 Phenanthrene	178	7.609	7.609	0.000	98	9990	0.0200	0.0219	
20 Anthracene	178	7.660	7.659	0.001	100	7721	0.0200	0.0203	
21 1-Methylphenanthrene	192	8.158	8.157	0.001	100	6015	0.0200	0.0202	
22 Fluoranthene	202	8.698	8.698	0.000	99	8885	0.0200	0.0201	
23 Pyrene	202	8.917	8.917	0.000	99	9329	0.0200	0.0214	
$ 24 Terphenyl-d14	244	9.053	9.053	0.000	100	5417	0.0200	0.0230	
25 Naphthobenzothiophene	234	9.883	9.883	0.000	100	5711	0.0200	0.0224	
26 Benzo[a]anthracene	228	10.129	10.129	0.000	31	7514	0.0200	0.0219	
* 27 Chrysene-d12	240	10.145	10.145	0.000	70	144091	0.5000	0.5000	
28 Chrysene	228	10.169	10.169	0.000	100	9569	0.0200	0.0234	M
29 Benzo[b]fluoranthene	252	11.286	11.286	0.000	100	7687	0.0200	0.0197	
30 Benzo[k]fluoranthene	252	11.317	11.316	0.001	100	8940	0.0200	0.0202	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.615	11.615	0.000	100	7366	0.0200	0.0201	
32 Benzo[a]pyrene	252	11.676	11.676	0.000	100	6442	0.0200	0.0192	
* 33 Perylene-d12	264	11.745	11.745	0.000	100	142965	0.5000	0.5000	
34 Perylene	252	11.775	11.775	0.000	100	7504	0.0200	0.0198	
35 Indeno[1,2,3-cd]pyrene	276	13.165	13.165	0.000	97	8368	0.0200	0.0203	
36 Dibenz(a,h)anthracene	278	13.179	13.175	0.004	96	6920	0.0200	0.0197	
37 Benzo[g,h,i]perylene	276	13.519	13.518	0.001	98	8756	0.0200	0.0227	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

60L18270SIM_00005 Amount Added: 1.00 Units: mL

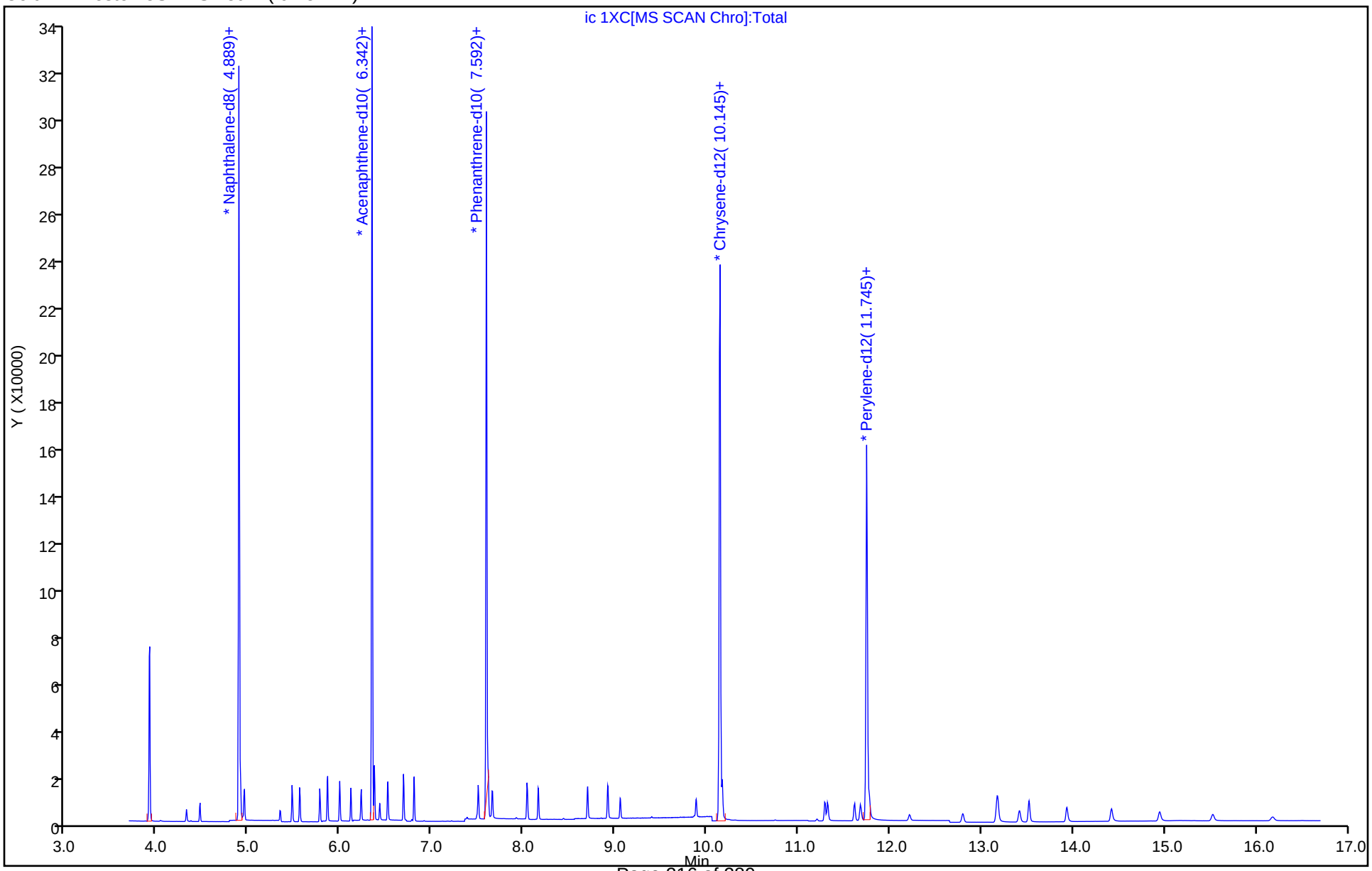
Report Date: 29-Jul-2019 18:38:33 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 1XC.D

Injection Date:	21-Jul-2019 11:55:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	ic 1			Worklist Smp#:	2
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

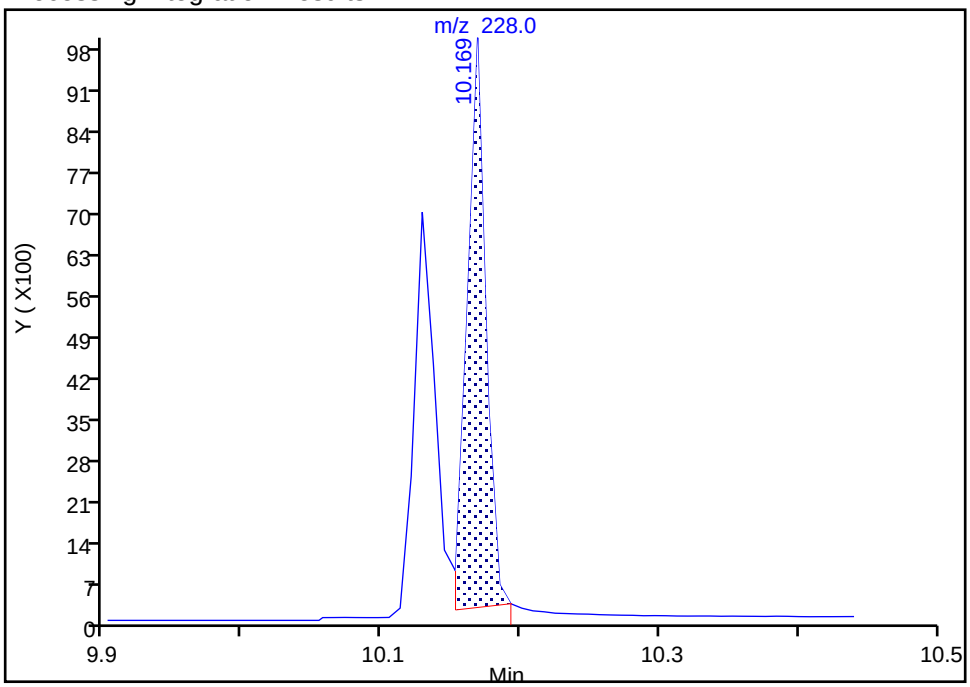
Data File:	\\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 1XC.D				
Injection Date:	21-Jul-2019 11:55:30	Instrument ID:	MP		
Lims ID:	ic 1				
Client ID:					
Operator ID:	11211	ALS Bottle#:	2	Worklist Smp#:	2
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

28 Chrysene, CAS: 218-01-9

Signal: 1

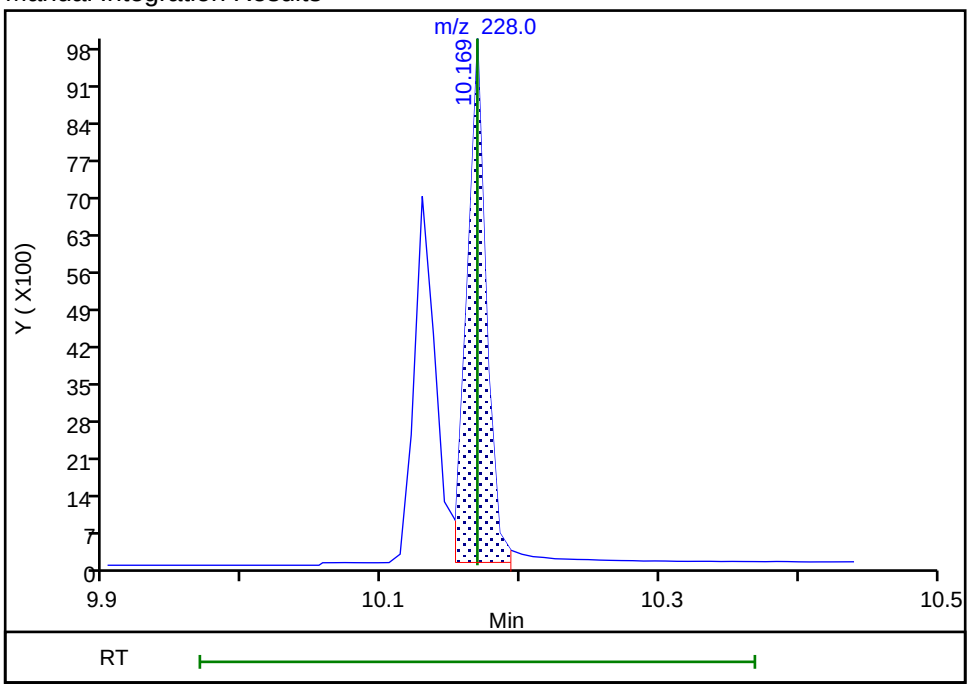
Processing Integration Results

RT: 10.17
Area: 9061
Amount: 0.022312
Amount Units: ug/ml



Manual Integration Results

RT: 10.17
Area: 9569
Amount: 0.023354
Amount Units: ug/ml



Reviewer: cochranj, 29-Jul-2019 14:32:51
Audit Action: Assigned New Baseline Audit Reason: Baseline

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 2X.D
Lims ID: ic 2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 21-Jul-2019 12:20:30 ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012421-003
Misc. Info.: P072119(8270)ICSC
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 29-Jul-2019 18:38:36 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX1022

First Level Reviewer: cochranj Date: 29-Jul-2019 14:34:00

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.316	4.316	0.000	99	11829	0.1000	0.0923	
2 cis-Decalin	138	4.465	4.465	0.000	95	6855	0.1000	0.0950	
* 3 Naphthalene-d8	136	4.889	4.889	0.000	95	219575	0.5000	0.5000	
4 Naphthalene	128	4.909	4.909	0.000	93	49952	0.1000	0.1034	
5 Benzo(b)thiophene	134	4.950	4.950	0.000	100	39401	0.1000	0.0970	
6 2-Methylnaphthalene	142	5.469	5.469	0.000	97	31992	0.1000	0.1010	
7 1-Methylnaphthalene	142	5.551	5.558	-0.007	97	30870	0.1000	0.1023	
$ 8 2-Fluorobiphenyl (Surr)	172	5.772	5.772	0.000	87	35031	0.1000	0.0992	
9 1,1'-Biphenyl	154	5.858	5.858	0.000	100	40741	0.1000	0.1036	
10 2,6-Dimethylnaphthalene	156	5.990	5.990	0.000	98	26182	0.1000	0.1000	
11 Acenaphthylene	152	6.225	6.225	0.000	100	35669	0.1000	0.0949	
* 12 Acenaphthene-d10	164	6.342	6.342	0.000	99	109200	0.5000	0.5000	
13 Acenaphthene	153	6.369	6.368	0.001	100	29745	0.1000	0.1024	
14 Dibenzofuran	168	6.516	6.516	0.000	97	44376	0.1000	0.1014	
15 2,3,5-Trimethylnaphthalene	170	6.687	6.687	0.000	93	21645	0.1000	0.0933	
16 Fluorene	166	6.803	6.803	0.000	100	32069	0.1000	0.0998	
17 Dibenzothiophene	184	7.502	7.502	0.000	100	43885	0.1000	0.0998	
* 18 Phenanthrene-d10	188	7.592	7.592	0.000	100	184299	0.5000	0.5000	
19 Phenanthrene	178	7.609	7.609	0.000	98	48449	0.1000	0.1021	
20 Anthracene	178	7.654	7.659	-0.005	100	36710	0.1000	0.0927	
21 1-Methylphenanthrene	192	8.158	8.157	0.001	100	29838	0.1000	0.0960	
22 Fluoranthene	202	8.698	8.698	0.000	99	43087	0.1000	0.0933	
23 Pyrene	202	8.917	8.917	0.000	99	45374	0.1000	0.0980	
$ 24 Terphenyl-d14	244	9.056	9.053	0.003	100	24577	0.1000	0.0982	
25 Naphthobenzothiophene	234	9.883	9.883	0.000	100	24933	0.1000	0.0921	
26 Benzo[a]anthracene	228	10.129	10.129	0.000	89	34225	0.1000	0.0941	
* 27 Chrysene-d12	240	10.145	10.145	0.000	70	152968	0.5000	0.5000	
28 Chrysene	228	10.169	10.169	0.000	100	44673	0.1000	0.1027	
29 Benzo[b]fluoranthene	252	11.286	11.286	0.000	100	37758	0.1000	0.0923	
30 Benzo[k]fluoranthene	252	11.317	11.316	0.001	100	44122	0.1000	0.0951	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.615	11.615	0.000	100	35804	0.1000	0.0932	
32 Benzo[a]pyrene	252	11.676	11.676	0.000	100	30951	0.1000	0.0879	
* 33 Perylene-d12	264	11.745	11.745	0.000	100	149822	0.5000	0.5000	
34 Perylene	252	11.775	11.775	0.000	100	38177	0.1000	0.0960	
35 Indeno[1,2,3-cd]pyrene	276	13.165	13.165	0.000	94	40160	0.1000	0.0928	
36 Dibenz(a,h)anthracene	278	13.175	13.175	0.000	93	34402	0.1000	0.0937	
37 Benzo[g,h,i]perylene	276	13.514	13.518	-0.004	98	39646	0.1000	0.0979	

Reagents:

60L28270SIM_00006 Amount Added: 1.00 Units: mL

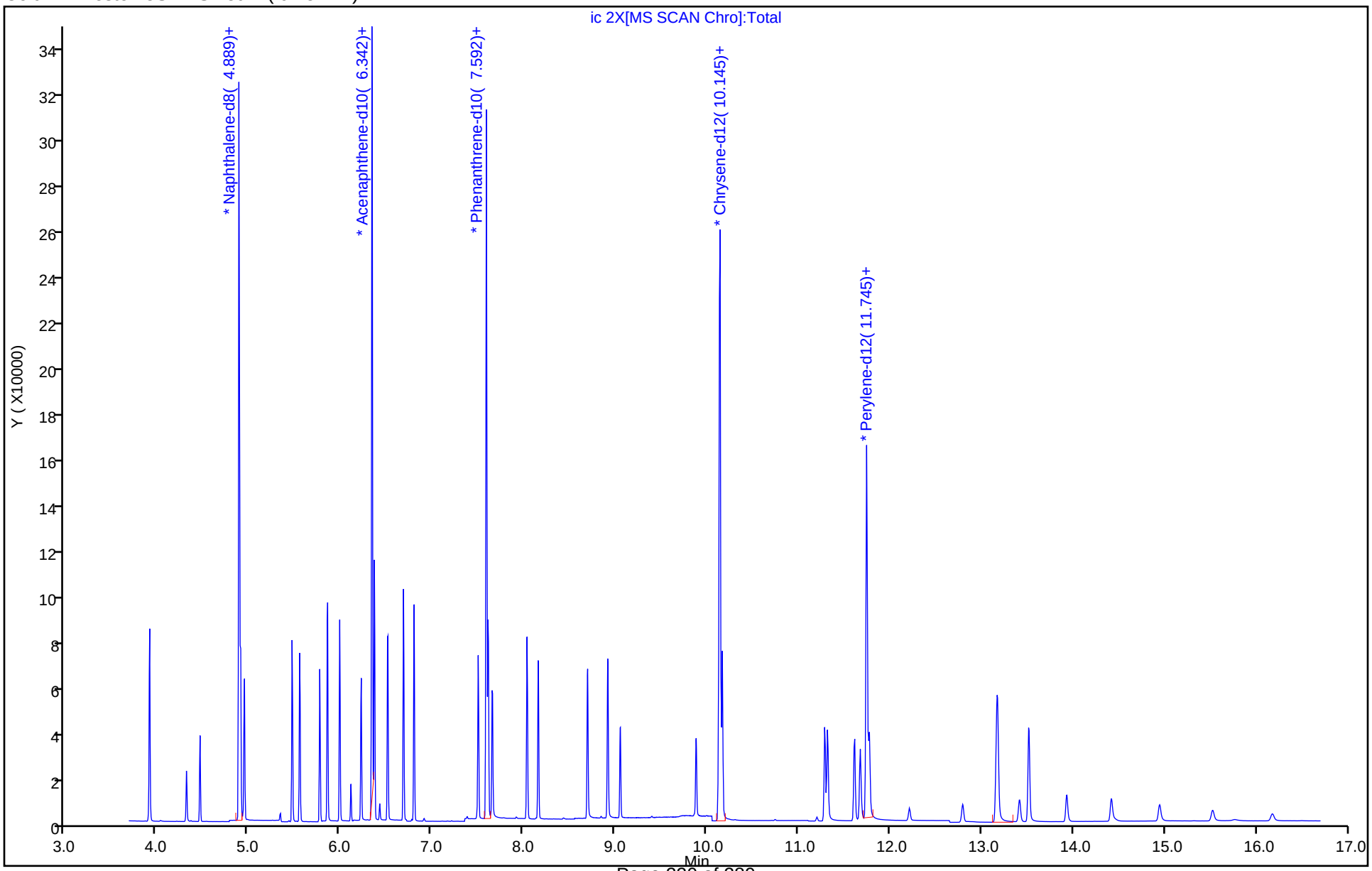
Report Date: 29-Jul-2019 18:38:37 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 2X.D

Injection Date:	21-Jul-2019 12:20:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	ic 2			Worklist Smp#:	3
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 3X.D
Lims ID: ic 3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 21-Jul-2019 12:45:30 ALS Bottle#: 4 Worklist Smp#: 4
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012421-004
Misc. Info.: P072119(8270)ICSC
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 29-Jul-2019 18:38:40 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX1022

First Level Reviewer: cochranj Date: 29-Jul-2019 14:34:50

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.316	4.316	0.000	99	29211	0.2500	0.2242	
2 cis-Decalin	138	4.465	4.465	0.000	94	18083	0.2500	0.2465	
* 3 Naphthalene-d8	136	4.889	4.889	0.000	95	223159	0.5000	0.5000	
4 Naphthalene	128	4.909	4.909	0.000	93	124160	0.2500	0.2528	
5 Benzo(b)thiophene	134	4.950	4.950	0.000	100	102966	0.2500	0.2494	
6 2-Methylnaphthalene	142	5.469	5.469	0.000	97	80935	0.2500	0.2515	
7 1-Methylnaphthalene	142	5.551	5.558	-0.007	97	77744	0.2500	0.2536	
$ 8 2-Fluorobiphenyl (Surr)	172	5.772	5.772	0.000	87	89825	0.2500	0.2498	
9 1,1'-Biphenyl	154	5.858	5.858	0.000	100	100883	0.2500	0.2519	
10 2,6-Dimethylnaphthalene	156	5.990	5.990	0.000	98	65921	0.2500	0.2473	
11 Acenaphthylene	152	6.225	6.225	0.000	100	85393	0.2500	0.2231	
* 12 Acenaphthene-d10	164	6.342	6.342	0.000	98	111209	0.5000	0.5000	
13 Acenaphthene	153	6.368	6.368	0.000	100	74278	0.2500	0.2510	
14 Dibenzofuran	168	6.516	6.516	0.000	97	112131	0.2500	0.2515	
15 2,3,5-Trimethylnaphthalene	170	6.687	6.687	0.000	91	58477	0.2500	0.2474	
16 Fluorene	166	6.803	6.803	0.000	100	81020	0.2500	0.2475	
17 Dibenzothiophene	184	7.502	7.502	0.000	100	111190	0.2500	0.2458	
* 18 Phenanthrene-d10	188	7.592	7.592	0.000	100	189535	0.5000	0.5000	
19 Phenanthrene	178	7.609	7.609	0.000	100	121561	0.2500	0.2490	
20 Anthracene	178	7.659	7.659	0.000	100	94415	0.2500	0.2319	
21 1-Methylphenanthrene	192	8.157	8.157	0.000	100	77645	0.2500	0.2429	
22 Fluoranthene	202	8.698	8.698	0.000	99	111627	0.2500	0.2351	
23 Pyrene	202	8.917	8.917	0.000	99	117477	0.2500	0.2410	
$ 24 Terphenyl-d14	244	9.055	9.053	0.002	100	65167	0.2500	0.2473	
25 Naphthobenzothiophene	234	9.883	9.883	0.000	100	66774	0.2500	0.2343	
26 Benzo[a]anthracene	228	10.129	10.129	0.000	99	85690	0.2500	0.2237	
* 27 Chrysene-d12	240	10.145	10.145	0.000	70	161093	0.5000	0.5000	
28 Chrysene	228	10.169	10.169	0.000	100	114916	0.2500	0.2509	
29 Benzo[b]fluoranthene	252	11.294	11.286	0.008	100	88756	0.2500	0.2223	
30 Benzo[k]fluoranthene	252	11.316	11.316	0.000	100	116322	0.2500	0.2569	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.615	11.615	0.000	100	91702	0.2500	0.2446	
32 Benzo[a]pyrene	252	11.676	11.676	0.000	100	73223	0.2500	0.2132	
* 33 Perylene-d12	264	11.745	11.745	0.000	100	146195	0.5000	0.5000	
34 Perylene	252	11.775	11.775	0.000	100	94970	0.2500	0.2449	
35 Indeno[1,2,3-cd]pyrene	276	13.165	13.165	0.000	96	99498	0.2500	0.2356	
36 Dibenz(a,h)anthracene	278	13.175	13.175	0.000	91	87445	0.2500	0.2440	
37 Benzo[g,h,i]perylene	276	13.518	13.518	0.000	98	93120	0.2500	0.2356	

Reagents:

60L38270SIM_00006 Amount Added: 1.00 Units: mL

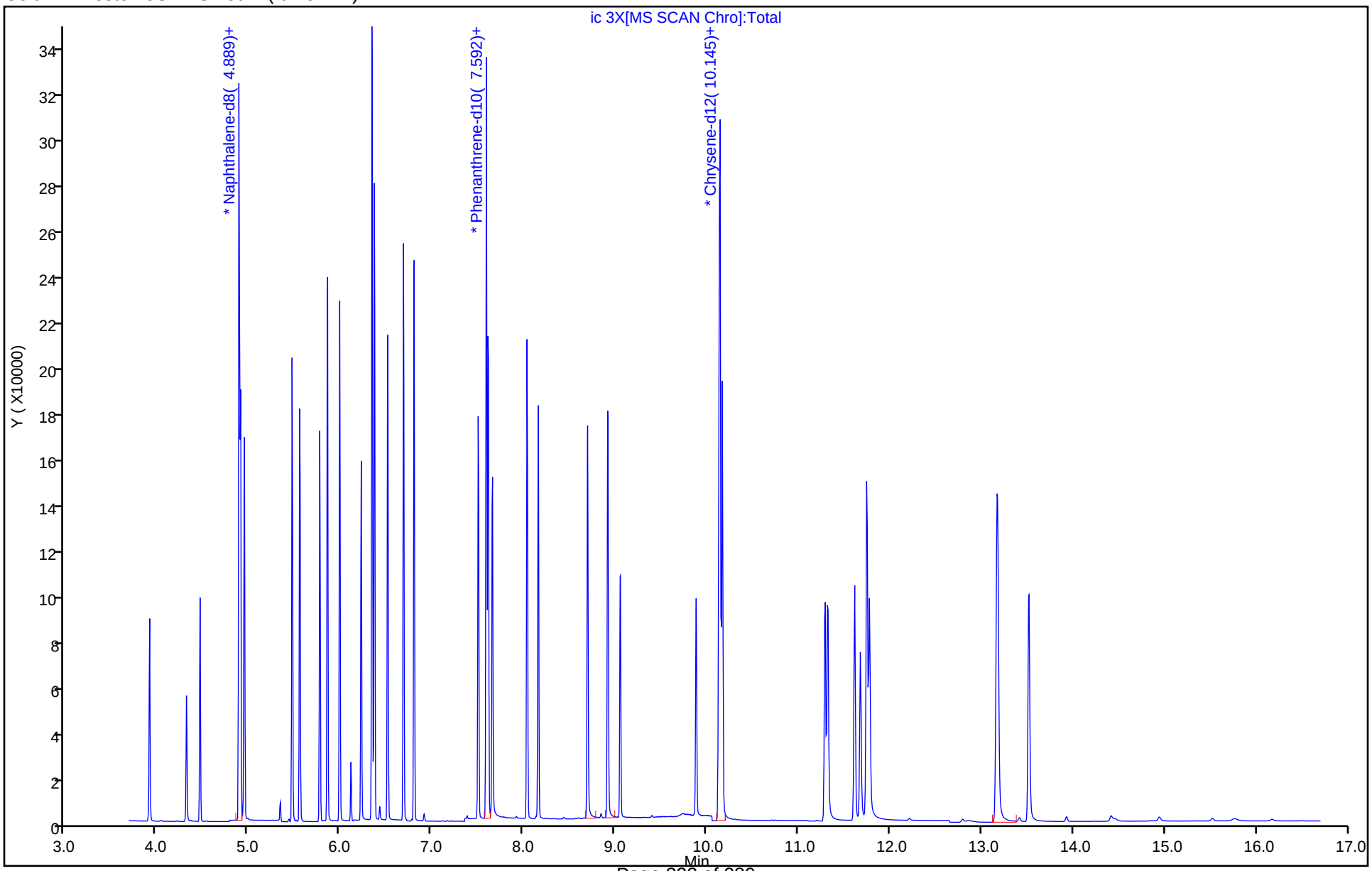
Report Date: 29-Jul-2019 18:38:41 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 3X.D

Injection Date:	21-Jul-2019 12:45:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	ic 3			Worklist Smp#:	4
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	4
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\icis 4X.D
Lims ID: icis 4
Client ID:
Sample Type: ICIS Calib Level: 4
Inject. Date: 21-Jul-2019 13:11:30 ALS Bottle#: 5 Worklist Smp#: 5
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012421-005
Misc. Info.: P072119(8270)ICSC
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 29-Jul-2019 18:38:42 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX1022

First Level Reviewer: cochranj Date: 29-Jul-2019 14:35:56

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.316	4.316	0.000	99	59715	0.5000	0.4782	
2 cis-Decalin	138	4.465	4.465	0.000	94	35517	0.5000	0.5051	
* 3 Naphthalene-d8	136	4.889	4.889	0.000	95	213911	0.5000	0.5000	
4 Naphthalene	128	4.909	4.909	0.000	93	239975	0.5000	0.5097	
5 Benzo(b)thiophene	134	4.950	4.950	0.000	100	200794	0.5000	0.5075	
6 2-Methylnaphthalene	142	5.469	5.469	0.000	97	156847	0.5000	0.5085	
7 1-Methylnaphthalene	142	5.558	5.558	0.000	97	150276	0.5000	0.5113	
$ 8 2-Fluorobiphenyl (Surr)	172	5.772	5.772	0.000	87	172674	0.5000	0.5043	
9 1,1'-Biphenyl	154	5.858	5.858	0.000	100	194867	0.5000	0.5110	
10 2,6-Dimethylnaphthalene	156	5.990	5.990	0.000	99	128831	0.5000	0.5076	
11 Acenaphthylene	152	6.225	6.225	0.000	100	176002	0.5000	0.4829	
* 12 Acenaphthene-d10	164	6.342	6.342	0.000	98	105890	0.5000	0.5000	
13 Acenaphthene	153	6.368	6.368	0.000	100	143164	0.5000	0.5081	
14 Dibenzofuran	168	6.516	6.516	0.000	97	215794	0.5000	0.5084	
15 2,3,5-Trimethylnaphthalene	170	6.687	6.687	0.000	93	115603	0.5000	0.5136	
16 Fluorene	166	6.803	6.803	0.000	100	157549	0.5000	0.5055	
17 Dibenzothiophene	184	7.502	7.502	0.000	100	217069	0.5000	0.5038	
* 18 Phenanthrene-d10	188	7.592	7.592	0.000	100	180526	0.5000	0.5000	
19 Phenanthrene	178	7.609	7.609	0.000	100	235615	0.5000	0.5067	
20 Anthracene	178	7.659	7.659	0.000	100	194178	0.5000	0.5007	
21 1-Methylphenanthrene	192	8.157	8.157	0.000	100	154372	0.5000	0.5070	
22 Fluoranthene	202	8.698	8.698	0.000	99	226763	0.5000	0.5015	
23 Pyrene	202	8.917	8.917	0.000	99	240127	0.5000	0.5019	
$ 24 Terphenyl-d14	244	9.053	9.053	0.000	100	130168	0.5000	0.5035	
25 Naphthobenzothiophene	234	9.883	9.883	0.000	100	134156	0.5000	0.4797	
26 Benzo[a]anthracene	228	10.129	10.129	0.000	98	180154	0.5000	0.4793	
* 27 Chrysene-d12	240	10.145	10.145	0.000	70	158085	0.5000	0.5000	
28 Chrysene	228	10.169	10.169	0.000	100	225110	0.5000	0.5008	
29 Benzo[b]fluoranthene	252	11.286	11.286	0.000	100	199208	0.5000	0.4880	
30 Benzo[k]fluoranthene	252	11.316	11.316	0.000	100	241982	0.5000	0.5227	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.615	11.615	0.000	100	190336	0.5000	0.4965	
32 Benzo[a]pyrene	252	11.676	11.676	0.000	100	179370	0.5000	0.5107	
* 33 Perylene-d12	264	11.745	11.745	0.000	100	149512	0.5000	0.5000	
34 Perylene	252	11.775	11.775	0.000	100	196892	0.5000	0.4964	
35 Indeno[1,2,3-cd]pyrene	276	13.165	13.165	0.000	95	215083	0.5000	0.4980	
36 Dibenz(a,h)anthracene	278	13.175	13.175	0.000	91	184681	0.5000	0.5039	
37 Benzo[g,h,i]perylene	276	13.518	13.518	0.000	98	199375	0.5000	0.4933	

Reagents:

60L48270SIM_00006 Amount Added: 1.00 Units: mL

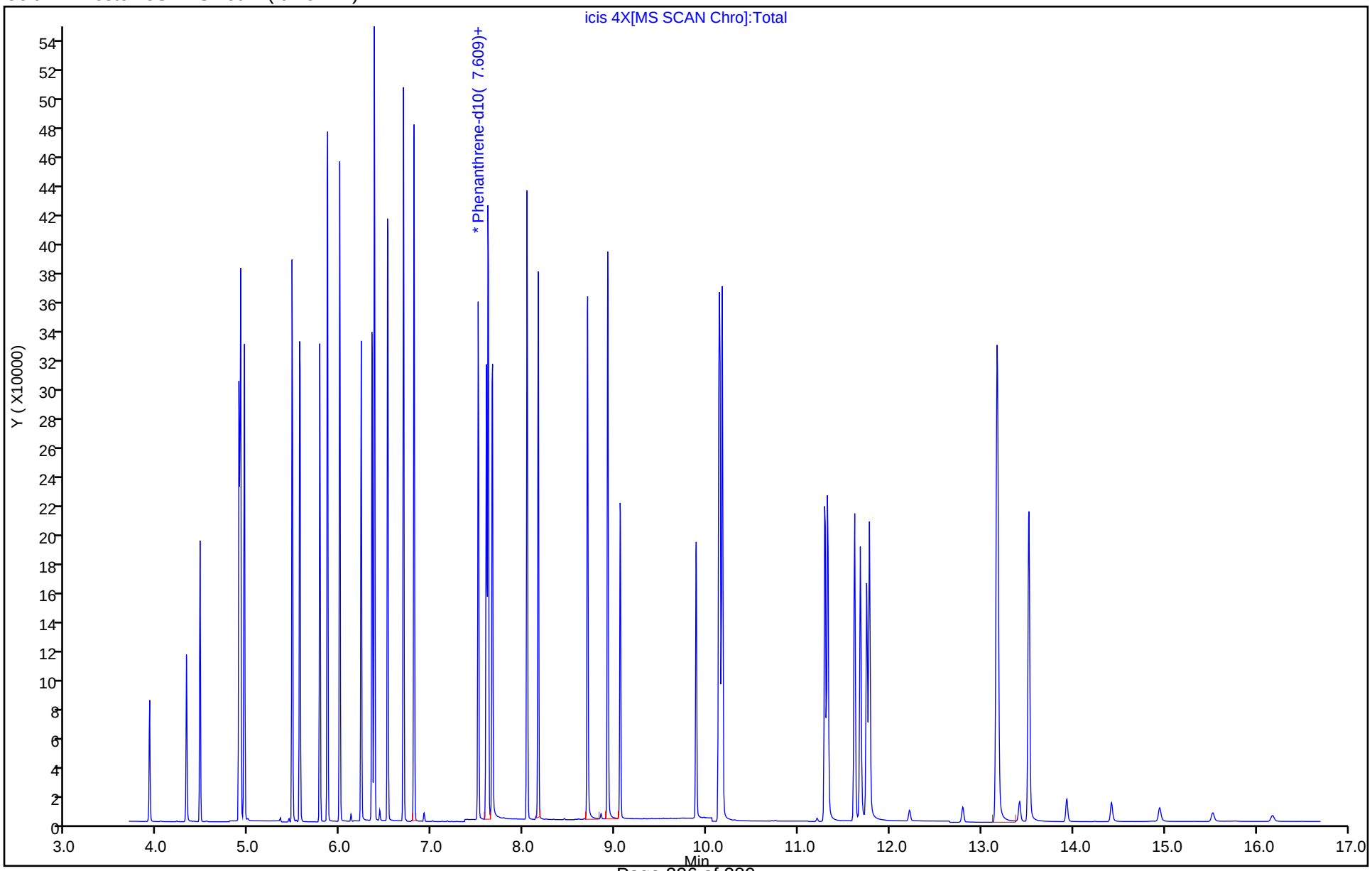
Report Date: 29-Jul-2019 18:38:43 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\icis 4X.D

Injection Date:	21-Jul-2019 13:11:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	icis 4			Worklist Smp#:	5
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	5
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 5X.D
Lims ID: ic 5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 21-Jul-2019 13:36:30 ALS Bottle#: 6 Worklist Smp#: 6
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012421-006
Misc. Info.: P072119(8270)ICSC
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 29-Jul-2019 18:38:44 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX1022

First Level Reviewer: cochranj Date: 29-Jul-2019 14:36:48

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.316	4.316	0.000	99	125430	1.00	0.9896	
2 cis-Decalin	138	4.465	4.465	0.000	93	72025	1.00	1.01	
* 3 Naphthalene-d8	136	4.889	4.889	0.000	95	217109	0.5000	0.5000	
4 Naphthalene	128	4.909	4.909	0.000	93	478933	1.00	1.00	
5 Benzo(b)thiophene	134	4.950	4.950	0.000	100	404704	1.00	1.01	
6 2-Methylnaphthalene	142	5.469	5.469	0.000	97	317802	1.00	1.02	
7 1-Methylnaphthalene	142	5.551	5.558	-0.007	98	297864	1.00	1.00	
$ 8 2-Fluorobiphenyl (Surr)	172	5.772	5.772	0.000	87	349096	1.00	1.00	
9 1,1'-Biphenyl	154	5.858	5.858	0.000	100	390720	1.00	1.00	
10 2,6-Dimethylnaphthalene	156	5.990	5.990	0.000	98	261961	1.00	1.01	
11 Acenaphthylene	152	6.225	6.225	0.000	100	370007	1.00	0.99	
* 12 Acenaphthene-d10	164	6.342	6.342	0.000	99	108051	0.5000	0.5000	
13 Acenaphthene	153	6.368	6.368	0.000	100	288656	1.00	1.00	
14 Dibenzofuran	168	6.516	6.516	0.000	97	435159	1.00	1.00	
15 2,3,5-Trimethylnaphthalene	170	6.687	6.687	-0.001	92	236115	1.00	1.03	
16 Fluorene	166	6.803	6.803	0.000	100	322076	1.00	1.01	
17 Dibenzothiophene	184	7.502	7.502	0.000	100	445228	1.00	1.02	
* 18 Phenanthrene-d10	188	7.592	7.592	0.000	100	183042	0.5000	0.5000	
19 Phenanthrene	178	7.614	7.609	0.005	100	473402	1.00	1.00	
20 Anthracene	178	7.659	7.659	0.000	100	406940	1.00	1.03	
21 1-Methylphenanthrene	192	8.157	8.157	0.000	100	319197	1.00	1.03	
22 Fluoranthene	202	8.698	8.698	0.000	99	476969	1.00	1.04	
23 Pyrene	202	8.919	8.917	0.002	99	503278	1.00	1.00	
$ 24 Terphenyl-d14	244	9.055	9.053	0.002	100	270035	1.00	0.99	
25 Naphthobenzothiophene	234	9.883	9.883	0.000	100	293581	1.00	1.00	
26 Benzo[a]anthracene	228	10.129	10.129	0.000	97	398285	1.00	1.01	
* 27 Chrysene-d12	240	10.145	10.145	0.000	70	166121	0.5000	0.5000	
28 Chrysene	228	10.169	10.169	0.000	100	460660	1.00	0.9752	
29 Benzo[b]fluoranthene	252	11.293	11.286	0.007	100	459515	1.00	1.15	
30 Benzo[k]fluoranthene	252	11.316	11.316	0.000	100	455269	1.00	1.01	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.615	11.615	0.000	100	397305	1.00	1.06	
32 Benzo[a]pyrene	252	11.676	11.676	0.000	100	361370	1.00	1.06	
* 33 Perylene-d12	264	11.744	11.745	-0.001	100	145750	0.5000	0.5000	
34 Perylene	252	11.775	11.775	0.000	100	406114	1.00	1.05	
35 Indeno[1,2,3-cd]pyrene	276	13.168	13.165	0.003	92	448572	1.00	1.07	
36 Dibenz(a,h)anthracene	278	13.178	13.175	0.003	94	383410	1.00	1.07	
37 Benzo[g,h,i]perylene	276	13.517	13.518	-0.001	97	402739	1.00	1.02	

Reagents:

60L58270SIM_00006 Amount Added: 1.00 Units: mL

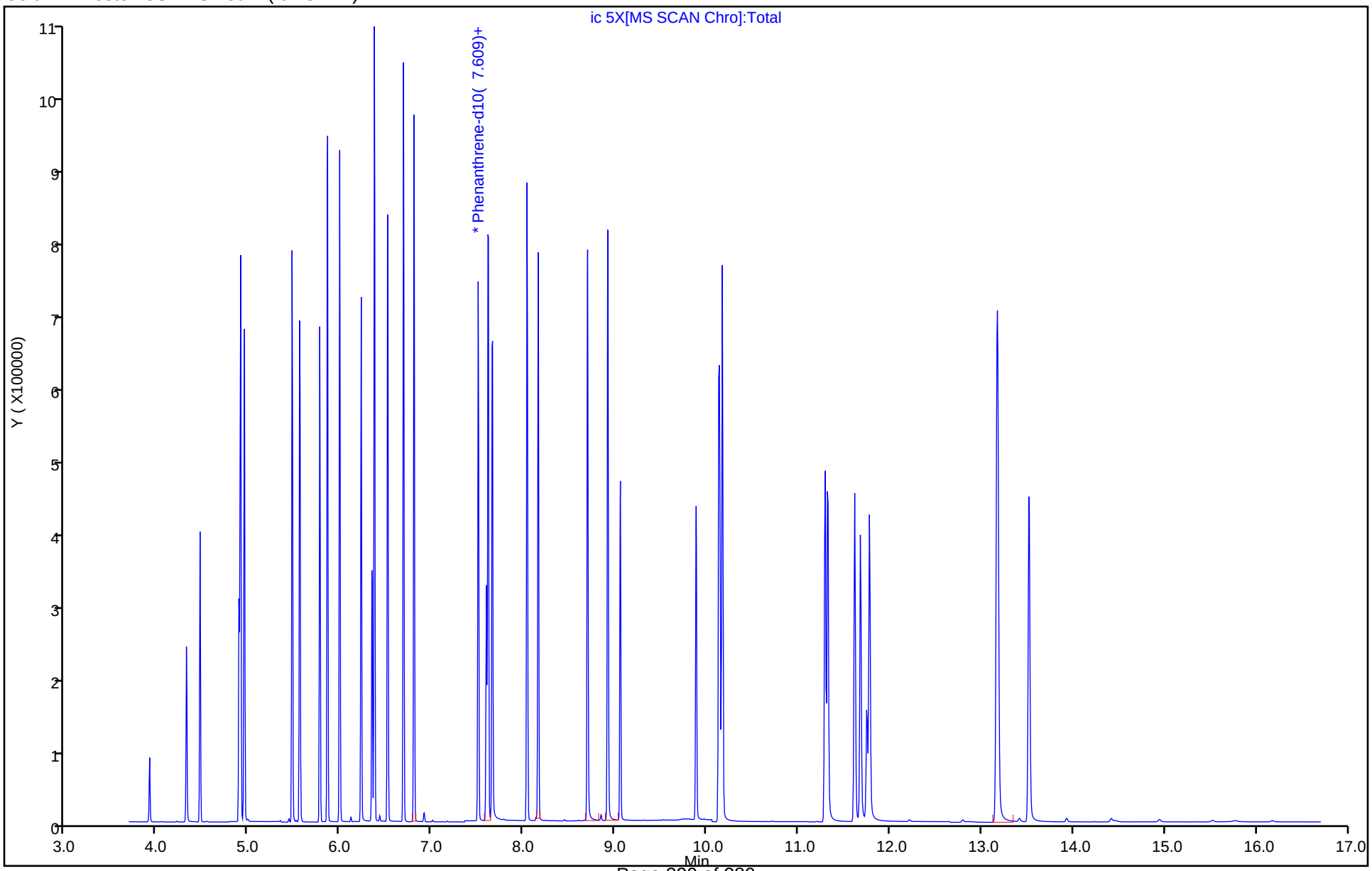
Report Date: 29-Jul-2019 18:38:45 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 5X.D

Injection Date:	21-Jul-2019 13:36:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	ic 5			Worklist Smp#:	6
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	6
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 6X.D
Lims ID: ic 6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 21-Jul-2019 14:01:30 ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012421-007
Misc. Info.: P072119(8270)ICSC
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 29-Jul-2019 18:38:46 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX1022

First Level Reviewer: cochranj Date: 29-Jul-2019 14:37:25

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.316	4.316	0.000	98	328062	2.50	2.63	
2 cis-Decalin	138	4.465	4.465	0.000	93	174790	2.50	2.49	
* 3 Naphthalene-d8	136	4.889	4.889	0.000	95	213714	0.5000	0.5000	
4 Naphthalene	128	4.909	4.909	0.000	93	1138352	2.50	2.42	
5 Benzo(b)thiophene	134	4.950	4.950	0.000	100	962993	2.50	2.44	
6 2-Methylnaphthalene	142	5.470	5.469	0.001	99	755402	2.50	2.45	
7 1-Methylnaphthalene	142	5.552	5.558	-0.006	99	717030	2.50	2.44	
$ 8 2-Fluorobiphenyl (Surr)	172	5.772	5.772	0.000	87	837706	2.50	2.41	
9 1,1'-Biphenyl	154	5.858	5.858	0.000	100	937053	2.50	2.42	
10 2,6-Dimethylnaphthalene	156	5.990	5.990	0.000	98	644421	2.50	2.50	
11 Acenaphthylene	152	6.225	6.225	0.000	100	1005879	2.50	2.72	
* 12 Acenaphthene-d10	164	6.342	6.342	0.000	98	107579	0.5000	0.5000	
13 Acenaphthene	153	6.369	6.368	0.001	99	698905	2.50	2.44	
14 Dibenzofuran	168	6.516	6.516	0.000	97	1059581	2.50	2.46	
15 2,3,5-Trimethylnaphthalene	170	6.687	6.687	0.000	92	591687	2.50	2.59	
16 Fluorene	166	6.803	6.803	0.000	99	791685	2.50	2.50	
17 Dibenzothiophene	184	7.502	7.502	0.000	100	1098885	2.50	2.50	
* 18 Phenanthrene-d10	188	7.592	7.592	0.000	100	183836	0.5000	0.5000	
19 Phenanthrene	178	7.615	7.609	0.006	100	1150340	2.50	2.43	
20 Anthracene	178	7.654	7.659	-0.005	100	1059249	2.50	2.68	
21 1-Methylphenanthrene	192	8.158	8.157	0.001	100	803844	2.50	2.59	
22 Fluoranthene	202	8.698	8.698	0.000	99	1229602	2.50	2.67	
23 Pyrene	202	8.917	8.917	0.000	99	1286874	2.50	2.55	
$ 24 Terphenyl-d14	244	9.053	9.053	0.000	100	661955	2.50	2.43	
25 Naphthobenzothiophene	234	9.883	9.883	0.000	99	762257	2.50	2.59	
26 Benzo[a]anthracene	228	10.129	10.129	0.000	96	1059968	2.50	2.68	
* 27 Chrysene-d12	240	10.145	10.145	0.000	69	166497	0.5000	0.5000	
28 Chrysene	228	10.169	10.169	0.000	100	1122677	2.50	2.37	
29 Benzo[b]fluoranthene	252	11.294	11.286	0.008	100	1148803	2.50	2.75	
30 Benzo[k]fluoranthene	252	11.324	11.316	0.008	100	1181881	2.50	2.49	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.615	11.615	0.000	100	1035672	2.50	2.64	
32 Benzo[a]pyrene	252	11.676	11.676	0.000	100	1021484	2.50	2.84	
* 33 Perylene-d12	264	11.745	11.745	0.000	100	153219	0.5000	0.5000	
34 Perylene	252	11.775	11.775	0.000	100	1065065	2.50	2.62	
35 Indeno[1,2,3-cd]pyrene	276	13.170	13.165	0.005	96	1172244	2.50	2.65	
36 Dibenz(a,h)anthracene	278	13.179	13.175	0.004	90	982147	2.50	2.61	
37 Benzo[g,h,i]perylene	276	13.523	13.518	0.005	97	1033468	2.50	2.50	

Reagents:

60L68270SIM_00006 Amount Added: 1.00 Units: mL

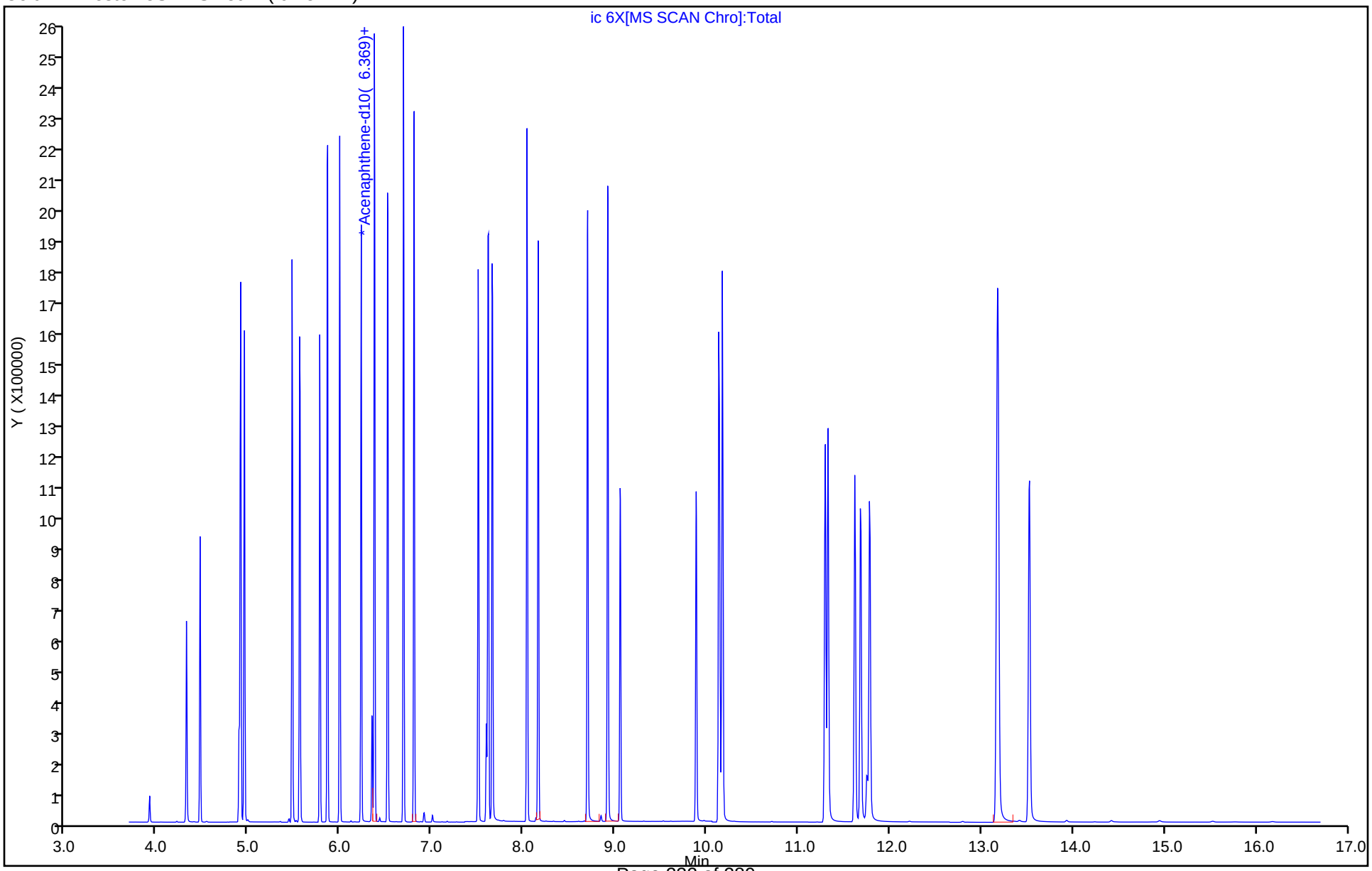
Report Date: 29-Jul-2019 18:38:47 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 6X.D

Injection Date:	21-Jul-2019 14:01:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	ic 6			Worklist Smp#:	7
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D
Lims ID: ic 7
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 21-Jul-2019 14:26:30 ALS Bottle#: 8 Worklist Smp#: 8
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012421-008
Misc. Info.: P072119(8270)ICSC
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 29-Jul-2019 18:38:49 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX1022

First Level Reviewer: cochranj Date: 29-Jul-2019 14:46:54

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.316	4.316	0.000	98	669758	5.00	5.22	
2 cis-Decalin	138	4.470	4.465	0.005	97	341828	5.00	4.73	
* 3 Naphthalene-d8	136	4.889	4.889	0.000	95	219644	0.5000	0.5000	
4 Naphthalene	128	4.909	4.909	0.000	93	2114072	5.00	4.37	
5 Benzo(b)thiophene	134	4.950	4.950	0.000	100	1831105	5.00	4.51	
6 2-Methylnaphthalene	142	5.476	5.469	0.007	97	1427865	5.00	4.51	
7 1-Methylnaphthalene	142	5.558	5.558	0.000	96	1359311	5.00	4.50	
$ 8 2-Fluorobiphenyl (Surr)	172	5.772	5.772	0.000	87	1582268	5.00	4.43	
9 1,1'-Biphenyl	154	5.858	5.858	0.000	100	1753733	5.00	4.41	
10 2,6-Dimethylnaphthalene	156	5.990	5.990	0.000	100	1235396	5.00	4.67	
11 Acenaphthylene	152	6.225	6.225	0.000	100	2014135	5.00	5.30	
* 12 Acenaphthene-d10	164	6.346	6.342	0.004	98	110402	0.5000	0.5000	
13 Acenaphthene	153	6.373	6.368	0.005	98	1316249	5.00	4.48	
14 Dibenzofuran	168	6.516	6.516	0.000	98	2009087	5.00	4.54	
15 2,3,5-Trimethylnaphthalene	170	6.691	6.687	0.004	87	1145006	5.00	4.88	
16 Fluorene	166	6.803	6.803	0.000	99	1516700	5.00	4.67	
17 Dibenzothiophene	184	7.508	7.502	0.006	99	2115730	5.00	4.67	
* 18 Phenanthrene-d10	188	7.592	7.592	0.000	98	189930	0.5000	0.5000	
19 Phenanthrene	178	7.615	7.609	0.006	100	2193728	5.00	4.48	
20 Anthracene	178	7.659	7.659	0.000	99	2079069	5.00	5.10	
21 1-Methylphenanthrene	192	8.161	8.157	0.004	100	1560700	5.00	4.87	
22 Fluoranthene	202	8.700	8.698	0.002	99	2405679	5.00	5.06	
23 Pyrene	202	8.919	8.917	0.002	98	2501407	5.00	4.80	
$ 24 Terphenyl-d14	244	9.058	9.053	0.005	100	1275914	5.00	4.53	
25 Naphthobenzothiophene	234	9.886	9.883	0.003	99	1566646	5.00	5.14	
26 Benzo[a]anthracene	228	10.137	10.129	0.008	97	2109714	5.00	5.15	
* 27 Chrysene-d12	240	10.145	10.145	0.000	69	172270	0.5000	0.5000	
28 Chrysene	228	10.177	10.169	0.008	100	2146798	5.00	4.38	
29 Benzo[b]fluoranthene	252	11.294	11.286	0.008	100	2168983	5.00	4.87	
30 Benzo[k]fluoranthene	252	11.324	11.316	0.008	100	2427192	5.00	4.81	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.622	11.615	0.007	99	2038126	5.00	4.87	
32 Benzo[a]pyrene	252	11.683	11.676	0.007	100	2100916	5.00	5.48	
* 33 Perylene-d12	264	11.752	11.745	0.007	100	163119	0.5000	0.5000	
34 Perylene	252	11.783	11.775	0.008	100	2119821	5.00	4.90	
35 Indeno[1,2,3-cd]pyrene	276	13.178	13.165	0.013	91	2344306	5.00	4.98	
36 Dibenz(a,h)anthracene	278	13.187	13.175	0.012	92	1946519	5.00	4.87	
37 Benzo[g,h,i]perylene	276	13.531	13.518	0.013	97	2069141	5.00	4.69	

Reagents:

60L78270SIM_00006 Amount Added: 1.00 Units: mL

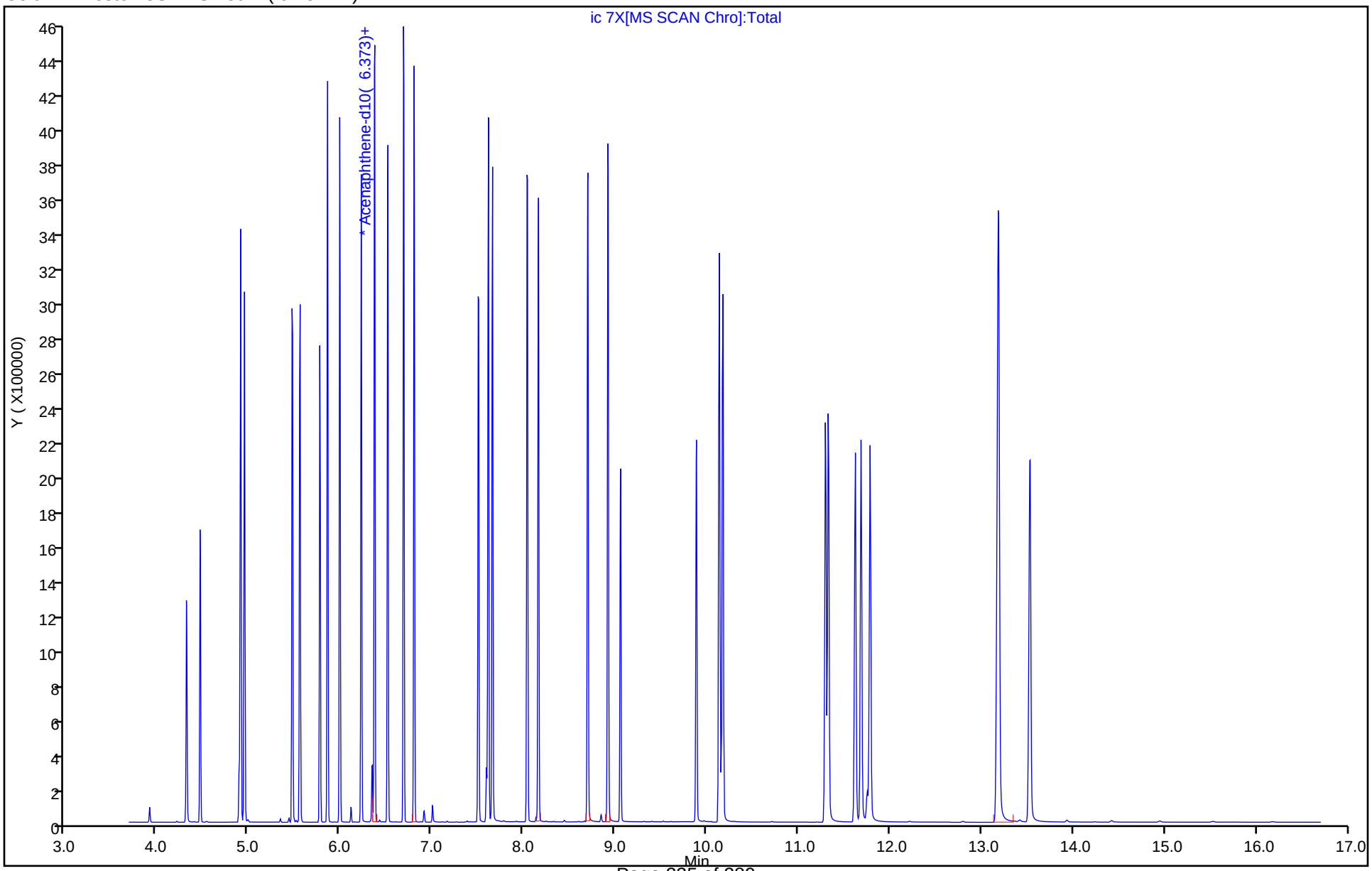
Report Date: 29-Jul-2019 18:38:50 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Injection Date:	21-Jul-2019 14:26:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	ic 7			Worklist Smp#:	8
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



FORM VI
RESOLUTION CHECK SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Lab Sample ID (1): CCVIS 140-33099/2 Instrument ID (1): MP

GC Column (1): Rxi-5SilMS 25 ID: 0.25(mm) Date Analyzed (1): 08/29/2019 12:06

ANALYTE	RT	RESOLUTION (%)
Benzo[b]fluoranthene	11.28	34.10

Resolution Report

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\ccvis.D				
Injection Date:	29-Aug-2019 12:06:30	Instrument ID:	MP		
Lims ID:	CCVIS				
Client ID:					
Operator ID:	11211	ALS Bottle#:	2	Worklist Smp#:	2
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

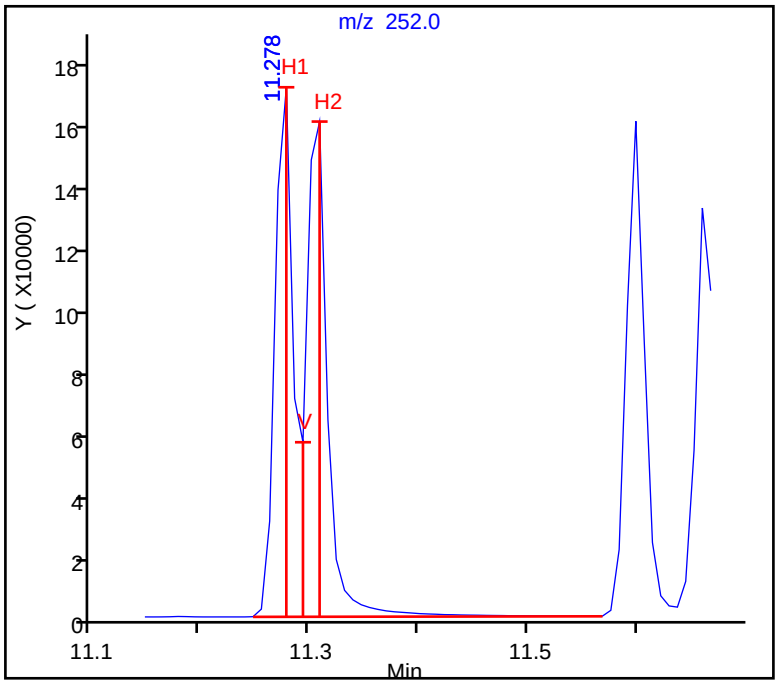
29 Benzo[b]fluoranthene - 30 Benzo[k]fluoranthene

SW-846 Method

Version D: %R = (V / ((H1 + H2)/2)) * 100

V (Valley Height) = 54713
H1(29 Benzo[b]fluoranthen) = 165986
H2(30 Benzo[k]fluoranthen) = 155217

Version D: %R = 34.1 <= 50.0
Passed



FORM VI
RESOLUTION CHECK SUMMARY

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Lab Sample ID (1): CCVIS 140-33157/2 Instrument ID (1): MP

GC Column (1): Rxi-5SilMS 25 ID: 0.25(mm) Date Analyzed (1): 08/30/2019 10:26

ANALYTE	RT	RESOLUTION (%)
Benzo[b]fluoranthene	11.28	36.30

Resolution Report

Eurofins TestAmerica, Knoxville

Data File:	\\chromna\Knoxville\ChromData\MP\20190830-12910.b\ccvis.D				
Injection Date:	30-Aug-2019 10:26:30	Instrument ID:	MP		
Lims ID:	CCVIS				
Client ID:					
Operator ID:	11211	ALS Bottle#:	2	Worklist Smp#:	2
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

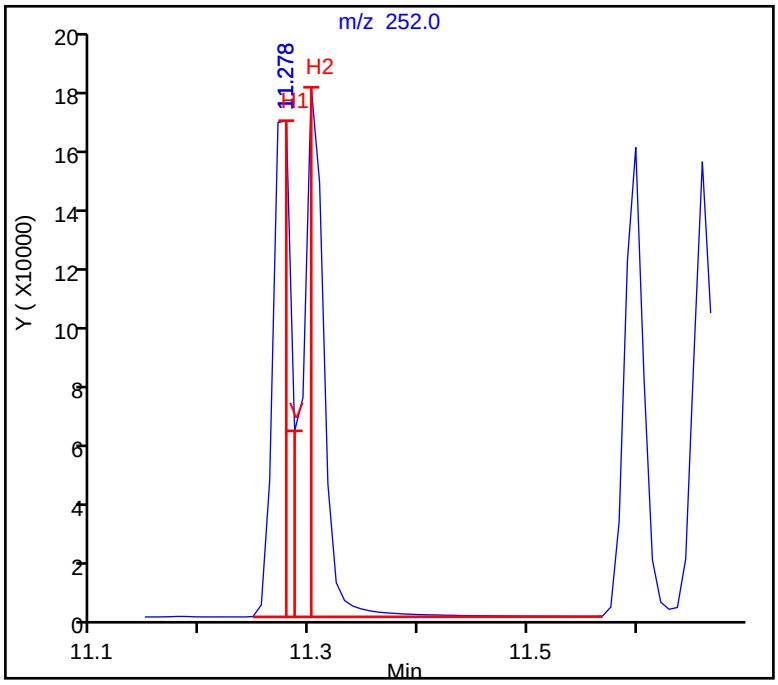
29 Benzo[b]fluoranthene - 30 Benzo[k]fluoranthene

SW-846 Method

Version D: %R = (V / ((H1 + H2)/2)) * 100

V (Valley Height) = 62712
H1(29 Benzo[b]fluoranthen) = 167242
H2(30 Benzo[k]fluoranthen) = 178499

Version D: %R = 36.3 <= 50.0
Passed



FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Lab Sample ID: ICV 140-32163/10 Calibration Date: 07/21/2019 15:17

Instrument ID: MP Calib Start Date: 07/21/2019 11:55

GC Column: Rxi-5SilMS 25 ID: 0.25(mm) Calib End Date: 07/21/2019 14:26

Lab File ID: icvX.D Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
cis-Decalin	Ave	0.1643	0.1669		508000	500000	1.5	30.0
Naphthalene	Ave	1.101	1.105	0.7000	502000	500000	0.4	30.0
Benzo(b)thiophene	Ave	0.9249	0.9457		511000	500000	2.3	30.0
2-Methylnaphthalene	Ave	0.7210	0.6900	0.4000	479000	500000	-4.3	30.0
1-Methylnaphthalene	Ave	0.6870	0.6519		474000	500000	-5.1	30.0
1,1'-Biphenyl	Ave	1.801	1.848		513000	500000	2.6	30.0
2,6-Dimethylnaphthalene	Ave	1.198	1.220		509000	500000	1.8	30.0
Acenaphthylene	Ave	1.721	1.548	0.9000	450000	500000	-10.0	30.0
Acenaphthene	Ave	1.330	1.328	0.9000	499000	500000	-0.2	30.0
Dibenzofuran	Ave	2.004	2.047	0.8000	511000	500000	2.1	30.0
2,3,5-Trimethylnaphthalene	Ave	1.063	1.102		519000	500000	3.7	30.0
Fluorene	Ave	1.472	1.470	0.9000	499000	500000	-0.1	30.0
Dibenzothiophene	Ave	1.193	1.306		547000	500000	9.5	30.0
Phenanthrene	Ave	1.288	1.296	0.7000	503000	500000	0.6	30.0
Anthracene	Ave	1.074	1.009	0.7000	470000	500000	-6.1	30.0
1-Methylphenanthrene	Ave	0.8433	0.8464		502000	500000	0.4	30.0
Fluoranthene	Ave	1.252	1.181	0.6000	471000	500000	-5.7	30.0
Pyrene	Ave	1.513	1.413	0.6000	467000	500000	-6.6	30.0
Naphthobenzothiophene	Ave	0.8846	0.6840		387000	500000	-22.7	30.0
Benzo[a]anthracene	Ave	1.189	0.998	0.8000	420000	500000	-16.1	30.0
Chrysene	Ave	1.422	1.457	0.7000	513000	500000	2.5	30.0
Benzo[b]fluoranthene	Ave	1.365	1.455	0.7000	533000	500000	6.6	30.0
Benzo[k]fluoranthene	Ave	1.548	1.607	0.7000	519000	500000	3.8	30.0
Benzo[e]pyrene	Ave	1.282	1.420		554000	500000	10.7	30.0
Benzo[a]pyrene	Ave	1.175	1.016	0.7000	432000	500000	-13.5	30.0
Perylene	Ave	1.326	1.502		566000	500000	13.2	30.0
Indeno[1,2,3-cd]pyrene	Ave	1.444	1.386	0.5000	480000	500000	-4.0	30.0
Dibenz(a,h)anthracene	Ave	1.226	1.273	0.4000	519000	500000	3.9	30.0
Benzo[g,h,i]perylene	Ave	1.352	1.299	0.5000	481000	500000	-3.9	30.0
Nitrobenzene-d5	Ave	0.2919	0.2571		440000	500000	-11.9	30.0
2-Fluorobiphenyl (Surr)	Ave	1.617	1.659		513000	500000	2.6	30.0
Terphenyl-d14	Ave	0.8177	0.8286		507000	500000	1.3	30.0

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\icvX.D
Lims ID: icv
Client ID:
Sample Type: ICV
Inject. Date: 21-Jul-2019 15:17:30 ALS Bottle#: 10 Worklist Smp#: 10
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012421-010
Misc. Info.: P072119(8270)ICSC
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 29-Jul-2019 18:38:49 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX1022

First Level Reviewer: jacksonc Date: 29-Jul-2019 18:54:44

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.316	4.316	0.000	100	51083	0.5000	0.4403	
2 cis-Decalin	138	4.465	4.465	0.000	90	33161	0.5000	0.5077	
* 3 Naphthalene-d8	136	4.896	4.889	0.007	100	198727	0.5000	0.5000	
4 Naphthalene	128	4.909	4.909	0.000	93	219660	0.5000	0.5022	
5 Benzo(b)thiophene	134	4.950	4.950	0.000	100	187937	0.5000	0.5113	
6 2-Methylnaphthalene	142	5.476	5.469	0.007	98	137124	0.5000	0.4785	
7 1-Methylnaphthalene	142	5.558	5.558	0.000	97	129549	0.5000	0.4745	
$ 8 2-Fluorobiphenyl (Surr)	172	5.772	5.772	0.000	87	162182	0.5000	0.5129	
9 1,1'-Biphenyl	154	5.858	5.858	0.000	100	180700	0.5000	0.5132	
10 2,6-Dimethylnaphthalene	156	5.990	5.990	0.000	99	119306	0.5000	0.5091	
11 Acenaphthylene	152	6.225	6.225	0.000	100	151363	0.5000	0.4498	
* 12 Acenaphthene-d10	164	6.346	6.342	0.004	99	97779	0.5000	0.5000	
13 Acenaphthene	153	6.369	6.368	0.000	100	129871	0.5000	0.4992	
14 Dibenzofuran	168	6.516	6.516	0.000	98	200165	0.5000	0.5107	
15 2,3,5-Trimethylnaphthalene	170	6.691	6.687	0.004	86	107764	0.5000	0.5185	
16 Fluorene	166	6.803	6.803	0.000	100	143725	0.5000	0.4994	
17 Dibenzothiophene	184	7.508	7.502	0.006	99	215642	0.5000	0.5473	
* 18 Phenanthrene-d10	188	7.592	7.592	0.000	99	165088	0.5000	0.5000	
19 Phenanthrene	178	7.615	7.609	0.006	100	213927	0.5000	0.5031	
20 Anthracene	178	7.659	7.659	0.000	100	166513	0.5000	0.4695	
21 1-Methylphenanthrene	192	8.161	8.157	0.004	100	139730	0.5000	0.5019	
22 Fluoranthene	202	8.698	8.698	0.000	99	194906	0.5000	0.4713	
23 Pyrene	202	8.919	8.917	0.002	99	203806	0.5000	0.4668	
$ 24 Terphenyl-d14	244	9.055	9.053	0.002	100	119540	0.5000	0.5066	
25 Naphthobenzothiophene	234	9.886	9.883	0.003	100	98686	0.5000	0.3866	
26 Benzo[a]anthracene	228	10.137	10.129	0.008	85	143946	0.5000	0.4196	
* 27 Chrysene-d12	240	10.145	10.145	0.000	69	144275	0.5000	0.5000	
28 Chrysene	228	10.169	10.169	0.000	100	210262	0.5000	0.5125	
29 Benzo[b]fluoranthene	252	11.294	11.286	0.008	100	168733	0.5000	0.5329	
30 Benzo[k]fluoranthene	252	11.324	11.316	0.008	100	186318	0.5000	0.5189	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.615	11.615	0.000	100	164618	0.5000	0.5536	
32 Benzo[a]pyrene	252	11.683	11.676	0.007	100	117777	0.5000	0.4324	
* 33 Perylene-d12	264	11.752	11.745	0.007	100	115957	0.5000	0.5000	
34 Perylene	252	11.775	11.775	0.000	100	174114	0.5000	0.5660	
35 Indeno[1,2,3-cd]pyrene	276	13.170	13.165	0.005	90	160701	0.5000	0.4798	
36 Dibenz(a,h)anthracene	278	13.179	13.175	0.004	95	147633	0.5000	0.5193	
37 Benzo[g,h,i]perylene	276	13.518	13.518	0.000	97	150646	0.5000	0.4806	

Reagents:

60ICV8270SIM_00010 Amount Added: 1.00 Units: mL

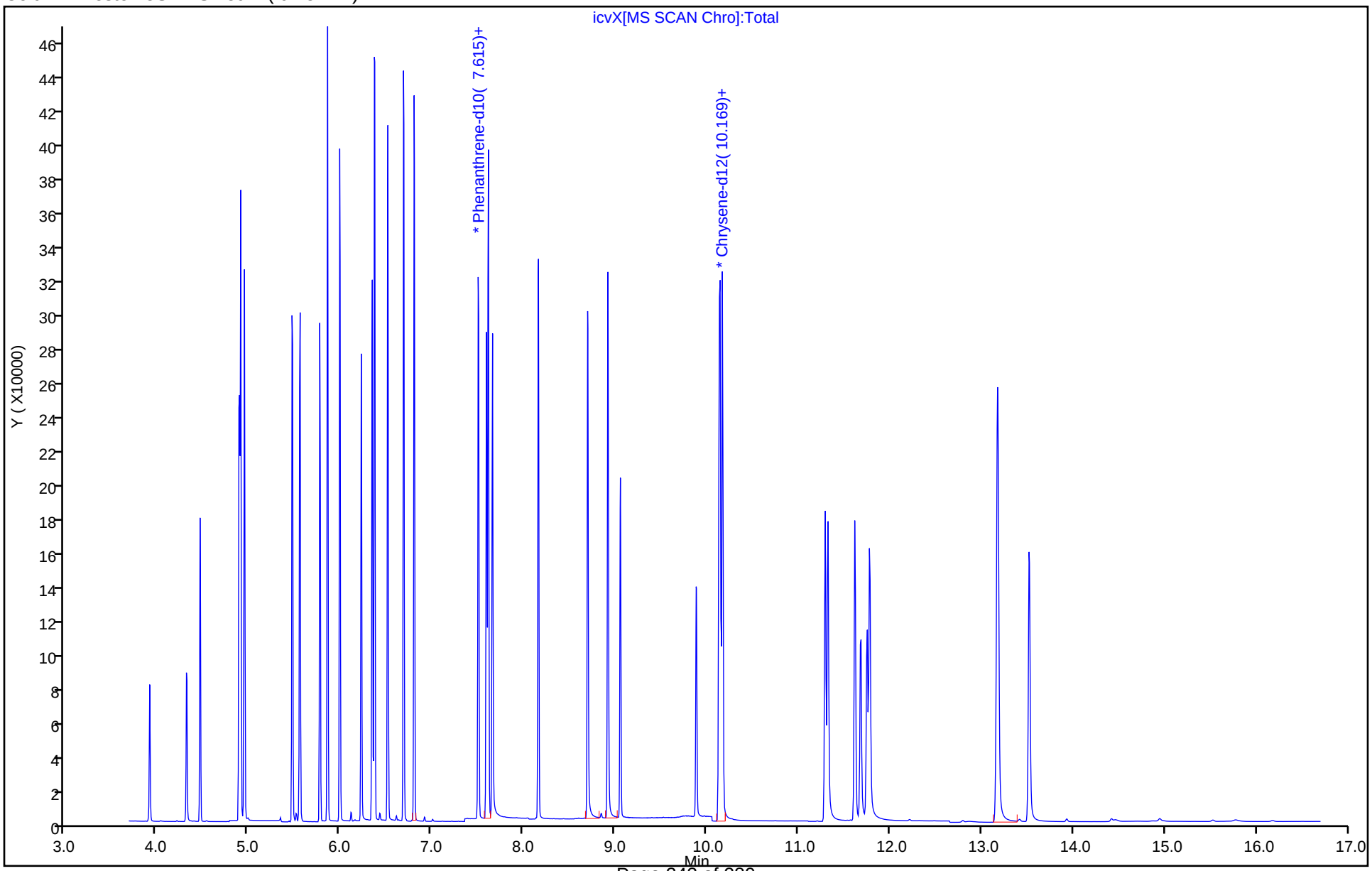
Report Date: 29-Jul-2019 18:55:11 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\icvX.D

Injection Date:	21-Jul-2019 15:17:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	icv			Worklist Smp#:	10
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	10
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Lab Sample ID: CCVIS 140-33099/2 Calibration Date: 08/29/2019 12:06

Instrument ID: MP Calib Start Date: 07/21/2019 11:55

GC Column: Rxi-5SilMS 25 ID: 0.25(mm) Calib End Date: 07/21/2019 14:26

Lab File ID: ccvis.D Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
cis-Decalin	Ave	0.1643	0.1703		518000	500000	3.7	20.0
Naphthalene	Ave	1.101	1.118	0.7000	508000	500000	1.6	20.0
Benzo(b)thiophene	Ave	0.9249	0.9140		494000	500000	-1.2	20.0
2-Methylnaphthalene	Ave	0.7210	0.7355	0.4000	510000	500000	2.0	20.0
1-Methylnaphthalene	Ave	0.6870	0.7038		512000	500000	2.4	20.0
1,1'-Biphenyl	Ave	1.801	1.805		501000	500000	0.3	20.0
2,6-Dimethylnaphthalene	Ave	1.198	1.196		499000	500000	-0.2	20.0
Acenaphthylene	Ave	1.721	1.655	0.9000	481000	500000	-3.8	20.0
Acenaphthene	Ave	1.330	1.341	0.9000	504000	500000	0.8	20.0
Dibenzofuran	Ave	2.004	1.969	0.8000	491000	500000	-1.7	20.0
2,3,5-Trimethylnaphthalene	Ave	1.063	1.086		511000	500000	2.2	20.0
Fluorene	Ave	1.472	1.522	0.9000	517000	500000	3.4	20.0
Dibenzothiophene	Ave	1.193	1.188		498000	500000	-0.5	20.0
Phenanthrene	Ave	1.288	1.300	0.7000	505000	500000	0.9	20.0
Anthracene	Ave	1.074	1.073	0.7000	500000	500000	-0.0	20.0
1-Methylphenanthrene	Ave	0.8433	0.8674		514000	500000	2.9	20.0
Fluoranthene	Ave	1.252	1.271	0.6000	507000	500000	1.4	20.0
Pyrene	Ave	1.513	1.603	0.6000	530000	500000	6.0	20.0
Naphthobenzothiophene	Ave	0.8846	0.8916		504000	500000	0.8	20.0
Benzo[a]anthracene	Ave	1.189	1.128	0.8000	474000	500000	-5.2	20.0
Chrysene	Ave	1.422	1.458	0.7000	513000	500000	2.6	20.0
Benzo[b]fluoranthene	Ave	1.365	1.543	0.7000	565000	500000	13.0	20.0
Benzo[k]fluoranthene	Ave	1.548	1.588	0.7000	513000	500000	2.5	20.0
Benzo[e]pyrene	Ave	1.282	1.349		526000	500000	5.2	20.0
Benzo[a]pyrene	Ave	1.175	1.206	0.7000	513000	500000	2.7	20.0
Perylene	Ave	1.326	1.349		508000	500000	1.7	20.0
Indeno[1,2,3-cd]pyrene	Ave	1.444	1.426	0.5000	494000	500000	-1.2	20.0
Dibenz(a,h)anthracene	Ave	1.226	1.240	0.4000	506000	500000	1.2	20.0
Benzo[g,h,i]perylene	Ave	1.352	1.321	0.5000	489000	500000	-2.3	20.0
Nitrobenzene-d5	Ave	0.2919	0.2945		504000	500000	0.9	20.0
2-Fluorobiphenyl (Surr)	Ave	1.617	1.592		492000	500000	-1.5	20.0
Terphenyl-d14	Ave	0.8177	0.8368		512000	500000	2.3	20.0

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\ccvis.D
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 29-Aug-2019 12:06:30 ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012890-002
Misc. Info.: P082919(8270)
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 12:30:20 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 31-Aug-2019 12:30:12

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.306	4.306	0.000	100	64076	0.5000	0.5044	
2 cis-Decalin	138	4.455	4.455	0.000	97	37066	0.5000	0.5183	
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	217594	0.5000	0.5000	
4 Naphthalene	128	4.896	4.896	0.000	100	243349	0.5000	0.5081	
5 Benzo(b)thiophene	134	4.936	4.936	0.000	99	198888	0.5000	0.4941	
6 2-Methylnaphthalene	142	5.463	5.463	0.000	100	160033	0.5000	0.5100	
7 1-Methylnaphthalene	142	5.545	5.545	0.000	100	153142	0.5000	0.5122	
$ 8 2-Fluorobiphenyl (Surr)	172	5.766	5.766	0.000	87	175259	0.5000	0.4925	
9 1,1'-Biphenyl	154	5.849	5.849	0.000	100	198666	0.5000	0.5013	
10 2,6-Dimethylnaphthalene	156	5.981	5.981	0.000	99	131606	0.5000	0.4989	
11 Acenaphthylene	152	6.216	6.216	0.000	100	182112	0.5000	0.4808	
* 12 Acenaphthene-d10	164	6.337	6.337	0.000	98	110054	0.5000	0.5000	
13 Acenaphthene	153	6.360	6.360	0.000	100	147630	0.5000	0.5041	
14 Dibenzofuran	168	6.507	6.507	0.000	98	216746	0.5000	0.4913	
15 2,3,5-Trimethylnaphthalene	170	6.678	6.678	0.000	89	119563	0.5000	0.5111	
16 Fluorene	166	6.793	6.793	0.000	100	167487	0.5000	0.5171	
17 Dibenzothiophene	184	7.497	7.497	0.000	99	215562	0.5000	0.4977	
* 18 Phenanthrene-d10	188	7.581	7.581	0.000	99	181476	0.5000	0.5000	
19 Phenanthrene	178	7.603	7.603	0.000	100	235874	0.5000	0.5046	
20 Anthracene	178	7.648	7.648	0.000	100	194779	0.5000	0.4996	
21 1-Methylphenanthrene	192	8.148	8.148	0.000	100	157418	0.5000	0.5143	
22 Fluoranthene	202	8.687	8.687	0.000	99	230575	0.5000	0.5072	
23 Pyrene	202	8.906	8.906	0.000	99	248212	0.5000	0.5298	
$ 24 Terphenyl-d14	244	9.042	9.042	0.000	100	129538	0.5000	0.5116	
25 Naphthobenzothiophene	234	9.873	9.873	0.000	100	138025	0.5000	0.5040	
26 Benzo[a]anthracene	228	10.121	10.121	0.000	100	174557	0.5000	0.4742	
* 27 Chrysene-d12	240	10.129	10.129	0.000	93	154805	0.5000	0.5000	
28 Chrysene	228	10.161	10.161	0.000	100	225746	0.5000	0.5128	
29 Benzo[b]fluoranthene	252	11.278	11.278	0.000	100	208900	0.5000	0.5652	
30 Benzo[k]fluoranthene	252	11.309	11.309	0.000	100	214906	0.5000	0.5127	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.599	11.599	0.000	100	182581	0.5000	0.5260	
32 Benzo[a]pyrene	252	11.660	11.660	0.000	100	163289	0.5000	0.5135	
* 33 Perylene-d12	264	11.729	11.729	0.000	100	135373	0.5000	0.5000	
34 Perylene	252	11.760	11.760	0.000	100	182615	0.5000	0.5085	
35 Indeno[1,2,3-cd]pyrene	276	13.150	13.150	0.000	94	193096	0.5000	0.4938	
36 Dibenz(a,h)anthracene	278	13.159	13.159	0.000	90	167867	0.5000	0.5058	
37 Benzo[g,h,i]perylene	276	13.508	13.508	0.000	99	178760	0.5000	0.4885	

Reagents:

608270simccv_00005 Amount Added: 1.00 Units: mL

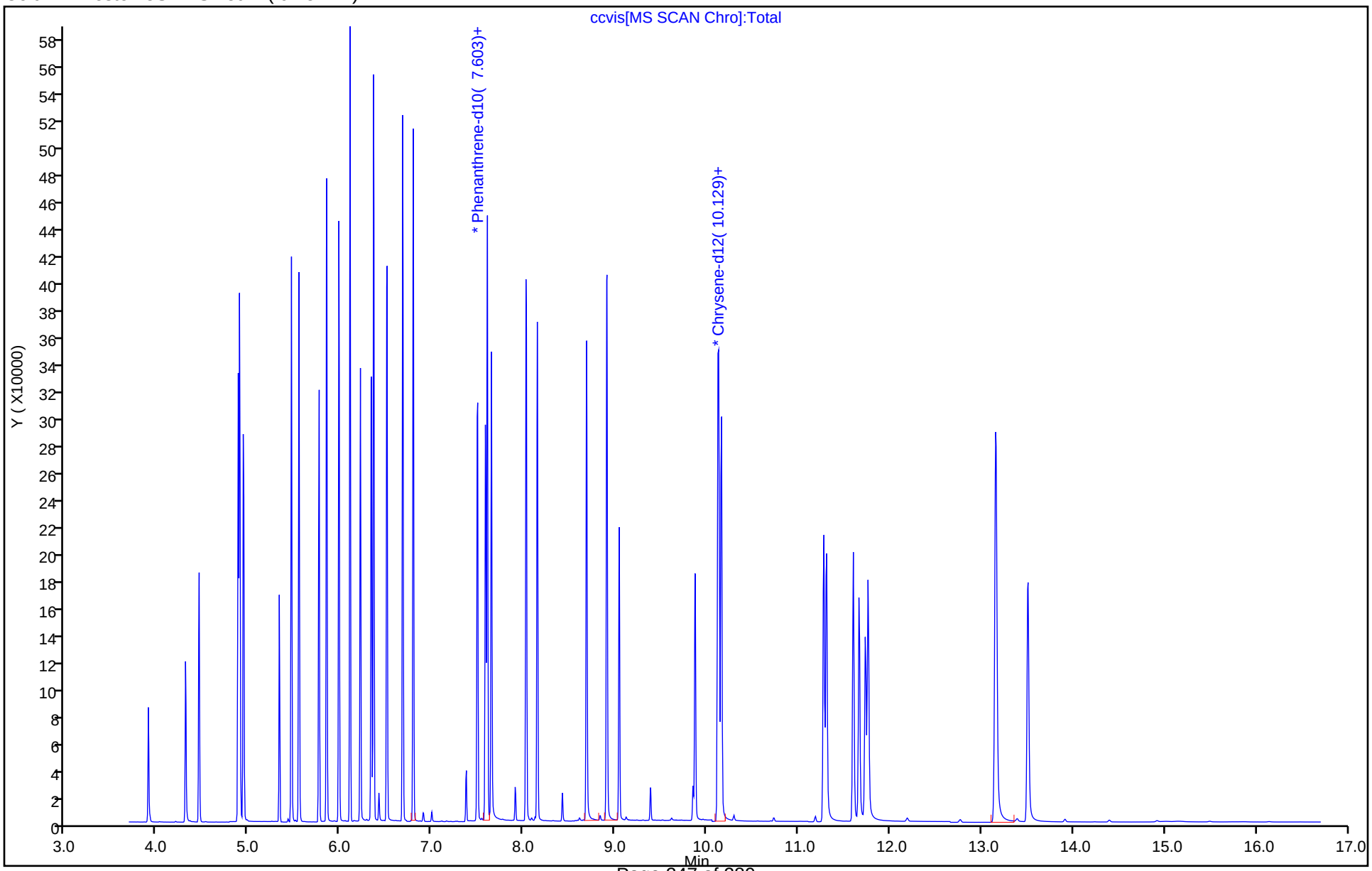
Report Date: 31-Aug-2019 12:30:21 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\ccvis.D

Injection Date:	29-Aug-2019 12:06:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	CCVIS			Worklist Smp#:	2
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Lab Sample ID: CCVIS 140-33157/2 Calibration Date: 08/30/2019 10:26

Instrument ID: MP Calib Start Date: 07/21/2019 11:55

GC Column: Rxi-5SilMS 25 ID: 0.25(mm) Calib End Date: 07/21/2019 14:26

Lab File ID: ccvis.D Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
cis-Decalin	Ave	0.1643	0.1702		518000	500000	3.5	20.0
Naphthalene	Ave	1.101	1.108	0.7000	503000	500000	0.7	20.0
Benzo(b)thiophene	Ave	0.9249	0.9029		488000	500000	-2.4	20.0
2-Methylnaphthalene	Ave	0.7210	0.7389	0.4000	512000	500000	2.5	20.0
1-Methylnaphthalene	Ave	0.6870	0.7027		511000	500000	2.3	20.0
1,1'-Biphenyl	Ave	1.801	1.783		495000	500000	-1.0	20.0
2,6-Dimethylnaphthalene	Ave	1.198	1.203		502000	500000	0.4	20.0
Acenaphthylene	Ave	1.721	1.902	0.9000	553000	500000	10.5	20.0
Acenaphthene	Ave	1.330	1.338	0.9000	503000	500000	0.5	20.0
Dibenzofuran	Ave	2.004	1.942	0.8000	485000	500000	-3.1	20.0
2,3,5-Trimethylnaphthalene	Ave	1.063	1.103		519000	500000	3.8	20.0
Fluorene	Ave	1.472	1.525	0.9000	518000	500000	3.6	20.0
Dibenzothiophene	Ave	1.193	1.173		492000	500000	-1.7	20.0
Phenanthrene	Ave	1.288	1.282	0.7000	498000	500000	-0.5	20.0
Anthracene	Ave	1.074	1.163	0.7000	541000	500000	8.3	20.0
1-Methylphenanthrene	Ave	0.8433	0.8748		519000	500000	3.7	20.0
Fluoranthene	Ave	1.252	1.321	0.6000	527000	500000	5.5	20.0
Pyrene	Ave	1.513	1.616	0.6000	534000	500000	6.8	20.0
Naphthobenzothiophene	Ave	0.8846	0.9057		512000	500000	2.4	20.0
Benzo[a]anthracene	Ave	1.189	1.271	0.8000	534000	500000	6.9	20.0
Chrysene	Ave	1.422	1.335	0.7000	469000	500000	-6.1	20.0
Benzo[b]fluoranthene	Ave	1.365	1.371	0.7000	502000	500000	0.4	20.0
Benzo[k]fluoranthene	Ave	1.548	1.674	0.7000	540000	500000	8.1	20.0
Benzo[e]pyrene	Ave	1.282	1.289		503000	500000	0.5	20.0
Benzo[a]pyrene	Ave	1.175	1.293	0.7000	550000	500000	10.1	20.0
Perylene	Ave	1.326	1.290		486000	500000	-2.8	20.0
Indeno[1,2,3-cd]pyrene	Ave	1.444	1.477	0.5000	511000	500000	2.2	20.0
Dibenz(a,h)anthracene	Ave	1.226	1.234	0.4000	503000	500000	0.6	20.0
Benzo[g,h,i]perylene	Ave	1.352	1.301	0.5000	481000	500000	-3.8	20.0
Nitrobenzene-d5	Ave	0.2919	0.3267		560000	500000	11.9	20.0
2-Fluorobiphenyl (Surr)	Ave	1.617	1.574		487000	500000	-2.6	20.0
Terphenyl-d14	Ave	0.8177	0.8399		514000	500000	2.7	20.0

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\ccvis.D
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 30-Aug-2019 10:26:30 ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012910-002
Misc. Info.: P083019(8270)
Operator ID: 11211 Instrument ID: MP
Sublist: chrom-8270D_SIM_MP*sub5

Method: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 13:01:03 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 30-Aug-2019 10:51:13

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.306	4.306	0.000	98	69400	0.5000	0.5596	
2 cis-Decalin	138	4.455	4.455	0.000	97	36145	0.5000	0.5177	
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	212421	0.5000	0.5000	
4 Naphthalene	128	4.896	4.896	0.000	100	235318	0.5000	0.5033	
5 Benzo(b)thiophene	134	4.936	4.936	0.000	99	191788	0.5000	0.4881	
6 2-Methylnaphthalene	142	5.463	5.463	0.000	100	156964	0.5000	0.5124	
7 1-Methylnaphthalene	142	5.545	5.545	0.000	100	149258	0.5000	0.5114	
$ 8 2-Fluorobiphenyl (Surr)	172	5.766	5.766	0.000	87	170221	0.5000	0.4869	
9 1,1'-Biphenyl	154	5.844	5.844	0.000	99	192720	0.5000	0.4950	
10 2,6-Dimethylnaphthalene	156	5.981	5.981	0.000	99	130060	0.5000	0.5019	
11 Acenaphthylene	152	6.216	6.216	0.000	100	205599	0.5000	0.5526	
* 12 Acenaphthene-d10	164	6.333	6.333	0.000	99	108113	0.5000	0.5000	
13 Acenaphthene	153	6.360	6.360	0.000	100	144617	0.5000	0.5027	
14 Dibenzofuran	168	6.507	6.507	0.000	97	209976	0.5000	0.4845	
15 2,3,5-Trimethylnaphthalene	170	6.678	6.678	0.000	93	119279	0.5000	0.5191	
16 Fluorene	166	6.793	6.793	0.000	100	164826	0.5000	0.5180	
17 Dibenzothiophene	184	7.491	7.491	0.000	99	212875	0.5000	0.4916	
* 18 Phenanthrene-d10	188	7.581	7.581	0.000	100	181428	0.5000	0.5000	
19 Phenanthrene	178	7.603	7.603	0.000	100	232558	0.5000	0.4977	
20 Anthracene	178	7.648	7.648	0.000	100	210992	0.5000	0.5414	
21 1-Methylphenanthrene	192	8.148	8.148	0.000	100	158709	0.5000	0.5187	
22 Fluoranthene	202	8.684	8.684	0.000	99	239672	0.5000	0.5274	
23 Pyrene	202	8.906	8.906	0.000	99	255325	0.5000	0.5340	
$ 24 Terphenyl-d14	244	9.042	9.042	0.000	100	132709	0.5000	0.5135	
25 Naphthobenzothiophene	234	9.870	9.870	0.000	100	143109	0.5000	0.5119	
26 Benzo[a]anthracene	228	10.121	10.121	0.000	99	200788	0.5000	0.5344	
* 27 Chrysene-d12	240	10.129	10.129	0.000	95	158011	0.5000	0.5000	
28 Chrysene	228	10.161	10.161	0.000	100	210871	0.5000	0.4693	
29 Benzo[b]fluoranthene	252	11.278	11.278	0.000	100	204825	0.5000	0.5020	
30 Benzo[k]fluoranthene	252	11.301	11.301	0.000	100	250085	0.5000	0.5404	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
31 Benzo[e]pyrene	252	11.599	11.599	0.000	100	192569	0.5000	0.5025	
32 Benzo[a]pyrene	252	11.660	11.660	0.000	100	193191	0.5000	0.5503	
* 33 Perylene-d12	264	11.729	11.729	0.000	100	149435	0.5000	0.5000	
34 Perylene	252	11.760	11.760	0.000	100	192730	0.5000	0.4861	
35 Indeno[1,2,3-cd]pyrene	276	13.150	13.150	0.000	93	220650	0.5000	0.5112	
36 Dibenz(a,h)anthracene	278	13.159	13.159	0.000	93	184348	0.5000	0.5032	
37 Benzo[g,h,i]perylene	276	13.508	13.508	0.000	99	194360	0.5000	0.4812	

Reagents:

608270simccv_00005 Amount Added: 1.00 Units: mL

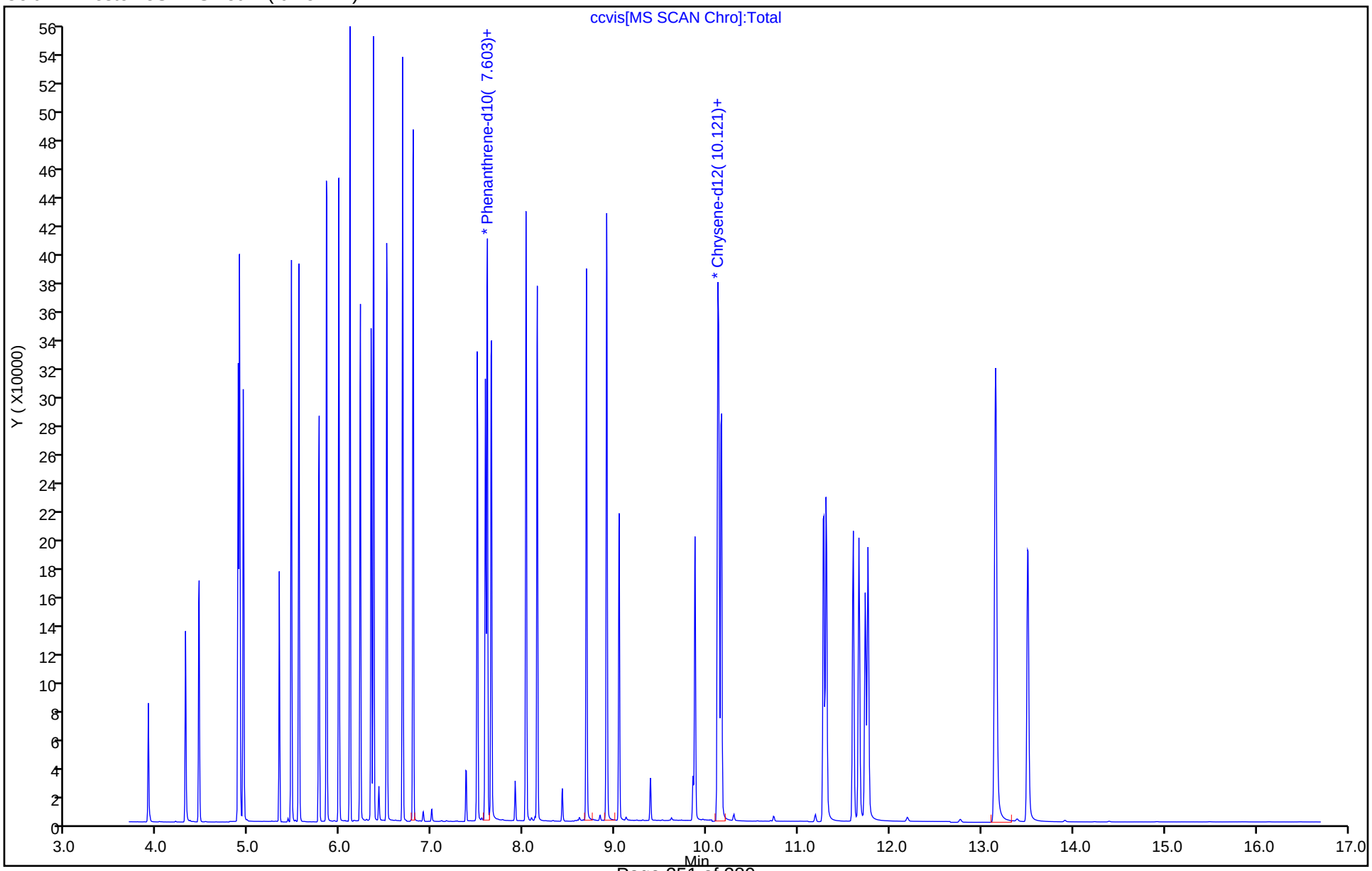
Report Date: 31-Aug-2019 13:01:03 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\ccvis.D

Injection Date:	30-Aug-2019 10:26:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	CCVIS			Worklist Smp#:	2
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\wdm.D
Lims ID: WDM
Client ID:
Sample Type: WDM
Inject. Date: 29-Aug-2019 12:31:30 ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012890-003
Misc. Info.: P082919(8270)
Operator ID: 11211 Instrument ID: MP

Method: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 11:01:00 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 29-Aug-2019 13:34:11

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	276980	0.5000	0.5000	
* 12 Acenaphthene-d10	164	6.337	6.337	0.000	97	155835	0.5000	0.5000	
* 18 Phenanthrene-d10	188	7.587	7.587	0.000	100	259731	0.5000	0.5000	
* 27 Chrysene-d12	240	10.137	10.137	0.000	70	240862	0.5000	0.5000	
* 33 Perylene-d12	264	11.737	11.737	0.000	100	224807	0.5000	0.5000	
A 38 C1-Naphthalenes	142	5.523	(5.454-5.583)		0	5330901	5000.0	5000.0	
A 39 C2-Naphthalenes	156	6.076	(5.923-6.247)		0	6881176	5000.0	5000.0	
A 40 C3-Naphthalenes	170	6.558	(6.323-6.820)		0	4642182	5000.0	5000.0	
A 41 C4-Naphthalenes	184	7.109	(6.483-7.421)		0	2521709	5000.0	5000.0	
A 42 C1-Fluorenes	180	7.200	(7.219-7.413)		0	684696	5000.0	5000.0	
A 43 C2-Fluorenes	194	7.738	(7.565-7.939)		0	1021327	5000.0	5000.0	
A 44 C3-Fluorenes	208	8.135	(7.989-8.454)		0	779590	5000.0	5000.0	
A 45 C1-Dibenzothiophenes	198	7.884	(7.827-8.065)		0	535261	5000.0	5000.0	
A 46 C2-Dibenzothiophenes	212	8.596	(8.209-8.703)		0	739326	5000.0	5000.0	
A 47 C3-Dibenzothiophenes	226	8.658	(8.529-9.109)		0	551268	5000.0	5000.0	
A 48 C4-Dibenzothiophenes	240	8.933	(8.814-9.591)		0	292405	5000.0	5000.0	
A 49 C1-Phenanthrenes/Anthracen	192	8.062	(8.020-8.193)		0	2262763	5000.0	5000.0	
A 50 C2-Phenanthrenes/Anthracen	206	8.558	(8.358-8.785)		0	2384500	5000.0	5000.0	
A 51 C3-Phenanthrenes/Anthracen	220	8.975	(8.747-9.260)		0	1522585	5000.0	5000.0	
A 52 C4-Phenanthrenes/Anthracen	234	9.515	(8.966-9.686)		0	806053	5000.0	5000.0	
A 53 C1-Fluoranthenes/pyrene	216	9.240	(9.112-9.500)		0	330827	5000.0	5000.0	
A 54 C2-Fluoranthenes/Pyrene	230	9.686	(9.587-10.039)		0	541232	5000.0	5000.0	
A 55 C3-Fluoranthenes/Pyrene	244	10.209	(10.043-10.519)		0	590816	5000.0	5000.0	
A 56 C4-Fluoranthenes/Pyrene	258	10.568	(10.371-10.864)		0	452045	5000.0	5000.0	
A 57 C1-Chrysenes	242	10.552	(10.512-10.741)		0	442436	5000.0	5000.0	
A 58 C2-Chrysenes	256	11.083	(10.937-11.264)		0	425697	5000.0	5000.0	
A 59 C3-Chrysenes	270	11.523	(11.245-11.890)		0	361957	5000.0	5000.0	
A 60 C4-Chrysenes	284	12.005	(11.332-12.465)		0	232967	5000.0	5000.0	
A 61 C1-Decalins	152	4.564	(4.506-4.633)		0	682084	5000.0	5000.0	
A 62 C2-Decalins	166	4.970	(4.802-5.149)		0	648247	5000.0	5000.0	
A 63 C3-Decalins	180	5.615	(5.190-5.695)		0	525565	5000.0	5000.0	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
A 64 C4-Decalins	194	5.872	(5.670-6.092)		0	343764	5000.0	5000.0	
A 65 C1-Naphthobenzothiophenes	248	10.241	(10.219-10.521)		0	198057	5000.0	5000.0	
A 66 C2-Naphthobenzothiophenes	262	10.783	(10.578-11.234)		0	279749	5000.0	5000.0	
A 67 C3-Naphthobenzothiophenes	276	11.248	(11.022-11.652)		0	186524	5000.0	5000.0	
A 68 C4-Naphthobenzothiophenes	290	11.584	(11.179-12.230)		0	96747	5000.0	5000.0	
A 69 C1-Benzothiophenes	148	5.350	(5.202-5.375)		0	80185	5000.0	5000.0	
A 70 C2-Benzothiophenes	162	6.090	(5.902-6.104)		0	75566	5000.0	5000.0	
A 71 C3-Benzothiophenes	176	6.499	(6.327-6.645)		0	101037	5000.0	5000.0	
A 72 C4-Benzothiophenes	190	6.932	(6.692-7.177)		0	90474	5000.0	5000.0	

Reagents:

60WDM8270D_00003 Amount Added: 1.00 Units: mL

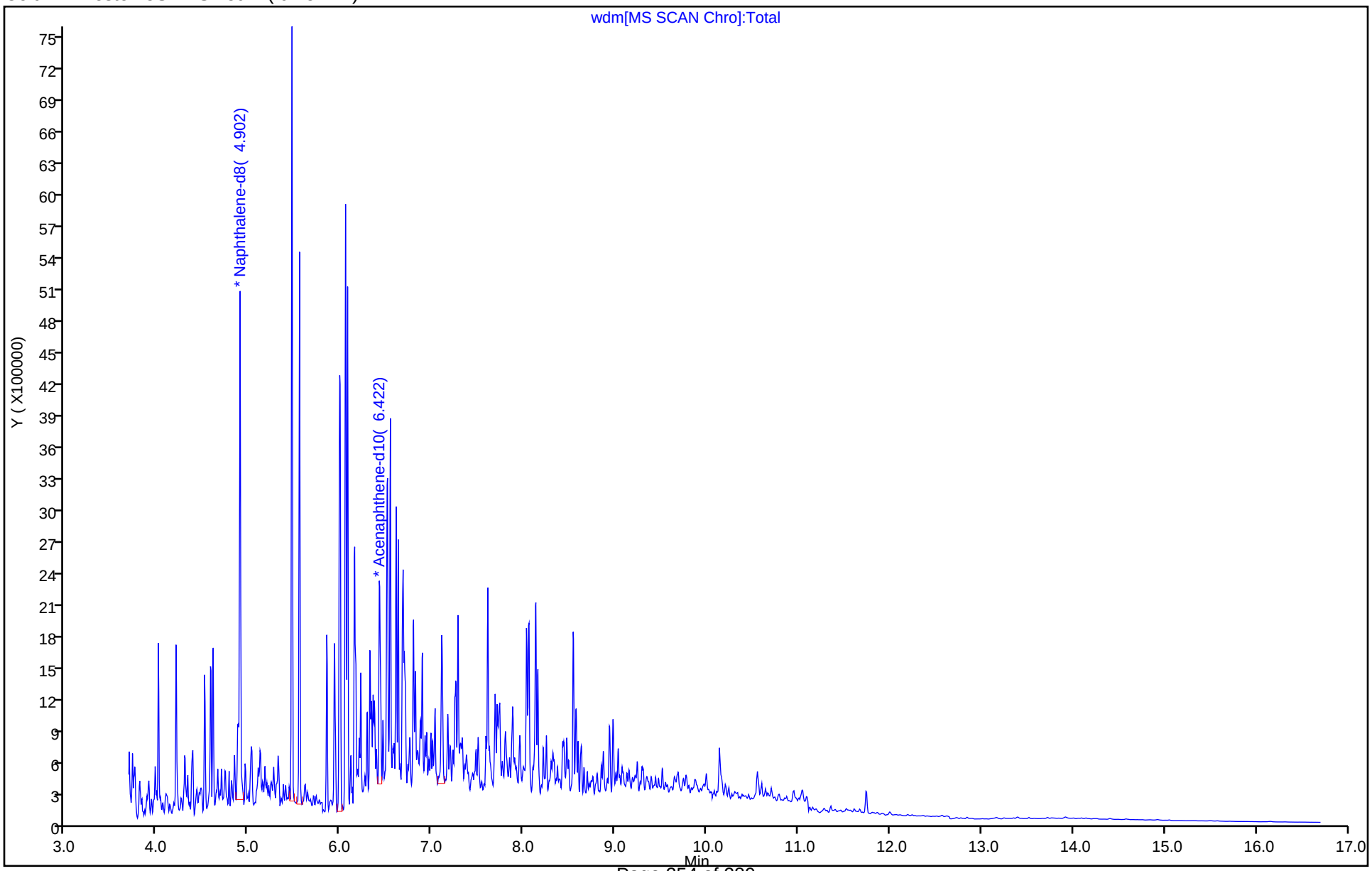
Report Date: 31-Aug-2019 11:01:03 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\wdm.D

Injection Date:	29-Aug-2019 12:31:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	WDM			Worklist Smp#:	3
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\wdm.D
Lims ID: WDM
Client ID:
Sample Type: WDM
Inject. Date: 30-Aug-2019 10:51:30 ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012910-003
Misc. Info.: P083019(8270)
Operator ID: 11211 Instrument ID: MP

Method: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 13:01:04 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 30-Aug-2019 15:40:16

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	258043	0.5000	0.5000	
* 12 Acenaphthene-d10	164	6.337	6.337	0.000	99	151931	0.5000	0.5000	
* 18 Phenanthrene-d10	188	7.586	7.586	0.000	100	241077	0.5000	0.5000	
* 27 Chrysene-d12	240	10.137	10.137	0.000	70	228735	0.5000	0.5000	
* 33 Perylene-d12	264	11.737	11.737	0.000	100	205218	0.5000	0.5000	
A 38 C1-Naphthalenes	142	5.520	(5.444-5.596)		0	4993821	5000.0	5000.0	
A 39 C2-Naphthalenes	156	6.076	(5.913-6.239)		0	6404676	5000.0	5000.0	
A 40 C3-Naphthalenes	170	6.558	(6.306-6.809)		0	4311117	5000.0	5000.0	
A 41 C4-Naphthalenes	184	6.937	(6.489-7.384)		0	2316646	5000.0	5000.0	
A 42 C1-Fluorenes	180	7.223	(7.134-7.311)		0	634090	5000.0	5000.0	
A 43 C2-Fluorenes	194	7.749	(7.564-7.934)		0	934045	5000.0	5000.0	
A 44 C3-Fluorenes	208	8.219	(7.985-8.453)		0	690996	5000.0	5000.0	
A 45 C1-Dibenzothiophenes	198	7.943	(7.822-8.064)		0	489285	5000.0	5000.0	
A 46 C2-Dibenzothiophenes	212	8.247	(8.193-8.684)		0	676402	5000.0	5000.0	
A 47 C3-Dibenzothiophenes	226	8.658	(8.524-9.104)		0	501575	5000.0	5000.0	
A 48 C4-Dibenzothiophenes	240	8.933	(8.810-9.579)		0	262533	5000.0	5000.0	
A 49 C1-Phenanthrenes/Anthracen	192	8.129	(8.002-8.183)		0	2122333	5000.0	5000.0	
A 50 C2-Phenanthrenes/Anthracen	206	8.555	(8.341-8.770)		0	2226302	5000.0	5000.0	
A 51 C3-Phenanthrenes/Anthracen	220	9.001	(8.743-9.258)		0	1365919	5000.0	5000.0	
A 52 C4-Phenanthrenes/Anthracen	234	9.512	(8.959-9.683)		0	728801	5000.0	5000.0	
A 53 C1-Fluoranthenes/pyrene	216	9.302	(9.109-9.496)		0	289325	5000.0	5000.0	
A 54 C2-Fluoranthenes/Pyrene	230	9.683	(9.584-10.051)		0	497111	5000.0	5000.0	
A 55 C3-Fluoranthenes/Pyrene	244	10.201	(10.030-10.504)		0	559935	5000.0	5000.0	
A 56 C4-Fluoranthenes/Pyrene	258	10.560	(10.368-10.847)		0	375156	5000.0	5000.0	
A 57 C1-Chrysenes	242	10.552	(10.504-10.751)		0	397539	5000.0	5000.0	
A 58 C2-Chrysenes	256	11.083	(10.919-11.248)		0	397757	5000.0	5000.0	
A 59 C3-Chrysenes	270	11.523	(11.240-11.890)		0	336523	5000.0	5000.0	
A 60 C4-Chrysenes	284	12.004	(11.332-12.463)		0	214252	5000.0	5000.0	
A 61 C1-Decalins	152	4.564	(4.500-4.628)		0	635906	5000.0	5000.0	
A 62 C2-Decalins	166	4.967	(4.794-5.140)		0	606314	5000.0	5000.0	
A 63 C3-Decalins	180	5.429	(5.167-5.690)		0	469930	5000.0	5000.0	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
A 64 C4-Decalins	194	5.881	(5.671-6.090)		0	174663	5000.0	5000.0	
A 65 C1-Naphthobenzothiophenes	248	10.368	(10.217-10.520)		0	190940	5000.0	5000.0	
A 66 C2-Naphthobenzothiophenes	262	10.831	(10.576-11.086)		0	253860	5000.0	5000.0	
A 67 C3-Naphthobenzothiophenes	276	11.288	(11.022-11.553)		0	136101	5000.0	5000.0	
A 68 C4-Naphthobenzothiophenes	290	11.695	(11.171-12.218)		0	89911	5000.0	5000.0	
A 69 C1-Benzothiophenes	148	5.288	(5.201-5.375)		0	65199	5000.0	5000.0	
A 70 C2-Benzothiophenes	162	6.001	(5.899-6.104)		0	55580	5000.0	5000.0	
A 71 C3-Benzothiophenes	176	6.481	(6.324-6.637)		0	84899	5000.0	5000.0	
A 72 C4-Benzothiophenes	190	6.935	(6.691-7.179)		0	74665	5000.0	5000.0	

Reagents:

60WDM8270D_00003 Amount Added: 1.00 Units: mL

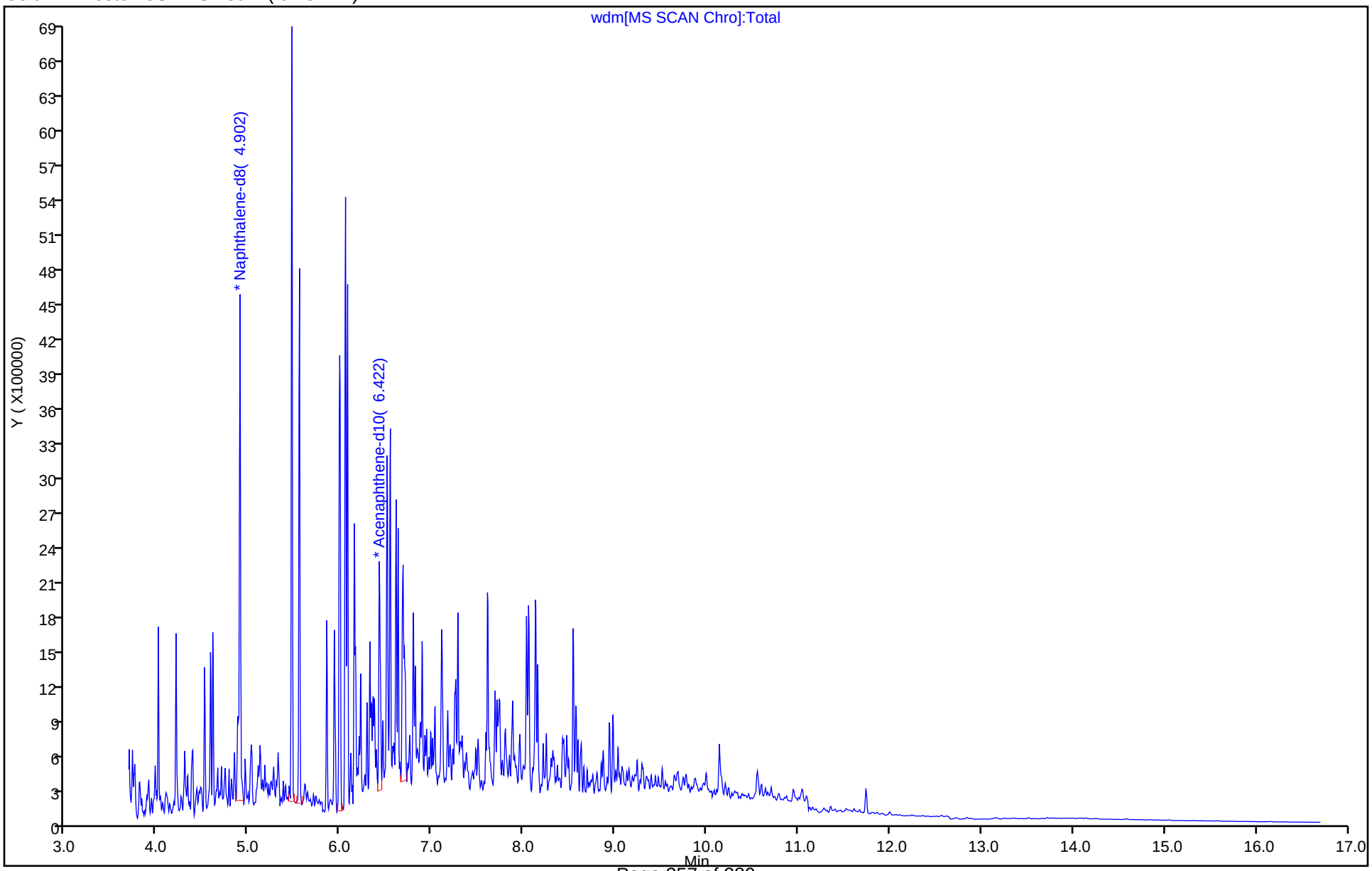
Report Date: 31-Aug-2019 13:01:05 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190830-12910.b\wdm.D

Injection Date:	30-Aug-2019 10:51:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	WDM			Worklist Smp#:	3
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Client Sample ID: Lab Sample ID: MB 140-32772/1-A

Matrix: Solid Lab File ID: mb 140-32772-1-a.D

Analysis Method: 8270D SIM Date Collected:

Extract. Method: 3540C Date Extracted: 08/26/2019 13:35

Sample wt/vol: 10(g) Date Analyzed: 08/29/2019 15:02

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 33099 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
90-12-0	1-Methylnaphthalene	ND		5.0	0.70
91-57-6	2-Methylnaphthalene	ND		10	1.0
83-32-9	Acenaphthene	ND		1.0	0.46
208-96-8	Acenaphthylene	ND		1.0	0.25
120-12-7	Anthracene	ND		1.0	0.81
56-55-3	Benzo[a]anthracene	ND		1.0	0.40
50-32-8	Benzo[a]pyrene	ND		1.0	0.36
205-99-2	Benzo[b]fluoranthene	ND		1.0	0.51
192-97-2	Benzo[e]pyrene	ND		1.0	0.34
191-24-2	Benzo[g,h,i]perylene	ND		1.0	0.59
207-08-9	Benzo[k]fluoranthene	ND		1.0	0.46
STL00905	C1-Chrysenes	ND		1.0	0.26
STL00909	C1-Dibenzothiophenes	ND		1.0	0.65
STL00912	C1-Fluoranthenes/pyrene	ND		1.0	0.52
STL00913	C1-Fluorenes	ND		1.0	0.56
STL00916	C1-Naphthalenes	ND		10	0.79
STL00901	C1-Phenanthrenes/Anthracenes	ND		2.0	1.1
STL00906	C2-Chrysenes	ND		1.0	0.31
STL00910	C2-Dibenzothiophenes	ND		1.0	0.93
STL00968	C2-Fluoranthenes/Pyrene	ND		1.0	0.45
STL00914	C2-Fluorenes	ND		2.0	1.2
STL00917	C2-Naphthalenes	ND		2.0	0.76
STL00902	C2-Phenanthrenes/Anthracenes	ND		4.0	2.5
STL00907	C3-Chrysenes	ND		1.0	0.30
STL00911	C3-Dibenzothiophenes	ND		2.0	1.1
STL00969	C3-Fluoranthenes/Pyrene	ND		1.0	0.55
STL00915	C3-Fluorenes	ND		2.0	1.1
STL00918	C3-Naphthalenes	ND		2.0	0.98
STL00903	C3-Phenanthrenes/Anthracenes	ND		2.0	1.6
STL00908	C4-Chrysenes	ND		1.0	0.34
STL00967	C4-Dibenzothiophenes	ND		1.0	0.95
STL01791	C4-Fluoranthenes/Pyrene	ND		1.0	0.38
STL00919	C4-Naphthalenes	ND		4.0	2.1
STL00904	C4-Phenanthrenes/Anthracenes	ND		2.0	1.9

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Client Sample ID: Lab Sample ID: MB 140-32772/1-A

Matrix: Solid Lab File ID: mb 140-32772-1-a.D

Analysis Method: 8270D SIM Date Collected:

Extract. Method: 3540C Date Extracted: 08/26/2019 13:35

Sample wt/vol: 10(g) Date Analyzed: 08/29/2019 15:02

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 33099 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
218-01-9	Chrysene	ND		1.0	0.38
53-70-3	Dibenz(a,h)anthracene	ND		1.0	0.57
132-65-0	Dibenzothiophene	ND		1.0	0.34
206-44-0	Fluoranthene	ND		1.0	0.91
86-73-7	Fluorene	ND		1.0	0.48
193-39-5	Indeno[1,2,3-cd]pyrene	ND		1.0	0.70
91-20-3	Naphthalene	ND		20	1.8
198-55-0	Perylene	ND		1.0	0.20
85-01-8	Phenanthrene	ND		2.0	1.8
129-00-0	Pyrene	ND		2.0	0.60

CAS NO.	SURROGATE	%REC	Q	LIMITS
321-60-8	2-Fluorobiphenyl (Surr)	68		20-142
4165-60-0	Nitrobenzene-d5	68		20-121
1718-51-0	Terphenyl-d14	78		35-150

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\mb 140-32772-1-a.D
Lims ID: MB 140-32772/1-A
Client ID:
Sample Type: MB
Inject. Date: 29-Aug-2019 15:02:30 ALS Bottle#: 1 Worklist Smp#: 9
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012890-009
Misc. Info.: P082919(8270)
Operator ID: 11211 Instrument ID: MP

Method: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 11:01:00 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 29-Aug-2019 15:56:36

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.311	4.306	0.005	95	80250	1.00	0.6823	
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	201450	0.5000	0.5000	
$ 8 2-Fluorobiphenyl (Surr)	172	5.766	5.766	0.000	87	237911	1.00	0.6830	
* 12 Acenaphthene-d10	164	6.337	6.337	0.000	99	107716	0.5000	0.5000	
* 18 Phenanthrene-d10	188	7.587	7.581	0.006	100	186946	0.5000	0.5000	
$ 24 Terphenyl-d14	244	9.048	9.042	0.006	100	206675	1.00	0.7807	
* 27 Chrysene-d12	240	10.137	10.129	0.008	95	161863	0.5000	0.5000	
* 33 Perylene-d12	264	11.737	11.729	0.008	100	159849	0.5000	0.5000	
34 Perylene	252	11.768	11.760	0.008	1	149		0.000351	7a
37 Benzo[g,h,i]perylene	276	13.522	13.508	0.014	100	308		0.000713	7a

QC Flag Legend

Processing Flags
7 - Failed Limit of Detection
Review Flags
a - User Assigned ID

Reagents:

60xx8270simis_00003 Amount Added: 0.01 Units: mL Run Reagent

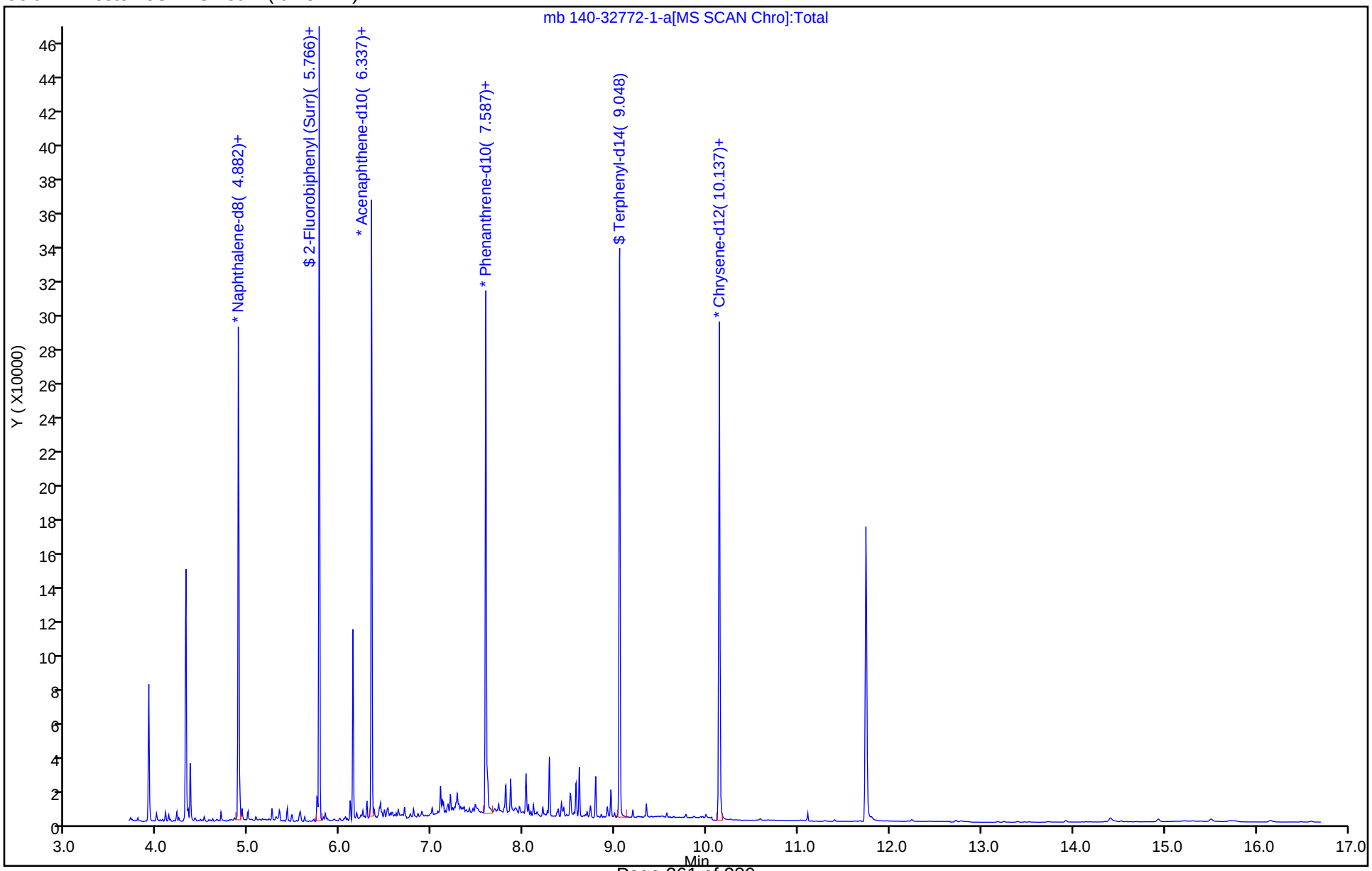
Report Date: 31-Aug-2019 11:01:12 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\mb 140-32772-1-a.D

Injection Date:	29-Aug-2019 15:02:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	MB 140-32772/1-A			Worklist Smp#:	9
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	1
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Recovery Report

Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\mb 140-32772-1-a.D				
Lims ID:	MB 140-32772/1-A				
Client ID:					
Sample Type:	MB				
Inject. Date:	29-Aug-2019 15:02:30	ALS Bottle#:	1	Worklist Smp#:	9
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Sample Info:	140-0012890-009				
Misc. Info.:	P082919(8270)				
Operator ID:	11211	Instrument ID:	MP		
Method:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\8270D_SIM_MP.m				
Limit Group:	MSS - 8270D_SIM ICAL				
Last Update:	31-Aug-2019 11:01:00	Calib Date:	21-Jul-2019 14:26:30		
Integrator:	RTE	ID Type:	RT Order ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D				
Column 1 :	Restek-5Sil MS 25um (0.25 mm)		Det: MS SCAN		
Process Host:	CTX0318				

First Level Reviewer: cochranj Date: 29-Aug-2019 15:56:36

Compound	Amount Added	Amount Recovered	% Rec.
$ 1 Nitrobenzene-d5	1.00	0.6823	68.23
$ 8 2-Fluorobiphenyl (Surr)	1.00	0.6830	68.30
$ 24 Terphenyl-d14	1.00	0.7807	78.07

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

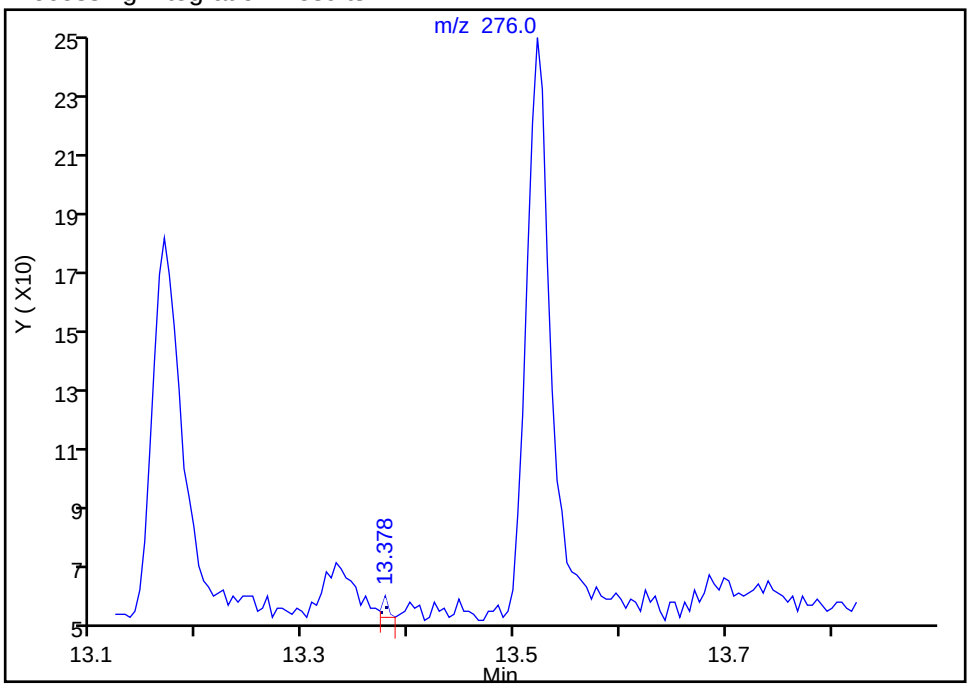
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\mb 140-32772-1-a.D				
Injection Date:	29-Aug-2019 15:02:30	Instrument ID:	MP		
Lims ID:	MB 140-32772/1-A				
Client ID:					
Operator ID:	11211	ALS Bottle#:	1	Worklist Smp#:	9
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

37 Benzo[g,h,i]perylene, CAS: 191-24-2

Signal: 1

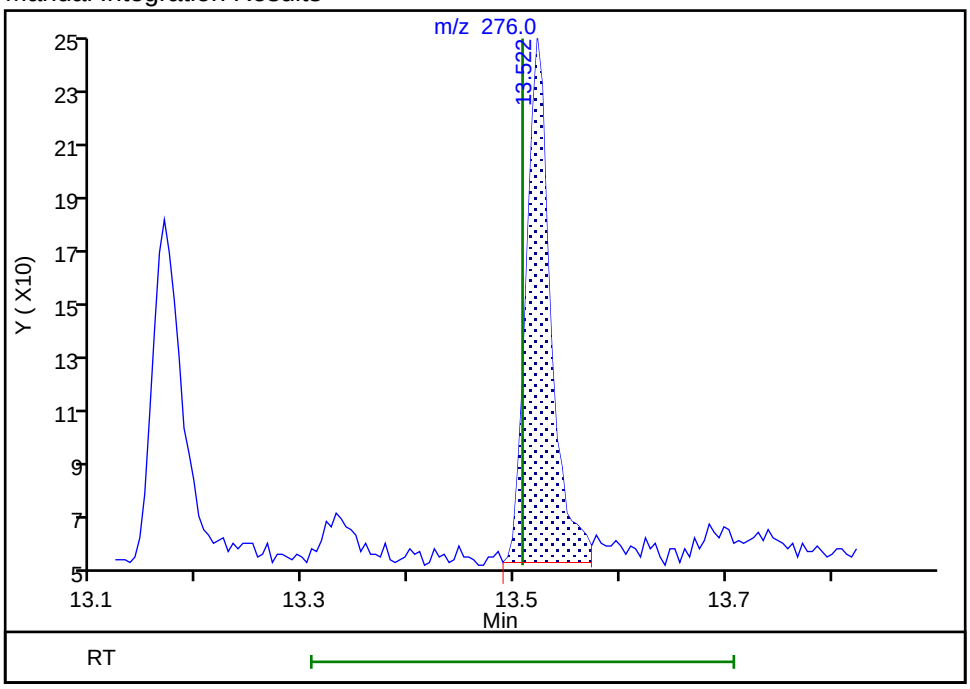
Processing Integration Results

RT: 13.38
Area: 3
Amount: 0.000007
Amount Units: ug/ml



Manual Integration Results

RT: 13.52
Area: 308
Amount: 0.000713
Amount Units: ug/ml



Reviewer: cochranj, 29-Aug-2019 15:40:42

Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

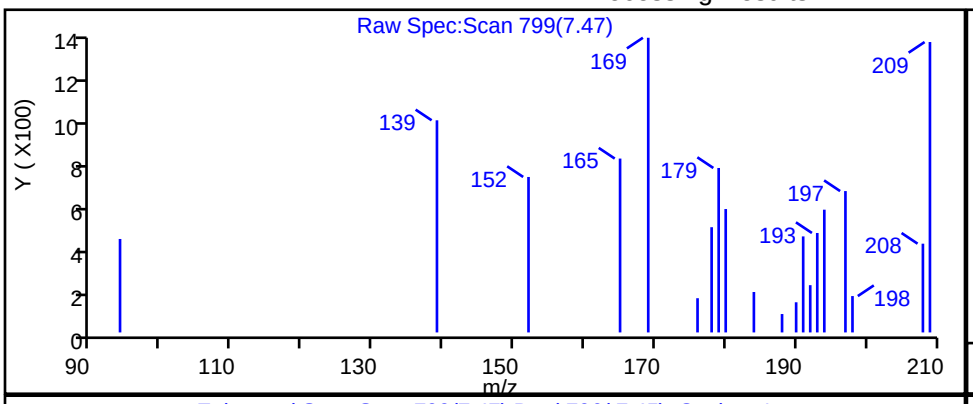
User Disabled Compound Report

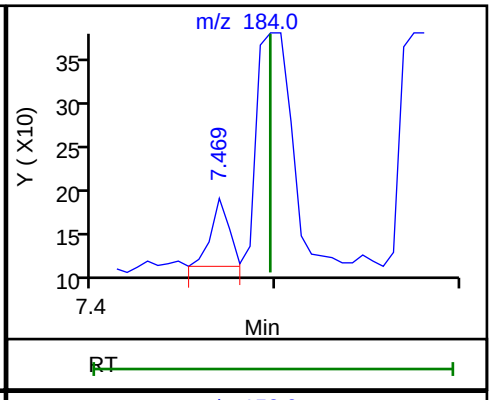
Eurofins TestAmerica, Knoxville

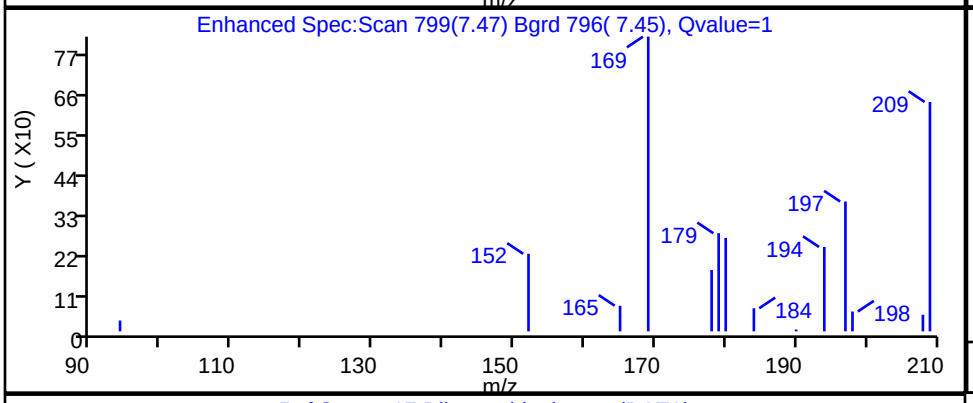
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\mb 140-32772-1-a.D				
Injection Date:	29-Aug-2019 15:02:30	Instrument ID:	MP		
Lims ID:	MB 140-32772/1-A				
Client ID:					
Operator ID:	11211	ALS Bottle#:	1	Worklist Smp#:	9
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

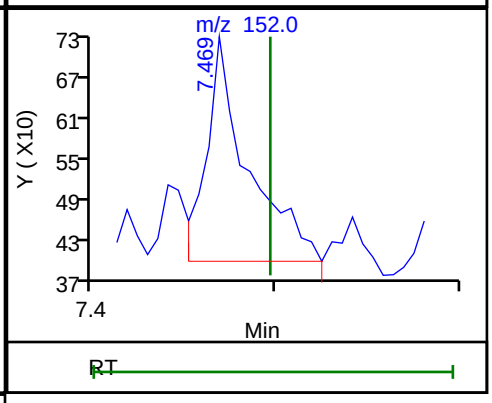
17 Dibenzothiophene, CAS: 132-65-0

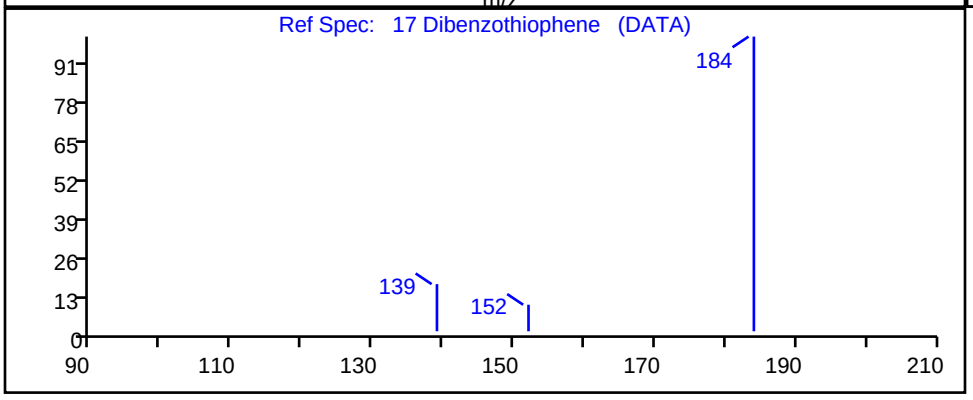
Processing Results











RT	Mass	Response	Amount
7.47	184.00	54	0.000121
7.47	152.00	531	

Reviewer: cochranj, 30-Aug-2019 09:12:19

Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Knoxville

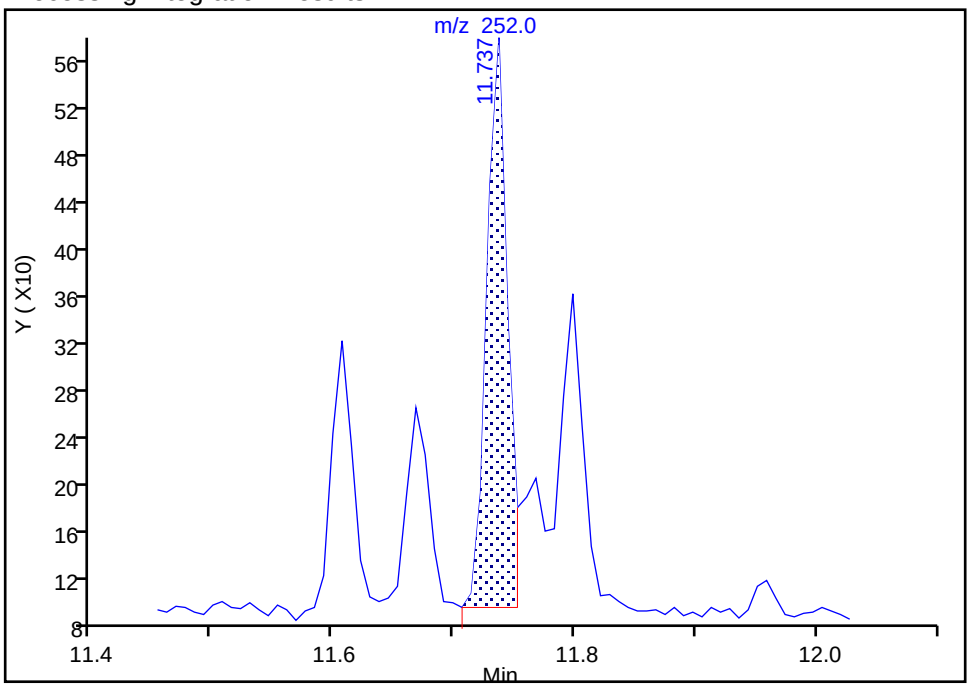
Data File:	\\chromna\Knoxville\ChromData\MP\20190828-12890.b\mb 140-32772-1-a.D				
Injection Date:	29-Aug-2019 15:02:30	Instrument ID:	MP		
Lims ID:	MB 140-32772/1-A				
Client ID:					
Operator ID:	11211	ALS Bottle#:	1	Worklist Smp#:	9
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		
Column:	Restek-5Sil MS 25um (0.25 mm)	Detector	MS SCAN		

34 Perylene, CAS: 198-55-0

Signal: 1

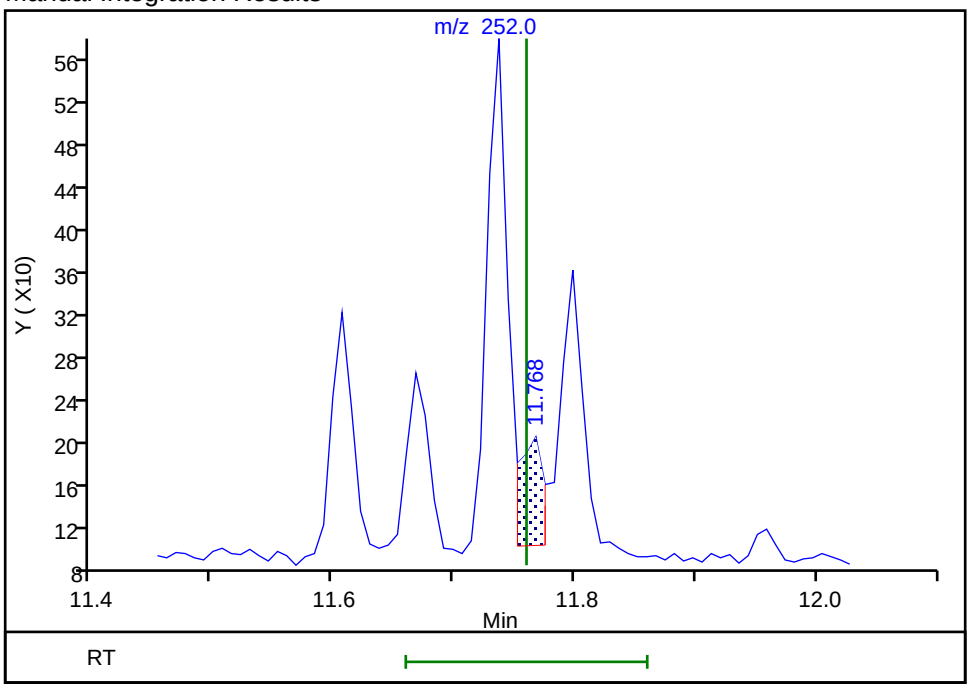
Processing Integration Results

RT: 11.74
Area: 586
Amount: 0.001382
Amount Units: ug/ml



Manual Integration Results

RT: 11.77
Area: 149
Amount: 0.000351
Amount Units: ug/ml



Reviewer: cochranj, 29-Aug-2019 15:40:26

Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Client Sample ID: Lab Sample ID: LCS 140-32772/2-A

Matrix: Solid Lab File ID: lcs 140-32772-2-a.D

Analysis Method: 8270D SIM Date Collected:

Extract. Method: 3540C Date Extracted: 08/26/2019 13:35

Sample wt/vol: 10(g) Date Analyzed: 08/29/2019 15:27

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 33099 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
90-12-0	1-Methylnaphthalene	37.9		5.0	0.70
91-57-6	2-Methylnaphthalene	38.5		10	1.0
83-32-9	Acenaphthene	36.3		1.0	0.46
208-96-8	Acenaphthylene	33.1		1.0	0.25
120-12-7	Anthracene	33.1		1.0	0.81
56-55-3	Benzo[a]anthracene	43.3		1.0	0.40
50-32-8	Benzo[a]pyrene	36.5		1.0	0.36
205-99-2	Benzo[b]fluoranthene	40.1		1.0	0.51
192-97-2	Benzo[e]pyrene	37.7		1.0	0.34
191-24-2	Benzo[g,h,i]perylene	36.4		1.0	0.59
207-08-9	Benzo[k]fluoranthene	36.6		1.0	0.46
218-01-9	Chrysene	38.4		1.0	0.38
53-70-3	Dibenz(a,h)anthracene	38.2		1.0	0.57
132-65-0	Dibenzothiophene	35.0		1.0	0.34
206-44-0	Fluoranthene	42.0		1.0	0.91
86-73-7	Fluorene	36.6		1.0	0.48
193-39-5	Indeno[1,2,3-cd]pyrene	39.1		1.0	0.70
91-20-3	Naphthalene	37.2		20	1.8
198-55-0	Perylene	31.7		1.0	0.20
85-01-8	Phenanthrene	36.4		2.0	1.8
129-00-0	Pyrene	40.4		2.0	0.60

CAS NO.	SURROGATE	%REC	Q	LIMITS
321-60-8	2-Fluorobiphenyl (Surr)	74		20-142
4165-60-0	Nitrobenzene-d5	78		20-121
1718-51-0	Terphenyl-d14	83		35-150

Eurofins TestAmerica, Knoxville
Target Compound Quantitation Report

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\lcs 140-32772-2-a.D
Lims ID: LCS 140-32772/2-A
Client ID:
Sample Type: LCS
Inject. Date: 29-Aug-2019 15:27:30 ALS Bottle#: 2 Worklist Smp#: 10
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012890-010
Misc. Info.: P082919(8270)
Operator ID: 11211 Instrument ID: MP

Method: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 11:01:00 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 29-Aug-2019 15:57:05

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
$ 1 Nitrobenzene-d5	82	4.311	4.306	0.005	97	96749	1.00	0.7766	
2 cis-Decalin	138	4.460	4.455	0.005	98	49880	1.00	0.7112	
* 3 Naphthalene-d8	136	4.882	4.882	0.000	95	213389	0.5000	0.5000	
4 Naphthalene	128	4.902	4.896	0.006	93	349319	1.00	0.7437	
5 Benzo(b)thiophene	134	4.943	4.936	0.007	100	283309	1.00	0.7177	
6 2-Methylnaphthalene	142	5.463	5.463	0.000	97	236794	1.00	0.7695	
7 1-Methylnaphthalene	142	5.545	5.545	0.000	98	222424	1.00	0.7586	
$ 8 2-Fluorobiphenyl (Surr)	172	5.766	5.766	0.000	87	268138	1.00	0.7357	
9 1,1'-Biphenyl	154	5.849	5.849	0.000	99	288326	1.00	0.7104	
10 2,6-Dimethylnaphthalene	156	5.985	5.981	0.004	93	197565	1.00	0.7314	
11 Acenaphthylene	152	6.216	6.216	0.000	100	256573	1.00	0.6614	
* 12 Acenaphthene-d10	164	6.337	6.337	0.000	99	112706	0.5000	0.5000	
13 Acenaphthene	153	6.364	6.360	0.004	100	217765	1.00	0.7262	
14 Dibenzofuran	168	6.507	6.507	0.000	99	314424	1.00	0.6960	
15 2,3,5-Trimethylnaphthalene	170	6.682	6.678	0.004	88	185710	1.00	0.7752	
16 Fluorene	166	6.793	6.793	0.000	100	242814	1.00	0.7320	
17 Dibenzothiophene	184	7.497	7.497	0.000	100	327570	1.00	0.6990	
* 18 Phenanthrene-d10	188	7.586	7.581	0.005	100	196330	0.5000	0.5000	
19 Phenanthrene	178	7.603	7.603	0.000	100	367717	1.00	0.7272	
20 Anthracene	178	7.648	7.648	0.000	100	279446	1.00	0.6626	
21 1-Methylphenanthrene	192	8.148	8.148	0.000	100	263937	1.00	0.7971	
22 Fluoranthene	202	8.687	8.687	0.000	99	413530	1.00	0.8409	
23 Pyrene	202	8.909	8.906	0.003	99	431752	1.00	0.8078	
$ 24 Terphenyl-d14	244	9.045	9.042	0.003	100	240705	1.00	0.8333	
25 Naphthobenzothiophene	234	9.873	9.873	0.000	100	254587	1.00	0.8147	
26 Benzo[a]anthracene	228	10.121	10.121	0.000	97	363931	1.00	0.8665	
* 27 Chrysene-d12	240	10.137	10.129	0.008	70	176624	0.5000	0.5000	
28 Chrysene	228	10.161	10.161	0.000	100	385372	1.00	0.7673	
29 Benzo[b]fluoranthene	252	11.278	11.278	0.000	100	402728	1.00	0.8021	
30 Benzo[k]fluoranthene	252	11.309	11.309	0.000	100	416582	1.00	0.7316	
31 Benzo[e]pyrene	252	11.599	11.599	0.000	100	355174	1.00	0.7533	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
32 Benzo[a]pyrene	252	11.660	11.660	0.000	100	315714	1.00	0.7309	
* 33 Perylene-d12	264	11.729	11.729	0.000	100	183878	0.5000	0.5000	
34 Perylene	252	11.760	11.760	0.000	100	308868	1.00	0.6332	
35 Indeno[1,2,3-cd]pyrene	276	13.151	13.150	0.001	97	415633	1.00	0.7826	
36 Dibenz(a,h)anthracene	278	13.161	13.159	0.002	89	344461	1.00	0.7641	
37 Benzo[g,h,i]perylene	276	13.509	13.508	0.001	99	362193	1.00	0.7287	

Reagents:

60xx8270simis_00003 Amount Added: 0.01 Units: mL Run Reagent

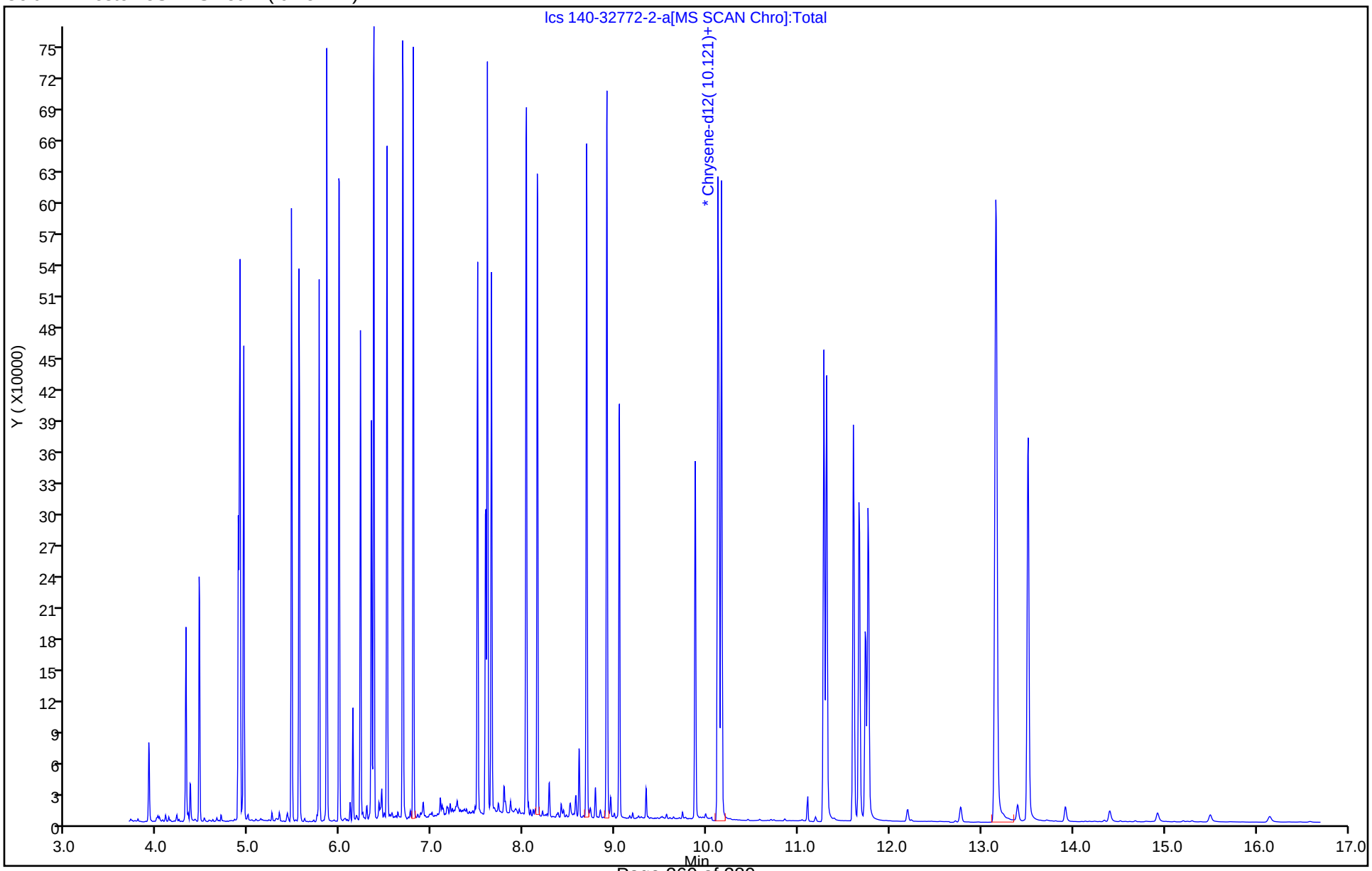
Report Date: 31-Aug-2019 11:01:14 Chrom Revision: 2.3 22-Aug-2019 12:55:36

Eurofins TestAmerica, Knoxville

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\lcs 140-32772-2-a.D

Injection Date:	29-Aug-2019 15:27:30	Instrument ID:	MP	Operator ID:	11211
Lims ID:	LCS 140-32772/2-A			Worklist Smp#:	10
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	8270D_SIM_MP	Limit Group:	MSS - 8270D_SIM ICAL		

Column: Restek-5Sil MS 25um (0.25 mm)



Eurofins TestAmerica, Knoxville
Recovery Report

Data File: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\lcs 140-32772-2-a.D
Lims ID: LCS 140-32772/2-A
Client ID:
Sample Type: LCS
Inject. Date: 29-Aug-2019 15:27:30 ALS Bottle#: 2 Worklist Smp#: 10
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0012890-010
Misc. Info.: P082919(8270)
Operator ID: 11211 Instrument ID: MP

Method: \\chromna\Knoxville\ChromData\MP\20190828-12890.b\8270D_SIM_MP.m
Limit Group: MSS - 8270D_SIM ICAL
Last Update: 31-Aug-2019 11:01:00 Calib Date: 21-Jul-2019 14:26:30
Integrator: RTE ID Type: RT Order ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Knoxville\ChromData\MP\20190729-12531.b\ic 7X.D

Column 1 : Restek-5Sil MS 25um (0.25 mm) Det: MS SCAN
Process Host: CTX0318

First Level Reviewer: cochranj Date: 29-Aug-2019 15:57:05

Compound	Amount Added	Amount Recovered	% Rec.
$ 1 Nitrobenzene-d5	1.00	0.7766	77.66
$ 8 2-Fluorobiphenyl (Surr)	1.00	0.7357	73.57
$ 24 Terphenyl-d14	1.00	0.8333	83.33

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Instrument ID: MP Start Date: 07/21/2019 11:55

Analysis Batch Number: 32163 End Date: 07/21/2019 15:17

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 140-32163/2		07/21/2019 11:55	1	ic 1XC.D	Rxi-5SilMS 25 0.25(mm)
IC 140-32163/3		07/21/2019 12:20	1	ic 2X.D	Rxi-5SilMS 25 0.25(mm)
IC 140-32163/4		07/21/2019 12:45	1	ic 3X.D	Rxi-5SilMS 25 0.25(mm)
ICIS 140-32163/5		07/21/2019 13:11	1	icis 4X.D	Rxi-5SilMS 25 0.25(mm)
IC 140-32163/6		07/21/2019 13:36	1	ic 5X.D	Rxi-5SilMS 25 0.25(mm)
IC 140-32163/7		07/21/2019 14:01	1	ic 6X.D	Rxi-5SilMS 25 0.25(mm)
IC 140-32163/8		07/21/2019 14:26	1	ic 7X.D	Rxi-5SilMS 25 0.25(mm)
ICV 140-32163/10		07/21/2019 15:17	1	icvX.D	Rxi-5SilMS 25 0.25(mm)

Eurofins/TestAmerica Knoxville GC/MS-SIM ICAL Review/Narrative Checklist
Method: PAHs and Selected SVOCs – KNOX-ID-0016, Revision 12

Instrument:	MP	TALS Batch / Event #	PAH	0010 PAH	Scanned □
Analysis Date:	7/21/19	PAH:	20600 / 32163	/	
Chrom WL #	12531	EU:	/	/	
		PCB:	/	/	
		Other:	/	/	

Chrom Worklist/Peak Review	1st	*Comments*	2nd
1. Re-read each limit group [method editor-limit groups]	✓		
2. Verify LOD [method editor -> edit -> MDL]	✓		
3. Are the reagents & init./final vol. correct [Sample & Run Reagents]	✓		
4. First levels "unlock/clear" or "unlock/clear by sublist" as appropriate?	✓		✓
5. Are the Cal Levels & groups correct in WL?	✓		✓
6. Were all standards injected within 12 hr of first injection? [F7]	✓		✓
7. Was the high point std checked for saturation [flags + visible inspection; $8.4x10^6$]	✓		✓
8. If manual integrations were performed, are they appropriate with proper reason given?	✓		✓
9. Were all peaks identified automatically? If not, list analytes: _____	✓	*Modify method for detection must be attempted and all points reprocessed. Any non-detected peaks must be verified in each affected sample.*	✓
10. Elution order checked on isomeric pairs?			
• 1,4 dichlorobenzene before 1,2 dichlorobenzene (& d4 isomers)	✓		✓
• 2-methylnaphthalene before 1-methylnaphthalene (& d10 isomers)	✓		✓
• acenaphthylene before acenaphthene (& d10 isomers)	✓		✓
• dibenzothiophene before phenanthrene	✓		✓
• phenanthrene before anthracene (& d10 isomers)	✓		✓
• 3-methylphenanthrene and 1-methylphenanthrene	✓		✓
• fluoranthene before pyrene (& d10 isomers)	✓		✓
• benzo(a)anthracene before chrysene (& d12 isomers)	✓		✓
• benzo(b)fluoranthene before benzo(k)fluoranthene (& d12 isomers)	✓		✓
• benzo(e)pyrene before benzo(a)pyrene before perylene (& d12 isomers)	✓		✓
• Indeno(1,2,3-cd)pyrene before benzo(g,h,i)perylene (& d12 isomers)	✓		✓

Chrom MLG Review	PAH	0010	Comments/NCM#	PAH	0010
11. Are ICAL start/end dates/times correct on summary? [F6]	✓			✓	
12. Are ≥ 5 levels of each compound/surrogate active? [F6]	✓			✓	
13. Is low level standard at or below RL & points consec? [F6]	✓			✓	
14. Are all %RSD ≤30% [F6]	✓			✓	
15. Was a linear or quadratic fit used for analytes >30 % RSD? [F6]	N/A			NA	
16. If curves were used, is correlation coefficient ≥0.990? [F6]					
17. At least 6 consecutive points used for quadratic curves? [F6]					
18. For quadratic: is a tangent's slope to the curve entirely positive or negative and continuous? [Cntrl-C, details]					
19. Is the intercept < RL for each curve? [Cntrl-C, details]					
20. Is the readback for each point within criteria? [F6-Drift] (<40% for all points, except low point < 50 %)	✓			✓	
21. Was the ICV within ± 30% recovery? [F8-icv]	✓		□ ICV out, smp ND (NCM#)	✓	

1st level reviewer: MP/dlc	Date: 7/29/19	2nd level reviewer: CLS	Date: 7/29/19
Comments:			

* Such action must be taken in consultation with client.

Eurofins/TestAmerica Knoxville GC/MS-SIM ICAL Review/Narrative Checklist
Method: PAHs and Selected SVOCs – KNOX-ID-0016, Revision 12

TALS MLG Review	PAH	0010	Comments	PAH	0010
22. Upload ICAL	✓		✓		
23. Graphics uploaded? [Sample List Tab]	✓			✓	
24. All points are in the most recent active calibration event #? [Calibration ID # in the sample results tab & Calibration Events] [Calibration Events - 'Fix ICAL Linkage' if needed]	✓			✓	
25. If criteria not met, was a NCM generated?	NA			NA	
26. After review in TALS, approve the calibrations in TALS				✓	
27. After verifying TALS is correct, lock method in Chrom <resolve any error issues>				✓	
28. Checklist scanned & attached properly?					
1st level reviewer: MAP	Date: 7/30/19		2nd level reviewer: CLG	Date: 7/29/19	
Comments:					

* Such action must be taken in consultation with client.

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Instrument ID: MP Start Date: 08/29/2019 12:06

Analysis Batch Number: 33099 End Date: 08/29/2019 21:45

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVIS 140-33099/2		08/29/2019 12:06	1	ccvis.D	Rxi-5SilMS 25 0.25(mm)
WDM 140-33099/3		08/29/2019 12:31	1	wdm.D	Rxi-5SilMS 25 0.25(mm)
MB 140-32772/1-A		08/29/2019 15:02	1	mb 140-32772-1-a.D	Rxi-5SilMS 25 0.25(mm)
LCS 140-32772/2-A		08/29/2019 15:27	1	lcs 140-32772-2-a.D	Rxi-5SilMS 25 0.25(mm)
140-15918-A-2-A MDLV		08/29/2019 15:52	1		Rxi-5SilMS 25 0.25(mm)
580-87706-14		08/29/2019 16:17	30	580-87706-b-14-a.D	Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 17:08	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 17:34	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 17:59	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 18:24	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 18:50	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 19:15	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 19:40	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 20:05	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 20:30	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 20:55	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 21:20	30		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/29/2019 21:45	30		Rxi-5SilMS 25 0.25(mm)

Eurofins/TestAmerica Knoxville Semivolatile GC/MS Continuing Calibration Data Review / Narrative Checklist
8270D – KNOX-MS-0027, Rev 0

	TALS Batch #:	33099	
		ICAL TALS Batch / Event #	Scanned □
Instrument:	MP	32163 / 32603	
Analysis Date:	4/25/19		
ICAL Chrom WL #	12531		
CCAL Chrom WL #	12690		

CCV Chrom/Worklist Review	1st	*Comments/NCM #*	2nd
1. Are the reagents & init/final volumes correct? (Verify reagents & amt. injected) [WL Sample Reagent Tab]	✓		✓
2. Are all required calibration standards in worklist?	✓		
3. Was the CCAL compared to the most recent & correct ICAL for each CCV & LG? (verify ICAL batch #, start/end Cal date & time) [F8]	✓		✓
4. Elution order checked on isomeric pairs/coeluters?			
• 2 & 1 - methylnaphthalene	✓		✓
• acenaphthylene / acenaphthene	✓		✓
• phenanthrene / anthracene	✓		✓
• 3-methylphenanthrene / 1-methylphenanthrene	✓		✓
• fluoranthene / pyrene	✓		✓
• benzo(a)anthracene / chrysene	✓		✓
• benzo(b)fluoranthene / benzo(k)fluoranthene	✓		✓
• benzo(e)pyrene / benzo(a)pyrene / perylene	✓		✓
• indeno(1,2,3-cd)pyrene / benzo(g,h,i)perylene	✓		✓
5. Manual integrations properly performed, correctly ID'd, baseline clearly identified, and correct reason given?	N/A	*Note: manual selections should be updated and all data reprocessed*	NA
6. Were all peaks identified automatically? *If not, list analytes:* _____	✓	*Note: any non-detected peaks must be verified in each affected sample.*	✓
7. Has the retention time been updated to the method?	✓		✓
8. Are the internal standard responses within limits for each CCV? (50-200% of the mid-level ICAL standard) [F8-istd]	✓		✓
9. Are the internal standard retention times within limits for each CCV? (±30 seconds of the mid-level ICAL standard) [F8-istd]	✓		✓
10. Have the alkyl groups in WDM been correctly integrated?	✓		✓
CCV Chrom/TALS MLG Review *[F8] or TALS sample tab*			
11. Do the RF's meet minimum criteria	✓		✓
12. Is the %D ≤20% for 80% of compounds?	✓		✓
13. For any compound > 20% (low), was a RL standard analyzed & detected? *	N/A	□ CCV out, EST (1) (NCM#_____)	NA
14. For any compound > 20%D (high or low), NCM generated? *	N/A	□ CCV out, EST (2) (NCM#_____)	NA
15. Benz(b & k) fluoranthene: height of the valley between < 50% of average of the two peak heights? [F8 Resolution]	✓		✓
16. Is the calibration event # correct for each CCV? *[TALS Sample Results tab]*	✓		✓

Continued on next page

* Such action must be taken in consultation with client.

Eurofins/TestAmerica Knoxville Semivolatile GC/MS Continuing Calibration Data Review / Narrative Checklist
8270D – KNOX-MS-0027, Rev 0

TALS BATCH #: 33099

Batch Chrom/TALS review	1st	Comments/NCM #	2nd
1. Have the sample ID's and dilution factors been confirmed (check sequence, autosampler positions, etc.)?	✓		
2. Were all samples injected within 12 hr of CCV?	✓		
3. Method blank or instrument blank analyzed?	✓		✓
4. Are all analytes in the method blank < ½ RL	✓	□ MB CLC <5x RL (NCM#_____) □ MB Rpt ND (NCM#_____) □ MB-Rpt.10x (NCM#_____) □ MB-insuff samp (NCM#_____) □ MB-insuff samp -CONSUMED (NCM#_____) □ MB > ½ RL (explain) (NCM#_____) □ MB RX - HT out (NCM#_____)	✓
5. Method blank surrogate recoveries within QC limits? [F8] or [Batch Results SUR Tab]	✓	□ Surr-MB (1) high (NCM#_____) + (2) smp OK (NCM#_____) **or** (3) Insuff. sample (NCM#_____) **or** (4) CONSUMED (NCM#_____)	✓
6. LCS done per batch and criteria met with limited # marginal exceedences allowed (see table) and no two consecutive MEs? [Chrom-F8] [TALS-Sample Results Tab]	✓	□ LCS/D-Insuff smp (NCM#_____) □ LCS/D-Insuff smp - CONSUMED (NCM#_____) □ LCS/D %R High < RL in smp (1+2-5) (NCM#_____) □ LCS/D out-RX HT out (NCM#_____) □ Mar. Exceed. w/in ME limits & Random (NCM#_____) □ LCS/D-%RPD (%R OK) (NCM#_____) □ NCM# **140-6154**: Water wash	✓
7. All runs - peaks ID'd correctly and false positives removed? Flag or narrate analyte interferences issues > RL *NCM only needed for "cn"* **FLAGS**: K: benzo(b/k) reported as (b) k: benzo(b/k) reported as (k) a: benzo(a)anthracene/chrysene reported as b(a)a y: benzo(a)anthracene/chrysene reported as chrysene CI: chromatographic interferences – high bias cn: see case narrative	✓	□ Interf-Chrom (NCM#_____) □ "cn" (see narrative): (NCM#_____) Samples/ analytes: _____ _____ _____ _____ _____	✓
8. Manual integrations properly performed, correctly ID'd, baseline clearly identified, and correct reason given?	✓		✓
9. Are Alkyl group start/end times and patterns identified?	✓	"AP" flags applied where appropriate? (NCM not needed unless necessary)	✓
10. Are surrogates within QC limits? [Batch Results SUR Tab] If no, list samples, reason and NCM # Sample / Reason: 12 DIL; 13; 14; 15; 16; 17; 18; 19; 20; 21; 22 Sample / Reason: 23 DIL; 24; 25	*	□ Surr-High-ND (1,8) (NCM#_____) □ Surr-Incorrect Spike amt (NCM#_____) □ Surr-Insuff Smp (1) insuff smp (NCM#_____) or (4) CONSUMED (NCM#_____) + (2) low bias (NCM#_____) or (3) high bias (NCM#_____) □ Surr-Insuff Smp - CONSUMED (NCM#_____) □ Surr-Matrix (1-5) (NCM#_____) □ Surr-rpt per client (released w/o further investigation)* (NCM#_____) □ Surr-RX concur (NCM#_____) □ Surr-RX pass (RX outside HT, but w/in limits) (NCM#_____) ✓ Dil – Surr dil out or estimated & elev RL's (opt 1-4 & 5-8): (NCM# 19429 ✓) □ NCM# **140-6154**: Water wash	✓
11. Are internal standards within QC limits? [Batch Results IS Tab] If no, list samples, reason and NCM # Sample / Reason / Sample / Reason	✓	□ ISTD- Matrix (NCM#_____) □ ISTD- Matrix DL required (NCM#_____) □ ISTD- non-targets affected (NCM#_____) □ ISTD- RX/RA concur (NCM#_____) □ NCM# **140-5757:** Samples bracketed by acceptable runs*.	✓

Number of target analytes in LCS	# marginal exceedances of LCS control limits allowed
>90	5
71 - 90	4
51 - 70	3
31 - 50	2
11 - 30	1
< 11	0

Continued on next page

* Such action must be taken in consultation with client.

Eurofins/TestAmerica Knoxville Semivolatile GC/MS Continuing Calibration Data Review / Narrative Checklist
8270D – KNOX-MS-0027, Rev 0

TALS BATCH #: 33099

Batch TALS Review	1st	Comments/NCM #	2nd
12. For initial analysis with elevated RL's, explain: *List diluted samples and reason:* Sample / Reason / Sample / Reason 12 17 Screen — 21 25 Screen 14 18 — 22 15 19 — 23 16 20 — 29	*	□ RL – Final Vol (NCM#_________) □ RL – Init Vol (matrix) (NCM#_________) □ RL – Insuff. Smp (NCM#_________) ☑ RL – Dil Screen (NCM# 19430) □ RL – Dil Targets (NCM#_________) □ RL – Dil Non-targets (NCM#_________)	✓
13. Graphics uploaded?	✓		✓
14. Sample special instructions verified?	✓		✓
15. Suffixes assigned properly (DL/RE)? [Sample List Tab]	✓		✓
16. Each job has QC created (CCV, MB, LCS)? [Sample List Tab]	✓		✓
17. Analytes over calibration range set to secondary & dilutions scheduled for analysis? [Conditions Review Tab] Sample / Reason / Sample / Reason	✓	□ ICAL-Range Exceed; Min Dil 1 – client OK'd * (NCM#_________) 2 – dil for other cmpds (NCM#_________)	✓
18. For dilutions, diluted analytes set to primary, others to "Acceptable"? [Sample Results Tab]	✓		✓
19. If MS/MSD was done on this client's sample or for reported batch QC, were the MS/MSD recoveries and RPDs within laboratory generated QC limits?	*	□ MS/MSD - %R out, LCS OK ☑ MS/MSD - high targets ☑ MS/MSD – spk/surr diluted out □ MS/MSD/Dup - % RPD	✓
20. Verify reagents have not expired [Reagents Tab]	✓		✓
21. Samples not reported set to "Acceptable" or "Rejected" [Sample Results Tab]	✓		✓
22. CCV linked to all samples? [QC Links]	✓		✓
23. Samples linked to correct method blank & LCS/D & MS/D? [QC Links]	✓		✓
24. Correct ICV's linked to all samples? [QC Links]	✓		✓
25. Run Data Review Checker and acknowledge findings.	✓		✓
26. Runs set to 1st level review?	✓	Runs set to 2nd level review?	✓
27. QC checker run for batch and items addressed			✓
28. Checklist scanned & attached properly?			✓

1st level:	Date 8/31/19	2nd level:	Date 9/3/19

Comments:

* Sample were copper treated for sulfur
NCM # 19431

Example calculation (per prep batch):

* Such action must be taken in consultation with client.

MS067R2.doc, 08/13/19

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Knoxville Job No.: 580-87706-2

SDG No.:

Instrument ID: MP Start Date: 08/30/2019 10:26

Analysis Batch Number: 33157 End Date: 08/30/2019 16:59

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVIS 140-33157/2		08/30/2019 10:26	1	ccvis.D	Rxi-5SilMS 25 0.25(mm)
WDM 140-33157/3		08/30/2019 10:51	1	wdm.D	Rxi-5SilMS 25 0.25(mm)
580-87706-15		08/30/2019 13:11	5	580-87706-b-15-a.D	Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/30/2019 14:02	50		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/30/2019 14:27	100		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/30/2019 14:53	100		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/30/2019 15:18	100		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/30/2019 15:44	100		Rxi-5SilMS 25 0.25(mm)
ZZZZZ		08/30/2019 16:09	200		Rxi-5SilMS 25 0.25(mm)
580-87706-14 DL		08/30/2019 16:59	100	580-87706-b-14-aX.D	Rxi-5SilMS 25 0.25(mm)

Eurofins/TestAmerica Knoxville Semivolatile GC/MS Continuing Calibration Data Review / Narrative Checklist
8270D – KNOX-MS-0027, Rev 0

	TALS Batch #:	33157	
		ICAL TALS Batch / Event #	Scanned □
Instrument:	MP	32463/2960	
Analysis Date:	5/30/19		
ICAL Chrom WL #	12531		
CCAL Chrom WL #	12910		

CCV Chrom/Worklist Review	1st	*Comments/NCM #*	2nd
1. Are the reagents & init/final volumes correct? (Verify reagents & amt. injected) [WL Sample Reagent Tab]	✓		✓
2. Are all required calibration standards in worklist?	✓		
3. Was the CCAL compared to the most recent & correct ICAL for each CCV & LG? (verify ICAL batch #, start/end Cal date & time) [F8]	✓		✓
4. Elution order checked on isomeric pairs/coeluters?			
• 2 & 1 - methylnaphthalene	✓		✓
• acenaphthylene / acenaphthene	✓		✓
• phenanthrene / anthracene	✓		✓
• 3-methylphenanthrene / 1-methylphenanthrene	✓		✓
• fluoranthene / pyrene	✓		✓
• benzo(a)anthracene / chrysene	✓		✓
• benzo(b)fluoranthene / benzo(k)fluoranthene	✓		✓
• benzo(e)pyrene / benzo(a)pyrene / perylene	✓		✓
• indeno(1,2,3-cd)pyrene / benzo(g,h,i)perylene	✓		✓
5. Manual integrations properly performed, correctly ID'd, baseline clearly identified, and correct reason given?	N/A	*Note: manual selections should be updated and all data reprocessed*	NA
6. Were all peaks identified automatically? *If not, list analytes:*	✓	*Note: any non-detected peaks must be verified in each affected sample.*	✓
7. Has the retention time been updated to the method?	✓		✓
8. Are the internal standard responses within limits for each CCV? (50-200% of the mid-level ICAL standard) [F8-istd]	✓		✓
9. Are the internal standard retention times within limits for each CCV? (±30 seconds of the mid-level ICAL standard) [F8-istd]	✓		✓
10. Have the alkyl groups in WDM been correctly integrated?	✓		✓
CCV Chrom/TALS MLG Review *[F8] or TALS sample tab*			
11. Do the RF's meet minimum criteria	✓		
12. Is the %D ≤20% for 80% of compounds?	✓		✓
13. For any compound > 20% (low), was a RL standard analyzed & detected? *	N/A	□ CCV out, EST (1) (NCM#_____)	✓
14. For any compound > 20%D (high or low), NCM generated? *	N/A	□ CCV out, EST (2) (NCM#_____)	NA
15. Benz(b & k) fluoranthene: height of the valley between < 50% of average of the two peak heights? [F8 Resolution]	✓		NA
16. Is the calibration event # correct for each CCV? *[TALS Sample Results tab]*	✓		✓

Continued on next page

* Such action must be taken in consultation with client.

Eurofins/TestAmerica Knoxville Semivolatile GC/MS Continuing Calibration Data Review / Narrative Checklist
8270D – KNOX-MS-0027, Rev 0

TALS BATCH #: 33157

Batch Chrom/TALS review	1st	Comments/NCM #	2nd
1. Have the sample ID's and dilution factors been confirmed (check sequence, autosampler positions, etc.)?	✓		
2. Were all samples injected within 12 hr of CCV?	✓		
3. Method blank or instrument blank analyzed?	✓		✓
4. Are all analytes in the method blank < ½ RL	✓	□ MB CLC <5x RL (NCM#_____) □ MB Rpt ND (NCM#_____) □ MB-Rpt.10x (NCM#_____) □ MB-insuff samp (NCM#_____) □ MB-insuff samp -CONSUMED (NCM#_____) □ MB > ½ RL (explain) (NCM#_____) □ MB RX - HT out (NCM#_____)	✓
5. Method blank surrogate recoveries within QC limits? [F8] or [Batch Results SUR Tab]	NA	□ Surr-MB (1) high (NCM#_____) + (2) smp OK (NCM#_____) **or** (3) Insuff. sample (NCM#_____) **or** (4) CONSUMED (NCM#_____)	NA
6. LCS done per batch and criteria met with limited # marginal exceedences allowed (see table) and no two consecutive MEs? [Chrom-F8] [TALS-Sample Results Tab]	NA	□ LCS/D-Insuff smp (NCM#_____) □ LCS/D-Insuff smp - CONSUMED (NCM#_____) □ LCS/D %R High < RL in smp (1+2-5) (NCM#_____) □ LCS/D out-RX HT out (NCM#_____) □ Mar. Exceed. w/in ME limits & Random (NCM#_____) □ LCS/D-%RPD (%R OK) (NCM#_____) □ NCM# **140-6154**: Water wash	NA
7. All runs - peaks ID'd correctly and false positives removed? Flag or narrate analyte interferences issues > RL *NCM only needed for "cn"* **FLAGS**: K: benzo(b/k) reported as (b) k: benzo(b/k) reported as (k) a: benzo(a)anthracene/chrysene reported as b(a)a y: benzo(a)anthracene/chrysene reported as chrysene CI: chromatographic interferences – high bias cn: see case narrative	✓	□ Interf-Chrom (NCM#_____) □ "cn" (see narrative): (NCM#_____) Samples/ analytes: _____ _____ _____ _____ _____	✓
8. Manual integrations properly performed, correctly ID'd, baseline clearly identified, and correct reason given?	✓		✓
9. Are Alkyl group start/end times and patterns identified?	✓	"AP" flags applied where appropriate? (NCM not needed unless necessary)	✓
10. Are surrogates within QC limits? [Batch Results SUR Tab] If no, list samples, reason and NCM # Sample / Reason / Sample / Reason	✓	□ Surr-High-ND (1,8) (NCM#_____) □ Surr-Incorrect Spike amt (NCM#_____) □ Surr-Insuff Smp (1) insuff smp (NCM#_____) or (4) CONSUMED (NCM#_____) + (2) low bias (NCM#_____) or (3) high bias (NCM#_____) □ Surr-Insuff Smp - CONSUMED (NCM#_____) □ Surr-Matrix (1-5) (NCM#_____) □ Surr-rpt per client (released w/o further investigation)* (NCM#_____) □ Surr-RX concur (NCM#_____) □ Surr-RX pass (RX outside HT, but w/in limits) (NCM#_____) □ Dil – Surr dil out or estimated & elev RL's (opt 1-4 & 5-8): (NCM#_____) □ NCM# **140-6154**: Water wash	✓
11. Are internal standards within QC limits? [Batch Results IS Tab] If no, list samples, reason and NCM # Sample / Reason / Sample / Reason	✓	□ ISTD- Matrix (NCM#_____) □ ISTD- Matrix DL required (NCM#_____) □ ISTD- non-targets affected (NCM#_____) □ ISTD- RX/RA concur (NCM#_____) □ NCM# **140-5757:** Samples bracketed by acceptable runs*.	✓

Number of target analytes in LCS	# marginal exceedances of LCS control limits allowed
>90	5
71 - 90	4
51 - 70	3
31 - 50	2
11 - 30	1
< 11	0

Continued on next page

* Such action must be taken in consultation with client.

Eurofins/TestAmerica Knoxville Semivolatile GC/MS Continuing Calibration Data Review / Narrative Checklist
8270D – KNOX-MS-0027, Rev 0

Batch TALS Review	1st	TALS BATCH #: 33157 Comments/NCM #	2nd
12. For initial analysis with elevated RL's, explain: *List diluted samples and reason:* Sample: B, Reason: Screen	X	☐ RL – Final Vol (NCM#_____) ☐ RL – Init Vol (matrix) (NCM#_____) ☐ RL – Insuff. Smp (NCM#_____) ☑ RL – Dil Screen (NCM# 19432) ✓ ☐ RL – Dil Targets (NCM#_____) ☐ RL – Dil Non-targets (NCM#_____)	X
13. Graphics uploaded?	✓		✓
14. Sample special instructions verified?	✓		✓
15. Suffixes assigned properly (DL/RE)? [Sample List Tab]	✓		✓
16. Each job has QC created (CCV, MB, LCS)? [Sample List Tab]	✓		✓
17. Analytes over calibration range set to secondary & dilutions scheduled for analysis? [Conditions Review Tab] Sample / Reason / Sample / Reason	N/A	☐ ICAL-Range Exceed; Min Dil 1 – client OK'd * (NCM#_____) 2 – dil for other cmpds (NCM#_____)	✓
18. For dilutions, diluted analytes set to primary, others to "Acceptable"? [Sample Results Tab]	N/A		NA
19. If MS/MSD was done on this client's sample or for reported batch QC, were the MS/MSD recoveries and RPDs within laboratory generated QC limits?	N/A	☐ MS/MSD - %R out, LCS OK ☐ MS/MSD - high targets ☑ MS/MSD – spk/surr diluted out ✓ 9/4/19 CLG ☐ MS/MSD/Dup - % RPD	NA NA
20. Verify reagents have not expired [Reagents Tab]	✓		✓
21. Samples not reported set to "Acceptable" or "Rejected" [Sample Results Tab]	N/A		NA
22. CCV linked to all samples? [QC Links]	✓		✓
23. Samples linked to correct method blank & LCS/D & MS/D? [QC Links]	✓		✓
24. Correct ICV's linked to all samples? [QC Links]	✓		✓
25. Run Data Review Checker and acknowledge findings.	✓		✓
26. Runs set to 1st level review?	✓	Runs set to 2nd level review?	✓
27. QC checker run for batch and items addressed			✓
28. Checklist scanned & attached properly?			✓

1st level: JR / MAP	Date 8/31/19	2nd level: CLG	Date 9/4/19
Comments:			
Samples were copper treated for sulfur NCM# 19433		✓	
Example calculation (per prep batch):			

* Such action must be taken in consultation with client.

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Knoxvill Job No.: 580-87706-2

SDG No.:

Batch Number: 32772 Batch Start Date: 08/26/19 13:35 Batch Analyst: Ivey, Crystal L

Batch Method: 3540C Batch End Date: 08/29/19 14:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	60SP8270SIMSR 00008	60SP8270SIMTA 00009		
MB 140-32772/1		3540C, 8270D SIM		10 g	0.5 mL	0.5 mL			
LCS 140-32772/2		3540C, 8270D SIM		10 g	0.5 mL	0.5 mL	0.5 mL		
580-87706-B-14	22T-SG-21_20190716	3540C, 8270D SIM	T	20.08 g	0.5 mL	0.5 mL			
580-87706-B-15	22T-SG-16_20190716	3540C, 8270D SIM	T	20.18 g	0.5 mL	0.5 mL			

Batch Notes	
Balance ID	02
Batch Comment	gpc1& 2 ajr 8/27/19
Analyst ID - Concentration	VGC
Analyst ID - Clean Up	SDO
Exchange Solvent ID	248089
Analyst ID - Extraction	CI
Extraction 1 End Time	07:40
Extraction 1 Start Time	13:35
Na2SO4 ID	243619
Nominal Amount Used	10 g
Prep Solvent ID	251753
Perform Calculation (0=No, 1=Yes)	1
Silica Gel ID	243554
Analyst ID - Spike Analyst	CI
Analyst ID - Spike Witness Analyst	JPQ
Thimble Lot ID	1692078802, 1693612301

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Eurofins/TestAmerica Knoxville Prep Batch Review Checklist

Batch # 32772

Split Batch # NA

Review Items	N/A	Yes	No	If No, why is data reportable?	2nd Level
1. Were the samples extracted within the required holding times?		✓		If No, NCM #:	✓
2. Are the final extracts free of water, precipitates, multiple phases, and for HRMS - color?		✓			✓
3. Were all project specific requirements met?		✓			✓
4. Were the correct start and completion dates entered into TALS?		✓			✓
5. Are the spike IDs and volumes correct in TALS for the method?		✓			✓
6. Does the prep batch paperwork package contain all required documentation which has been properly and completely filled out, including: • Extraction Benchsheet (Excel) • TALS Raw data worksheets • Batch Worksheets (ANLY) • ~~Verify Protocol #'s (compare excel sheet to TALS)~~ SDO 8/29/19 • Was the Excel Extraction Benchsheet and Prep Batch Review Checklist scanned and attached to batch in TALS?		✓			✓
7. Did extracts go through GPC cleanup? Has the following nonconformance been associated with all extracts?		✓		If Yes, NCM# 140-18550	✓
8. Are all additional nonconformances documented appropriately and copy included with deliverable?	✓			If Yes, NCM#:	N/A

Analyst : SDO **Date:** 8/29/19

Comments:

2nd Level Reviewer: JPQ **Date:** 8/29/19

Comments:

TestAmerica Knoxville Extraction Sheet
8270D SIM aPAH Solids by Soxhlet - KNOX-OP-0025

Batch Number: 32772
TALS Prep Method: 3540C
Soil ☐ **Sediment** ☒ **Tissue** ☐

Delivered: _____ Initials/Date/Time

Received: _____ Initials/Date/Time

Lab Sample ID	Water layer decanted? (Y,N,NA)	Mix sample with Na_2SO_4 and add to Soxhlet thimble.	Add 0.5 mL of 1.0 ug/mL 8270D_SIM Surr to all samples and QC. Record in TALS.	Add 0.5 mL of ~~1.0~~ 0.5 ug/mL 8270D_SIM aPAH native spike to LCS, LCSD, MS, MSD. Record in TALS. @ 8/24/19 MDLV	Extract 18-24 hr with $MeCl_2$/acetone	Conc to appropriate volume in KD.	Conc to ~ 2 mL by N-EVAP then bring up in MeCl2 for solvent exchange	Perform GPC cleanup.	Concentrate/solvent exchange to hexane by KD to appropriate volume.	Perform silica gel column cleanup.	Conc to >10 mL on heating mantle.	Conc to 500 µL hexane by N-EVAP.
MB 140-32772/1	NA	✓	✓	NA	✓	✓	✓	GPC1	✓	✓	✓	500 µL
LCS 140-32772/2				✓								
580-87706-B-14				NA								
580-87706-B-15												
580-87761-B-5												
580-87761-B-12												
580-87761-B-13												
580-87761-B-15												
580-87761-B-17												
580-87761-B-18												
580-87761-B-21								GPC2				
580-87761-B-21 MS				✓								
580-87761-B-21 MSD				✓								
580-87761-B-22				NA								
580-87761-B-23												
580-87761-B-26												
140-15918-A-2 MDLV				✓								
	⊘	⊘	⊘	⊘	⊘	VGL	JDQ	AJR	VGL	SDO	SDO	SDO
	8/24	8/24	8/24	8/24	8/24	8/27	8/27	8/27	8/27	8/28	8/28	8/29

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Subcontract Data

Shipping and Receiving Documents

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Phone: 253-922-2310 Fax: 253-922-5047

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lewis, Nathan A	Carrier Tracking No(s):	COC No: 580-68883.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: nathan.lewis@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 580-87706-2
Address: 5815 Middlebrook Pike, ,	Due Date Requested: 8/29/2019			
City: Knoxville	TAT Requested (days):			
State, Zip: TN, 37921				
Phone: 865-291-3000(Tel) 865-584-4315(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor	Project #: 58013650			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM/3540C PAH + aPAH Custom List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
22T-SG-21_20190716 (580-87706-14)	7/16/19	14:08 Pacific		Solid			X	1	BP LaMP ICOC, Analyze LCS/LCSD if no MS/D
22T-SG-16_20190716 (580-87706-15)	7/16/19	14:24 Pacific		Solid			X	1	BP LaMP ICOC, Analyze LCS/LCSD if no MS/D

NO CUSTODY SEALS
RECEIVED AT RT -21.8/CT-21.8C
BKD 8-16-19
COOLER FEDEX# 1184 0753 4 3566 PO

580-87706 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	8.15.19 1400	SIERRA TA	[signature]	8-16-19 10:00	TA KNX
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Loc: 580
87706

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:**

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	✓			☐ **Containers, Broken**	
2. Were ambient air containers received intact?			✓	☐ Checked in lab	
3. The coolers/containers custody seal if present, is it intact?			✓	☐ Yes ☐ NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : SC68 Correction factor: 0.0	✓ ✓			☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**	
5. Were all of the sample containers received intact?	✓			☐ **Containers, Broken**	
6. Were samples received in appropriate containers?	✓			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**	
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**	
8. Were all of the samples listed on the COC received?	✓			☐ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**	
9. Is the date/time of sample collection noted?	✓			☐ **COC; No Date/Time; Client Contacted**	
10. Was the sampler identified on the COC?			✓	☐ **Sampler Not Listed on COC**	
11. Is the client and project name/# identified?	✓			☐ **COC Incorrect/Incomplete**	
12. Are tests/parameters listed for each sample?	✓			☐ **COC No tests on COC**	
13. Is the matrix of the samples noted?	✓			☐ **COC Incorrect/Incomplete**	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ **COC Incorrect/Incomplete**	
15. Were samples received within holding time?	✓			☐ **Holding Time - Receipt**	
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**	
17. Were VOA samples received without headspace?			✓	☐ **Headspace (VOA only)**	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			✓ ✓	☐ **Residual Chlorine**	
19. For 1613B water samples is pH<9?			✓	☐ If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?			✓	☐ Project missing info	

Labeling Verified by: **Date:**

pH test strip lot number:

	Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Project #: _____ PM Instructions: _____

Sample Receiving Associate: Amy Damron Date: 8-16-19

QA026R32.doc, 062719

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 580-87706-2

Login Number: 87706
List Number: 1
Creator: Antonson, Angeline D

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	