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ANALYTICAL REPORT

Job Number: 280-126873-1

Job Description: Cornhusker (CHAAP)

For:
Brice Environmental Services, Corp
3800 Centerpoint Drive, Suite 520
Anchorage, AK 99503

Attention: Scott Mann



Approved for release.
Patrick J McEntee
Manager of Project Management
8/19/2019 2:27 PM

Patrick J McEntee, Manager of Project Management
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0107
patrick.mcentee@testamericainc.com
08/19/2019

cc: Corey Anderson
Mr. Gary Carson
Dean Converse
Jared DeSadier
Mr. Anthony Farinacci
Jennifer Zorinsky

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

Eurofins TestAmerica, Denver
4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

HPLC/IC

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.

Metals

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
U	Undetected at the Limit of Detection.

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: Brice Environmental Services, Corp

Project: Cornhusker (CHAAP)

Report Number: 280-126873-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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 8/1/2019 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS)
Samples SP-S2 (280-126873-1), SP-E1 (280-126873-2), SP-S22 (280-126873-4) and TB-1062 (280-126873-5) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 08/09/2019 and 08/10/2019.

The following volatile samples were analyzed with significant headspace in the sample container(s): SP-S2 (280-126873-1) and SP-S22 (280-126873-4). Significant headspace is defined as a bubble greater than 6 mm in diameter.

The sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, when verified by the laboratory, the pH was greater than 2 and the following sample was analyzed after 7 days from sampling: SP-S2 (280-126873-1). Sampled 7/31/19, actual holding time 8/7/19, Analyzed 8/9/19.

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

NITROAROMATICS AND NITRAMINES (HPLC)
Samples SP-S2 (280-126873-1), SP-E1 (280-126873-2), SP-S22 (280-126873-4), SP-S6 (280-126873-6) and SP-S8 (280-126873-7) were analyzed for Nitroaromatics and Nitramines (HPLC) in accordance with 8330A. The samples were prepared on 08/05/2019 and analyzed on 08/13/2019 and 08/15/2019.

A portion of the following samples was used for analysis, rather than testing the entire sample amount in the original container, due to the sample container was not the appropriate size: SP-S2 (280-126873-1), SP-E1 (280-126873-2), SP-S22 (280-126873-4), SP-S6 (280-126873-6) and SP-S8 (280-126873-7). As such, the required solvent rinse of the original container could not be performed. Samples arrived in 1L containers while sample size for this method is 500mL.

1,2-Dinitrobenzene failed the surrogate recovery criteria low for SP-S2 (280-126873-1). Refer to the QC report for details. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.
The sample failed low on the primary column and was in control on the confirmation.

The %RPD between the primary and confirmation column exceeded 40% for RDX for the following samples: SP-S2 (280-126873-1), SP-E1 (280-126873-2) and SP-S8 (280-126873-7). Both values been reported and qualified in accordance with the laboratory's SOP or DOD QSM.

The continuing calibration verification (CCV) associated with batch 280-467721 recovered above the upper control limit for MNX. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SP-S2 (280-126873-1), SP-E1 (280-126873-2), SP-S22 (280-126873-4), SP-S6 (280-126873-6) and SP-S8 (280-126873-7).

The continuing calibration verification (CCV) associated with batch 280-467510 recovered above the upper control limit for MNX. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (CCV 280-467510/33).

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

TOTAL METALS (ICP/MS)
Samples SP-E1 (280-126873-2) and SP-E11 (280-126873-3) were analyzed for total metals (ICP/MS) in accordance with 6020A. The samples were prepared on 08/14/2019 and analyzed on 08/15/2019.

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

TOTAL SUSPENDED SOLIDS
Samples SP-S2 (280-126873-1) and SP-S22 (280-126873-4) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 08/05/2019.

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

CORROSIVITY (PH)
Samples SP-S2 (280-126873-1), SP-E1 (280-126873-2) and SP-S22 (280-126873-4) were analyzed for Corrosivity (pH) in accordance with EPA SW-846 9040C. The samples were analyzed on 08/05/2019.

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

Detection Summary

Client: Brice Environmental Services, Corp
Project/Site: Cornhusker (CHAAP)

Job ID: 280-126873-1

Client Sample ID: SP-S2 — Lab Sample ID: 280-126873-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloro-1,2,2-trifluoroethane	0.54	J	3.0	0.40	0.18	ug/L	1		8260B	Total/NA
1,2-Dichloroethane	0.14	J	1.0	0.40	0.13	ug/L	1		8260B	Total/NA
1,3,5-Trinitrobenzene	18	Q	1.0	0.40	0.20	ug/L	1		8330A	Total/NA
2,4,6-Trinitrotoluene	5.7	Q	0.40	0.40	0.16	ug/L	1		8330A	Total/NA
2-Amino-4,6-dinitrotoluene	1.7	Q	0.20	0.12	0.051	ug/L	1		8330A	Total/NA
4-Amino-2,6-dinitrotoluene	1.5	Q	0.20	0.12	0.058	ug/L	1		8330A	Total/NA
4-Nitrotoluene	0.21	J Q	1.0	0.40	0.20	ug/L	1		8330A	Total/NA
RDX	3.5	Q J1	0.40	0.40	0.16	ug/L	1		8330A	Total/NA
RDX	0.45	J1 M	0.40	0.40	0.16	ug/L	1		8330A	Total/NA
Tetryl	20	Q	0.24	0.20	0.079	ug/L	1		8330A	Total/NA
pH adj. to 25 deg C	7.3	HF	0.1	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: SP-E1 — Lab Sample ID: 280-126873-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloro-1,2,2-trifluoroethane	0.55	J	3.0	0.40	0.18	ug/L	1		8260B	Total/NA
1,2-Dichloropropane	0.22	J	1.0	0.40	0.18	ug/L	1		8260B	Total/NA
Carbon disulfide	0.40	J	2.0	0.80	0.17	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	0.41	J	2.0	0.80	0.31	ug/L	1		8260B	Total/NA
1,3,5-Trinitrobenzene	0.47	J	1.0	0.40	0.20	ug/L	1		8330A	Total/NA
Selenium	1.0	J	5.0	1.0	0.37	ug/L	1		6020A	Total/NA
pH adj. to 25 deg C	7.4	HF	0.1	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: SP-E11 — Lab Sample ID: 280-126873-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Selenium	1.0	J	5.0	1.0	0.37	ug/L	1		6020A	Total/NA

Client Sample ID: SP-S22 — Lab Sample ID: 280-126873-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloro-1,2,2-trifluoroethane	0.49	J	3.0	0.40	0.18	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	0.35	J	2.0	0.80	0.31	ug/L	1		8260B	Total/NA
1,3,5-Trinitrobenzene	18		1.0	0.40	0.20	ug/L	1		8330A	Total/NA
RDX	0.32	J M J1	0.40	0.40	0.16	ug/L	1		8330A	Total/NA
RDX	0.53	J1	0.40	0.40	0.16	ug/L	1		8330A	Total/NA
pH adj. to 25 deg C	7.4	HF	0.1	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: TB-1062 — Lab Sample ID: 280-126873-5

No Detections.

Client Sample ID: SP-S6 — Lab Sample ID: 280-126873-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,3,5-Trinitrobenzene	0.57	J	1.0	0.40	0.20	ug/L	1		8330A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Brice Environmental Services, Corp
Project/Site: Cornhusker (CHAAP)

Job ID: 280-126873-1

Client Sample ID: SP-S8

Lab Sample ID: 280-126873-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,3,5-Trinitrobenzene	4.9		1.0	0.40	0.20	ug/L	1		8330A	Total/NA
RDX	0.20	J M J1	0.40	0.40	0.16	ug/L	1		8330A	Total/NA
RDX	0.30	J J1 M	0.40	0.40	0.16	ug/L	1		8330A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SP-S2
Date Collected: 07/31/19 08:45
Date Received: 08/01/19 09:15

Lab Sample ID: 280-126873-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:12	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.54**	**J**	3.0	0.40	0.18	ug/L		08/09/19 23:12	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		08/09/19 23:12	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		08/09/19 23:12	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		08/09/19 23:12	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:12	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:12	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		08/09/19 23:12	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:12	1
1,2-Dichloroethane	**0.14**	**J**	1.0	0.40	0.13	ug/L		08/09/19 23:12	1
1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18	ug/L		08/09/19 23:12	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		08/09/19 23:12	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:12	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		08/09/19 23:12	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		08/09/19 23:12	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		08/09/19 23:12	1
Acetone	6.4	U	10	6.4	1.9	ug/L		08/09/19 23:12	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:12	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		08/09/19 23:12	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:12	1
Bromoform	1.0	U	1.0	1.0	0.46	ug/L		08/09/19 23:12	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		08/09/19 23:12	1
Carbon disulfide	0.80	U M	2.0	0.80	0.17	ug/L		08/09/19 23:12	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		08/09/19 23:12	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:12	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		08/09/19 23:12	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:12	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		08/09/19 23:12	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:12	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:12	1
Cyclohexane	0.80	U	2.0	0.80	0.28	ug/L		08/09/19 23:12	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:12	1
Dichlorodifluoromethane	0.80	U M	2.0	0.80	0.31	ug/L		08/09/19 23:12	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:12	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		08/09/19 23:12	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		08/09/19 23:12	1
Methyl acetate	4.0	U	5.0	4.0	1.6	ug/L		08/09/19 23:12	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		08/09/19 23:12	1
Methylcyclohexane	0.40	U	2.0	0.40	0.10	ug/L		08/09/19 23:12	1
Methylene Chloride	2.0	U	5.0	2.0	0.94	ug/L		08/09/19 23:12	1
Styrene	0.80	U	1.0	0.80	0.36	ug/L		08/09/19 23:12	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		08/09/19 23:12	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:12	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:12	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		08/09/19 23:12	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:12	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		08/09/19 23:12	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		08/09/19 23:12	1

Client Sample ID: SP-S2
Lab Sample ID: 280-126873-1
Date Collected: 07/31/19 08:45
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Xylenes, Total	0.80	U	1.0	0.80	0.19	ug/L		08/09/19 23:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*81 - 118*		*08/09/19 23:12*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*08/09/19 23:12*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*08/09/19 23:12*	*1*
Toluene-d8 (Surr)	*99*		*89 - 112*		*08/09/19 23:12*	*1*

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**18**	**Q**	1.0	0.40	0.20	ug/L		08/13/19 06:00	1
1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089	ug/L		08/15/19 13:04	1
2,4,6-Trinitrotoluene	**5.7**	**Q**	0.40	0.40	0.16	ug/L		08/13/19 06:00	1
2,4-Dinitrotoluene	0.20	U Q	0.40	0.20	0.084	ug/L		08/13/19 06:00	1
2,6-Dinitrotoluene	0.20	U Q	0.20	0.20	0.065	ug/L		08/13/19 06:00	1
2-Amino-4,6-dinitrotoluene	**1.7**	**Q**	0.20	0.12	0.051	ug/L		08/13/19 06:00	1
2-Nitrotoluene	0.20	U	0.40	0.20	0.086	ug/L		08/15/19 13:04	1
3-Nitrotoluene	0.40	U Q	0.40	0.40	0.20	ug/L		08/13/19 06:00	1
4-Amino-2,6-dinitrotoluene	**1.5**	**Q**	0.20	0.12	0.058	ug/L		08/13/19 06:00	1
4-Nitrotoluene	**0.21**	**J Q**	1.0	0.40	0.20	ug/L		08/13/19 06:00	1
HMX	0.20	U Q	0.40	0.20	0.088	ug/L		08/13/19 06:00	1
MNX	0.40	U Q M	2.0	0.40	0.15	ug/L		08/15/19 13:04	1
Nitrobenzene	0.20	U Q	0.40	0.20	0.091	ug/L		08/13/19 06:00	1
RDX	**3.5**	**Q J1**	0.40	0.40	0.16	ug/L		08/13/19 06:00	1
RDX	**0.45**	**J1 M**	0.40	0.40	0.16	ug/L		08/15/19 13:04	1
Tetryl	**20**	**Q**	0.24	0.20	0.079	ug/L		08/13/19 06:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*76*	*Q*	*83 - 119*	*08/05/19 17:00*	*08/13/19 06:00*	*1*
1,2-Dinitrobenzene	*98*		*83 - 119*	*08/05/19 17:00*	*08/15/19 13:04*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.3**	**HF**	0.1	0.1	0.1	SU		08/05/19 14:41	1
Total Suspended Solids	3.5	U	5.0	3.5	1.4	mg/L		08/05/19 12:17	1

Client Sample ID: SP-E1
Lab Sample ID: 280-126873-2
Date Collected: 07/31/19 08:56
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:33	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.55**	**J**	3.0	0.40	0.18	ug/L		08/09/19 23:33	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		08/09/19 23:33	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		08/09/19 23:33	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		08/09/19 23:33	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:33	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:33	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		08/09/19 23:33	1

Client Sample ID: SP-E1

Date Collected: 07/31/19 08:56
Date Received: 08/01/19 09:15

Lab Sample ID: 280-126873-2

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:33	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		08/09/19 23:33	1
1,2-Dichloropropane	**0.22**	**J**	1.0	0.40	0.18	ug/L		08/09/19 23:33	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		08/09/19 23:33	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:33	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		08/09/19 23:33	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		08/09/19 23:33	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		08/09/19 23:33	1
Acetone	6.4	U	10	6.4	1.9	ug/L		08/09/19 23:33	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:33	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		08/09/19 23:33	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:33	1
Bromoform	1.0	U	1.0	1.0	0.46	ug/L		08/09/19 23:33	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		08/09/19 23:33	1
Carbon disulfide	**0.40**	**J**	2.0	0.80	0.17	ug/L		08/09/19 23:33	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		08/09/19 23:33	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:33	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		08/09/19 23:33	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:33	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		08/09/19 23:33	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:33	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:33	1
Cyclohexane	0.80	U	2.0	0.80	0.28	ug/L		08/09/19 23:33	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:33	1
Dichlorodifluoromethane	**0.41**	**J**	2.0	0.80	0.31	ug/L		08/09/19 23:33	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:33	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		08/09/19 23:33	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		08/09/19 23:33	1
Methyl acetate	4.0	U	5.0	4.0	1.6	ug/L		08/09/19 23:33	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		08/09/19 23:33	1
Methylcyclohexane	0.40	U	2.0	0.40	0.10	ug/L		08/09/19 23:33	1
Methylene Chloride	2.0	U	5.0	2.0	0.94	ug/L		08/09/19 23:33	1
Styrene	0.80	U	1.0	0.80	0.36	ug/L		08/09/19 23:33	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		08/09/19 23:33	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:33	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:33	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		08/09/19 23:33	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:33	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		08/09/19 23:33	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		08/09/19 23:33	1
Xylenes, Total	0.80	U	1.0	0.80	0.19	ug/L		08/09/19 23:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*81 - 118*		*08/09/19 23:33*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*08/09/19 23:33*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*08/09/19 23:33*	*1*
Toluene-d8 (Surr)	*98*		*89 - 112*		*08/09/19 23:33*	*1*

Client Sample ID: SP-E1
Lab Sample ID: 280-126873-2
Date Collected: 07/31/19 08:56
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**0.47**	**J**	1.0	0.40	0.20	ug/L		08/13/19 06:23	1
1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089	ug/L		08/13/19 06:23	1
2,4,6-Trinitrotoluene	0.40	U	0.40	0.40	0.16	ug/L		08/13/19 06:23	1
2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084	ug/L		08/13/19 06:23	1
2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065	ug/L		08/13/19 06:23	1
2-Amino-4,6-dinitrotoluene	0.12	U	0.20	0.12	0.051	ug/L		08/13/19 06:23	1
2-Nitrotoluene	0.20	U	0.40	0.20	0.086	ug/L		08/13/19 06:23	1
3-Nitrotoluene	0.40	U	0.40	0.40	0.20	ug/L		08/13/19 06:23	1
4-Amino-2,6-dinitrotoluene	0.12	U	0.20	0.12	0.058	ug/L		08/13/19 06:23	1
4-Nitrotoluene	0.40	U	1.0	0.40	0.20	ug/L		08/13/19 06:23	1
HMX	0.20	U	0.40	0.20	0.088	ug/L		08/13/19 06:23	1
MNX	0.40	U	2.0	0.40	0.15	ug/L		08/13/19 06:23	1
Nitrobenzene	0.20	U	0.40	0.20	0.091	ug/L		08/13/19 06:23	1
RDX	0.40	U	0.40	0.40	0.16	ug/L		08/13/19 06:23	1
Tetryl	0.20	U M	0.24	0.20	0.079	ug/L		08/13/19 06:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*89*		*83 - 119*	*08/05/19 17:00*	*08/13/19 06:23*	*1*
1,2-Dinitrobenzene	*89*		*83 - 119*	*08/05/19 17:00*	*08/15/19 13:39*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Selenium	**1.0**	**J**	5.0	1.0	0.37	ug/L		08/15/19 14:37	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.4**	**HF**	0.1	0.1	0.1	SU		08/05/19 14:47	1

Client Sample ID: SP-E11
Lab Sample ID: 280-126873-3
Date Collected: 07/31/19 08:56
Matrix: Water
Date Received: 08/01/19 09:15

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Selenium	**1.0**	**J**	5.0	1.0	0.37	ug/L		08/15/19 14:41	1

Client Sample ID: SP-S22
Lab Sample ID: 280-126873-4
Date Collected: 07/31/19 08:48
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:55	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.49**	**J**	3.0	0.40	0.18	ug/L		08/09/19 23:55	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		08/09/19 23:55	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		08/09/19 23:55	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		08/09/19 23:55	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:55	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 23:55	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		08/09/19 23:55	1

Client Sample ID: SP-S22

Date Collected: 07/31/19 08:48
Date Received: 08/01/19 09:15

Lab Sample ID: 280-126873-4

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:55	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		08/09/19 23:55	1
1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18	ug/L		08/09/19 23:55	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		08/09/19 23:55	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:55	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		08/09/19 23:55	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		08/09/19 23:55	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		08/09/19 23:55	1
Acetone	6.4	U	10	6.4	1.9	ug/L		08/09/19 23:55	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:55	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		08/09/19 23:55	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:55	1
Bromoform	1.0	U	1.0	1.0	0.46	ug/L		08/09/19 23:55	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		08/09/19 23:55	1
Carbon disulfide	0.80	U M	2.0	0.80	0.17	ug/L		08/09/19 23:55	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		08/09/19 23:55	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:55	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		08/09/19 23:55	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:55	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		08/09/19 23:55	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:55	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:55	1
Cyclohexane	0.80	U	2.0	0.80	0.28	ug/L		08/09/19 23:55	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:55	1
Dichlorodifluoromethane	**0.35**	**J**	2.0	0.80	0.31	ug/L		08/09/19 23:55	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:55	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		08/09/19 23:55	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		08/09/19 23:55	1
Methyl acetate	4.0	U	5.0	4.0	1.6	ug/L		08/09/19 23:55	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		08/09/19 23:55	1
Methylcyclohexane	0.40	U	2.0	0.40	0.10	ug/L		08/09/19 23:55	1
Methylene Chloride	2.0	U	5.0	2.0	0.94	ug/L		08/09/19 23:55	1
Styrene	0.80	U	1.0	0.80	0.36	ug/L		08/09/19 23:55	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		08/09/19 23:55	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 23:55	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 23:55	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		08/09/19 23:55	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 23:55	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		08/09/19 23:55	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		08/09/19 23:55	1
Xylenes, Total	0.80	U	1.0	0.80	0.19	ug/L		08/09/19 23:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*81 - 118*		*08/09/19 23:55*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*08/09/19 23:55*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*08/09/19 23:55*	*1*
Toluene-d8 (Surr)	*99*		*89 - 112*		*08/09/19 23:55*	*1*

Client Sample ID: SP-S22
Lab Sample ID: 280-126873-4

Date Collected: 07/31/19 08:48
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**18**		1.0	0.40	0.20	ug/L		08/13/19 06:46	1
1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089	ug/L		08/15/19 14:14	1
2,4,6-Trinitrotoluene	0.40	U M	0.40	0.40	0.16	ug/L		08/13/19 06:46	1
2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084	ug/L		08/13/19 06:46	1
2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065	ug/L		08/13/19 06:46	1
2-Amino-4,6-dinitrotoluene	0.12	U M	0.20	0.12	0.051	ug/L		08/13/19 06:46	1
2-Nitrotoluene	0.20	U M	0.40	0.20	0.086	ug/L		08/13/19 06:46	1
3-Nitrotoluene	0.40	U	0.40	0.40	0.20	ug/L		08/13/19 06:46	1
4-Amino-2,6-dinitrotoluene	0.12	U M	0.20	0.12	0.058	ug/L		08/13/19 06:46	1
4-Nitrotoluene	0.40	U	1.0	0.40	0.20	ug/L		08/15/19 14:14	1
HMX	0.20	U	0.40	0.20	0.088	ug/L		08/13/19 06:46	1
MNX	0.40	U	2.0	0.40	0.15	ug/L		08/13/19 06:46	1
Nitrobenzene	0.20	U	0.40	0.20	0.091	ug/L		08/13/19 06:46	1
RDX	**0.32**	**J M J1**	0.40	0.40	0.16	ug/L		08/13/19 06:46	1
RDX	**0.53**	**J1**	0.40	0.40	0.16	ug/L		08/15/19 14:14	1
Tetryl	0.20	U M	0.24	0.20	0.079	ug/L		08/13/19 06:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*86*		*83 - 119*	*08/05/19 17:01*	*08/13/19 06:46*	*1*
1,2-Dinitrobenzene	*97*		*83 - 119*	*08/05/19 17:01*	*08/15/19 14:14*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
pH adj. to 25 deg C	**7.4**	**HF**	0.1	0.1	0.1	SU		08/05/19 14:51	1
Total Suspended Solids	3.5	U	5.0	3.5	1.4	mg/L		08/05/19 12:17	1

Client Sample ID: TB-1062
Lab Sample ID: 280-126873-5

Date Collected: 07/31/19 08:45
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		08/10/19 00:17	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		08/10/19 00:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.40	U	3.0	0.40	0.18	ug/L		08/10/19 00:17	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		08/10/19 00:17	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		08/10/19 00:17	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		08/10/19 00:17	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/10/19 00:17	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/10/19 00:17	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		08/10/19 00:17	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		08/10/19 00:17	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		08/10/19 00:17	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		08/10/19 00:17	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		08/10/19 00:17	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		08/10/19 00:17	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		08/10/19 00:17	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		08/10/19 00:17	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		08/10/19 00:17	1
Acetone	6.4	U	10	6.4	1.9	ug/L		08/10/19 00:17	1

Client Sample ID: TB-1062
Lab Sample ID: 280-126873-5

Date Collected: 07/31/19 08:45
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Benzene	0.40	U	1.0	0.40	0.16	ug/L		08/10/19 00:17	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		08/10/19 00:17	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/10/19 00:17	1
Bromoform	1.0	U	1.0	1.0	0.46	ug/L		08/10/19 00:17	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		08/10/19 00:17	1
Carbon disulfide	0.80	U M	2.0	0.80	0.17	ug/L		08/10/19 00:17	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		08/10/19 00:17	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		08/10/19 00:17	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		08/10/19 00:17	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		08/10/19 00:17	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		08/10/19 00:17	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/10/19 00:17	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		08/10/19 00:17	1
Cyclohexane	0.80	U	2.0	0.80	0.28	ug/L		08/10/19 00:17	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/10/19 00:17	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		08/10/19 00:17	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		08/10/19 00:17	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		08/10/19 00:17	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		08/10/19 00:17	1
Methyl acetate	4.0	U	5.0	4.0	1.6	ug/L		08/10/19 00:17	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		08/10/19 00:17	1
Methylcyclohexane	0.40	U	2.0	0.40	0.10	ug/L		08/10/19 00:17	1
Methylene Chloride	2.0	U	5.0	2.0	0.94	ug/L		08/10/19 00:17	1
Styrene	0.80	U	1.0	0.80	0.36	ug/L		08/10/19 00:17	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		08/10/19 00:17	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		08/10/19 00:17	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/10/19 00:17	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		08/10/19 00:17	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		08/10/19 00:17	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		08/10/19 00:17	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		08/10/19 00:17	1
Xylenes, Total	0.80	U	1.0	0.80	0.19	ug/L		08/10/19 00:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*81 - 118*		*08/10/19 00:17*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*08/10/19 00:17*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*08/10/19 00:17*	*1*
Toluene-d8 (Surr)	*99*		*89 - 112*		*08/10/19 00:17*	*1*

Client Sample ID: SP-S6
Lab Sample ID: 280-126873-6

Date Collected: 07/31/19 08:50
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**0.57**	**J**	1.0	0.40	0.20	ug/L		08/13/19 07:09	1
1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089	ug/L		08/13/19 07:09	1
2,4,6-Trinitrotoluene	0.40	U	0.40	0.40	0.16	ug/L		08/13/19 07:09	1
2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084	ug/L		08/13/19 07:09	1
2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065	ug/L		08/13/19 07:09	1

Client Sample ID: SP-S6
Lab Sample ID: 280-126873-6

Date Collected: 07/31/19 08:50
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8330A - Nitroaromatics and Nitramines (HPLC) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Amino-4,6-dinitrotoluene	0.12	U	0.20	0.12	0.051	ug/L		08/13/19 07:09	1
2-Nitrotoluene	0.20	U	0.40	0.20	0.086	ug/L		08/13/19 07:09	1
3-Nitrotoluene	0.40	U	0.40	0.40	0.20	ug/L		08/13/19 07:09	1
4-Amino-2,6-dinitrotoluene	0.12	U	0.20	0.12	0.058	ug/L		08/13/19 07:09	1
4-Nitrotoluene	0.40	U	1.0	0.40	0.20	ug/L		08/13/19 07:09	1
HMX	0.20	U	0.40	0.20	0.088	ug/L		08/13/19 07:09	1
MNX	0.40	U	2.0	0.40	0.15	ug/L		08/13/19 07:09	1
Nitrobenzene	0.20	U	0.40	0.20	0.091	ug/L		08/13/19 07:09	1
RDX	0.40	U	0.40	0.40	0.16	ug/L		08/13/19 07:09	1
Tetryl	0.20	U M	0.24	0.20	0.079	ug/L		08/13/19 07:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*89*		*83 - 119*	*08/05/19 17:01*	*08/13/19 07:09*	*1*
1,2-Dinitrobenzene	*90*		*83 - 119*	*08/05/19 17:01*	*08/15/19 14:49*	*1*

Client Sample ID: SP-S8
Lab Sample ID: 280-126873-7

Date Collected: 07/31/19 08:53
Matrix: Water
Date Received: 08/01/19 09:15

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**4.9**		1.0	0.40	0.20	ug/L		08/13/19 07:32	1
1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089	ug/L		08/13/19 07:32	1
2,4,6-Trinitrotoluene	0.40	U M	0.40	0.40	0.16	ug/L		08/13/19 07:32	1
2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084	ug/L		08/13/19 07:32	1
2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065	ug/L		08/13/19 07:32	1
2-Amino-4,6-dinitrotoluene	0.12	U M	0.20	0.12	0.051	ug/L		08/13/19 07:32	1
2-Nitrotoluene	0.20	U	0.40	0.20	0.086	ug/L		08/13/19 07:32	1
3-Nitrotoluene	0.40	U	0.40	0.40	0.20	ug/L		08/13/19 07:32	1
4-Amino-2,6-dinitrotoluene	0.12	U M	0.20	0.12	0.058	ug/L		08/13/19 07:32	1
4-Nitrotoluene	0.40	U	1.0	0.40	0.20	ug/L		08/13/19 07:32	1
HMX	0.20	U	0.40	0.20	0.088	ug/L		08/13/19 07:32	1
MNX	0.40	U M	2.0	0.40	0.15	ug/L		08/13/19 07:32	1
Nitrobenzene	0.20	U	0.40	0.20	0.091	ug/L		08/13/19 07:32	1
RDX	**0.20**	**J M J1**	0.40	0.40	0.16	ug/L		08/13/19 07:32	1
RDX	**0.30**	**J J1 M**	0.40	0.40	0.16	ug/L		08/15/19 15:24	1
Tetryl	0.20	U M	0.24	0.20	0.079	ug/L		08/13/19 07:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*86*		*83 - 119*	*08/05/19 17:01*	*08/13/19 07:32*	*1*
1,2-Dinitrobenzene	*91*		*83 - 119*	*08/05/19 17:01*	*08/15/19 15:24*	*1*

Default Detection Limits

Client: Brice Environmental Services, Corp
Project/Site: Cornhusker (CHAAP)

Job ID: 280-126873-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	LOQ	DL	Units
1,1,1-Trichloroethane	1.0	0.16	ug/L
1,1,2,2-Tetrachloroethane	1.0	0.21	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	3.0	0.18	ug/L
1,1,2-Trichloroethane	1.0	0.27	ug/L
1,1-Dichloroethane	1.0	0.22	ug/L
1,1-Dichloroethene	1.0	0.23	ug/L
1,2,3-Trichlorobenzene	1.0	0.21	ug/L
1,2,4-Trichlorobenzene	1.0	0.21	ug/L
1,2-Dibromo-3-Chloropropane	5.0	0.47	ug/L
1,2-Dichlorobenzene	1.0	0.15	ug/L
1,2-Dichloroethane	1.0	0.13	ug/L
1,2-Dichloropropane	1.0	0.18	ug/L
1,3-Dichlorobenzene	1.0	0.13	ug/L
1,4-Dichlorobenzene	1.0	0.16	ug/L
2-Butanone (MEK)	6.0	2.0	ug/L
2-Hexanone	5.0	1.7	ug/L
4-Methyl-2-pentanone (MIBK)	5.0	0.98	ug/L
Acetone	10	1.9	ug/L
Benzene	1.0	0.16	ug/L
Bromochloromethane	1.0	0.10	ug/L
Bromodichloromethane	1.0	0.17	ug/L
Bromoform	1.0	0.46	ug/L
Bromomethane	2.0	0.21	ug/L
Carbon disulfide	2.0	0.17	ug/L
Carbon tetrachloride	2.0	0.19	ug/L
Chlorobenzene	1.0	0.17	ug/L
Chloroethane	2.0	0.41	ug/L
Chloroform	1.0	0.16	ug/L
Chloromethane	2.0	0.30	ug/L
cis-1,2-Dichloroethene	1.0	0.15	ug/L
cis-1,3-Dichloropropene	1.0	0.16	ug/L
Cyclohexane	2.0	0.28	ug/L
Dibromochloromethane	1.0	0.17	ug/L
Dichlorodifluoromethane	2.0	0.31	ug/L
Ethylbenzene	1.0	0.16	ug/L
Ethylene Dibromide	1.0	0.18	ug/L
Isopropylbenzene	1.0	0.19	ug/L
Methyl acetate	5.0	1.6	ug/L
Methyl tert-butyl ether	5.0	0.25	ug/L
Methylcyclohexane	2.0	0.10	ug/L
Methylene Chloride	5.0	0.94	ug/L
Styrene	1.0	0.36	ug/L
Tetrachloroethene	1.0	0.20	ug/L
Toluene	1.0	0.17	ug/L
trans-1,2-Dichloroethene	1.0	0.15	ug/L
trans-1,3-Dichloropropene	1.0	0.19	ug/L
Trichloroethene	1.0	0.16	ug/L
Trichlorofluoromethane	2.0	0.29	ug/L
Vinyl chloride	1.5	0.10	ug/L
Xylenes, Total	1.0	0.19	ug/L

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Prep: 3535

Default Detection Limits

Client: Brice Environmental Services, Corp
Project/Site: Cornhusker (CHAAP)

Job ID: 280-126873-1

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Prep: 3535

Analyte	LOQ	DL	Units
1,3,5-Trinitrobenzene	1.0	0.20	ug/L
1,3-Dinitrobenzene	0.40	0.089	ug/L
2,4,6-Trinitrotoluene	0.40	0.16	ug/L
2,4-Dinitrotoluene	0.40	0.084	ug/L
2,6-Dinitrotoluene	0.20	0.065	ug/L
2-Amino-4,6-dinitrotoluene	0.20	0.051	ug/L
2-Nitrotoluene	0.40	0.086	ug/L
3-Nitrotoluene	0.40	0.20	ug/L
4-Amino-2,6-dinitrotoluene	0.20	0.058	ug/L
4-Nitrotoluene	1.0	0.20	ug/L
HMX	0.40	0.088	ug/L
MNX	2.0	0.15	ug/L
Nitrobenzene	0.40	0.091	ug/L
RDX	0.40	0.16	ug/L
Tetryl	0.24	0.079	ug/L

Method: 6020A - Metals (ICP/MS)

Prep: 3020A

Analyte	LOQ	DL	Units
Selenium	5.0	0.37	ug/L

General Chemistry

Analyte	LOQ	DL	Units
pH adj. to 25 deg C	0.1	0.1	SU
Total Suspended Solids	4.0	1.1	mg/L

Surrogate Summary

Client: Brice Environmental Services, Corp
Project/Site: Cornhusker (CHAAP)

Job ID: 280-126873-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(81-118)	(85-114)	(80-119)	(89-112)
280-126873-1	SP-S2	104	101	100	99
280-126873-2	SP-E1	107	100	101	98
280-126873-4	SP-S22	109	101	101	99
280-126873-5	TB-1062	108	101	101	99
LCS 280-467213/4	Lab Control Sample	100	98	102	98
LCSD 280-467213/5	Lab Control Sample Dup	97	98	101	97
MB 280-467213/8	Method Blank	100	98	98	99

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DNB1
Lab Sample ID	Client Sample ID	(83-119)
280-126873-1	SP-S2	76 Q
280-126873-1	SP-S2	98
280-126873-2	SP-E1	89
280-126873-2	SP-E1	89
280-126873-4	SP-S22	86
280-126873-4	SP-S22	97
280-126873-6	SP-S6	89
280-126873-6	SP-S6	90
280-126873-7	SP-S8	86
280-126873-7	SP-S8	91
LCS 280-466732/2-A	Lab Control Sample	84
LCS 280-466732/3-A	Lab Control Sample	88
LCSD 280-466732/4-A	Lab Control Sample Dup	85
MB 280-466732/1-A	Method Blank	85

Surrogate Legend

12DNB = 1,2-Dinitrobenzene

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-467213/8
Matrix: Water
Analysis Batch: 467213

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 22:28	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 22:28	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.40	U	3.0	0.40	0.18	ug/L		08/09/19 22:28	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		08/09/19 22:28	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		08/09/19 22:28	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		08/09/19 22:28	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 22:28	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		08/09/19 22:28	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		08/09/19 22:28	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 22:28	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		08/09/19 22:28	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		08/09/19 22:28	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		08/09/19 22:28	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 22:28	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		08/09/19 22:28	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		08/09/19 22:28	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		08/09/19 22:28	1
Acetone	6.4	U	10	6.4	1.9	ug/L		08/09/19 22:28	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 22:28	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		08/09/19 22:28	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 22:28	1
Bromoform	1.0	U	1.0	1.0	0.46	ug/L		08/09/19 22:28	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		08/09/19 22:28	1
Carbon disulfide	0.80	U M	2.0	0.80	0.17	ug/L		08/09/19 22:28	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		08/09/19 22:28	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 22:28	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		08/09/19 22:28	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 22:28	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		08/09/19 22:28	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 22:28	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 22:28	1
Cyclohexane	0.80	U	2.0	0.80	0.28	ug/L		08/09/19 22:28	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 22:28	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		08/09/19 22:28	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 22:28	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		08/09/19 22:28	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		08/09/19 22:28	1
Methyl acetate	4.0	U	5.0	4.0	1.6	ug/L		08/09/19 22:28	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		08/09/19 22:28	1
Methylcyclohexane	0.40	U	2.0	0.40	0.10	ug/L		08/09/19 22:28	1
Methylene Chloride	2.0	U	5.0	2.0	0.94	ug/L		08/09/19 22:28	1
Styrene	0.80	U	1.0	0.80	0.36	ug/L		08/09/19 22:28	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		08/09/19 22:28	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		08/09/19 22:28	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		08/09/19 22:28	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		08/09/19 22:28	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		08/09/19 22:28	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		08/09/19 22:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-467213/8
Matrix: Water
Analysis Batch: 467213

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		08/09/19 22:28	1
Xylenes, Total	0.80	U	1.0	0.80	0.19	ug/L		08/09/19 22:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*81 - 118*		*08/09/19 22:28*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*08/09/19 22:28*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*08/09/19 22:28*	*1*
Toluene-d8 (Surr)	*99*		*89 - 112*		*08/09/19 22:28*	*1*

Lab Sample ID: LCS 280-467213/4
Matrix: Water
Analysis Batch: 467213

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	24.4		ug/L		97	74 - 131
1,1,2,2-Tetrachloroethane	25.0	26.1		ug/L		105	71 - 121
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	21.8		ug/L		87	70 - 136
1,1,2-Trichloroethane	25.0	26.9		ug/L		108	80 - 119
1,1-Dichloroethane	25.0	26.0		ug/L		104	77 - 125
1,1-Dichloroethene	25.0	25.4		ug/L		101	71 - 131
1,2,3-Trichlorobenzene	25.0	25.7		ug/L		103	69 - 129
1,2,4-Trichlorobenzene	25.0	26.8		ug/L		107	69 - 130
1,2-Dibromo-3-Chloropropane	25.0	21.3		ug/L		85	62 - 128
1,2-Dichlorobenzene	25.0	25.0		ug/L		100	80 - 119
1,2-Dichloroethane	25.0	24.4		ug/L		98	73 - 128
1,2-Dichloropropane	25.0	25.4		ug/L		102	78 - 122
1,3-Dichlorobenzene	25.0	25.7		ug/L		103	80 - 119
1,4-Dichlorobenzene	25.0	25.1		ug/L		100	79 - 118
2-Butanone (MEK)	100	108		ug/L		108	56 - 143
2-Hexanone	100	98.0		ug/L		98	57 - 139
4-Methyl-2-pentanone (MIBK)	100	113		ug/L		113	67 - 130
Acetone	100	105		ug/L		105	39 - 160
Benzene	25.0	25.8		ug/L		103	79 - 120
Bromochloromethane	25.0	27.0		ug/L		108	78 - 123
Bromodichloromethane	25.0	23.4		ug/L		94	79 - 125
Bromoform	25.0	29.3		ug/L		117	66 - 130
Bromomethane	25.0	31.0		ug/L		124	53 - 141
Carbon disulfide	25.0	22.4		ug/L		90	64 - 133
Carbon tetrachloride	25.0	23.2		ug/L		93	72 - 136
Chlorobenzene	25.0	25.2		ug/L		101	82 - 118
Chloroethane	25.0	29.0		ug/L		116	60 - 138
Chloroform	25.0	26.4		ug/L		106	79 - 124
Chloromethane	25.0	23.7		ug/L		95	50 - 139
cis-1,2-Dichloroethene	25.0	26.3		ug/L		105	78 - 123
cis-1,3-Dichloropropene	25.0	24.2		ug/L		97	75 - 124
Cyclohexane	25.0	21.8		ug/L		87	71 - 130
Dibromochloromethane	25.0	22.9		ug/L		92	74 - 126
Dichlorodifluoromethane	25.0	21.5		ug/L		86	32 - 152

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-467213/4
Matrix: Water
Analysis Batch: 467213

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	25.0	25.9		ug/L		103	79 - 121
Ethylene Dibromide	25.0	25.2		ug/L		101	77 - 121
Isopropylbenzene	25.0	26.1		ug/L		104	72 - 131
Methyl acetate	50.0	49.2		ug/L		98	56 - 136
Methyl tert-butyl ether	25.0	27.8		ug/L		111	71 - 124
Methylcyclohexane	25.0	22.2		ug/L		89	72 - 132
Methylene Chloride	25.0	24.9		ug/L		100	74 - 124
Styrene	25.0	27.3		ug/L		109	78 - 123
Tetrachloroethene	25.0	24.0		ug/L		96	74 - 129
Toluene	25.0	26.1		ug/L		104	80 - 121
trans-1,2-Dichloroethene	25.0	26.8		ug/L		107	75 - 124
trans-1,3-Dichloropropene	25.0	24.1		ug/L		96	73 - 127
Trichloroethene	25.0	25.0		ug/L		100	79 - 123
Trichlorofluoromethane	25.0	25.1		ug/L		101	65 - 141
Vinyl chloride	25.0	21.7		ug/L		87	58 - 137
Xylenes, Total	50.0	51.2		ug/L		102	79 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*81 - 118*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*
Dibromofluoromethane (Surr)	*102*		*80 - 119*
Toluene-d8 (Surr)	*98*		*89 - 112*

Lab Sample ID: LCSD 280-467213/5
Matrix: Water
Analysis Batch: 467213

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	25.0	22.2		ug/L		89	74 - 131	9	20
1,1,2,2-Tetrachloroethane	25.0	26.2		ug/L		105	71 - 121	0	20
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	22.6		ug/L		90	70 - 136	4	20
1,1,2-Trichloroethane	25.0	26.2		ug/L		105	80 - 119	3	20
1,1-Dichloroethane	25.0	23.9		ug/L		96	77 - 125	8	20
1,1-Dichloroethene	25.0	23.8		ug/L		95	71 - 131	6	20
1,2,3-Trichlorobenzene	25.0	25.9		ug/L		103	69 - 129	0	20
1,2,4-Trichlorobenzene	25.0	26.2		ug/L		105	69 - 130	2	20
1,2-Dibromo-3-Chloropropane	25.0	21.7		ug/L		87	62 - 128	2	20
1,2-Dichlorobenzene	25.0	24.2		ug/L		97	80 - 119	3	20
1,2-Dichloroethane	25.0	23.4		ug/L		93	73 - 128	4	20
1,2-Dichloropropane	25.0	23.7		ug/L		95	78 - 122	7	20
1,3-Dichlorobenzene	25.0	24.5		ug/L		98	80 - 119	5	20
1,4-Dichlorobenzene	25.0	24.3		ug/L		97	79 - 118	3	20
2-Butanone (MEK)	100	107		ug/L		107	56 - 143	2	20
2-Hexanone	100	95.7		ug/L		96	57 - 139	2	20
4-Methyl-2-pentanone (MIBK)	100	111		ug/L		111	67 - 130	2	20
Acetone	100	102		ug/L		102	39 - 160	3	20
Benzene	25.0	23.5		ug/L		94	79 - 120	9	20
Bromochloromethane	25.0	26.3		ug/L		105	78 - 123	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-467213/5
Matrix: Water
Analysis Batch: 467213

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromodichloromethane			25.0	22.1		ug/L		88	79 - 125	6	20
Bromoform			25.0	27.9		ug/L		111	66 - 130	5	20
Bromomethane			25.0	28.6		ug/L		114	53 - 141	8	20
Carbon disulfide			25.0	20.2		ug/L		81	64 - 133	10	20
Carbon tetrachloride			25.0	21.4		ug/L		86	72 - 136	8	20
Chlorobenzene			25.0	23.5		ug/L		94	82 - 118	7	20
Chloroethane			25.0	29.8		ug/L		119	60 - 138	3	20
Chloroform			25.0	24.5		ug/L		98	79 - 124	8	20
Chloromethane			25.0	23.6		ug/L		94	50 - 139	1	20
cis-1,2-Dichloroethene			25.0	24.6		ug/L		98	78 - 123	7	20
cis-1,3-Dichloropropene			25.0	22.7		ug/L		91	75 - 124	7	20
Cyclohexane			25.0	22.3		ug/L		89	71 - 130	2	20
Dibromochloromethane			25.0	21.7		ug/L		87	74 - 126	6	20
Dichlorodifluoromethane			25.0	25.8		ug/L		103	32 - 152	18	20
Ethylbenzene			25.0	24.2		ug/L		97	79 - 121	7	20
Ethylene Dibromide			25.0	24.5		ug/L		98	77 - 121	3	20
Isopropylbenzene			25.0	24.4		ug/L		98	72 - 131	7	20
Methyl acetate			50.0	47.7		ug/L		95	56 - 136	3	20
Methyl tert-butyl ether			25.0	26.7		ug/L		107	71 - 124	4	20
Methylcyclohexane			25.0	22.2		ug/L		89	72 - 132	0	20
Methylene Chloride			25.0	23.3		ug/L		93	74 - 124	7	20
Styrene			25.0	25.6		ug/L		102	78 - 123	6	20
Tetrachloroethene			25.0	22.0		ug/L		88	74 - 129	9	20
Toluene			25.0	23.9		ug/L		96	80 - 121	9	20
trans-1,2-Dichloroethene			25.0	23.7		ug/L		95	75 - 124	12	20
trans-1,3-Dichloropropene			25.0	22.6		ug/L		91	73 - 127	6	20
Trichloroethene			25.0	22.7		ug/L		91	79 - 123	10	20
Trichlorofluoromethane			25.0	28.6		ug/L		114	65 - 141	13	20
Vinyl chloride			25.0	22.3		ug/L		89	58 - 137	2	20
Xylenes, Total			50.0	47.8		ug/L		96	79 - 121	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*
Dibromofluoromethane (Surr)	*101*		*80 - 119*
Toluene-d8 (Surr)	*97*		*89 - 112*

Method: 8330A - Nitroaromatics and Nitramines (HPLC)

Lab Sample ID: MB 280-466732/1-A
Matrix: Water
Analysis Batch: 467289

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466732

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.40	U M	1.0	0.40	0.20	ug/L		08/13/19 01:01	1
1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089	ug/L		08/13/19 01:01	1
2,4,6-Trinitrotoluene	0.40	U	0.40	0.40	0.16	ug/L		08/13/19 01:01	1
2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084	ug/L		08/13/19 01:01	1
2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065	ug/L		08/13/19 01:01	1

Method: 8330A - Nitroaromatics and Nitramines (HPLC) (Continued)

Lab Sample ID: MB 280-466732/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467289 — **Prep Batch: 466732**

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Amino-4,6-dinitrotoluene	0.12	U	0.20	0.12	0.051	ug/L		08/13/19 01:01	1
2-Nitrotoluene	0.20	U	0.40	0.20	0.086	ug/L		08/13/19 01:01	1
3-Nitrotoluene	0.40	U	0.40	0.40	0.20	ug/L		08/13/19 01:01	1
4-Amino-2,6-dinitrotoluene	0.12	U	0.20	0.12	0.058	ug/L		08/13/19 01:01	1
4-Nitrotoluene	0.40	U	1.0	0.40	0.20	ug/L		08/13/19 01:01	1
HMX	0.20	U	0.40	0.20	0.088	ug/L		08/13/19 01:01	1
MNX	0.40	U M	2.0	0.40	0.15	ug/L		08/13/19 01:01	1
Nitrobenzene	0.20	U	0.40	0.20	0.091	ug/L		08/13/19 01:01	1
RDX	0.40	U	0.40	0.40	0.16	ug/L		08/13/19 01:01	1
Tetryl	0.20	U	0.24	0.20	0.079	ug/L		08/13/19 01:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*85*		*83 - 119*	*08/05/19 17:00*	*08/13/19 01:01*	*1*

Lab Sample ID: LCS 280-466732/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467289 — **Prep Batch: 466732**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	2.00	1.97		ug/L		98	73 - 125
1,3-Dinitrobenzene	2.00	1.76		ug/L		88	78 - 120
2,4,6-Trinitrotoluene	2.00	1.65		ug/L		82	71 - 123
2,4-Dinitrotoluene	2.00	1.68		ug/L		84	78 - 120
2,6-Dinitrotoluene	2.00	1.72		ug/L		86	77 - 127
2-Amino-4,6-dinitrotoluene	2.00	1.60		ug/L		80	79 - 120
2-Nitrotoluene	2.00	1.43		ug/L		72	70 - 127
3-Nitrotoluene	2.00	1.57		ug/L		79	73 - 125
4-Amino-2,6-dinitrotoluene	2.00	1.55		ug/L		77	76 - 125
4-Nitrotoluene	2.00	1.53		ug/L		76	71 - 127
HMX	2.00	1.75	M	ug/L		87	65 - 135
Nitrobenzene	2.00	1.61		ug/L		81	65 - 134
RDX	2.00	1.78		ug/L		89	68 - 130
Tetryl	2.00	1.88		ug/L		94	64 - 128

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dinitrobenzene	*84*		*83 - 119*

Lab Sample ID: LCS 280-466732/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467289 — **Prep Batch: 466732**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
MNX	2.33	2.36		ug/L		101	57 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dinitrobenzene	*88*		*83 - 119*

Method: 8330A - Nitroaromatics and Nitramines (HPLC) (Continued)

Lab Sample ID: LCSD 280-466732/4-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467289 — **Prep Batch: 466732**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
MNX			2.33	2.33		ug/L		100	57 - 132	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dinitrobenzene	*85*		*83 - 119*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-467486/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467820 — **Prep Batch: 467486**

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Selenium	1.0	U	5.0	1.0	0.37	ug/L		08/15/19 14:30	1

Lab Sample ID: LCS 280-467486/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 467820 — **Prep Batch: 467486**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Selenium			40.0	38.3		ug/L		96	80 - 120		

Method: 9040C - pH

Lab Sample ID: LCS 280-466717/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 466717

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH adj. to 25 deg C			7.00	7.0		SU		100	99 - 101		

Lab Sample ID: LCSD 280-466717/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 466717

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C			7.00	7.0		SU		100	99 - 101	0	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-466673/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 466673

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Total Suspended Solids	2.8	U	4.0	2.8	1.1	mg/L		08/05/19 12:17	1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 280-466673/2
Matrix: Water
Analysis Batch: 466673

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			100	86.8		mg/L		87	79 - 114		

Lab Sample ID: LCSD 280-466673/3
Matrix: Water
Analysis Batch: 466673

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids			100	103		mg/L		103	79 - 114	17	20

GC/MS VOA

Analysis Batch: 467213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-126873-1	SP-S2	Total/NA	Water	8260B	
280-126873-2	SP-E1	Total/NA	Water	8260B	
280-126873-4	SP-S22	Total/NA	Water	8260B	
280-126873-5	TB-1062	Total/NA	Water	8260B	
MB 280-467213/8	Method Blank	Total/NA	Water	8260B	
LCS 280-467213/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-467213/5	Lab Control Sample Dup	Total/NA	Water	8260B	

HPLC/IC

Prep Batch: 466732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-126873-1	SP-S2	Total/NA	Water	3535	
280-126873-2	SP-E1	Total/NA	Water	3535	
280-126873-4	SP-S22	Total/NA	Water	3535	
280-126873-6	SP-S6	Total/NA	Water	3535	
280-126873-7	SP-S8	Total/NA	Water	3535	
MB 280-466732/1-A	Method Blank	Total/NA	Water	3535	
LCS 280-466732/2-A	Lab Control Sample	Total/NA	Water	3535	
LCS 280-466732/3-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 280-466732/4-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 467289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-126873-1	SP-S2	Total/NA	Water	8330A	466732
280-126873-2	SP-E1	Total/NA	Water	8330A	466732
280-126873-4	SP-S22	Total/NA	Water	8330A	466732
280-126873-6	SP-S6	Total/NA	Water	8330A	466732
280-126873-7	SP-S8	Total/NA	Water	8330A	466732
MB 280-466732/1-A	Method Blank	Total/NA	Water	8330A	466732
LCS 280-466732/2-A	Lab Control Sample	Total/NA	Water	8330A	466732
LCS 280-466732/3-A	Lab Control Sample	Total/NA	Water	8330A	466732
LCSD 280-466732/4-A	Lab Control Sample Dup	Total/NA	Water	8330A	466732

Analysis Batch: 467721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-126873-1	SP-S2	Total/NA	Water	8330A	466732
280-126873-2	SP-E1	Total/NA	Water	8330A	466732
280-126873-4	SP-S22	Total/NA	Water	8330A	466732
280-126873-6	SP-S6	Total/NA	Water	8330A	466732
280-126873-7	SP-S8	Total/NA	Water	8330A	466732

Metals

Prep Batch: 467486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-126873-2	SP-E1	Total/NA	Water	3020A	
280-126873-3	SP-E11	Total/NA	Water	3020A	
MB 280-467486/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-467486/2-A	Lab Control Sample	Total/NA	Water	3020A	

QC Association Summary

Client: Brice Environmental Services, Corp
Job ID: 280-126873-1
Project/Site: Cornhusker (CHAAP)

Metals

Analysis Batch: 467820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-126873-2	SP-E1	Total/NA	Water	6020A	467486
280-126873-3	SP-E11	Total/NA	Water	6020A	467486
MB 280-467486/1-A	Method Blank	Total/NA	Water	6020A	467486
LCS 280-467486/2-A	Lab Control Sample	Total/NA	Water	6020A	467486

General Chemistry

Analysis Batch: 466673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-126873-1	SP-S2	Total/NA	Water	SM 2540D	
280-126873-4	SP-S22	Total/NA	Water	SM 2540D	
MB 280-466673/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-466673/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-466673/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 466717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-126873-1	SP-S2	Total/NA	Water	9040C	
280-126873-2	SP-E1	Total/NA	Water	9040C	
280-126873-4	SP-S22	Total/NA	Water	9040C	
LCS 280-466717/4	Lab Control Sample	Total/NA	Water	9040C	
LCSD 280-466717/5	Lab Control Sample Dup	Total/NA	Water	9040C	

Client Sample ID: SP-S2
Lab Sample ID: 280-126873-1
Date Collected: 07/31/19 08:45
Matrix: Water
Date Received: 08/01/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	467213	08/09/19 23:12	JZ	TAL DEN
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:00	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467721	08/15/19 13:04	HKF	TAL DEN
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:00	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467289	08/13/19 06:00	HKF	TAL DEN
Total/NA	Analysis	9040C		1			466717	08/05/19 14:41	SPG	TAL DEN
Total/NA	Analysis	SM 2540D		1	200 mL	250 mL	466673	08/05/19 12:17	ECL	TAL DEN

Client Sample ID: SP-E1
Lab Sample ID: 280-126873-2
Date Collected: 07/31/19 08:56
Matrix: Water
Date Received: 08/01/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	467213	08/09/19 23:33	JZ	TAL DEN
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:00	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467721	08/15/19 13:39	HKF	TAL DEN
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:00	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467289	08/13/19 06:23	HKF	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	467486	08/14/19 14:30	DAL	TAL DEN
Total/NA	Analysis	6020A		1			467820	08/15/19 14:37	LMT	TAL DEN
Total/NA	Analysis	9040C		1			466717	08/05/19 14:47	SPG	TAL DEN

Client Sample ID: SP-E11
Lab Sample ID: 280-126873-3
Date Collected: 07/31/19 08:56
Matrix: Water
Date Received: 08/01/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3020A			50 mL	50 mL	467486	08/14/19 14:30	DAL	TAL DEN
Total/NA	Analysis	6020A		1			467820	08/15/19 14:41	LMT	TAL DEN

Client Sample ID: SP-S22
Lab Sample ID: 280-126873-4
Date Collected: 07/31/19 08:48
Matrix: Water
Date Received: 08/01/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	467213	08/09/19 23:55	JZ	TAL DEN
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:01	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467721	08/15/19 14:14	HKF	TAL DEN
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:01	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467289	08/13/19 06:46	HKF	TAL DEN
Total/NA	Analysis	9040C		1			466717	08/05/19 14:51	SPG	TAL DEN
Total/NA	Analysis	SM 2540D		1	200 mL	250 mL	466673	08/05/19 12:17	ECL	TAL DEN

Client Sample ID: TB-1062
Lab Sample ID: 280-126873-5

Date Collected: 07/31/19 08:45
Matrix: Water
Date Received: 08/01/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	467213	08/10/19 00:17	JZ	TAL DEN

Client Sample ID: SP-S6
Lab Sample ID: 280-126873-6

Date Collected: 07/31/19 08:50
Matrix: Water
Date Received: 08/01/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:01	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467721	08/15/19 14:49	HKF	TAL DEN
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:01	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467289	08/13/19 07:09	HKF	TAL DEN

Client Sample ID: SP-S8
Lab Sample ID: 280-126873-7

Date Collected: 07/31/19 08:53
Matrix: Water
Date Received: 08/01/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:01	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467721	08/15/19 15:24	HKF	TAL DEN
Total/NA	Prep	3535			500 mL	5 mL	466732	08/05/19 17:01	AJE	TAL DEN
Total/NA	Analysis	8330A		1			467289	08/13/19 07:32	HKF	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Brice Environmental Services, Corp
Job ID: 280-126873-1
Project/Site: Cornhusker (CHAAP)

Laboratory: Eurofins TestAmerica, Denver

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD		2907.01	10-31-19

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

Method Summary

Client: Brice Environmental Services, Corp
Job ID: 280-126873-1
Project/Site: Cornhusker (CHAAP)

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8330A	Nitroaromatics and Nitramines (HPLC)	EPA	TAL DEN
6020A	Metals (ICP/MS)	SW846	TAL DEN
9040C	pH	SW846	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
3535	Solid-Phase Extraction (SPE)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Brice Environmental Services, Corp
Project/Site: Cornhusker (CHAAP)

Job ID: 280-126873-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-126873-1	SP-S2	Water	07/31/19 08:45	08/01/19 09:15	
280-126873-2	SP-E1	Water	07/31/19 08:56	08/01/19 09:15	
280-126873-3	SP-E11	Water	07/31/19 08:56	08/01/19 09:15	
280-126873-4	SP-S22	Water	07/31/19 08:48	08/01/19 09:15	
280-126873-5	TB-1062	Water	07/31/19 08:45	08/01/19 09:15	
280-126873-6	SP-S6	Water	07/31/19 08:50	08/01/19 09:15	
280-126873-7	SP-S8	Water	07/31/19 08:53	08/01/19 09:15	

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: VMS_R1 Analysis Batch Number: 466573

Lab Sample ID: STD 280-466573/12 IC Client Sample ID:

Date Analyzed: 08/03/19 16:56 Lab File ID: R6841.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,1,2-Trichloroethane	6.74	Split Peak	seifertj	08/05/19 08:30
Tetrachloroethene	6.82	Split Peak	seifertj	08/05/19 08:30
2-Hexanone	6.90	Split Peak	seifertj	08/05/19 08:31
Bromoform	8.39	Assign Peak	seifertj	08/05/19 10:47
Bromomethane		Invalid Compound ID	seifertj	08/05/19 08:26
Chloroethane		Invalid Compound ID	seifertj	08/05/19 08:26
Isobutyl alcohol		Invalid Compound ID	seifertj	08/05/19 08:48
1,2-Dibromo-3-Chloropropane	10.98	Split Peak	seifertj	08/05/19 09:00

Lab Sample ID: STD 280-466573/13 IC Client Sample ID:

Date Analyzed: 08/03/19 17:17 Lab File ID: R6842.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Hexane	3.67	Assign Peak	zhangji	08/03/19 17:35
2,2-Dichloropropane	4.22	Assign Peak	zhangji	08/03/19 17:35
Dibromomethane	5.62	Assign Peak	zhangji	08/03/19 17:35
trans-1,3-Dichloropropene	6.56	Assign Peak	zhangji	08/03/19 17:35
Dibromochloromethane	7.07	Assign Peak	zhangji	08/03/19 17:35
N-Propylbenzene	8.92	Assign Peak	zhangji	08/03/19 17:36
1,2-Dibromo-3-Chloropropane	10.98	Split Peak	seifertj	08/05/19 08:59
Hexachlorobutadiene	11.95	Assign Peak	zhangji	08/03/19 17:36
1,2,3-Trichlorobenzene	12.29	Incomplete Integration	zhangji	08/03/19 17:36

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: VMS_R1 Analysis Batch Number: 466573

Lab Sample ID: STD 280-466573/14 IC Client Sample ID:

Date Analyzed: 08/03/19 17:39 Lab File ID: R6843.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Carbon tetrachloride	4.70	Split Peak	seifertj	08/05/19 08:19
1,2-Dichloropropane	5.56	Assign Peak	seifertj	08/05/19 08:19
Dibromochloromethane	7.07	Split Peak	seifertj	08/05/19 08:20
Bromoform	8.39	Split Peak	seifertj	08/05/19 10:42
1,2-Dibromo-3-Chloropropane	10.99	Split Peak	seifertj	08/05/19 08:59

Lab Sample ID: STD 280-466573/15 IC Client Sample ID:

Date Analyzed: 08/03/19 18:01 Lab File ID: R6844.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Bromomethane	2.19	Wrong peak	seifertj	08/05/19 08:17

Lab Sample ID: ICIS 280-466573/16 Client Sample ID:

Date Analyzed: 08/03/19 18:22 Lab File ID: R6845.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Bromomethane	2.19	Wrong peak	seifertj	08/05/19 08:15

Lab Sample ID: STD 280-466573/19 IC Client Sample ID:

Date Analyzed: 08/03/19 19:27 Lab File ID: R6848.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Hexane	3.67	Assign Peak	seifertj	08/05/19 08:37
sec-Butyl Alcohol	4.34	Split Peak	seifertj	08/05/19 08:38
Chloroethane		Invalid Compound ID	seifertj	08/05/19 08:41

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: VMS_R1 Analysis Batch Number: 467213

Lab Sample ID: MB 280-467213/8 Client Sample ID:

Date Analyzed: 08/09/19 22:28 Lab File ID: R7085.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Carbon disulfide		Invalid Compound ID	zhangji	08/09/19 22:50

Lab Sample ID: 280-126873-1 Client Sample ID: SP-S2

Date Analyzed: 08/09/19 23:12 Lab File ID: R7087.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2-Dichloropropane		Invalid Compound ID	zhangji	08/09/19 23:44
Carbon disulfide		Invalid Compound ID	zhangji	08/09/19 23:44
Dichlorodifluoromethane		Invalid Compound ID	zhangji	08/09/19 23:44

Lab Sample ID: 280-126873-4 Client Sample ID: SP-S22

Date Analyzed: 08/09/19 23:55 Lab File ID: R7089.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2-Dichloropropane		Invalid Compound ID	zhangji	08/10/19 12:54
Carbon disulfide		Invalid Compound ID	zhangji	08/10/19 12:55

Lab Sample ID: 280-126873-5 Client Sample ID: TB-1062

Date Analyzed: 08/10/19 00:17 Lab File ID: R7090.D GC Column: DB-624 (60.25 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Carbon disulfide		Invalid Compound ID	zhangji	08/10/19 13:02
m-Xylene & p-Xylene		Invalid Compound ID	zhangji	08/10/19 13:02

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_G2_LUNA Analysis Batch Number: 457315

Lab Sample ID: IC 280-457315/7 Client Sample ID:

Date Analyzed: 05/07/19 15:08 Lab File ID: 05070007.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Picric acid	5.64	Peak assignment corrected	fiedlerh	05/08/19 09:04

Lab Sample ID: IC 280-457315/13 Client Sample ID:

Date Analyzed: 05/07/19 18:38 Lab File ID: 05070013.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Picric acid	6.15	Peak assignment corrected	fiedlerh	05/08/19 09:04

Lab Sample ID: IC 280-457315/14 Client Sample ID:

Date Analyzed: 05/07/19 19:13 Lab File ID: 05070014.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Picric acid	6.21	Peak assignment corrected	fiedlerh	05/08/19 09:04
PETN	25.37	Baseline Smoothing	fiedlerh	05/08/19 09:10

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_G2_LUNA Analysis Batch Number: 467721

Lab Sample ID: CCV 280-467721/8 Client Sample ID:

Date Analyzed: 08/15/19 12:29 Lab File ID: 08150008.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
MNX	7.69	Peak assignment corrected	fiedlerh	08/16/19 10:57

Lab Sample ID: 280-126873-1 Client Sample ID: SP-S2

Date Analyzed: 08/15/19 13:04 Lab File ID: 08150009.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	7.05	Baseline Smoothing	fiedlerh	08/16/19 11:56
RDX	9.06	Baseline Smoothing	fiedlerh	08/16/19 11:56
MNX		Invalid Compound ID	fiedlerh	08/16/19 11:56

Lab Sample ID: 280-126873-2 Client Sample ID: SP-E1

Date Analyzed: 08/15/19 13:39 Lab File ID: 08150010.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
2-Nitrotoluene		Invalid Compound ID	fiedlerh	08/16/19 12:27
3-Nitrotoluene		Invalid Compound ID	fiedlerh	08/16/19 12:27
4-Amino-2,6-dinitrotoluene		Invalid Compound ID	fiedlerh	08/16/19 12:27

Lab Sample ID: 280-126873-4 Client Sample ID: SP-S22

Date Analyzed: 08/15/19 14:14 Lab File ID: 08150011.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	7.07	Baseline Smoothing	fiedlerh	08/16/19 12:27
2-Nitrotoluene		Invalid Compound ID	fiedlerh	08/16/19 12:28

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_G2_LUNA Analysis Batch Number: 467721

Lab Sample ID: 280-126873-6 Client Sample ID: SP-S6

Date Analyzed: 08/15/19 14:49 Lab File ID: 08150012.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
3-Nitrotoluene		Invalid Compound ID	fiedlerh	08/16/19 12:28
4-Amino-2,6-dinitrotoluene		Invalid Compound ID	fiedlerh	08/16/19 12:28

Lab Sample ID: 280-126873-7 Client Sample ID: SP-S8

Date Analyzed: 08/15/19 15:24 Lab File ID: 08150013.D GC Column: Luna-phenylhe ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	7.06	Baseline Smoothing	fiedlerh	08/16/19 12:28
RDX	9.08	Baseline Smoothing	fiedlerh	08/16/19 12:28
2-Nitrotoluene		Invalid Compound ID	fiedlerh	08/16/19 12:28
3-Nitrotoluene		Invalid Compound ID	fiedlerh	08/16/19 12:28
2,4,6-Trinitrotoluene	24.66	Baseline Smoothing	fiedlerh	08/16/19 12:29

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 463276

Lab Sample ID: IC 280-463276/12 Client Sample ID:

Date Analyzed: 07/01/19 16:36 Lab File ID: 07010012.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.65	Baseline Smoothing	fiedlerh	07/01/19 18:30

Lab Sample ID: IC 280-463276/13 Client Sample ID:

Date Analyzed: 07/01/19 17:00 Lab File ID: 07010013.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.65	Baseline Smoothing	fiedlerh	07/01/19 18:30
2-Amino-4,6-dinitrotoluene	11.72	Unspecified		
2,6-Dinitrotoluene	11.85	Unspecified		

Lab Sample ID: IC 280-463276/14 Client Sample ID:

Date Analyzed: 07/01/19 17:23 Lab File ID: 07010014.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Picric acid	8.21	Baseline Smoothing	fiedlerh	07/01/19 18:33
2-Amino-4,6-dinitrotoluene	11.72	Unspecified		
2,6-Dinitrotoluene	11.84	Unspecified		

Lab Sample ID: ICV 280-463276/15 Client Sample ID:

Date Analyzed: 07/01/19 17:46 Lab File ID: 07010015.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.64	Baseline Smoothing	fiedlerh	07/01/19 18:32

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 463276

Lab Sample ID: IC 280-463276/26 Client Sample ID:

Date Analyzed: 07/01/19 22:00 Lab File ID: 07010026.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.56	Baseline Smoothing	fiedlerh	07/02/19 09:04
DNX	6.89	Baseline Smoothing	fiedlerh	07/02/19 09:04

Lab Sample ID: IC 280-463276/27 Client Sample ID:

Date Analyzed: 07/01/19 22:23 Lab File ID: 07010027.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.55	Baseline Smoothing	fiedlerh	07/02/19 09:03
DNX	6.89	Baseline Smoothing	fiedlerh	07/02/19 09:03

Lab Sample ID: IC 280-463276/28 Client Sample ID:

Date Analyzed: 07/01/19 22:46 Lab File ID: 07010028.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.55	Baseline Smoothing	fiedlerh	07/02/19 09:03
DNX	6.88	Baseline Smoothing	fiedlerh	07/02/19 09:03

Lab Sample ID: IC 280-463276/29 Client Sample ID:

Date Analyzed: 07/01/19 23:09 Lab File ID: 07010029.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.55	Baseline Smoothing	fiedlerh	07/02/19 09:03

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 463276

Lab Sample ID: IC 280-463276/30 Client Sample ID:

Date Analyzed: 07/01/19 23:32 Lab File ID: 07010030.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.55	Baseline Smoothing	fiedlerh	07/02/19 09:04

Lab Sample ID: IC 280-463276/31 Client Sample ID:

Date Analyzed: 07/01/19 23:55 Lab File ID: 07010031.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.55	Baseline Smoothing	fiedlerh	07/02/19 09:04

Lab Sample ID: ICV 280-463276/33 Client Sample ID:

Date Analyzed: 07/02/19 00:41 Lab File ID: 07010033.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.55	Baseline Smoothing	fiedlerh	07/02/19 09:05
DNX	6.88	Baseline Smoothing	fiedlerh	07/02/19 09:05

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 467289

Lab Sample ID: CCV 280-467289/38 Client Sample ID:

Date Analyzed: 08/12/19 23:52 Lab File ID: 08120038.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.68	Baseline Smoothing	fiedlerh	08/13/19 13:19

Lab Sample ID: CCV 280-467289/40 Client Sample ID:

Date Analyzed: 08/13/19 00:38 Lab File ID: 08120040.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.59	Baseline Smoothing	fiedlerh	08/13/19 13:20

Lab Sample ID: MB 280-466732/1-A Client Sample ID:

Date Analyzed: 08/13/19 01:01 Lab File ID: 08120041.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,3,5-Trinitrobenzene		Invalid Compound ID	fiedlerh	08/13/19 13:20
MNX		Invalid Compound ID	fiedlerh	08/13/19 13:20

Lab Sample ID: LCS 280-466732/2-A Client Sample ID:

Date Analyzed: 08/13/19 01:24 Lab File ID: 08120042.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.69	Baseline Smoothing	fiedlerh	08/13/19 13:20

Lab Sample ID: CCV 280-467289/51 Client Sample ID:

Date Analyzed: 08/13/19 04:51 Lab File ID: 08120051.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.68	Baseline Smoothing	fiedlerh	08/13/19 13:24

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 467289

Lab Sample ID: CCV 280-467289/53 Client Sample ID:

Date Analyzed: 08/13/19 05:37 Lab File ID: 08120053.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.58	Baseline Smoothing	fiedlerh	08/13/19 13:25
DNX	6.91	Baseline Smoothing	fiedlerh	08/13/19 13:25

Lab Sample ID: 280-126873-2 Client Sample ID: SP-E1

Date Analyzed: 08/13/19 06:23 Lab File ID: 08120055.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Tetryl		Invalid Compound ID	fiedlerh	08/13/19 13:25

Lab Sample ID: 280-126873-4 Client Sample ID: SP-S22

Date Analyzed: 08/13/19 06:46 Lab File ID: 08120056.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
RDX	7.76	Baseline Smoothing	fiedlerh	08/13/19 13:26
2,4,6-Trinitrotoluene		Invalid Compound ID	fiedlerh	08/13/19 13:26
2-Amino-4,6-dinitrotoluene		Invalid Compound ID	fiedlerh	08/13/19 13:26
2-Nitrotoluene		Invalid Compound ID	fiedlerh	08/13/19 13:26
4-Amino-2,6-dinitrotoluene		Invalid Compound ID	fiedlerh	08/13/19 13:26
MNX		Baseline Smoothing	fiedlerh	08/13/19 13:26
Tetryl		Invalid Compound ID	fiedlerh	08/13/19 13:26

Lab Sample ID: 280-126873-6 Client Sample ID: SP-S6

Date Analyzed: 08/13/19 07:09 Lab File ID: 08120057.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Tetryl		Invalid Compound ID	fiedlerh	08/13/19 13:27

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 467289

Lab Sample ID: 280-126873-7 Client Sample ID: SP-S8

Date Analyzed: 08/13/19 07:32 Lab File ID: 08120058.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
RDX	7.75	Baseline Smoothing	fiedlerh	08/13/19 13:27
2,4,6-Trinitrotoluene		Invalid Compound ID	fiedlerh	08/13/19 13:27
2-Amino-4,6-dinitrotoluene		Invalid Compound ID	fiedlerh	08/13/19 13:27
4-Amino-2,6-dinitrotoluene		Invalid Compound ID	fiedlerh	08/13/19 13:27
MNX		Invalid Compound ID	fiedlerh	08/13/19 13:27
Tetryl		Invalid Compound ID	fiedlerh	08/13/19 13:27

Lab Sample ID: CCV 280-467289/61 Client Sample ID:

Date Analyzed: 08/13/19 08:40 Lab File ID: 08120061.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.68	Baseline Smoothing	fiedlerh	08/13/19 14:03
Tetryl	10.25	Baseline Smoothing	fiedlerh	08/13/19 14:04
2-Amino-4,6-dinitrotoluene	11.70	Unspecified		
2,6-Dinitrotoluene	11.83	Unspecified		

Lab Sample ID: CCV 280-467289/63 Client Sample ID:

Date Analyzed: 08/13/19 09:26 Lab File ID: 08120063.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
TNX	6.59	Baseline Smoothing	fiedlerh	08/13/19 14:05

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
8330 DMT_00002	12/31/19	03/13/19	Acetonitrile, Lot 184936	5 mL	MNX,TNX,DNX_00027	1 mL	DNX	20.02 ug/mL
							MNX	23.34 ug/mL
							TNX	20.02 ug/mL
.MNX,TNX,DNX_00027	12/31/19	ULTRA Scientific, Lot CS-5628			(Purchased Reagent)		DNX	100.1 ug/mL
							MNX	116.7 ug/mL
							TNX	100.1 ug/mL
8330 LCS_00084	05/16/19	11/16/18	Acetonitrile, Lot ACN_00215	100 mL	8330 LCSMix2_00101	1 mL	2,6-Dinitrotoluene	10 ug/mL
							2-Amino-4,6-dinitrotoluene	10 ug/mL
							2-Nitrotoluene	10 ug/mL
							3-Nitrotoluene	10 ug/mL
							4-Amino-2,6-dinitrotoluene	10 ug/mL
							4-Nitrotoluene	10 ug/mL
							Tetryl	10 ug/mL
					8330LCSMix1_00104	1 mL	1,3,5-Trinitrobenzene	10 ug/mL
							1,3-Dinitrobenzene	10 ug/mL
							2,4,6-Trinitrotoluene	10 ug/mL
							2,4-Dinitrotoluene	10 ug/mL
							HMX	10 ug/mL
							Nitrobenzene	10 ug/mL
							RDX	10 ug/mL
.8330 LCSMix2_00101	11/16/19	Restek, Lot A0122699			(Purchased Reagent)		2,6-Dinitrotoluene	1000 ug/mL
							2-Amino-4,6-dinitrotoluene	1000 ug/mL
							2-Nitrotoluene	1000 ug/mL
							3-Nitrotoluene	1000 ug/mL
							4-Amino-2,6-dinitrotoluene	1000 ug/mL
							4-Nitrotoluene	1000 ug/mL
							Tetryl	1000 ug/mL
.8330LCSMix1_00104	11/16/19	Restek, Lot A0128688			(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1000 ug/mL
							2,4,6-Trinitrotoluene	1000 ug/mL
							2,4-Dinitrotoluene	1000 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1000 ug/mL
							RDX	1000 ug/mL
8330 LCS_00089	11/08/19	05/08/19	Acetonitrile, Lot ACN_00030	100 mL	8330LCSMix1_00109	1 mL	1,3,5-Trinitrobenzene	10 ug/mL
							1,3-Dinitrobenzene	10 ug/mL
							2,4,6-Trinitrotoluene	10 ug/mL
							2,4-Dinitrotoluene	10 ug/mL
							HMX	10 ug/mL
							Nitrobenzene	10 ug/mL
							RDX	10 ug/mL
					8330LCSmix2_00008	1 mL	2,6-Dinitrotoluene	10 ug/mL
							2-Amino-4,6-dinitrotoluene	10 ug/mL
							2-Nitrotoluene	10 ug/mL

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							3-Nitrotoluene	10 ug/mL
							4-Amino-2,6-dinitrotoluene	10 ug/mL
							4-Nitrotoluene	10 ug/mL
							Tetryl	10 ug/mL
.8330LCSMix1_00109	10/31/22		Restek, Lot A0131772		(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1000 ug/mL
							2,4,6-Trinitrotoluene	1000 ug/mL
							2,4-Dinitrotoluene	1000 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1000 ug/mL
							RDX	1000 ug/mL
.8330LCSmix2_00008	08/31/23		Restek, Lot A0141002		(Purchased Reagent)		2,6-Dinitrotoluene	1000 ug/mL
							2-Amino-4,6-dinitrotoluene	1000 ug/mL
							2-Nitrotoluene	1000 ug/mL
							3-Nitrotoluene	1000 ug/mL
							4-Amino-2,6-dinitrotoluene	1000 ug/mL
							4-Nitrotoluene	1000 ug/mL
							Tetryl	1000 ug/mL
8330 LCS_00092	01/12/20	07/12/19	Acetonitrile, Lot ACN_00034	100 mL	8330_NG_Stk_00065	1 mL	Nitroglycerin	100 ug/mL
					8330_NG_Stk_00066	1 mL	Nitroglycerin	100 ug/mL
					8330_PETN_Stk_00078	1 mL	PETN	100 ug/mL
					8330_PETN_Stk_00079	1 mL	PETN	100 ug/mL
					8330LCSMix1_00108	1 mL	1,3,5-Trinitrobenzene	10 ug/mL
							1,3-Dinitrobenzene	10 ug/mL
							2,4,6-Trinitrotoluene	10 ug/mL
							2,4-Dinitrotoluene	10 ug/mL
							HMX	10 ug/mL
							Nitrobenzene	10 ug/mL
							RDX	10 ug/mL
					8330LCSmix2_00006	1 mL	2,6-Dinitrotoluene	10 ug/mL
							2-Amino-4,6-dinitrotoluene	10 ug/mL
							2-Nitrotoluene	10 ug/mL
							3-Nitrotoluene	10 ug/mL
							4-Amino-2,6-dinitrotoluene	10 ug/mL
							4-Nitrotoluene	10 ug/mL
							Tetryl	10 ug/mL
					PicricARestek_00087	1 mL	2,4,6-Trinitrophenol	10 ug/mL
.8330_NG_Stk_00065	07/31/20		Restek, Lot A0129124		(Purchased Reagent)		Nitroglycerin	5000 ug/mL
.8330_NG_Stk_00066	07/31/20		Restek, Lot A0129124		(Purchased Reagent)		Nitroglycerin	5000 ug/mL
.8330_PETN_Stk_00078	03/31/21		Restek, Lot A0136306		(Purchased Reagent)		PETN	5000 ug/mL
.8330_PETN_Stk_00079	03/31/21		Restek, Lot A0136306		(Purchased Reagent)		PETN	5000 ug/mL
.8330LCSMix1_00108	10/31/22		Restek, Lot A0131772		(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1000 ug/mL
							2,4,6-Trinitrotoluene	1000 ug/mL
							2,4-Dinitrotoluene	1000 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1000 ug/mL

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							RDX	1000 ug/mL
.8330LCSmix2_00006	08/31/23		Restek, Lot A0141002		(Purchased Reagent)		2,6-Dinitrotoluene	1000 ug/mL
							2-Amino-4,6-dinitrotoluene	1000 ug/mL
							2-Nitrotoluene	1000 ug/mL
							3-Nitrotoluene	1000 ug/mL
							4-Amino-2,6-dinitrotoluene	1000 ug/mL
							4-Nitrotoluene	1000 ug/mL
							Tetryl	1000 ug/mL
.PicricARestek_00087	11/30/23		Restek, Lot A0148431		(Purchased Reagent)		2,4,6-Trinitrophenol	1000 ug/mL
8330_OP_DMT_00002	12/31/19	03/12/19	Acetonitrile, Lot 00222	10 mL	MNX,TNX,DNX_00026	1 mL	MNX	11.67 ug/mL
.MNX,TNX,DNX_00026	12/31/19		ULTRA Scientific, Lot CS-5628		(Purchased Reagent)		MNX	116.7 ug/mL
8330_OP_DMT_00003	12/31/19	07/16/19	Acetonitrile, Lot 00226	10 mL	MNX,TNX,DNX_00036	1 mL	DNX	10.01 ug/mL
							MNX	11.67 ug/mL
							TNX	10.01 ug/mL
.MNX,TNX,DNX_00036	12/31/19		ULTRA Scientific, Lot CS-5628		(Purchased Reagent)		DNX	100.1 ug/mL
							MNX	116.7 ug/mL
							TNX	100.1 ug/mL
8330IntermStk_00058	07/19/19	05/07/19	Acetonitrile, Lot 200488	5 mL	8330_NG_Stk_00052	200 uL	Nitroglycerin	200 ug/mL
					8330_PETN_Stk_00056	200 uL	PETN	200 ug/mL
					8330ICALStock_00029	1 mL	1,3,5-Trinitrobenzene	20 ug/mL
							1,3-Dinitrobenzene	20.02 ug/mL
							2,4,6-Trinitrotoluene	20.08 ug/mL
							2,4-Dinitrotoluene	20.04 ug/mL
							2,6-Dinitrotoluene	20.06 ug/mL
							2-Amino-4,6-dinitrotoluene	20.06 ug/mL
							2-Nitrotoluene	20.06 ug/mL
							3-Nitrotoluene	20.08 ug/mL
							4-Amino-2,6-dinitrotoluene	20.06 ug/mL
							4-Nitrotoluene	20.08 ug/mL
							HMX	20 ug/mL
							Nitrobenzene	20.04 ug/mL
							RDX	20 ug/mL
							Tetryl	20 ug/mL
							1,2-Dinitrobenzene	20 ug/mL
					8330PAStkPS_00058	1 mL	2,4,6-Trinitrophenol	20 ug/mL
.8330_NG_Stk_00052	01/01/20		Restek, Lot A0124122		(Purchased Reagent)		Nitroglycerin	5000 ug/mL
.8330_PETN_Stk_00056	01/01/20		Restek, Lot A0124124		(Purchased Reagent)		PETN	5000 ug/mL
.8330ICALStock_00029	11/30/19	11/30/18	Acetonitrile, Lot 200488	10 mL	8330 Stock_TS_00012	1 mL	1,3,5-Trinitrobenzene	100 ug/mL
							1,3-Dinitrobenzene	100.1 ug/mL
							2,4,6-Trinitrotoluene	100.4 ug/mL
							2,4-Dinitrotoluene	100.2 ug/mL
							2,6-Dinitrotoluene	100.3 ug/mL
							2-Amino-4,6-dinitrotoluene	100.3 ug/mL
							2-Nitrotoluene	100.3 ug/mL
							3-Nitrotoluene	100.4 ug/mL

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							4-Amino-2,6-dinitrotoluene	100.3 ug/mL
							4-Nitrotoluene	100.4 ug/mL
							HMX	100 ug/mL
							Nitrobenzene	100.2 ug/mL
							RDX	100 ug/mL
							Tetryl	100 ug/mL
					8330SurrStock_00163	1 mL	1,2-Dinitrobenzene	100 ug/mL
..8330 Stock_TS_00012	04/30/20	Ultra Scientific, Lot CR-1002			(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1001 ug/mL
							2,4,6-Trinitrotoluene	1004 ug/mL
							2,4-Dinitrotoluene	1002 ug/mL
							2,6-Dinitrotoluene	1003 ug/mL
							2-Amino-4,6-dinitrotoluene	1003 ug/mL
							2-Nitrotoluene	1003 ug/mL
							3-Nitrotoluene	1004 ug/mL
							4-Amino-2,6-dinitrotoluene	1003 ug/mL
							4-Nitrotoluene	1004 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1002 ug/mL
							RDX	1000 ug/mL
							Tetryl	1000 ug/mL
..8330SurrStock_00163	08/15/24	AccuStandard, Lot 216071012			(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
.8330PAStkPS_00058	07/19/19	AccuStandard, Lot 216061376-01			(Purchased Reagent)		2,4,6-Trinitrophenol	100 ug/mL
8330IntermStk_00059	11/30/19	07/22/19	Acetonitrile, Lot 200488	10 mL	8330ICALStock_00029	1 mL	1,3,5-Trinitrobenzene	10 ug/mL
							1,3-Dinitrobenzene	10.01 ug/mL
							2,4,6-Trinitrotoluene	10.04 ug/mL
							2,4-Dinitrotoluene	10.02 ug/mL
							2,6-Dinitrotoluene	10.03 ug/mL
							2-Amino-4,6-dinitrotoluene	10.03 ug/mL
							2-Nitrotoluene	10.03 ug/mL
							3-Nitrotoluene	10.04 ug/mL
							4-Amino-2,6-dinitrotoluene	10.03 ug/mL
							4-Nitrotoluene	10.04 ug/mL
							HMX	10 ug/mL
							Nitrobenzene	10.02 ug/mL
							RDX	10 ug/mL
							Tetryl	10 ug/mL
							1,2-Dinitrobenzene	10 ug/mL
.8330ICALStock_00029	11/30/19	11/30/18	Acetonitrile, Lot 200488	10 mL	8330 Stock_TS_00012	1 mL	1,3,5-Trinitrobenzene	100 ug/mL
							1,3-Dinitrobenzene	100.1 ug/mL
							2,4,6-Trinitrotoluene	100.4 ug/mL
							2,4-Dinitrotoluene	100.2 ug/mL
							2,6-Dinitrotoluene	100.3 ug/mL
							2-Amino-4,6-dinitrotoluene	100.3 ug/mL
							2-Nitrotoluene	100.3 ug/mL
							3-Nitrotoluene	100.4 ug/mL

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							4-Amino-2,6-dinitrotoluene	100.3 ug/mL
							4-Nitrotoluene	100.4 ug/mL
							HMX	100 ug/mL
							Nitrobenzene	100.2 ug/mL
							RDX	100 ug/mL
							Tetryl	100 ug/mL
					8330SurrStock_00163	1 mL	1,2-Dinitrobenzene	100 ug/mL
..8330 Stock_TS_00012	04/30/20	Ultra Scientific, Lot CR-1002			(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1001 ug/mL
							2,4,6-Trinitrotoluene	1004 ug/mL
							2,4-Dinitrotoluene	1002 ug/mL
							2,6-Dinitrotoluene	1003 ug/mL
							2-Amino-4,6-dinitrotoluene	1003 ug/mL
							2-Nitrotoluene	1003 ug/mL
							3-Nitrotoluene	1004 ug/mL
							4-Amino-2,6-dinitrotoluene	1003 ug/mL
							4-Nitrotoluene	1004 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1002 ug/mL
							RDX	1000 ug/mL
							Tetryl	1000 ug/mL
..8330SurrStock_00163	08/15/24	AccuStandard, Lot 216071012			(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
8330Surrogate_00103	12/04/19	03/17/19	Acetonitrile, Lot ACN_00219	500 mL	8330SurrStkSS_00134	1.25 mL	1,2-Dinitrobenzene	10 ug/mL
					8330SurrStkSS_00135	1.25 mL	1,2-Dinitrobenzene	10 ug/mL
					8330SurrStkSS_00152	1.25 mL	1,2-Dinitrobenzene	10 ug/mL
					8330SurrStkSS_00153	1.25 mL	1,2-Dinitrobenzene	10 ug/mL
.8330SurrStkSS_00134	02/28/22	Restek, Lot A0124792			(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
.8330SurrStkSS_00135	02/28/22	Restek, Lot A0124792			(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
.8330SurrStkSS_00152	07/31/23	Restek, Lot A0139489			(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
.8330SurrStkSS_00153	07/31/23	Restek, Lot A0139489			(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
8330Surrogate_00108	02/02/20	08/02/19	Acetonitrile, Lot ACN_00223	250 mL	8330SurrStkSS_00143	1.25 mL	1,2-Dinitrobenzene	10 ug/mL
							1,2-Dinitrobenzene (Surr)	10 ug/mL
					8330SurrStkSS_00148	1.25 mL	1,2-Dinitrobenzene	10 ug/mL
							1,2-Dinitrobenzene (Surr)	10 ug/mL
.8330SurrStkSS_00143	03/31/23	Restek, Lot A0135839			(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
							1,2-Dinitrobenzene (Surr)	1000 ug/mL
.8330SurrStkSS_00148	03/31/23	Restek, Lot A0135839			(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
							1,2-Dinitrobenzene (Surr)	1000 ug/mL
ms 77 cal std_02102	08/16/19	08/15/19	5%HNO3/5% HCl, Lot 216908/229504	250 mL	MS CALSTD-1_00132	0.25 mL	Selenium	100 ug/L
.MS CALSTD-1_00132	04/10/20	CPI, Lot 982731-1			(Purchased Reagent)		Selenium	100 mg/L
ms 77 ccv_02110	08/16/19	08/15/19	2%HNO3/0.5% HCl, Lot 216908/229504	200 mL	ms 77 cal std_02102	100 mL	Selenium	50 ug/L
.ms 77 cal std_02102	08/16/19	08/15/19	5%HNO3/5% HCl, Lot 216908/229504	250 mL	MS CALSTD-1_00132	0.25 mL	Selenium	100 ug/L

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..MS CALSTD-1_00132	04/10/20		CPI, Lot 982731-1		(Purchased Reagent)		Selenium	100 mg/L
ms 77 icsa_00436	08/20/19	08/13/19	5%HNO3/5% HCl, Lot 200458/198300	100 mL	MS ICSA STOCK_00034	10 mL	Mo	2 mg/L
.MS ICSA STOCK_00034	11/15/20		cpi, Lot 992328-1		(Purchased Reagent)		Mo	20 mg/L
ms 77 icsab_00436	08/20/19	08/13/19	5%HNO3/5% HCl, Lot 200458/198300	100 mL	MS ICSA STOCK_00034	10 mL	Mo	2.1 mg/L
					MS ICVMIX--4_00001	0.1 mL	Ag	0.1 mg/L
							Zn	0.1 mg/L
					MS icvMIX-1_00001	0.1 mL	As	0.1 mg/L
							Ba	0.1 mg/L
							Be	0.1 mg/L
							Cd	0.1 mg/L
							Co	0.1 mg/L
							Cr	0.1 mg/L
							Cu	0.1 mg/L
							Mn	0.1 mg/L
							Mo	2.1 mg/L
							Ni	0.1 mg/L
							Pb	0.1 mg/L
							Sb	0.1 mg/L
							Selenium	0.1 mg/L
							Tl	0.1 mg/L
							V	0.1 mg/L
.MS ICSA STOCK_00034	11/15/20		cpi, Lot 992328-1		(Purchased Reagent)		Mo	20 mg/L
.MS ICVMIX--4_00001	05/21/20		CPI, Lot 10088633-10		(Purchased Reagent)		Ag	100 mg/L
							Zn	100 mg/L
.MS icvMIX-1_00001	04/15/20		CPI, Lot 982733-1		(Purchased Reagent)		As	100 mg/L
							Ba	100 mg/L
							Be	100 mg/L
							Cd	100 mg/L
							Co	100 mg/L
							Cr	100 mg/L
							Cu	100 mg/L
							Mn	100 mg/L
							Mo	100 mg/L
							Ni	100 mg/L
							Pb	100 mg/L
							Sb	100 mg/L
							Selenium	100 mg/L
							Tl	100 mg/L
							V	100 mg/L
ms 77 icv_02105	08/16/19	08/15/19	2%HNO3/0.5% HCl, Lot 216908/229504	250 mL	MS icvMIX-1_00001	0.1 mL	Selenium	40 ug/L
.MS icvMIX-1_00001	04/15/20		CPI, Lot 982733-1		(Purchased Reagent)		Selenium	100 mg/L
MS 77 LLCCV_01912	08/16/19	08/15/19	2%HNO3/0.5% HCl, Lot 216908/217157	100 mL	MS LLCCV_00002	1 mL	Selenium	0.005 mg/L
.MS LLCCV_00002	11/01/20		CPI, Lot 10088633-8		(Purchased Reagent)		Selenium	0.5 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
ms spike 1_00002	04/15/20	05/22/19	1% HNO3, Lot 216908	500 mL	ICP CALSTD-2_00002	100 mL	Al	400000 ug/L
							Ca	400000 ug/L
							Fe	400000 ug/L
							K	400000 ug/L
							Mg	400000 ug/L
							Na	400000 ug/L
					MS icvMIX-1_00001	100 mL	As	20000 ug/L
							Ba	20000 ug/L
							Be	20000 ug/L
							Cd	20000 ug/L
							Co	20000 ug/L
							Cr	20000 ug/L
							Cu	20000 ug/L
							Li	20000 ug/L
							Mn	20000 ug/L
							Mo	20000 ug/L
							Ni	20000 ug/L
							Pb	20000 ug/L
							Sb	20000 ug/L
							Selenium	20000 ug/L
							Si	20000 ug/L
							SiO2	42800 ug/L
							Sn	20000 ug/L
							Sr	20000 ug/L
							Tl	20000 ug/L
							V	20000 ug/L
.ICP CALSTD-2_00002	06/17/20		CPI, Lot 982735-2		(Purchased Reagent)		Al	2000 mg/L
							Ca	2000 mg/L
							Fe	2000 mg/L
							K	2000 mg/L
							Mg	2000 mg/L
							Na	2000 mg/L
.MS icvMIX-1_00001	04/15/20		CPI, Lot 982733-1		(Purchased Reagent)		As	100 mg/L
							Ba	100 mg/L
							Be	100 mg/L
							Cd	100 mg/L
							Co	100 mg/L
							Cr	100 mg/L
							Cu	100 mg/L
							Li	100 mg/L
							Mn	100 mg/L
							Mo	100 mg/L
							Ni	100 mg/L
							Pb	100 mg/L
							Sb	100 mg/L
							Selenium	100 mg/L
							Si	100 mg/L
							SiO2	214 mg/L

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sn	100 mg/L
							Sr	100 mg/L
							Tl	100 mg/L
							V	100 mg/L
MS spike 2_00083	12/20/19	07/02/19	1% HNO3, Lot 192582	500 mL	1000 Ag_00015	10 mL	Ag	20 mg/L
					1000 Sr_00012	10 mL	Sr	20 mg/L
					1000 U_00036	10 mL	U	20 mg/L
					1000 W IV_00015	10 mL	W	20 mg/L
					1000 Zn_00021	10 mL	Zn	20 mg/L
					10000 Th_00020	1 mL	Th	20 mg/L
.1000 Ag_00015	09/11/20	CPI, Lot 975475-22			(Purchased Reagent)		Ag	1000 mg/L
.1000 Sr_00012	06/14/20	Inorganic Ventures, Lot M2-SR658331			(Purchased Reagent)		Sr	1000 mg/L
.1000 U_00036	04/29/20	CPI, Lot 984257-6			(Purchased Reagent)		U	1000 mg/L
.1000 W IV_00015	07/02/20	Inorganic Ventures, Lot n2-w664865			(Purchased Reagent)		W	1000 mg/L
.1000 Zn_00021	12/20/19	Inorganic Ventures, Lot M2-ZN668257			(Purchased Reagent)		Zn	1000 mg/L
.10000 Th_00020	06/17/20	CPI, Lot 711059348-3			(Purchased Reagent)		Th	10000 mg/L
MV-BFB_00028							1,2-Dichloroethene, Total	
							1,2-Dichloroethene, Total (URS)	
							1,3-Dichloropropene, Total	
							TAH	
							Tentatively Identified Compound	
							Total BTEX	
							Trihalomethanes, Total	
							Xylenes, Total	
							Xylenes, Total (URS)	
					MV-STS110N1_00066	1.25 mL	BFB	25 ug/mL
.MV-STS110N1_00066	10/31/19	Ultra Scientific, Lot CH-3248Z			(Purchased Reagent)		BFB	2000 ug/mL
MV-BFB_00029							1,2-Dichloroethene, Total	
							1,2-Dichloroethene, Total (URS)	
							1,3-Dichloropropene, Total	
							TAH	
							Tentatively Identified Compound	
							Total BTEX	
							Trihalomethanes, Total	
							Xylenes, Total	
							Xylenes, Total (URS)	
					MV-STS110N1_00066	1.25 mL	BFB	25 ug/mL
.MV-STS110N1_00066	10/31/19	Ultra Scientific, Lot CH-3248Z			(Purchased Reagent)		BFB	2000 ug/mL
mv-Cent IS/SS_00005	11/08/19	05/08/19	P&T Methanol, Lot 1996628	50 mL	mv-8260 IS/SS_00001	10 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							1,4-Dichlorobenzene-d4	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Chlorobenzene-d5	50 ug/mL

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Dibromofluoromethane (Surr)	50 ug/mL
							Fluorobenzene	50 ug/mL
							TBA-d9 (IS)	1000 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.mv-8260 IS/SS_00001	10/31/22		Restek, Lot A0131478		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	250 ug/mL
							1,4-Dichlorobenzene-d4	250 ug/mL
							4-Bromofluorobenzene (Surr)	250 ug/mL
							Chlorobenzene-d5	250 ug/mL
							Dibromofluoromethane (Surr)	250 ug/mL
							Fluorobenzene	250 ug/mL
							TBA-d9 (IS)	5000 ug/mL
							Toluene-d8 (Surr)	250 ug/mL
mv-Cent IS_00003	07/31/23	05/15/19	P&T Methanol, Lot 1996628	5 mL	MV-568718-D_00016	1 mL	1,4-Dichlorobenzene-d4	50 ug/mL
							Chlorobenzene-d5	50 ug/mL
							Fluorobenzene	50 ug/mL
							TBA-d9 (IS)	1000 ug/mL
.MV-568718-D_00016	07/31/23		RESTEK, Lot A0139459		(Purchased Reagent)		1,4-Dichlorobenzene-d4	250 ug/mL
							Chlorobenzene-d5	250 ug/mL
							Fluorobenzene	250 ug/mL
							TBA-d9 (IS)	5000 ug/mL
MV-Gas A_00033	08/09/19	07/29/19	P&T Methanol, Lot 198123	50 mL	MV-569722_00010	1000 uL	Bromomethane	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
.MV-569722_00010	11/30/21		RESTEK, Lot A0143158		(Purchased Reagent)		Bromomethane	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
							Vinyl chloride	2500 ug/mL
MV-Gas A_00034	08/23/19	08/06/19	P&T Methanol, Lot 198123	50 mL	MV-569722_00010	1000 uL	Bromomethane	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
.MV-569722_00010	11/30/21		RESTEK, Lot A0143158		(Purchased Reagent)		Bromomethane	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
							Vinyl chloride	2500 ug/mL

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MV-Gas B_00035	08/09/19	07/25/19	P&T Methanol, Lot 198123	50 mL	MV-569722.sec_00010	1000 uL	Bromomethane	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
					MV-569723.sec_00005	1000 uL	2-Chloroethyl vinyl ether	50 ug/mL
.MV-569722.sec_00010	10/31/21		RESTEK, Lot A0142594		(Purchased Reagent)		Bromomethane	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
							Vinyl chloride	2500 ug/mL
.MV-569723.sec_00005	11/30/21		RESTEK, Lot A0143264		(Purchased Reagent)		2-Chloroethyl vinyl ether	2500 ug/mL
MV-Gas B_00037	08/16/19	08/10/19	P&T Methanol, Lot 198123	50 mL	MV-569722.sec_00010	1000 uL	Bromomethane	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
.MV-569722.sec_00010	10/31/21		RESTEK, Lot A0142594		(Purchased Reagent)		Bromomethane	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
							Vinyl chloride	2500 ug/mL
MV-MegaMain B_00015	08/31/19	06/13/19	P&T Methanol, Lot 181124	50 mL	MV-568720.sec_00025	1250 uL	Acrolein	493.75 ug/mL
					MV-569721.sec_00005	800 uL	2-Butanone (MEK)	200 ug/mL
							2-Hexanone	200 ug/mL
							4-Methyl-2-pentanone (MIBK)	200 ug/mL
							Acetone	200 ug/mL
					MV-569724.sec_00024	1000 uL	Vinyl acetate	100 ug/mL
					MV-569727.sec_00005	4000 uL	Cyclohexanone	2000 ug/mL
					MV-571992.sec_00004	1000 uL	1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromochloromethane	50 ug/mL
							Bromodichloromethane	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromochloromethane	50 ug/mL
							Dibromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
					MV-CUS17739.s_00005	2500 uL	1-Chlorohexane	50 ug/mL
							2-Pentanone	200 ug/mL
							sec-Butyl Alcohol	1500 ug/mL
.MV-568720.sec_00025	08/31/19		RESTEK, Lot A0145767		(Purchased Reagent)		Acrolein	19750 ug/mL
.MV-569721.sec_00005	01/31/20		RESTEK, Lot A0113880		(Purchased Reagent)		2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
.MV-569724.sec_00024	08/31/19		RESTEK, Lot A0146005		(Purchased Reagent)		Vinyl acetate	5000 ug/mL
.MV-569727.sec_00005	10/31/20		RESTEK, Lot A0131573		(Purchased Reagent)		Cyclohexanone	25000 ug/mL
.MV-571992.sec_00004	06/30/21		RESTEK, Lot A0144202		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromochloromethane	2500 ug/mL
							Bromodichloromethane	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromochloromethane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
.MV-CUS17739.s_00005	10/31/20		Ultra, Lot CS-4706		(Purchased Reagent)		1-Chlorohexane	1000 ug/mL
							2-Pentanone	4000 ug/mL

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							sec-Butyl Alcohol	30000 ug/mL
MV-MegaMain B_00015	08/31/19	06/13/19	P&T Methanol, Lot 181124	50 mL	MV-571992.sec_00004	1000 uL	Xylenes, Total	100 ug/mL
.MV-571992.sec_00004	06/30/21	RESTEK, Lot A0144202			(Purchased Reagent)		Xylenes, Total	5000 ug/mL
MV-MegaMainA_00018	08/31/19	07/12/19	P&T Methanol, Lot 181124	50 mL	MV-569721_00006	800 uL	2-Butanone (MEK)	200 ug/mL
							2-Hexanone	200 ug/mL
							4-Methyl-2-pentanone (MIBK)	200 ug/mL
							Acetone	200 ug/mL
					MV-571992_00002	1000 uL	1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							Benzene	50 ug/mL
							Bromochloromethane	50 ug/mL
							Bromodichloromethane	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromochloromethane	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Isopropylbenzene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							Styrene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Trichloroethene	50 ug/mL
							Xylenes, Total	100 ug/mL
.MV-569721_00006	10/31/20		RESTEK, Lot A0131486		(Purchased Reagent)		2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
.MV-571992_00002	08/31/19		RESTEK, Lot A0123711		(Purchased Reagent)		1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							Benzene	2500 ug/mL
							Bromochloromethane	2500 ug/mL
							Bromodichloromethane	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromochloromethane	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Isopropylbenzene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							Styrene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							Trichloroethene	2500 ug/mL
							Xylenes, Total	5000 ug/mL
pH 7.0 Buffer_00257	04/30/20		SPEX, Lot 1-53MJX		(Purchased Reagent)		pH adj. to 25 deg C	7 SU

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
pH 7.0 Buffer_00267	04/30/21	Ricca, Lot 4904L99			(Purchased Reagent)		pH adj. to 25 deg C	7 SU
TSS Daily STD_00737	11/01/19	08/01/19	Di Water, Lot _	1000 mL	TSS STD_00035	0.1 g	Total Suspended Solids	100 mg/L
.TSS STD_00035	07/13/20	AccuStandard, Lot 217045086-01			(Purchased Reagent)		Total Suspended Solids	1 g/g

Reagent

1000 Ag_00015

CPI INTERNATIONAL

CERTIFICATE OF ANALYSIS

Single-Element Aqueous CRM

SE Std Silver (Ag) – 1000 µg/mL

Matrix: 5% HNO_3

5593080
ID: 1000 Ag_00015
Exp: 09/11/20 Prpd: CML
1000 Ag CPI

Product #: TA-1000511

Lot #: 975475-22

Element	Certified Concentration & Uncertainty
Ag	996 ± 3 µg/mL (w/v)
	987 ± 3 µg/g (w/w)

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO 17034**, and **ISO/IEC 17025**. This CRM was prepared to a nominal concentration of 1000 µg/mL by gravimetric methods using 99.999% pure silver (Ag) metal dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration and uncertainty were determined using the "High Performance ICP-OES" protocol developed by NIST, and both the certified concentration and uncertainty values are traceable to **NIST SRM 3151, lot #992212**. The uncertainty associated with the certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Indicative Values: ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	MAJOR	Co	<0.5	Ge	<0.5	Lu	<0.2	P	<100	Sb	<0.5	Te	<1
Al	<2	Cs	<1	Hf	<0.2	Mg	<5	Pb	2	Sc	<5	Ti	<2
As	<2	Cr	<0.5	Hg	3	Mn	<1	Pd	<0.5	Se	<2	Tl	<0.5
Au	2	Cu	9	Ho	<0.2	Mo	<0.5	Pr	<0.2	Si	<100	Tm	<0.2
B	<5	Dy	<0.2	In	nd	Na	<25	Pt	<0.5	Sm	<0.2	V	<1
Ba	<1	Er	<0.2	Ir	<0.2	Nb	<0.5	Rb	<0.5	Sn	<0.5	W	<0.5
Bi	<0.2	Eu	<0.2	K	<25	Nd	<0.2	Re	<0.2	Sr	<1	Y	<0.5
Ca	<25	Fe	<10	La	<0.5	Ni	<2	Rh	<0.5	Ta	<0.5	Yb	<0.2
Cd	<0.5	Ga	<0.5	Li	<2	Os	2	Ru	<0.5	Tb	<0.5	Zn	<2
Ce	<0.2	Gd	<0.2										

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

March 11, 2019
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

Reagent

1000 Sr_00012

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 14, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- June 14, 2021

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R Gaines

INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

A2LA ACCREDITED Testing Laboratory Certificate 883.01 — A2LA ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSR1
Lot Number:	M2-SR658331
Matrix:	0.1% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Strontium
Starting Material:	SrCO3
Starting Material Lot#:	1716 1967 1966
Starting Material Purity:	99.9937%

5298134
ID: 1000 Sr_00012
Exp: 06/14/22 Prpd: CML
1000 Sr IV

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value:	1002 ± 5 µg/mL
Density:	1.001 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	**1002 ± 3 µg/mL** ICP Assay NIST SRM 3153a Lot Number: 990906
Assay Method #2	**1001 ± 3 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM by two independent methods **Characterization of CRM by one method**

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2\,(u_{char\ a})^2 + (w_b)^2\,(u_{char\ b})^2]^{½}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	<	0.003318	M	Eu	<	0.000995	O	Na		0.000474	M	Se	<	0.023047	O	Zn		0.000121
O	Al		0.000486	O	Fe		0.000826	M	Nb	<	0.000497	O	Si		0.001483	M	Zr	<	0.007967
M	As	<	0.001493	M	Ga	<	0.001991	M	Nd	<	0.000497	M	Sm	<	0.000497				
M	Au	<	0.005394	M	Gd	<	0.002987	M	Ni		0.001357	M	Sn		0.000306				
O	B	<	0.005530	M	Ge	<	0.004979	M	Os	<	0.000490	s	Sr	<					
M	Ba		0.104336	M	Hf	<	0.000497	O	P	<	0.033180	M	Ta	<	0.000497				
O	Be	<	0.000132	M	Hg	<	0.000980	M	Pb		0.001160	M	Tb	<	0.000497				
M	Bi		0.000350	M	Ho	<	0.000497	M	Pd	<	0.002451	O	Te	<	0.022120				
O	Ca		0.003185	M	In	<	0.000497	M	Pr	<	0.000995	M	Th	<	0.000497				
M	Cd		0.000153	M	Ir	<	0.000490	M	Pt	<	0.002987	M	Ti		0.000186				
M	Ce		0.001193	O	K		0.001945	M	Rb	<	0.006971	M	Tl	<	0.000497				
M	Co		0.000153	M	La	<	0.003983	M	Re	<	0.000497	M	Tm	<	0.000497				
O	Cr	<	0.005530	O	Li	<	0.004202	O	Rh	<	0.006636	M	U	<	0.000497				
M	Cs	<	0.001991	M	Lu	<	0.000497	M	Ru	<	0.000980	M	V	<	0.001991				
O	Cu	<	0.006636	O	Mg		0.000126	O	S	<	0.055300	M	W	<	0.001493				
M	Dy	<	0.000497	M	Mn		0.000120	M	Sb	<	0.003983	O	Y	<	0.003318				
M	Er	<	0.000497	M	Mo	<	0.006971	O	Sc	<	0.003318	M	Yb		0.000043				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 Sr(H2O)6+2
Chemical Compatibility - Soluble in HCl, and HNO3. Avoid H2SO4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO3 / LDPE container.
Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

Reagent

1000 u_00036

CERTIFICATE OF ANALYSIS

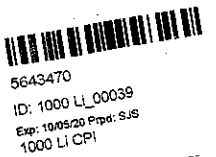
Single-Element Aqueous CRM

Product #: TA-1000291

SE Std Lithium (Li) – 1000 µg/mL

Lot #: 751942-57

Matrix: 5% HNO_3



Element	Certified Concentration & Uncertainty
Li	1002 ± 3 µg/mL (w/v)
	993 ± 3 µg/g (w/w)

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO 17034**, and **ISO/IEC 17025**. This CRM was prepared to a nominal concentration of 1000 µg/mL by gravimetric methods using 99.999% pure lithium carbonate (Li_2CO_3) dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration and uncertainty were determined using the "High Performance ICP-OES" protocol developed by NIST, and both the certified concentration and uncertainty values are traceable to **NIST SRM 3129a, lot #100714**. The uncertainty associated with the certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Indicative Values: ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	35	Co	<1	Ge	<0.5	Mg	<5	Pd	<0.5	Si	<100	V	<1
Al	9	Cs	7	Hf	<0.2	Mn	<1	Pr	<0.2	Sm	<0.2	W	<0.5
As	<2	Cr	<0.5	Hg	30	Mo	<0.5	Pt	<0.5	Sn	<0.5	Y	<0.5
Au	<0.5	Cu	<1	Ho	<0.2	Na	<25	Rb	2	Sr	<1	Yb	<0.2
B	<5	Dy	<0.2	In	nd	Nb	<0.5	Re	<0.2	Ta	<0.5	Zn	<2
Ba	2	Er	<0.2	Ir	<0.2	Nd	<0.2	Rh	<0.5	Tb	<0.5		
Bi	<0.2	Eu	<0.2	K	<25	Ni	<2	Ru	<0.5	Te	<1		
Ca	<25	Fe	<10	La	<0.5	Os	<0.5	Sb	<0.5	Ti	<2		
Cd	<0.5	Ga	<0.5	Li	MAJOR	P	<100	Sc	<5	Tl	<0.5		
Ce	<0.2	Gd	<0.2	Lu	<0.2	Pb	<1	Se	<2	Tm	<0.2		

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

April 5, 2019

Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

Reagent

1000 W IV_00015

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 - 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 863.01
ACCREDITED Reference Material Producer Certificate 863.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGW1
Lot Number:	N2-W664865
Matrix:	0.2% (v/v) HNO3 2% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Tungsten
Starting Material:	W Powder
Starting Material Lot#:	1898
Starting Material Purity:	99.9941%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value:	998 ± 6 µg/mL
Density:	1.007 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	**999 ± 6 µg/mL** ICP Assay NIST SRM 3163 Lot Number: 140606
Assay Method #2	**997 ± 7 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	< 0.001202	M	Eu	< 0.000200	O	Na	0.001960	M	Se	< 0.004000	M	Zn	0.002074			
O	Al	< 0.033570	M	Fe	< 0.079372	M	Nb	< 0.180390	i	Si	<	O	Zr	< 0.005595			
M	As	< 0.010422	M	Ga	< 0.000200	M	Nd	< 0.000200	M	Sm	< 0.000200						
M	Au	< 0.030804	M	Gd	< 0.000200	M	Ni	< 0.017638	M	Sn	0.000266						
M	B	< 0.003808	M	Ge	< 0.001403	M	Os	< 0.000200	M	Sr	< 0.000801						
M	Ba	< 0.002004	M	Hf	0.000288	i	P	<	M	Ta	0.011947						
M	Be	< 0.000601	i	Hg	<	M	Pb	< 0.005612	M	Tb	< 0.000200						
M	Bi	< 0.009219	M	Ho	< 0.000200	M	Pd	< 0.001800	M	Te	< 0.001603						
O	Ca	0.004290	M	In	< 0.000200	M	Pr	< 0.000601	M	Th	< 0.012426						
M	Cd	< 0.000200	M	Ir	< 0.000200	M	Pt	< 0.001603	M	Ti	0.004115						
M	Ce	< 0.000200	O	K	0.039229	M	Rb	< 0.001603	M	Tl	< 0.003206						
M	Co	< 0.000200	M	La	< 0.000200	M	Re	< 0.300651	M	Tm	< 0.000200						
O	Cr	< 0.011190	O	Li	< 0.000434	M	Rh	< 0.000200	M	U	< 0.001202						
M	Cs	0.000088	M	Lu	< 0.000200	M	Ru	< 0.000200	M	V	< 0.009219						
M	Cu	< 0.003607	M	Mg	0.000632	i	S	<	s	W	<						
M	Dy	< 0.000200	M	Mn	< 0.005211	M	Sb	< 0.008819	M	Y	< 0.000200						
M	Er	< 0.000200	M	Mo	0.000232	O	Sc	< 0.000543	M	Yb	< 0.000200						

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 183.85 +6 6,7,8,9 WOF5-2(chemical form as received)
Chemical Compatibility -W is very readily hydrolyzed requiring 0.1 to 1% HF solutions for stabile acidic solutions. The [WOF5]-2 is soluble in % levels of HCl and HNO3 provided it is in the [WOF5]-2 form. Stable at ppm levels with some metals provided it is fluorinated. <U>Do not mix with Alkaline or Rare Earths</U>. W is best to be mixed only with other fluorinated metals (Ti, Zr, Hf, Nb, Ta, Mo, Si, Sn, Ge). Look for yellow WO3 precipitate if mixed with other transitions at higher levels indicating instability. The yellow WO3 will form over a period of weeks even in trace HF, therefore, <U>HF levels of W multi-element blends should be ∼ 1%</U>.
Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [WOF5]-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the [WOF5]-2 chemically stable for years in 1% HF in a LDPE container.
W Containing Samples (Preparation and Solution) -Metal (Soluble in HF / HNO3); Oxide (soluble in HF or NH4OH) ; Organic Matrices (dry ash at 450 0C in Pt0 and dissolve oxide with HF).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 182 amu	5 ppt	N/A	166Er16O
ICP-OES 207.911 nm	0.03/0.001 µg/mL	1	Ru, In
ICP-OES 209.475 nm	0.05/0.008 µg/mL	1	Mo
ICP-OES 224.875 nm	0.05/0.005 µg/mL	1	Co, Rh, Ag

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 19, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 19, 2022

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

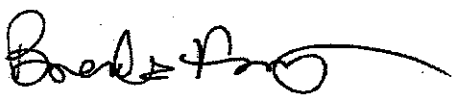
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

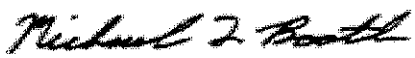
Certificate Prepared By:

Brenda Francis
Product Documentation Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



Reagent

1000 Zn_00021

10.3 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 20, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- June 20, 2022

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGZN1
Lot Number:	N2-ZN668257
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Zinc
Starting Material:	Zn Metal
Starting Material Lot#:	580919
Starting Material Purity:	99.9998%

5298172
ID: 1000 Zn_00021
Exp: 06/20/22 Prpd: CML
1000 Zn IV

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 997 ± 5 µg/mL

Density: 1.011 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **996 ± 4 µg/mL**
ICP Assay NIST SRM 3168a Lot Number: 120629

Assay Method #2 **998 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM by two independent methods **Characterization of CRM by one method**

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	0.000724	M	Eu	<	0.000500	O	Na	0.001892	O	Se	<	0.020160	s	Zn	<	
O	Al	0.000544	O	Fe		0.004803	M	Nb	< 0.000500	O	Si		0.001248	M	Zr	<	0.000500
M	As	< 0.005009	M	Ga	<	0.008015	M	Nd	< 0.000500	M	Sm	<	0.000500				
M	Au	< 0.001497	M	Gd	<	0.000500	O	Ni	0.002721	M	Sn	<	0.004007				
O	B	< 0.044800	M	Ge	<	0.004508	M	Os	< 0.011977	O	Sr		0.000022				
M	Ba	0.000078	M	Hf	<	0.000500	O	P	< 0.022400	M	Ta	<	0.000500				
M	Be	< 0.000500	M	Hg	<	0.002994	M	Pb	0.012038	M	Tb	<	0.000500				
M	Bi	< 0.001502	M	Ho	<	0.000500	M	Pd	< 0.001001	M	Te	<	0.000500				
O	Ca	0.002529	M	In	<	0.002003	M	Pr	< 0.000500	M	Th	<	0.000500				
M	Cd	0.000547	M	Ir	<	0.002495	M	Pt	< 0.000500	O	Ti	<	0.001568				
M	Ce	< 0.000500	M	K		0.000725	M	Rb	< 0.004007	M	Tl	<	0.002003				
M	Co	< 0.005009	M	La	<	0.000500	M	Re	< 0.000500	M	Tm	<	0.000500				
M	Cr	< 0.001001	O	Li	<	0.000112	M	Rh	< 0.000500	M	U	<	0.000500				
M	Cs	< 0.000500	M	Lu	<	0.000500	O	Ru	< 0.007840	M	V	<	0.001001				
O	Cu	0.004681	O	Mg		0.000549	O	S	< 0.044800	M	W	<	0.001001				
M	Dy	< 0.000500	O	Mn		0.001429	M	Sb	< 0.009017	M	Y	<	0.000500				
M	Er	< 0.000500	M	Mo	<	0.003506	M	Sc	< 0.002003	M	Yb	<	0.000500				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 65.39 +2 4 Zn(OH)(aq)1+
Chemical Compatibility -Stable in HCl, HNO3, H2SO4 ,HF, H3PO4. Avoid basic media forming insoluble carbonate and hydroxide. Stable with most metals and inorganic anions in acidic media.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.
Zn Containing Samples (Preparation and Solution) -Metal (soluble in HNO3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO3); Organic based (dry ash at 4500C and dissolve ash in HCl) (sulfuric/peroxide acid digestion)
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 66 amu	7 ppt	N/A	50Ti16O,50Cr16O, 50V16O, 34S16O2, 32S16O18O, 32S17O2, 33S16O17O, 32S34S, 33S2
ICP-OES 202.548 nm	0.004/0.0002 µg/mL	1	Nb, Cu, Co, Hf
ICP-OES 206.200 nm	0.006/0.0006 µg/mL	1	Sb, Ta, Bi, Os
ICP-OES 213.856 nm	0.002/0.0004 µg/mL	1	Ni, Cu, V

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

Reagent

10000 Th_00020

REPORT OF ANALYSIS

Single-Element Aqueous RM

Product #: S4400-10M591

Thorium (Th) – 10,000 µg/mL

Lot #: 711059348-3

Matrix: 4% HNO_3

5523859
ID: 10000 Th_00020
Exp: 06/17/19 Prpd: SJS
10,000 Th CPI

Element	Certified Concentration
Th	10,000 µg/mL (w/v)
	9149 µg/g (w/w)

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025**. This RM was prepared to a nominal concentration of 10,000 µg/mL by gravimetric methods using 99.99% pure thorium nitrate [$Th(NO_3)_4$] dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration was determined based upon gravimetric procedures. Secondary verification of the certified concentration was performed using ICP-OES and is traceable to **NIST SRM 3159**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Indicative Values: ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	<5	Co	<10	Ge	<5	Lu	<2	P	<1000	Sb	<5	Te	<10
Al	30	Cs	<5	Hf	<2	Mg	<50	Pb	<10	Sc	<50	Ti	<20
As	<20	Cr	<5	Hg	<5	Mn	<10	Pd	<5	Se	<20	Tl	<5
Au	<5	Cu	<10	Ho	<2	Mo	<5	Pr	4	Si	<1000	Tm	<2
B	<50	Dy	<2	In	nd	Na	<250	Pt	<5	Sm	3	V	<10
Ba	<10	Er	<2	Ir	<2	Nb	<5	Rb	<5	Sn	<5	W	<5
Bi	<2	Eu	<2	K	<250	Nd	26	Re	<2	Sr	<10	Y	5
Ca	<250	Fe	<100	La	14	Ni	<20	Rh	<5	Ta	<5	Yb	<2
Cd	<5	Ga	<5	Li	<20	Os	<5	Ru	<20	Tb	<5	Zn	<20
Ce	30	Gd	<2										

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

January 17, 2019
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiintl.com

Reagent

8330 LCSMix2_00101

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

ACCREDITED
ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

Certificate of Analysis

ilac-MRA

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 31451 **Lot No.:** A0122699

Description : 8330 Calibration Mix #2

8330 Calibration Std #2 1000µg/mL, Acetonitrile, 1mL/ampul

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

Expiration Date : November 30, 2021 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)		Expanded Uncertainty (95% C.L.; K=2)		
1	Tetryl **CAS #** 479-45-8 **Purity** 99%	(Lot 091120JLM)	1,000.0	µg/mL	+/- 5.9397 +/- 54.7830 +/- 63.8824	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	4-Amino-2,6-dinitrotoluene **CAS #** 19406-51-0 **Purity** 99%	(Lot ER070908-01)	1,002.0	µg/mL	+/- 5.9516 +/- 54.8926 +/- 64.0101	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
3	2-Amino-4,6-dinitrotoluene **CAS #** 35572-78-2 **Purity** 99%	(Lot 29550-55)	1,001.0	µg/mL	+/- 5.9456 +/- 54.8378 +/- 63.9463	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
4	2,6-Dinitrotoluene **CAS #** 606-20-2 **Purity** 99%	(Lot 1437483V)	1,001.0	µg/mL	+/- 5.9456 +/- 54.8378 +/- 63.9463	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
5	2-Nitrotoluene **CAS #** 88-72-2 **Purity** 99%	(Lot GA01)	1,001.0	µg/mL	+/- 5.9456 +/- 54.8378 +/- 63.9463	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
6	4-Nitrotoluene **CAS #** 99-99-0 **Purity** 97%	(Lot FAU01)	1,001.0	µg/mL	+/- 5.9459 +/- 54.8400 +/- 63.9488	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
7	3-Nitrotoluene **CAS #** 99-08-1 **Purity** 99%	(Lot 07329LG)	1,001.0	µg/mL	+/- 5.9456 +/- 54.8378 +/- 63.9463	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Reagent

8330 Stock_TS_00012

Certificate of Analysis

Agilent

Combined Stock Solution

Product Number: NAIM-833E **Page:** 1 of 1

Lot Number: CR-1002 **Lot Issue Date:** 10-Mar-2017 **Expiration Date:** 30-Apr-2020

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
HMX	002691-41-0	RM06237	1000 ± 5 µg/mL
RDX	000121-82-4	RM10915	1000 ± 5 µg/mL
1,3,5-trinitrobenzene	000099-35-4	RM06608	1000 ± 5 µg/mL
m-dinitrobenzene	000099-65-0	RM04448	1001 ± 5 µg/mL
nitrobenzene	000098-95-3	RM11472	1002 ± 5 µg/mL
2,4,6-trinitrotoluene (TNT)	000118-96-7	RM11972	1004 ± 5 µg/mL
2,4-dinitrotoluene	000121-14-2	RM01209	1002 ± 5 µg/mL
tetryl	000479-45-8	RM12295	1000 ± 5 µg/mL
2,6-dinitrotoluene	000606-20-2	RM10763	1003 ± 5 µg/mL
2-nitrotoluene	000088-72-2	NT01996	1003 ± 5 µg/mL
3-nitrotoluene	000099-08-1	NT02212	1004 ± 5 µg/mL
4-nitrotoluene	000099-99-0	NT02096	1004 ± 5 µg/mL
2-amino-4,6-dinitrotoluene	035572-78-2	RM04229	1003 ± 5 µg/mL
4-amino-2,6-dinitrotoluene	019406-51-0	RM04226	1003 ± 5 µg/mL

Matrix: acetonitrile

Storage: Store at Room Temperature (15° to 30°C).

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

250 Smith Street North Kingstown, Rhode Island 02852 **www.ultrasci.com**

Reagent

8330_NG_Stk_00052

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Composition

ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 568871 **Lot No.:** A0124122

Description : Custom Nitroglycerin Standard

Custom Nitroglycerin Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

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

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

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Nitroglycerin	5,016.0 µg/mL	+/- 46.6461 µg/mL	Gravimetric
	CAS # 55-63-0 (Lot 150612JLM)		+/- 277.1256 µg/mL	Unstressed
	Purity 99%		+/- 322.4378 µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

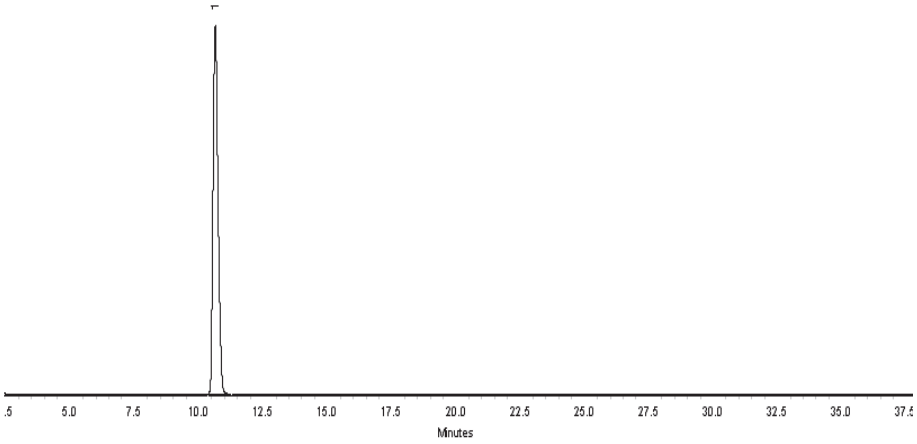
Flow Rate:
1.0 ml/min.

Mobile Phase A:
-

Mobile Phase B:
water:methanol (44:56 V/V)

Mobile Phase Composition:
100%B

Det. Type:
Wavelength: 210 nm



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.

Kendra Jozefick - Mix Technician **Date Mixed:** 12-Jan-2017 **Balance:** B442140311

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 17-Jan-2017 REVIEWED

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

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

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

Manufacturing Notes:

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

Handling Notes:

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

Reagent

8330_NG_Stk_00065

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Composition

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ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

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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. : 568871 **Lot No.:** A0129124

Description : Custom Nitroglycerin Standard

Custom Nitroglycerin Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Nitroglycerin	5,008.0 µg/mL	+/- 46.5717	µg/mL	Gravimetric
	CAS # 55-63-0 (Lot 170616JLM)		+/- 276.6836	µg/mL	Unstressed
	Purity 99%		+/- 321.9236	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Reagent

8330_NG_Stk_00066

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Custom Nitroglycerin Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Nitroglycerin	5,008.0 µg/mL	+/- 46.5717	µg/mL	Gravimetric
	CAS # 55-63-0 (Lot 170616JLM)		+/- 276.6836	µg/mL	Unstressed
	Purity 99%		+/- 321.9236	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Reagent

8330_OP_DMT_00002

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

8330_OP_DMT_00002

Reagent ID: 8330_OP_DMT_00002

		Expiration Date:	12/31/2019
Description:	Use for MNX, DNX, TNX spike	Laboratory:	TestAmerica Denver
No. of Bottles:	1	Prepared By:	Becker, Chad B
Storage Location:	_Pick Storage Location	Solvent:	Acetonitrile
Reagent Volume:	10.000 mL	Solvent Lot:	00222
Creation Date:	03/12/2019		
Open Date:			
Container(s):	5580180		
Comment:	Add 1 mL of MNX_TNX_DNX to 5 mL of acetonitrile. quantitative fill to 10 mL with ACN.		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
DNX	MNX,TNX,DNX_00026	12/31/2019	100.10000	ug/mL	10.01000	ug/mL
MNX	MNX,TNX,DNX_00026	12/31/2019	116.70000	ug/mL	11.67000	ug/mL
TNX	MNX,TNX,DNX_00026	12/31/2019	100.10000	ug/mL	10.01000	ug/mL

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
MNX,TNX,DNX_00026	Custom MNX,TNX,DNX 8321 exp ULTRA	ASTD	12/31/19	ULTRA Scientific	CS-5628	CUS-23984	1.00000	mL

HF 3/19/19

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

This section to be completed by the analyst creating the standard:		
Standard Name	8330_OP_DMT	
Analyst name (and trainer if applicable)	CB	
Creation Date		
Checklist	Initial each item:	
	✓	Stock standard catalog # in TALS matches the catalog # on the vendor label.
	✓	All stock standards have a correct open date in TALS.
	✓	All stock standards have a correct expiration date in TALS.
Verification status	Initial one of the following:	
		Requires MeCl2 exchange prior to verification. Paperwork submitted to concentrations. Date/time submitted to concentrations:
		Requires esterification priot to verification. Paperwork submitted to concentrations. Date/time submitted to concentrations:
	CB	No exchange needed; aliquot submitted to analytical group for analysis. Date/time submitted to analytical group for analysis:
		No verification required. Submit to group leader.
		Other (specify and submit to group leader):

This section to be completed by concentrations analyst, if applicable:	
Volume of standard used:	Initials:
Final volume after exchange:	
Date/time submitted for analysis:	
Submitted with batch # (or other designated location):	
Volume of standard used:	Initials:
Final volume after esterification:	
Date/time submitted for analysis:	
Submitted with batch # (or other designated location):	

Page 308 of 957

08/19/2019

Preliminary Report

TestAmerica Denver

LCS, Lab Control Sample Report

Sample Path: \\chromna\Denver\ChromData\G2_LUNA\20190317-79923.b\03170039.D

Lims ID: LCS 280-450627/4-A Inj. Date: 18-Mar-2019 12:13:51

Worklist ID: 280-0079923-039 Instrument: CHHPLC_G2_LUNA

Method: G2_8330_Luna

Compound	Amount Added	Amount Recovered	%Rec	Limits 1 3535	Limits 2 3535
3 TNX	0.2002	0.2314	115.6	50-150	
4 DNX	0.2002	0.2029	101.4	66-119	50-150
7 MNX	0.2334	0.2434	104.3	57-132	68-123
$ 10 1,2-Dinitrobenzene	0.2000	0.2190	109.5	83-119	63-127

Samples for Limit Group: 1, Lims Prep Method: 3535

280-120959-B-1-A	280-120959-A-2-A	280-120959-A-3-A
280-120959-B-4-A	280-120959-B-5-A	280-120959-A-6-A
280-120959-A-7-A	280-120959-A-8-A	280-120959-A-9-A
280-121028-A-1-A	280-121028-B-2-A	280-121028-A-7-A
280-121028-A-8-A	280-121028-B-9-A	280-121028-A-10-A
280-121028-A-11-A	280-121068-A-1-A	280-121068-B-2-A
280-121068-A-3-A	280-121068-B-5-A	280-121068-A-6-A
280-121068-A-7-A	280-121068-A-9-A	280-121068-B-10-A
280-121068-B-13-A		

Samples for Limit Group: 2, Lims Prep Method: 3535

680-165694-D-7-A	680-165694-E-8-A	680-165755-D-1-A
680-165755-E-2-A	680-165755-D-3-A	680-165755-E-4-A

Reagent

8330_PETN_Stk_00056

110 Benner Circle
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CERTIFIED REFERENCE MATERIAL

Certificate of Composition

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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. : 568872 **Lot No.:** A0124124

Description : Custom PETN Standard

Custom PETN Standard 5000 µg/mL, Acetonitrile, 1mL/ampul

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

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

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	PETN	5,024.0 µg/mL	+/- 46.7205 µg/mL	Gravimetric
	CAS # 78-11-5 (Lot 051108JLM)		+/- 277.5676 µg/mL	Unstressed
	Purity 99%		+/- 322.9521 µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

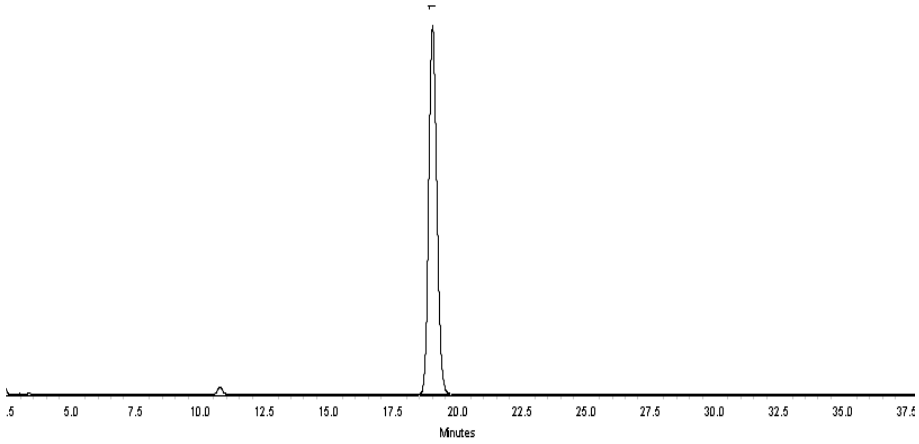
Flow Rate:
1.0 ml/min.

Mobile Phase A:
-

Mobile Phase B:
water:methanol (44:56 V/V)

Mobile Phase Composition:
100%B

Det. Type:
Wavelength: 210 nm



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.

Kendra Jozefick - Mix Technician

Date Mixed: 12-Jan-2017 **Balance:** B442140311

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 17-Jan-2017

REVIEWED
By Amanda Miller at 3:54 pm, Jan 17, 2017

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

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

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

Manufacturing Notes:

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

Handling Notes:

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

Reagent

8330_PETN_Stk_00078

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Fax: (814)353-1309

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Certificate #3222.01

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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. : 568872 **Lot No.:** A0136306

Description : Custom PETN Standard

Custom PETN Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	PETN	5,028.0 µg/mL	+/- 46.7577	µg/mL	Gravimetric
	CAS # 78-11-5 (Lot 051108JLM)		+/- 277.7886	µg/mL	Unstressed
	Purity 99%		+/- 323.2092	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

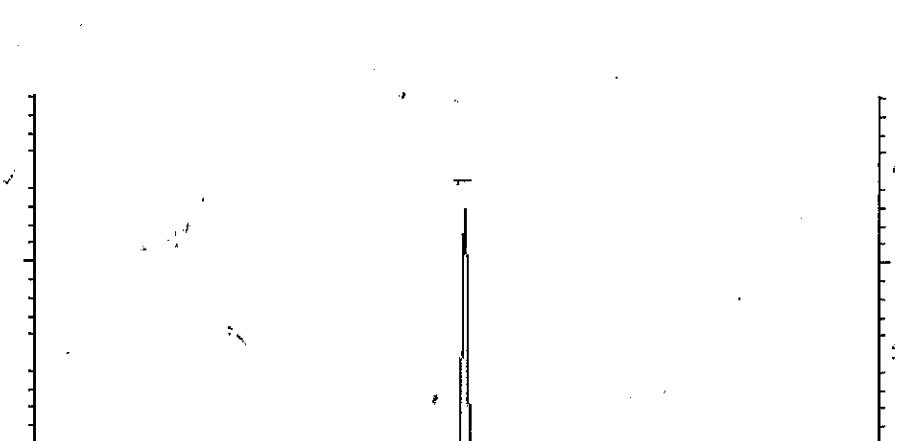
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Cydnei L. Crust
Cydnei L. Crust - Mix Technician

Date Mixed: 19-Mar-2018 **Balance:** 1128360905

Jennifer Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 23-Mar-2018

REVIEWED

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely

Reagent

8330_PETN_Stk_00079

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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. : 568872 **Lot No.:** A0136306

Description : Custom PETN Standard

Custom PETN Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	PETN	5,028.0 µg/mL	+/- 46.7577	µg/mL	Gravimetric
	CAS # 78-11-5 (Lot 051108JLM)		+/- 277.7886	µg/mL	Unstressed
	Purity 99%		+/- 323.2092	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Cydnei L. Crust
Cydnei L. Crust - Mix Technician

Date Mixed: 19-Mar-2018 **Balance:** 1128360905

Jennifer Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 23-Mar-2018

REVIEWED

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely

Reagent

8330LCSMix1_00104

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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. : 31450 **Lot No.:** A0128688

Description : 8330 Calibration Mix #1

8330 Calibration Std #1 1000µg/mL, Acetonitrile, 1mL/ampul

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

Expiration Date : June 30, 2022 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)		Expanded Uncertainty (95% C.L.; K=2)		
1	HMX		1,002.5	µg/mL	+/- 5.9548	µg/mL	Gravimetric
	CAS # 2691-41-0	(Lot 111005JLM)			+/- 54.9222	µg/mL	Unstressed
	Purity 98%				+/- 64.0446	µg/mL	Stressed
2	RDX		1,008.0	µg/mL	+/- 5.9872	µg/mL	Gravimetric
	CAS # 121-82-4	(Lot 080220JLM)			+/- 55.2213	µg/mL	Unstressed
	Purity 99%				+/- 64.3934	µg/mL	Stressed
3	1,3,5-Trinitrobenzene		1,004.9	µg/mL	+/- 5.9689	µg/mL	Gravimetric
	CAS # 99-35-4	(Lot DJ5QO)			+/- 55.0525	µg/mL	Unstressed
	Purity 97%				+/- 64.1967	µg/mL	Stressed
4	1,3-Dinitrobenzene		1,007.0	µg/mL	+/- 5.9813	µg/mL	Gravimetric
	CAS # 99-65-0	(Lot BCBN4329V)			+/- 55.1665	µg/mL	Unstressed
	Purity 99%				+/- 64.3295	µg/mL	Stressed
5	Nitrobenzene		1,007.0	µg/mL	+/- 5.9813	µg/mL	Gravimetric
	CAS # 98-95-3	(Lot SHBG5577V)			+/- 55.1665	µg/mL	Unstressed
	Purity 99%				+/- 64.3295	µg/mL	Stressed
6	2,4,6-Trinitrotoluene		1,004.0	µg/mL	+/- 5.9635	µg/mL	Gravimetric
	CAS # 118-96-7	(Lot 2554100)			+/- 55.0021	µg/mL	Unstressed
	Purity 99%				+/- 64.1379	µg/mL	Stressed
7	2,4-Dinitrotoluene		1,007.0	µg/mL	+/- 5.9813	µg/mL	Gravimetric
	CAS # 121-14-2	(Lot MKAA0690V)			+/- 55.1665	µg/mL	Unstressed
	Purity 99%				+/- 64.3295	µg/mL	Stressed

Reagent

8330LCSMix1_00108

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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. : 31450 **Lot No.:** A0131772

Description : 8330 Calibration Mix #1

8330 Calibration Std #1 1000µg/mL, Acetonitrile, 1mL/ampul

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

Expiration Date : October 31, 2022 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	HMX **CAS #** 2691-41-0 (Lot 111005JLM) **Purity** 98%	1,009.4 µg/mL	+/- 5.9955 µg/mL +/- 55.2980 µg/mL +/- 64.4829 µg/mL	Gravimetric Unstressed Stressed
2	RDX **CAS #** 121-82-4 (Lot 080220JLM) **Purity** 99%	1,005.0 µg/mL	+/- 5.9694 µg/mL +/- 55.0569 µg/mL +/- 64.2018 µg/mL	Gravimetric Unstressed Stressed
3	1,3,5-Trinitrobenzene **CAS #** 99-35-4 (Lot DJ5QO) **Purity** 97%	1,009.8 µg/mL	+/- 5.9977 µg/mL +/- 55.3182 µg/mL +/- 64.5065 µg/mL	Gravimetric Unstressed Stressed
4	1,3-Dinitrobenzene **CAS #** 99-65-0 (Lot BCBB1436V) **Purity** 99%	1,008.0 µg/mL	+/- 5.9872 µg/mL +/- 55.2213 µg/mL +/- 64.3934 µg/mL	Gravimetric Unstressed Stressed
5	Nitrobenzene **CAS #** 98-95-3 (Lot SHBF2348V) **Purity** 99%	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL	Gravimetric Unstressed Stressed
6	2,4,6-Trinitrotoluene **CAS #** 118-96-7 (Lot 2554100) **Purity** 99%	1,008.0 µg/mL	+/- 5.9872 µg/mL +/- 55.2213 µg/mL +/- 64.3934 µg/mL	Gravimetric Unstressed Stressed
7	2,4-Dinitrotoluene **CAS #** 121-14-2 (Lot MKAA0690V) **Purity** 99%	1,005.0 µg/mL	+/- 5.9694 µg/mL +/- 55.0569 µg/mL +/- 64.2018 µg/mL	Gravimetric Unstressed Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

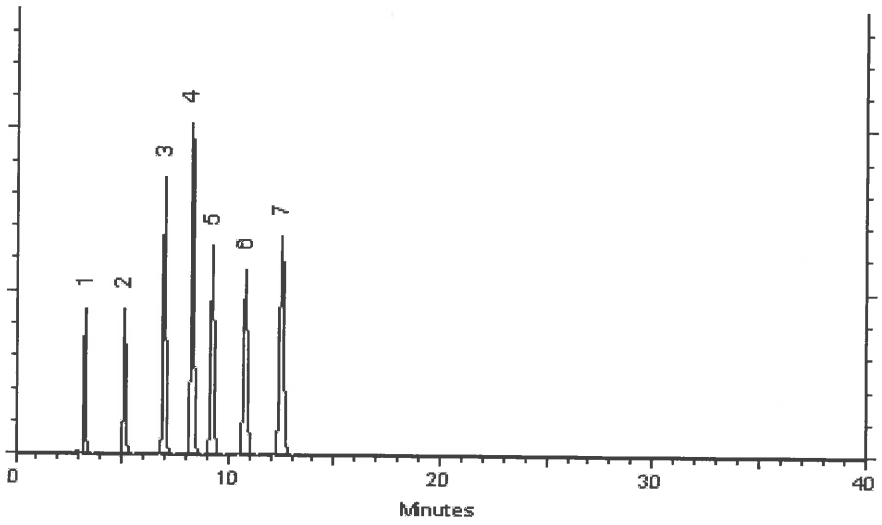
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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:** 19-Oct-2017 **Balance:** B707717271

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 23-Oct-2017

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

Reagent

8330LCSMix1_00109

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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. : 31450 **Lot No.:** A0131772

Description : 8330 Calibration Mix #1

8330 Calibration Std #1 1000µg/mL, Acetonitrile, 1mL/ampul

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

Expiration Date : October 31, 2022 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	HMX **CAS #** 2691-41-0 (Lot 111005JLM) **Purity** 98%	1,009.4 µg/mL	+/- 5.9955 µg/mL +/- 55.2980 µg/mL +/- 64.4829 µg/mL	Gravimetric Unstressed Stressed
2	RDX **CAS #** 121-82-4 (Lot 080220JLM) **Purity** 99%	1,005.0 µg/mL	+/- 5.9694 µg/mL +/- 55.0569 µg/mL +/- 64.2018 µg/mL	Gravimetric Unstressed Stressed
3	1,3,5-Trinitrobenzene **CAS #** 99-35-4 (Lot DJ5QO) **Purity** 97%	1,009.8 µg/mL	+/- 5.9977 µg/mL +/- 55.3182 µg/mL +/- 64.5065 µg/mL	Gravimetric Unstressed Stressed
4	1,3-Dinitrobenzene **CAS #** 99-65-0 (Lot BCBB1436V) **Purity** 99%	1,008.0 µg/mL	+/- 5.9872 µg/mL +/- 55.2213 µg/mL +/- 64.3934 µg/mL	Gravimetric Unstressed Stressed
5	Nitrobenzene **CAS #** 98-95-3 (Lot SHBF2348V) **Purity** 99%	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL	Gravimetric Unstressed Stressed
6	2,4,6-Trinitrotoluene **CAS #** 118-96-7 (Lot 2554100) **Purity** 99%	1,008.0 µg/mL	+/- 5.9872 µg/mL +/- 55.2213 µg/mL +/- 64.3934 µg/mL	Gravimetric Unstressed Stressed
7	2,4-Dinitrotoluene **CAS #** 121-14-2 (Lot MKAA0690V) **Purity** 99%	1,005.0 µg/mL	+/- 5.9694 µg/mL +/- 55.0569 µg/mL +/- 64.2018 µg/mL	Gravimetric Unstressed Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

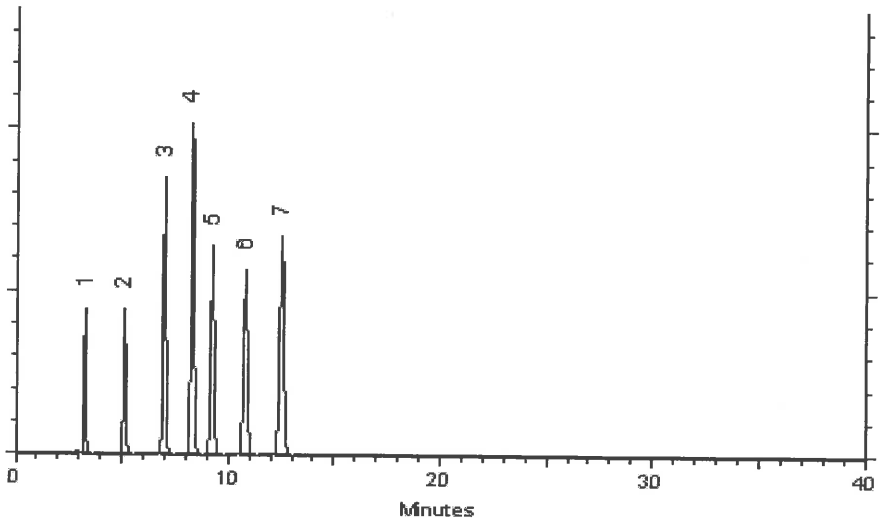
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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:** 19-Oct-2017 **Balance:** B707717271

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 23-Oct-2017

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

Reagent

8330LCSmix2_00006

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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. : 31451 **Lot No.:** A0141002

Description : 8330 Calibration Mix #2

8330 Calibration Std #2 1000µg/mL, Acetonitrile, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Tetryl **CAS #** 479-45-8 **Purity** 99%	(Lot 091120JLM)	1,000.0 µg/mL	+/- 5.9397 µg/mL +/- 54.7830 µg/mL +/- 63.8824 µg/mL		Gravimetric Unstressed Stressed
2	4-Amino-2,6-dinitrotoluene **CAS #** 19406-51-0 **Purity** 99%	(Lot ER070908-01)	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL		Gravimetric Unstressed Stressed
3	2-Amino-4,6-dinitrotoluene **CAS #** 35572-78-2 **Purity** 98%	(Lot 29550-55)	1,007.4 µg/mL	+/- 5.9839 µg/mL +/- 55.1906 µg/mL +/- 64.3577 µg/mL		Gravimetric Unstressed Stressed
4	2,6-Dinitrotoluene **CAS #** 606-20-2 **Purity** 99%	(Lot BCBB8606V)	1,000.0 µg/mL	+/- 5.9397 µg/mL +/- 54.7830 µg/mL +/- 63.8824 µg/mL		Gravimetric Unstressed Stressed
5	2-Nitrotoluene **CAS #** 88-72-2 **Purity** 99%	(Lot GA01)	1,004.0 µg/mL	+/- 5.9635 µg/mL +/- 55.0021 µg/mL +/- 64.1379 µg/mL		Gravimetric Unstressed Stressed
6	4-Nitrotoluene **CAS #** 99-99-0 **Purity** 99%	(Lot FAU01)	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL		Gravimetric Unstressed Stressed
7	3-Nitrotoluene **CAS #** 99-08-1 **Purity** 98%	(Lot FBO01)	1,003.5 µg/mL	+/- 5.9606 µg/mL +/- 54.9758 µg/mL +/- 64.1072 µg/mL		Gravimetric Unstressed Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

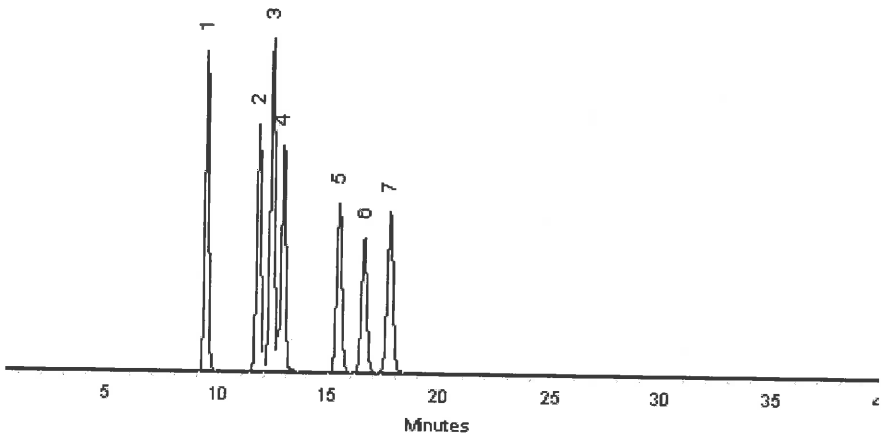
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Matt Fragassi - Mix Technician **Date Mixed:** 23-Aug-2018 **Balance:** B345965662

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 28-Aug-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

8330LCSmix2_00008

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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. : 31451 **Lot No.:** A0141002

Description : 8330 Calibration Mix #2

8330 Calibration Std #2 1000µg/mL, Acetonitrile, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Tetryl **CAS #** 479-45-8 **Purity** 99% (Lot 091120JLM)	1,000.0 µg/mL	+/- 5.9397 +/- 54.7830 +/- 63.8824	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	4-Amino-2,6-dinitrotoluene **CAS #** 19406-51-0 **Purity** 99% (Lot ER070908-01)	1,002.0 µg/mL	+/- 5.9516 +/- 54.8926 +/- 64.0101	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
3	2-Amino-4,6-dinitrotoluene **CAS #** 35572-78-2 **Purity** 98% (Lot 29550-55)	1,007.4 µg/mL	+/- 5.9839 +/- 55.1906 +/- 64.3577	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
4	2,6-Dinitrotoluene **CAS #** 606-20-2 **Purity** 99% (Lot BCBB8606V)	1,000.0 µg/mL	+/- 5.9397 +/- 54.7830 +/- 63.8824	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
5	2-Nitrotoluene **CAS #** 88-72-2 **Purity** 99% (Lot GA01)	1,004.0 µg/mL	+/- 5.9635 +/- 55.0021 +/- 64.1379	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
6	4-Nitrotoluene **CAS #** 99-99-0 **Purity** 99% (Lot FAU01)	1,002.0 µg/mL	+/- 5.9516 +/- 54.8926 +/- 64.0101	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
7	3-Nitrotoluene **CAS #** 99-08-1 **Purity** 98% (Lot FBO01)	1,003.5 µg/mL	+/- 5.9606 +/- 54.9758 +/- 64.1072	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

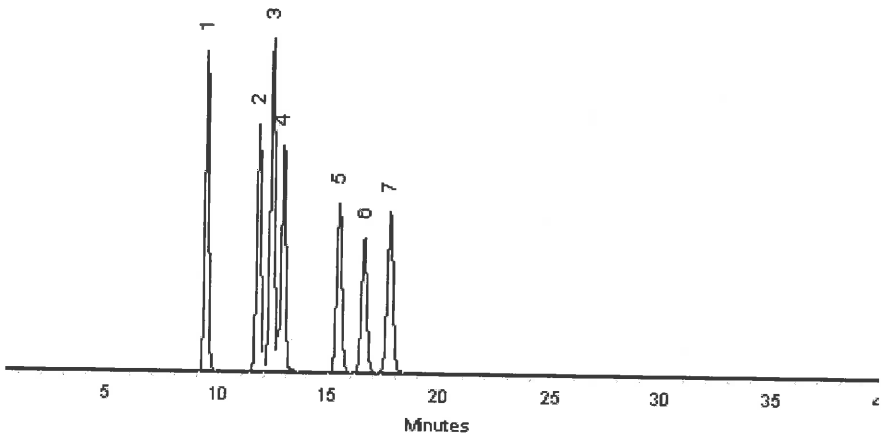
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Matt Fragassi - Mix Technician **Date Mixed:** 23-Aug-2018 **Balance:** B345965662

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 28-Aug-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

8330PAStkPS_00058

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: M-8330-ADD-3
Description: Picric acid
Lot: 216061376-01
Solvent: Acetonitrile (50%)
Methanol (50%)
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Jun 19, 2017
Expiration: Jul 19, 2019
Sample Size: 1 mL
Components: 1

Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

Component	CAS #	Purity % (HPLC)	Prepared Concentration[1] (µg/mL)	Certified Analyte Concentration[2] (µg/mL)
Picric acid	88-89-1	99.1	100.1	99.2

Superseded

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

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

[2] Certified Analyte Concentration = Purity x Prepared Concentration.

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

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

See reverse side for additional information

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 4/17

Reagent

8330SurrStkSS_00134

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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. : 31453 **Lot No.:** A0124792

Description : 8330 Surrogate Mix

8330 Surrogate Std 1, 2-Dinitrobenzene 1000µg/mL, Methanol, 1mL/ampul

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

Expiration Date : February 28, 2022 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,2-Dinitrobenzene	1,006.0 µg/mL	+/- 5.9753	µg/mL	Gravimetric
	CAS # 528-29-0 (Lot MKBW2921V)		+/- 56.4187	µg/mL	Unstressed
	Purity 99%		+/- 57.7382	µg/mL	Stressed

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

Reagent

8330SurrStkSS_00135

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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. : 31453 **Lot No.:** A0124792

Description : 8330 Surrogate Mix

8330 Surrogate Std 1, 2-Dinitrobenzene 1000µg/mL, Methanol, 1mL/ampul

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

Expiration Date : February 28, 2022 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,2-Dinitrobenzene	1,006.0 µg/mL	+/- 5.9753	µg/mL	Gravimetric
	CAS # 528-29-0 (Lot MKBW2921V)		+/- 56.4187	µg/mL	Unstressed
	Purity 99%		+/- 57.7382	µg/mL	Stressed

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

Reagent

8330SurrStkSS_00143

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Certificate #3222.01

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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. : 31453 **Lot No.:** A0135839

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,2-Dinitrobenzene	1,000.0 µg/mL	+/- 5.9397	µg/mL	Gravimetric
	CAS # 528-29-0 (Lot MKBW2921V)		+/- 56.0822	µg/mL	Unstressed
	Purity 99%		+/- 57.3938	µg/mL	Stressed

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

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

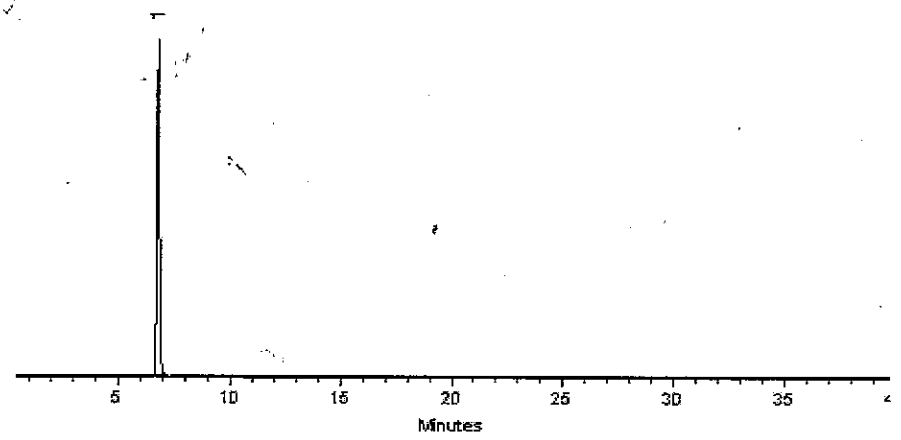
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Dustin J Lidgett

Dustin Lidgett - Mix Technician **Date Mixed:** 05-Mar-2018 **Balance:** 1128360905

Jennifer J Pollino

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 09-Mar-2018

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely

Reagent

8330SurrStkSS_00148

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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. : 31453 **Lot No.:** A0135839

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,2-Dinitrobenzene	1,000.0 µg/mL	+/- 5.9397	µg/mL	Gravimetric
	CAS # 528-29-0 (Lot MKBW2921V)		+/- 56.0822	µg/mL	Unstressed
	Purity 99%		+/- 57.3938	µg/mL	Stressed

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

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

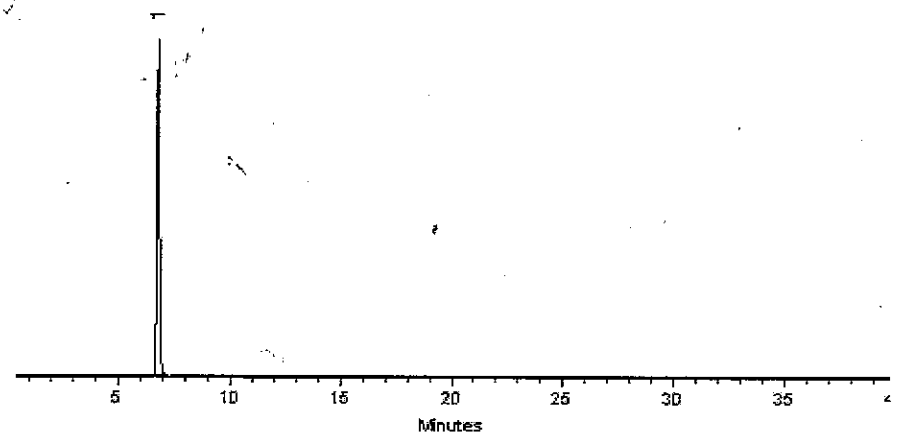
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Dustin J Lidgett
Dustin Lidgett - Mix Technician

Date Mixed: 05-Mar-2018 **Balance:** 1128360905

Jennifer J Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 09-Mar-2018

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely

Reagent

8330SurrStkSS_00152

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110 Benner Circle
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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. : 31453 **Lot No.:** A0139489

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)	
1	1,2-Dinitrobenzene	1,001.0 µg/mL	+/- 5.9456 µg/mL	Gravimetric
	CAS # 528-29-0 (Lot MKBW2921V)		+/- 56.1383 µg/mL	Unstressed
	Purity 99%		+/- 57.4512 µg/mL	Stressed

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

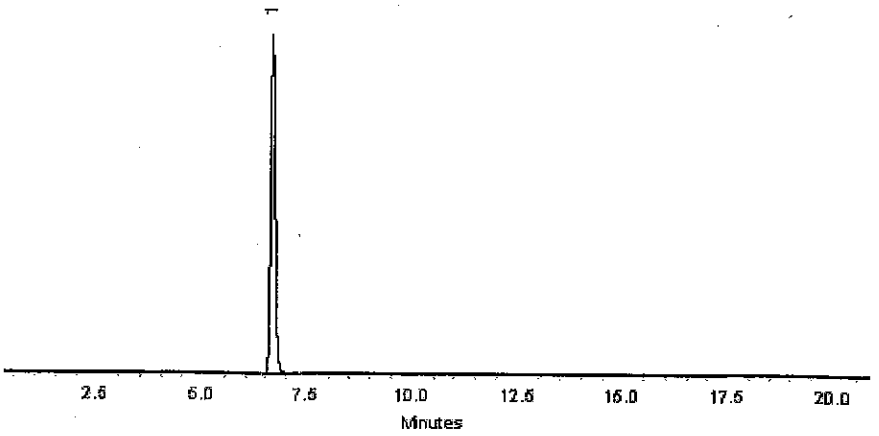
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Joseph Jaglowski - Mix Technician **Date Mixed:** 10-Jul-2018 **Balance:** B707717271

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 17-Jul-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

8330SurrStkSS_00153

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

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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. : 31453 **Lot No.:** A0139489

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)	
1	1,2-Dinitrobenzene	1,001.0 µg/mL	+/- 5.9456 µg/mL	Gravimetric
	CAS # 528-29-0 (Lot MKBW2921V)		+/- 56.1383 µg/mL	Unstressed
	Purity 99%		+/- 57.4512 µg/mL	Stressed

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

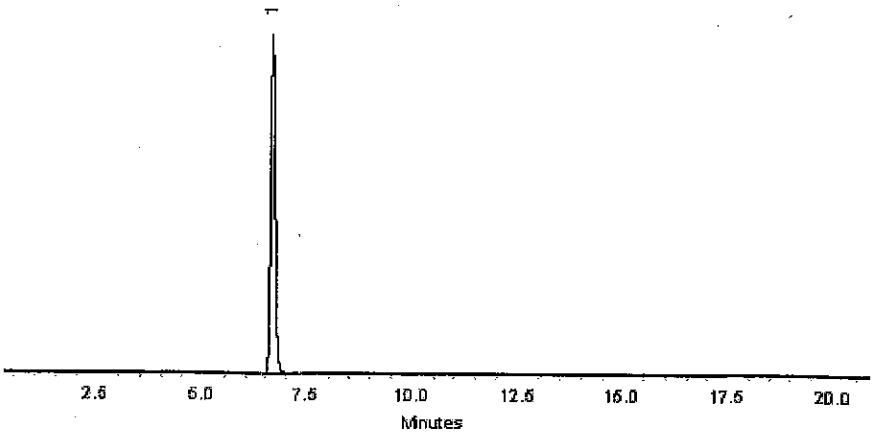
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Joseph Jaglowski - Mix Technician **Date Mixed:** 10-Jul-2018 **Balance:** B707717271

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 17-Jul-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

8330SurrStock_00163

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: M-8330-SS
Description: 1,2-Dinitrobenzene
Lot: 216071012
Solvent: Methanol
Hazards: **HIGHLY FLAMMABLE** - *Refer to SDS for safety info*



Danger 2

Date Certified: Jul 1, 2016
Expiration: Jul 1, 2026
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO Guide 34 Scope of Accreditation: Yes

Component	CAS #	Purity % (GC/FID)	Prepared Concentration[1] (µg/mL)	Certified Analyte Concentration[2] (µg/mL)
1,2-Dinitrobenzene	528-29-0	100.0	100.1	1001

Sample

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

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

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

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

See reverse side for additional information

Certified By: _____
Larry Decker, Organic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

Reagent

ICP CALSTD-2_00002

CPI INTERNATIONAL

5528649
ID: ICP CALSTD-2_00002
Exp: 06/17/19 Prpd: SJS
ICP Cal MIX # 2 CPI SS

CERTIFICATE OF ANALYSIS

Multi-Element Aqueous CRM

Product #: TA-CAL2-SS

ICP ICPMS CAL Mix # 2

Lot #: 982735-2

Matrix: 5% HNO_3

Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty
Al	2000 ± 10 mg/L	Fe	2000 ± 10 mg/L	Mg	2000 ± 10 mg/L
Ca	2000 ± 10 mg/L	K	2001 ± 10 mg/L	Na	2001 ± 10 mg/L

Intended Use: This solution is intended for use as a second source certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO 17034**, and **ISO/IEC 17025**. This CRM was prepared to the certified concentrations shown above by gravimetric methods, using single-element concentrates that were certified using the "High Performance ICP-OES" protocol developed by NIST and are directly traceable to **NIST SRMs (see reverse side)**. The solution was stabilized using high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with each certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

January 17, 2019
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI international for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

This CRM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM
Ag	3151	1077a		Hf	3122	—		S	3154	2770
Al	3101a	1075a		Hg	3133	3133		Sb	3102a	3102a
As	3103a	3103a		Ho	3123a	—		Sc	3148a	3148a
Au	3121	—		In	3124a	3124a		Se	3149	3149
B	3107	3107		K	3141a	3141a		Si	3150	1066a
Ba	3104a	1051b		La	3127a	3127a		Sm	3147a	—
Be	3105a	3105a		Li	3129a	3129a		Sn	3161a	1057b
Bi	3106	3106		Lu	3130a	—		SO_4^{-2}	3181	—
Br^-	3184	—		Mg	3131a	3131a		Sr	3153a	3153a
Ca	3109a	3109a		Mn	3132	3132		Ta	3155	—
Cd	3108	1053a		Mo	3134	3134		Tb	3157a	—
Ce	3110	3110		Na	3152a	3152a		Te	3156	—
Cl^-	3182	1818a		Nb	3137	—		Th	3159	—
Co	3113	3113		Nd	3135a	—		Ti	3162a	3162a
Cr	3112a	1078b		Ni	3136	1065b		Tl	3158	3158
Cs	3111a	—		NO_3^-	3185	—		Tm	3160a	—
Cu	3114	1080a		P	3139a	3139a		U	3164	—
Dy	3115a	—		Pb	3128	3128		V	3165	1052b
Er	3116a	—		Pd	3138	—		W	3163	3163
Eu	3117a	—		PO_4^{-3}	3186	—		Y	3167a	3167a
F^-	3183	—		Pr	3142a	—		Yb	3166a	—
Fe	3126a	1079b		Pt	3140	3140		Zn	3168a	3168a
Ga	3119a	—		Rb	3145a	—		Zr	3169	3169
Gd	3118a	—		Re	3143	—				
Ge	3120a	—		Rh	3144	3144				

Reagent

MNX,TNX,DNX_00026

Agilent

Certificate of Analysis
ISO Guide 34

Custom Standard

Product Number: CUS-23984 **Page:** 1 of 1

Lot Number: CS-5628 **Lot Issue Date:** 16-Nov-2018 **Expiration Date:** 31-Dec-2019

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent Technologies ISO 9001 registered quality system. A review of the gravimetric preparation data by our ISO 17025 accredited laboratory serves to verify the concentration of each analyte. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
1,3,5-trinitroso-1,3,5-triazacyclohexane (TNX)		RM12428	100.3 ± 0.5 µg/mL
1-nitro-3,5-dinitroso-1,3,5-triazacyclohexane		RM12428	100.1 ± 0.5 µg/mL
1-nitroso-3,5-dinitro-1,3,5-triazacyclohexane		RM12428	116.7 ± 0.6 µg/mL

Matrix: acetonitrile

Storage: Store at Room Temperature (15° to 30°C).

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Managment System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

ORG ver 1.1

Reagent

MNX,TNX,DNX_00027

Agilent

Certificate of Analysis
ISO Guide 34

Custom Standard

Product Number: CUS-23984 **Page:** 1 of 1

Lot Number: CS-5628 **Lot Issue Date:** 16-Nov-2018 **Expiration Date:** 31-Dec-2019

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Matrix: acetonitrile

Storage: Store at Room Temperature (15° to 30°C).

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Managment System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

ORG ver 1.1

Reagent

MNX,TNX,DNX_00036

Agilent

Certificate of Analysis
ISO Guide 34

Custom Standard

Product Number: CUS-23984 **Page:** 1 of 1

Lot Number: CS-5628 **Lot Issue Date:** 16-Nov-2018 **Expiration Date:** 31-Dec-2019

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Monica Bourgeois
QMS Representative

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Managment System

ANAB ACCREDITED TESTING LABORATORY
ISO17025 Cert No. AT-1937

250 Smith Street North Kingstown, Rhode Island 02852 www.ultrasci.com

Reagent

MS CALSTD-1_00132

Standard Verification Form

Standard Information			
Vendor Standard Name	ICP ICPMS CAL Mix 1		
Vendor	CPI		
Lot number	982731-1		
Initial Verification	☑	Re-Verification	☐

TALS "Reagent" Information	
TALS Standard ID MS CAL STD 1	5364523
COA Reviewed against what is in TALS	☑

Verification Information and Data			
Verified by	LMV	Instrument ID	078
Verification Date	12/26/18	Method Reference	6020
ID of Standard Used for Verification	5495405	Batch # / Chrom Work List #	442617

Attach to this form: formulary report , COA and data used for verification
Attach to standard in TALS: this form and all supporting documentation including the original CoA

See Acceptance Criteria Below:			
Approved for Use	☑	Not Approved for Use	☐

New expiration date can be no greater than ½ the designated standards shelf life from the date of re-verification. Standards can only be re-verified one time.

New Expiration Date:	4/10/20

1st Level Review LMV Date: 1/10/19

2nd Level Review DG Date: 1/22/19

QA Review (Re-verification only)		Date:

Acceptance Criteria		
Department	**Standard Analytes**	**Poor Performers* and Esterified Analytes**
GC/HPLC	≤ 15 %D	≤ 35 %D or ≤ 50 %D for dinoseb
GCMS/LCMS	≤ 35 %D	≤ 55 %D
MSVOA	≤ 25 %D	≤ 55 %D
Metals	≤ 8 %D	NA
Wet Chemistry	≤ 5 %D	NA

*See analytical SOP for details on poor performing analytes.

CPI INTERNATIONAL

5364523
ID: MS CALSTD-1_00132
Exp:04/10/20 Prpd:LMT Opn:12/26/18
ICP-MS Cal Std 1 CPI new

CERTIFICATE OF ANALYSIS

Multi-Element Aqueous CRM

Product #: TA-CAL1

ICP ICPMS CAL Mix # 1

Lot #: 982731-1

Matrix: 5% HNO_3/tr. HF

Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty
As	100.0 ± 0.5 mg/L	Li	100.0 ± 0.5 mg/L ✓	Si	1000 ± 5 mg/L
Ba	100.0 ± 0.5 mg/L	Mn	100.0 ± 0.5 mg/L	Sn	100.0 ± 0.5 mg/L
Be	100.0 ± 0.5 mg/L ✓	Mo	100.0 ± 0.5 mg/L	Sr	100.0 ± 0.5 mg/L
Cd	100.0 ± 0.5 mg/L	Ni	100.0 ± 0.5 mg/L	Ti	100.0 ± 0.5 mg/L
Co	100.0 ± 0.5 mg/L	Pb	100.0 ± 0.5 mg/L	Tl	100.0 ± 0.5 mg/L
Cr	100.0 ± 0.5 mg/L	Sb	100.0 ± 0.5 mg/L	V	100.0 ± 0.5 mg/L
Cu	100.0 ± 0.5 mg/L	Se	100.0 ± 0.5 mg/L		

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO 17034**, and **ISO/IEC 17025**. This CRM was prepared to the certified concentrations shown above by gravimetric methods, using single-element concentrates that were certified using the "High Performance ICP-OES" protocol developed by NIST and are directly traceable to **NIST SRMs (see reverse side)**. The solution was stabilized using high purity nitric acid (HNO_3), trace hydrofluoric acid (HF) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with each certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

October 15, 2018
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

This CRM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM	Analyte	Aq. SRM	MO SRM	Analyte	Aq. SRM	MO SRM
Ag	3151	1077a	Hf	3122	—	S	3154	2770
Al	3101a	1075a	Hg	3133	3133	Sb	3102a	3102a
As	3103a	3103a	Ho	3123a	—	Sc	3148a	3148a
Au	3121	—	In	3124a	3124a	Se	3149	3149
B	3107	3107	K	3141a	3141a	Si	3150	1066a
Ba	3104a	1051b	La	3127a	3127a	Sm	3147a	—
Be	3105a	3105a	Li	3129a	3129a	Sn	3161a	1057b
Bi	3106	3106	Lu	3130a	—	SO_4^{-2}	3181	—
Br	3184	—	Mg	3131a	3131a	Sr	3153a	3153a
Ca	3109a	3109a	Mn	3132	3132	Ta	3155	—
Cd	3108	1053a	Mo	3134	3134	Tb	3157a	—
Ce	3110	3110	Na	3152a	3152a	Te	3156	—
Cl	3182	1818a	Nb	3137	—	Th	3159	—
Co	3113	3113	Nd	3135a	—	Ti	3162a	3162a
Cr	3112a	1078b	Ni	3136	1065b	Tl	3158	3158
Cs	3111a	—	NO_3^-	3185	—	Tm	3160a	—
Cu	3114	1080a	P	3139a	3139a	U	3164	—
Dy	3115a	—	Pb	3128	3128	V	3165	1052b
Er	3116a	—	Pd	3138	—	W	3163	3163
Eu	3117a	—	PO_4^{-3}	3186	—	Y	3167a	3167a
F	3183	—	Pr	3142a	—	Yb	3166a	—
Fe	3126a	1079b	Pt	3140	3140	Zn	3168a	3168a
Ga	3119a	—	Rb	3145a	—	Zr	3169	3169
Gd	3118a	—	Re	3143	—			
Ge	3120a	—	Rh	3144	3144			

Sample Report

Sample Table

Sample Name	cal1
Data File Name	177SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\122618.b
Acq Date Time	2018-12-26T21:08:53-07:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	164CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

254

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	3656.659	ppb	3656.659	0.97	178199631	40000	
Be	9	1	6	4104.053	ppb	4104.053	2.27	2518534	2000	
B	11	1	6	1.443	ppb	1.443	4.96	2157	100	
Na	23	2	45	-25.683	ppb	-25.683	-3.93	11114	400000	
Mg	24	2	45	11.194	ppb	11.194	5.15	1677	400000	
Al	27	2	45	2.536	ppb	2.536	94.42	140	400000	
K	39	2	45	-9.489	ppb	-9.489	-46.57	10160	400000	
Ca	44	2	45	19667.739	ppb	19667.739	0.99	49593	400000	
V	51	2	72	3850.769	ppb	3850.769	1.06	3549417	2000	
Cr	52	2	72	3947.393	ppb	3947.393	2.04	5055126	5000	
Mn	55	2	72	3973.583	ppb	3973.583	5.01	1778426	10000	
Fe	57	2	72	1.993	ppb	1.993	108.99	557	400000	
Co	59	2	72	4006.204	ppb	4006.204	1.12	8550236	2000	
Ni	60	2	72	3991.592	ppb	3991.592	2.74	2407006	5000	
Cu	63	2	72	3956.112	ppb	3956.112	1.44	6450613	5000	
Zn	66	2	72	1.671	ppb	1.671	60.92	660	5000	
As	75	2	72	3781.400	ppb	3781.400	1.01	403912	2000	
Se	78	1	72	3858.347	ppb	3858.347	2.18	984849	2000	
Sr	88	2	45	3810.250	ppb	3810.250	0.68	1300429	2000	
Zr	90	2	72	102.619	ppb	102.619	11.55	1013	1000	
Zr	90	1	72	89.059	ppb	89.059	6.20	8217	1000	
Nb	93	2	72	6.334	ppb	6.334	5.73	14663	200	
Mo	95	2	115	4101.023	ppb	4101.023	4.33	2627054	2000	
Pd	105	2	115	0.170	ppb	0.170	29.69	180	100	
Ag	107	2	115	0.038	ppb	0.038	56.18	117	100	
Cd	111	2	115	3904.623	ppb	3904.623	2.56	1123583	2000	
Sn	120	2	115	4152.508	ppb	4152.508	3.13	2889403	2000	
Sb	121	2	115	3857.277	ppb	3857.277	3.57	2118745	1000	
Ba	137	2	115	3955.072	ppb	3955.072	1.60	660045	5000	
W	182	2	165	0.176	ppb	0.176	26.98	4411	100	
Pt	195	2	165	0.012	ppb	0.012	73.88	57	100	
Tl	205	2	165	3768.212	ppb	3768.212	2.99	18233940	2000	
Pb	208	2	165	3883.063	ppb	3883.063	1.80	25197106	5000	
Th	232	2	165	0.179	ppb	0.179	26.01	1390	2000	
U	238	2	165	0.034	ppb	0.034	21.98	417	2000	

103
← CA
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QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	2277422	1.61	2264630	100.56	60	125	
Sc (IS)	45	2	HMI He	757188	1.10	770564	98.26	60	125	
Sc IS)	45	3	No Gas	61785173	2.25	62537764	98.80	60	120	
Ge Internal Standard	72	1	HMI H2	9382082	2.59	9691882	96.80	60	125	
Ge Internal Standard	72	2	HMI He	728700	0.48	743556	98.00	60	125	
In Internal standard	115	2	HMI He	2024639	2.69	2135768	94.80	60	125	
Ho-165	165	2	HMI He	9887949	3.02	10135539	97.56	60	125	

Sample Report

Sample Table

Sample Name	.5 cal1
Data File Name	176SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\122618.b
Acq Date Time	2018-12-26T21:05:34-07:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	164CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

50

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	1927.607	ppb	1927.607	1.91	98157988	40000	
Be	9	1	6	2162.993	ppb	2162.993	0.78	1299482	2000	
B	11	1	6	2.351	ppb	2.351	4.25	2844	100	
Na	23	2	45	1.780	ppb	1.780	105.22	19130	400000	
Mg	24	2	45	10.108	ppb	10.108	9.80	1560	400000	
Al	27	2	45	10.303	ppb	10.303	43.10	340	400000	
K	39	2	45	1.654	ppb	1.654	265.64	10800	400000	
Ca	44	2	45	10262.338	ppb	10262.338	2.78	26183	400000	
V	51	2	72	1926.097	ppb	1926.097	1.87	1801873	2000	
Cr	52	2	72	1984.423	ppb	1984.423	1.99	2577377	5000	
Mn	55	2	72	1967.446	ppb	1967.446	0.14	893162	10000	
Fe	57	2	72	10.043	ppb	10.043	27.74	757	400000	
Co	59	2	72	1997.099	ppb	1997.099	1.47	4322680	2000	
Ni	60	2	72	1943.056	ppb	1943.056	1.84	1188332	5000	
Cu	63	2	72	2037.175	ppb	2037.175	2.28	3369610	5000	
Zn	66	2	72	1.060	ppb	1.060	61.25	547	5000	
As	75	2	72	1901.973	ppb	1901.973	0.16	206065	2000	
Se	78	1	72	1951.779	ppb	1951.779	3.65	512950	2000	
Sr	88	2	45	1913.794	ppb	1913.794	1.32	660590	2000	
Zr	90	2	72	70.916	ppb	70.916	17.67	723	1000	
Zr	90	1	72	62.326	ppb	62.326	9.16	6958	1000	
Nb	93	2	72	18.706	ppb	18.706	2.67	40649	200	
Mo	95	2	115	1995.992	ppb	1995.992	0.83	1282919	2000	
Pd	105	2	115	0.113	ppb	0.113	22.29	120	100	
Ag	107	2	115	0.050	ppb	0.050	21.12	143	100	
Cd	111	2	115	2008.362	ppb	2008.362	1.01	579689	2000	
Sn	120	2	115	2029.472	ppb	2029.472	1.84	1416369	2000	
Sb	121	2	115	1935.049	ppb	1935.049	0.21	1066124	1000	
Ba	137	2	115	2024.602	ppb	2024.602	2.05	338820	5000	
W	182	2	165	0.025	ppb	0.025	325.32	4011	100	
Pt	195	2	165	0.042	ppb	0.042	32.38	130	100	
Tl	205	2	165	1937.107	ppb	1937.107	3.49	9432943	2000	
Pb	208	2	165	1989.796	ppb	1989.796	4.29	12990802	5000	
Th	232	2	165	0.362	ppb	0.362	11.34	2594	2000	
U	238	2	165	0.156	ppb	0.156	6.94	1380	2000	

96.3

95.6

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	2229335	1.63	2264630	98.44	60	125	
Sc (IS)	45	2	HMI He	765674	0.83	770564	99.37	60	125	
Sc IS)	45	3	No Gas	60082696	0.95	62537764	96.07	60	120	
Ge Internal Standard	72	1	HMI H2	9660685	2.04	9691882	99.68	60	125	
Ge Internal Standard	72	2	HMI He	739034	0.62	743556	99.39	60	125	
In Internal standard	115	2	HMI He	2029970	0.90	2135768	95.05	60	125	
Ho-165	165	2	HMI He	9948227	1.43	10135539	98.15	60	125	

Reagent

MS ICSA STOCK_00034

CPI INTERNATIONAL

CERTIFICATE OF ANALYSIS

Multi-Element Aqueous CRM

Product #: TA-ICPMS-ICSA

ICPMS ICSA Mix

Lot #: 992328-1

Matrix: 2% HNO_3

Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty
Al	1000 ± 5 mg/L	Fe	1000 ± 5 mg/L	Na	999.9 ± 5.0 mg/L
C	1999 ± 10.0 mg/L	K	1000 ± 5 mg/L	P	1000 ± 5 mg/L
Ca	1000 ± 5 mg/L	Mg	1000 ± 5 mg/L	S	1000 ± 5 mg/L
Cl	9999 ± 50.0 mg/L	Mo	20.01 ± 0.10 mg/L	Ti	19.99 ± 0.10 mg/L

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO 17034**, and **ISO/IEC 17025**. This CRM was prepared to the certified concentrations shown above by gravimetric methods, using single-element concentrates that were certified using the "High Performance ICP-OES" protocol developed by NIST and are directly traceable to **NIST SRMs (see reverse side)**. The solution was stabilized using high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with each certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

May 8, 2019

Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard
Santa Rosa, CA 95403
P: 707.525.5788
P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P
1013BG Amsterdam
The Netherlands
P: +31 20 638 05 97
F: +31 20 420 28 36

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

This CRM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM
Ag	3151	1077a		Hf	3122	—		S	3154	2770
Al	3101a	1075a		Hg	3133	3133		Sb	3102a	3102a
As	3103a	3103a		Ho	3123a	—		Sc	3148a	3148a
Au	3121	—		In	3124a	3124a		Se	3149	3149
B	3107	3107		K	3141a	3141a		Si	3150	1066a
Ba	3104a	1051b		La	3127a	3127a		Sm	3147a	—
Be	3105a	3105a		Li	3129a	3129a		Sn	3161a	1057b
Bi	3106	3106		Lu	3130a	—		SO_4^{-2}	3181	—
Br	3184	—		Mg	3131a	3131a		Sr	3153a	3153a
Ca	3109a	3109a		Mn	3132	3132		Ta	3155	—
Cd	3108	1053a		Mo	3134	3134		Tb	3157a	—
Ce	3110	3110		Na	3152a	3152a		Te	3156	—
Cl	3182	1818a		Nb	3137	—		Th	3159	—
Co	3113	3113		Nd	3135a	—		Ti	3162a	3162a
Cr	3112a	1078b		Ni	3136	1065b		Tl	3158	3158
Cs	3111a	—		NO_3^-	3185	—		Tm	3160a	—
Cu	3114	1080a		P	3139a	3139a		U	3164	—
Dy	3115a	—		Pb	3128	3128		V	3165	1052b
Er	3116a	—		Pd	3138	—		W	3163	3163
Eu	3117a	—		PO_4^{-3}	3186	—		Y	3167a	3167a
F	3183	—		Pr	3142a	—		Yb	3168a	—
Fe	3126a	1079b		Pt	3140	3140		Zn	3168a	3168a
Ga	3119a	—		Rb	3145a	—		Zr	3169	3169
Gd	3118a	—		Re	3143	—				
Ge	3120a	—		Rh	3144	3144				

Reagent

MS ICVMIX--4_00001

Standard Verification Form

Standard Information			
Vendor Standard Name	ECP ICPMS CAL 4 Solution A		
Vendor	CPI		
Lot number	10098633-10		
Initial Verification	☑	Re-Verification	☐

TALS "Reagent" Information	
TALS Standard ID MS ICVM x4	5499604
COA Reviewed against what is in TALS	☑

Verification Information and Data			
Verified by	LMT	Instrument ID	077
Verification Date	1/2/19, 1/3/19, 1/11/19	Method Reference	6020
ID of Standard Used for Verification	5500268, 5501313, 5499805	Batch # / Chrom Work List #	443117, 443253, 444142

Attach to this form: formulary report , COA and data used for verification
Attach to standard in TALS: this form and all supporting documentation including the original CoA

See Acceptance Criteria Below:

Approved for Use	☐	Not Approved for Use	☐

New expiration date can be no greater than ½ the designated standards shelf life from the date of re-verification. Standards can only be re-verified one time.

New Expiration Date:	1/15/20

1st Level Review: LMT Date: 1/15/19

2nd Level Review: DG Date: 1/22/19

QA Review (Re-verification only)	NA	Date: NA

Acceptance Criteria		
Department	**Standard Analytes**	**Poor Performers* and Esterified Analytes**
GC/HPLC	≤ 15 %D	≤ 35 %D or ≤ 50 %D for dinoseb
GCMS/LCMS	≤ 35 %D	≤ 55 %D
MSVOA	≤ 25 %D	≤ 55 %D
Metals	≤ 8 %D	NA
Wet Chemistry	≤ 5 %D	NA

*See analytical SOP for details on poor performing analytes.

CPI INTERNATIONAL

5499604
ID: MS ICVMIX-4_00001
Exp:05/15/20 Prpd:LMT Opn:11/15/18
ICP-MS ICV Std 4 CPI new

CERTIFICATE OF ANALYSIS

Multi-Element Aqueous CRM

Product #: TA-CM-OCT18-DEN9-A-SS

Custom ICP ICPMS Cal 4 Solution A

Lot #: 10088633-10

Matrix: 5% HNO_3

Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty
Ag	100.0 ± 0.5 µg/mL	Nd	100.0 ± 0.5 µg/mL	Th	100.1 ± 0.5 µg/mL
Dy	100.0 ± 0.5 µg/mL	Pd	100.0 ± 0.5 µg/mL	Zn	100.0 ± 0.5 µg/mL
Gd	100.1 ± 0.5 µg/mL	Sm	100.0 ± 0.5 µg/mL		
Li	100.1 ± 0.5 µg/mL	Sr	100.0 ± 0.5 µg/mL		

Intended Use: This solution is intended for use as a second source certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO 17034**, and **ISO/IEC 17025**. This CRM was prepared to the certified concentrations shown above by gravimetric methods, using single-element concentrates that were certified using the "High Performance ICP-OES" protocol developed by NIST and are directly traceable to **NIST SRMs (see reverse side)**. The solution was stabilized using high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with each certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

November 21, 2018
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

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    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

This CRM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM
Ag	3151	1077a		Hf	3122	—		S	3154	2770
Al	3101a	1075a		Hg	3133	3133		Sb	3102a	3102a
As	3103a	3103a		Ho	3123a	—		Sc	3148a	3148a
Au	3121	—		In	3124a	3124a		Se	3149	3149
B	3107	3107		K	3141a	3141a		Si	3150	1066a
Ba	3104a	1051b		La	3127a	3127a		Sm	3147a	—
Be	3105a	3105a		Li	3129a	3129a		Sn	3161a	1057b
Bi	3106	3106		Lu	3130a	—		SO_4^{-2}	3181	—
Br^-	3184	—		Mg	3131a	3131a		Sr	3153a	3153a
Ca	3109a	3109a		Mn	3132	3132		Ta	3155	—
Cd	3108	1053a		Mo	3134	3134		Tb	3157a	—
Ce	3110	3110		Na	3152a	3152a		Te	3156	—
Cl^-	3182	1818a		Nb	3137	—		Th	3159	—
Co	3113	3113		Nd	3135a	—		Ti	3162a	3162a
Cr	3112a	1078b		Ni	3136	1065b		Tl	3158	3158
Cs	3111a	—		NO_3^-	3185	—		Tm	3160a	—
Cu	3114	1080a		P	3139a	3139a		U	3164	—
Dy	3115a	—		Pb	3128	3128		V	3165	1052b
Er	3116a	—		Pd	3138	—		W	3163	3163
Eu	3117a	—		PO_4^{-3}	3186	—		Y	3167a	3167a
F^-	3183	—		Pr	3142a	—		Yb	3166a	—
Fe	3126a	1079b		Pt	3140	3140		Zn	3168a	3168a
Ga	3119a	—		Rb	3145a	—		Zr	3169	3169
Gd	3118a	—		Re	3143	—				
Ge	3120a	—		Rh	3144	3144				

Sample Report

Sample Table

Sample Name	0.5 cal 4
Data File Name	079SMPL.d
Data Path Name	D:\MassHunter Data\I010319.b
Acq Date Time	2019-01-03T15:53:12-07:00
Analyst	Trudell, Lynn-Anne
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	045CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	1	45	2235.052	ppb	2235.052	0.74	1206191	500000	
Li	7	2	45	1988.199	ppb	1988.199	4.16	43678	500000	
Li	7	3	45	1935.877	ppb	1935.877	1.40	66978526	50000	
Be	9	1	6	-0.013	ppb	-0.013	-194.39	7	2000	
B	11	1	6	-2.156	ppb	-2.156	-4.81	980	2000	
Na	23	1	45	-2.190	ppb	-2.190	-22.95	257447	2000	
Na	23	2	45	1.558	ppb	1.558	120.56	19000	400000	
Mg	24	2	45	5.800	ppb	5.800	29.64	863	400000	
Al	27	2	45	1.676	ppb	1.676	87.78	183	400000	
K	39	1	45	55.098	ppb	55.098	24.28	11113468	400000	
K	39	2	45	32.649	ppb	32.649	69.35	16140	400000	
Ca	40	1	45	14.395	ppb	14.395	1.30	157444	400000	
Ca	44	2	45	7512.628	ppb	7512.628	3.00	15736	400000	
Ti	47	2	45	0.347	ppb	0.347	86.64	7	4000	
V	51	2	72	0.484	ppb	0.484	13.35	4664	2000	
Cr	52	2	72	-0.047	ppb	-0.047	-85.59	613	5000	
Mn	55	2	72	0.065	ppb	0.065	180.71	130	10000	
Fe	57	2	72	1.669	ppb	1.669	145.13	153	400000	
Co	59	2	72	0.030	ppb	0.030	100.61	97	2000	
Ni	60	2	72	0.017	ppb	0.017	695.51	133	5000	
Cu	63	2	72	0.069	ppb	0.069	81.28	1650	5000	
Zn	66	2	72	1898.208	ppb	1898.208	1.88	368763	5000	
As	75	2	72	47.224	ppb	47.224	1.74	6328	2000	
Se	78	1	72	14.757	ppb	14.757	5.61	3308	2000	
Sr	88	2	72	1832.418	ppb	1832.418	1.46	624785	4000	
Zr	90	2	72	5.054	ppb	5.054	122.78	47	1000	
Nb	93	2	72	1.873	ppb	1.873	10.30	5081	200	
Mo	95	2	115	0.216	ppb	0.216	37.27	187	2000	
Pd	105	2	115	2124.068	ppb	2124.068	1.59	2033658	100	>LDR
Ag	107	2	115	320.338	ppb	320.338	42.18	676624	100	
Cd	111	2	115	0.041	ppb	0.041	101.30	10	2000	
Sn	120	2	115	0.164	ppb	0.164	18.56	197	2000	
Sb	121	2	115	0.183	ppb	0.183	36.72	207	1000	
Ba	137	2	115	0.170	ppb	0.170	54.21	50	5000	
W	182	2	165	0.227	ppb	0.227	13.74	1130	100	
Pt	195	2	165	0.025	ppb	0.025	42.47	87	100	
Tl	205	2	165	0.012	ppb	0.012	93.15	137	2000	
Pb	208	2	165	1.814	ppb	1.814	1.76	13455	5000	
Th	232	2	165	1985.702	ppb	1985.702	0.35	16643854	2000	
U	238	2	165	0.439	ppb	0.439	4.57	4098	2000	

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QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1341204	2.03	1460232	91.85	60	120	
Sc (IS)	45	1	HMI H2	21968819	0.28	23361340	94.04	60	120	
Sc (IS)	45	2	HMI He	609709	2.60	650472	93.73	60	120	
Sc (IS)	45	3	No Gas	58744191	1.43	59100497	99.40	60	120	
Ge Internal Standard	72	1	HMI H2	8439859	1.26	8906732	94.76	60	120	
Ge Internal Standard	72	2	HMI He	699773	2.64	726696	96.30	60	120	
In Internal Standard	115	2	HMI He	1897438	2.19	2021111	93.88	60	120	
Ho-165	165	2	HMI He	9657634	0.71	9971317	96.85	60	120	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	mix icv4
Data File Name	036_ICV.d
Data Path Name	D:\MassHunter Data\i011119.b
Acq Date Time	2019-01-11T12:14:08-07:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	007CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	45	101.040	ppb	2.028	145094	400	25.3	90	110	>+\-10%
Li	7	2	45	64.631	ppb	22.030	4908	400	16.2	90	110	>+\-10%
Li	7	3	45	102.135	ppb	5.522	6714897	400	25.5	90	110	>+\-10%
Be	9	1	6	36.475	ppb	3.259	15455	40	91.2	90	110	
B	11	1	6	0.992	ppb	14.143	673	40	2.5	90	110	>+\-10%
Na	23	1	45	796.792	ppb	1.576	2902103	4000	19.9	90	110	>+\-10%
Na	23	2	45	758.122	ppb	0.050	181885	4000	19.0	90	110	>+\-10%
Mg	24	2	45	785.126	ppb	2.200	75308	4000	19.6	90	110	>+\-10%
Al	27	2	45	803.056	ppb	3.708	20191	4000	20.1	90	110	>+\-10%
K	39	1	45	827.187	ppb	6.648	13275137	4000	20.7	90	110	>+\-10%
K	39	2	45	755.697	ppb	1.944	57848	4000	18.9	90	110	>+\-10%
Ca	40	1	45	797.681	ppb	0.292	3954537	4000	19.9	90	110	>+\-10%
Ca	44	2	45	1019.954	ppb	5.646	2637	4000	25.5	90	110	>+\-10%
Ti	47	2	45	40.374	ppb	20.032	823	40	100.9	90	110	
V	51	2	72	39.383	ppb	2.732	40414	40	98.5	90	110	
Cr	52	2	72	39.033	ppb	4.284	47907	40	97.6	90	110	
Mn	55	2	72	39.281	ppb	3.607	17575	40	98.2	90	110	
Fe	57	2	72	766.275	ppb	3.291	16714	4000	19.2	90	110	>+\-10%
Co	59	2	72	38.441	ppb	1.997	80876	40	96.1	90	110	
Ni	60	2	72	37.733	ppb	1.235	22542	40	94.3	90	110	
Cu	63	2	72	37.908	ppb	2.984	63956	40	94.8	90	110	
Zn	66	2	72	37.521	ppb	3.126	8730	40	93.8	90	110	
As	75	2	72	38.921	ppb	0.703	6273	40	97.3	90	110	
Se	78	1	72	38.237	ppb	0.310	9837	40	95.6	90	110	
Sr	88	2	72	74.761	ppb	0.814	31633	40	186.9	90	110	>+\-10%
Zr	90	2	72	12.166	ppb	67.581	163	40	30.4	90	110	>+\-10%
Nb	93	2	72	34.320	ppb	0.845	88077	80	42.9	90	110	>+\-10%
Mo	95	2	115	38.298	ppb	1.977	27361	40	95.7	90	110	
Pd	105	2	115	39.283	ppb	1.690	43368	40	98.2	90	110	
Ag	107	2	115	37.416	ppb	1.898	92934	40	93.5	90	110	
Cd	111	2	115	35.945	ppb	1.794	10608	40	89.9	90	110	>+\-10%
Sn	120	2	115	38.819	ppb	2.135	29573	40	97.0	90	110	
Sb	121	2	115	39.097	ppb	1.525	27919	40	97.7	90	110	
Ba	137	2	115	35.674	ppb	5.519	8123	40	89.2	90	110	>+\-10%
W	182	2	165	39.423	ppb	1.412	129976	40	98.6	90	110	
Pt	195	2	165	38.027	ppb	0.974	110386	40	95.1	90	110	
Tl	205	2	165	38.875	ppb	1.262	224845	40	97.2	90	110	
Pb	208	2	165	39.281	ppb	0.650	297886	40	98.2	90	110	
Th	232	2	165	39.391	ppb	0.920	345501	40	98.5	90	110	
U	238	2	165	38.466	ppb	1.225	364061	40	96.2	90	110	

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QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	765246	0.50	749074	102.16	60	120	
Sc (IS)	45	1	HMI H2	27061203	1.68	28055669	96.46	60	120	
Sc (IS)	45	2	HMI He	826154	0.84	868713	95.10	60	120	
Sc (IS)	45	3	No Gas	62668627	1.51	63264234	99.06	60	120	
Ge Internal Standard	72	1	HMI H2	10511209	0.94	10773765	97.56	60	120	
Ge Internal Standard	72	2	HMI He	929574	1.02	971069	95.73	60	120	
In Internal Standard	115	2	HMI He	2471344	1.52	2542617	97.20	60	120	
Ho-165	165	2	HMI He	11548876	0.38	11767270	98.14	60	120	

Reagent

MS icvMIX-1_00001

Standard Verification Form

Standard Information			
Vendor Standard Name	ICP-ICPMS CAL MIX #1 (SS)		
Vendor	CPI		
Lot number	982733-1		
Initial Verification	☒	Re-Verification	☐

TALS "Reagent" Information	
TALS Standard ID MSICVMIX 1	5499585
COA Reviewed against what is in TALS	☒

Verification Information and Data			
Verified by	LWR	Instrument ID	077
Verification Date	1/2/19 + 1/3/19	Method Reference	6020
ID of Standard Used for Verification	5500268, 5501313	Batch # / Chrom Work List #	443112, 443253

Attach to this form: formulary report , COA and data used for verification
Attach to standard in TALS: this form and all supporting documentation including the original CoA

See Acceptance Criteria Below:

Approved for Use	☒	Not Approved for Use	☐

New expiration date can be no greater than ½ the designated standards shelf life from the date of re-verification. Standards can only be re-verified one time.

New Expiration Date:	

1st Level Review 1/10/19 Date: LWR

2nd Level Review DG Date: 1/22/19

QA Review (Re-verification only)	MR	Date:

Acceptance Criteria		
Department	**Standard Analytes**	**Poor Performers* and Esterified Analytes**
GC/HPLC	≤ 15 %D	≤ 35 %D or ≤ 50 %D for dinoseb
GCMS/LCMS	≤ 35 %D	≤ 55 %D
MSVOA	≤ 25 %D	≤ 55 %D
Metals	≤ 8 %D	NA
Wet Chemistry	≤ 5 %D	NA

*See analytical SOP for details on poor performing analytes.

CPI INTERNATIONAL

5499585
ID: MS icvMIX-1_00001
Exp:04/15/20 Prpd:LMT Opn:12/31/18
ICP-MS ICV Std 1 CPI new

CERTIFICATE OF ANALYSIS

Multi-Element Aqueous CRM

Product #: TA-CAL1-SS

ICP ICPMS CAL Mix # 1

Lot #: 982733-1

Matrix: 5% HNO_3/tr. HF

Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty	Element	Certified Concentration & Uncertainty
As	100.0 ± 0.5 mg/L	Li	100.0 ± 0.5 mg/L	Si	1000 ± 5 mg/L
Ba	100.0 ± 0.5 mg/L	Mn	100.0 ± 0.5 mg/L	Sn	100.1 ± 0.5 mg/L
Be	100.0 ± 0.5 mg/L	Mo	100.0 ± 0.5 mg/L	Sr	100.0 ± 0.5 mg/L
Cd	100.1 ± 0.5 mg/L	Ni	100.0 ± 0.5 mg/L	Ti	100.1 ± 0.5 mg/L
Co	100.0 ± 0.5 mg/L	Pb	100.0 ± 0.5 mg/L	Tl	100.0 ± 0.5 mg/L
Cr	100.0 ± 0.5 mg/L	Sb	100.0 ± 0.5 mg/L	V	100.0 ± 0.5 mg/L
Cu	100.1 ± 0.5 mg/L	Se	100.0 ± 0.5 mg/L		

Intended Use: This solution is intended for use as a second source certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO 17034**, and **ISO/IEC 17025**. This CRM was prepared to the certified concentrations shown above by gravimetric methods, using single-element concentrates that were certified using the "High Performance ICP-OES" protocol developed by NIST and are directly traceable to **NIST SRMs (see reverse side)**. The solution was stabilized using high purity nitric acid (HNO_3), trace hydrofluoric acid (HF) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with each certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

October 15, 2018
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

This CRM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM
Ag	3151	1077a		Hf	3122	—		S	3154	2770
Al	3101a	1075a		Hg	3133	3133		Sb	3102a	3102a
As	3103a	3103a		Ho	3123a	—		Sc	3148a	3148a
Au	3121	—		In	3124a	3124a		Se	3149	3149
B	3107	3107		K	3141a	3141a		Si	3150	1066a
Ba	3104a	1051b		La	3127a	3127a		Sm	3147a	—
Be	3105a	3105a		Li	3129a	3129a		Sn	3161a	1057b
Bi	3106	3106		Lu	3130a	—		SO_4^{-2}	3181	—
Br	3184	—		Mg	3131a	3131a		Sr	3153a	3153a
Ca	3109a	3109a		Mn	3132	3132		Ta	3155	—
Cd	3108	1053a		Mo	3134	3134		Tb	3157a	—
Ce	3110	3110		Na	3152a	3152a		Te	3156	—
Cl	3182	1818a		Nb	3137	—		Th	3159	—
Co	3113	3113		Nd	3135a	—		Ti	3162a	3162a
Cr	3112a	1078b		Ni	3136	1065b		Tl	3158	3158
Cs	3111a	—		NO_3^-	3185	—		Tm	3160a	—
Cu	3114	1080a		P	3139a	3139a		U	3164	—
Dy	3115a	—		Pb	3128	3128		V	3165	1052b
Er	3116a	—		Pd	3138	—		W	3163	3163
Eu	3117a	—		PO_4^{-3}	3186	—		Y	3167a	3167a
F	3183	—		Pr	3142a	—		Yb	3166a	—
Fe	3126a	1079b		Pt	3140	3140		Zn	3168a	3168a
Ga	3119a	—		Rb	3145a	—		Zr	3169	3169
Gd	3118a	—		Re	3143	—				
Ge	3120a	—		Rh	3144	3144				

Sample Report

Sample Table

Sample Name	1/2 icv1
Data File Name	128SMPL.d
Data Path Name	D:\MassHunter Data\li010219.b
Acq Date Time	2019-01-02T20:13:16-07:00
Analyst	Trudell, Lynn-Anne
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	123CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	1	45	2131.302	ppb	2131.302	0.52	893573	500000	
Li	7	2	45	2190.875	ppb	2190.875	0.73	36893	500000	
Li	7	3	45	2144.899	ppb	2144.899	0.61	55409866	50000	
Be	9	1	6	2181.610	ppb	2181.610	1.68	895435	2000	
B	11	1	6	0.537	ppb	0.537	25.76	467	2000	
Na	23	1	45	40.146	ppb	40.146	2.08	317607	2000	
Na	23	2	45	35.895	ppb	35.895	6.93	22244	400000	
Mg	24	2	45	24.298	ppb	24.298	4.69	2024	400000	
Al	27	2	45	3.653	ppb	3.653	78.66	153	400000	
K	39	1	45	143.486	ppb	143.486	16.77	12138795	400000	
K	39	2	45	39.408	ppb	39.408	35.25	20328	400000	
Ca	40	1	45	20.792	ppb	20.792	1.26	174568	400000	
Ca	44	2	45	7496.627	ppb	7496.627	3.91	13851	400000	
Ti	47	2	45	2081.178	ppb	2081.178	2.78	33844	4000	
V	51	2	72	2103.775	ppb	2103.775	0.61	1479396	2000	
Cr	52	2	72	2142.216	ppb	2142.216	0.75	1997199	5000	
Mn	55	2	72	2100.650	ppb	2100.650	0.53	683461	10000	
Fe	57	2	72	4.103	ppb	4.103	123.67	267	400000	
Co	59	2	72	2154.829	ppb	2154.829	0.33	3441202	2000	
Ni	60	2	72	2141.059	ppb	2141.059	0.45	985280	5000	
Cu	63	2	72	2177.279	ppb	2177.279	1.71	2761027	5000	
Zn	66	2	72	8.271	ppb	8.271	6.24	1794	5000	
As	75	2	72	2062.375	ppb	2062.375	0.26	270663	2000	
Se	78	1	72	2099.682	ppb	2099.682	1.29	442691	2000	
Sr	88	2	72	2010.297	ppb	2010.297	0.56	627849	4000	
Zr	90	2	72	194.763	ppb	194.763	28.66	1053	1000	
Nb	93	2	72	7.246	ppb	7.246	3.18	14875	200	
Mo	95	2	115	2092.001	ppb	2092.001	0.04	1107580	2000	
Pd	105	2	115	0.059	ppb	0.059	70.43	57	100	
Ag	107	2	115	0.012	ppb	0.012	157.41	57	100	
Cd	111	2	115	2031.378	ppb	2031.378	0.13	462568	2000	
Sn	120	2	115	2114.286	ppb	2114.286	0.12	1185309	2000	
Sb	121	2	115	1973.874	ppb	1973.874	0.84	1128911	1000	
Ba	137	2	115	2126.759	ppb	2126.759	1.43	350675	5000	
W	182	2	165	0.229	ppb	0.229	9.83	933	100	
Pt	195	2	165	0.008	ppb	0.008	228.63	57	100	
Tl	205	2	165	2072.703	ppb	2072.703	0.69	9287762	2000	
Pb	208	2	165	2157.692	ppb	2157.692	1.19	12763099	5000	
Th	232	2	165	0.389	ppb	0.389	0.47	2917	2000	
U	238	2	165	0.027	ppb	0.027	5.50	293	2000	

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QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	865332	1.45	940696	91.99	60	120	
Sc (IS)	45	1	HMI H2	18615746	0.90	19547458	95.23	60	120	
Sc (IS)	45	2	HMI He	541142	1.00	565551	95.68	60	120	
Sc (IS)	45	3	No Gas	57007854	0.56	58209461	97.94	60	120	
Ge Internal Standard	72	1	HMI H2	7252257	1.19	7625779	95.10	60	120	
Ge Internal Standard	72	2	HMI He	623330	1.66	643482	96.87	60	120	
In Internal Standard	115	2	HMI He	1653021	1.01	1772604	93.25	60	120	
Ho-165	165	2	HMI He	7947601	1.76	8323784	95.48	60	120	

Sample Report

Sample Table

Sample Name	0.5 cal 1
Data File Name	083SMPL.d
Data Path Name	D:\MassHunter Data\ii010319.b
Acq Date Time	2019-01-03T16:08:15-07:00
Analyst	Trudell, Lynn-Anne
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	045CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	1	45	2295.818	ppb	2295.818	1.75	1232071	500000	
Li	7	2	45	1971.812	ppb	1971.812	2.64	42755	500000	
Li	7	3	45	1919.101	ppb	1919.101	1.00	65608362	50000	
Be	9	1	6	2075.180	ppb	2075.180	2.30	967801	2000	
B	11	1	6	-2.135	ppb	-2.135	-9.81	1007	2000	
Na	23	1	45	-23.273	ppb	-23.273	-2.60	188399	2000	
Na	23	2	45	-18.792	ppb	-18.792	-21.52	14751	400000	
Mg	24	2	45	2.716	ppb	2.716	37.25	590	400000	
Al	27	2	45	-2.073	ppb	-2.073	-137.36	100	400000	
K	39	1	45	45.662	ppb	45.662	9.96	11063136	400000	
K	39	2	45	48.866	ppb	48.866	46.17	16537	400000	
Ca	40	1	45	2.723	ppb	2.723	1.90	105594	400000	
Ca	44	2	45	7367.778	ppb	7367.778	3.96	15222	400000	
Ti	47	2	45	1823.088	ppb	1823.088	0.83	34174	4000	
V	51	2	72	1974.576	ppb	1974.576	0.86	1539982	2000	
Cr	52	2	72	1945.853	ppb	1945.853	0.17	1987045	5000	
Mn	55	2	72	1955.541	ppb	1955.541	0.71	699224	10000	
Fe	57	2	72	2.457	ppb	2.457	63.22	163	400000	
Co	59	2	72	2008.781	ppb	2008.781	0.90	3551515	2000	
Ni	60	2	72	1967.405	ppb	1967.405	1.00	1003576	5000	
Cu	63	2	72	1951.783	ppb	1951.783	0.79	2798080	5000	
Zn	66	2	72	0.706	ppb	0.706	80.36	480	5000	
As	75	2	72	1874.522	ppb	1874.522	0.46	243707	2000	
Se	78	1	72	1923.366	ppb	1923.366	0.71	424960	2000	
Sr	88	2	72	1867.184	ppb	1867.184	0.30	620403	4000	
Zr	90	2	72	165.973	ppb	165.973	17.88	697	1000	
Nb	93	2	72	12.919	ppb	12.919	1.84	29585	200	
Mo	95	2	115	1978.096	ppb	1978.096	1.67	1148225	2000	
Pd	105	2	115	0.591	ppb	0.591	8.95	563	100	
Ag	107	2	115	1.394	ppb	1.394	6.71	2970	100	
Cd	111	2	115	1934.200	ppb	1934.200	0.88	473412	2000	
Sn	120	2	115	1946.106	ppb	1946.106	1.35	1211542	2000	
Sb	121	2	115	1817.314	ppb	1817.314	1.24	1102340	1000	
Ba	137	2	115	1923.614	ppb	1923.614	1.48	349776	5000	
W	182	2	165	0.170	ppb	0.170	11.10	933	100	
Pt	195	2	165	0.008	ppb	0.008	111.52	37	100	
Tl	205	2	165	1971.565	ppb	1971.565	1.17	10286219	2000	
Pb	208	2	165	2020.165	ppb	2020.165	0.47	13893654	5000	
Th	232	2	165	6.843	ppb	6.843	3.31	60301	2000	
U	238	2	165	0.008	ppb	0.008	39.68	163	2000	

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QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1361493	1.40	1460232	93.24	60	120	
Sc (IS)	45	1	HMI H2	21922628	1.52	23361340	93.84	60	120	
Sc (IS)	45	2	HMI He	601201	1.64	650472	92.43	60	120	
Sc (IS)	45	3	No Gas	57965567	0.56	59100497	98.08	60	120	
Ge Internal Standard	72	1	HMI H2	8368218	1.63	8906732	93.95	60	120	
Ge Internal Standard	72	2	HMI He	681884	2.05	726696	93.83	60	120	
In Internal Standard	115	2	HMI He	1879428	2.71	2021111	92.99	60	120	
Ho-165	165	2	HMI He	9489083	1.49	9971317	95.16	60	120	

Sample Report

Sample Table

Sample Name	cal 1
Data File Name	085SMPL.d
Data Path Name	D:\MassHunter Data\li010319.b
Acq Date Time	2019-01-03T16:15:46-07:00
Analyst	Trudell, Lynn-Anne
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	045CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	1	45	4523.704	ppb	4523.704	2.53	2210410	500000	
Li	7	2	45	3872.972	ppb	3872.972	0.19	77041	500000	
Li	7	3	45	3910.811	ppb	3910.811	0.94	121990722	50000	
Be	9	1	6	4470.593	ppb	4470.593	2.72	1957205	2000	
B	11	1	6	-2.081	ppb	-2.081	-4.83	977	2000	
Na	23	1	45	-22.814	ppb	-22.814	-4.59	184110	2000	
Na	23	2	45	-20.412	ppb	-20.412	-15.53	14274	400000	
Mg	24	2	45	7.162	ppb	7.162	3.67	957	400000	
Al	27	2	45	-0.321	ppb	-0.321	-331.32	137	400000	
K	39	1	45	13.199	ppb	13.199	238.86	10636370	400000	
K	39	2	45	76.322	ppb	76.322	27.65	17401	400000	
Ca	40	1	45	-1.282	ppb	-1.282	-7.19	85233	400000	
Ca	44	2	45	14541.255	ppb	14541.255	1.11	29661	400000	
Ti	47	2	45	3564.588	ppb	3564.588	2.04	66054	4000	
V	51	2	72	3974.955	ppb	3974.955	0.43	3018385	2000	
Cr	52	2	72	3816.843	ppb	3816.843	1.69	3798923	5000	
Mn	55	2	72	4081.935	ppb	4081.935	1.42	1422985	10000	
Fe	57	2	72	0.608	ppb	0.608	262.57	127	400000	
Co	59	2	72	3896.835	ppb	3896.835	1.08	6717539	2000	
Ni	60	2	72	3943.981	ppb	3943.981	1.12	1961473	5000	
Cu	63	2	72	3789.718	ppb	3789.718	1.46	5294789	5000	
Zn	66	2	72	0.636	ppb	0.636	62.97	457	5000	
As	75	2	72	3783.675	ppb	3783.675	0.59	479546	2000	
Se	78	1	72	3857.391	ppb	3857.391	1.59	829435	2000	
Sr	88	2	72	3760.189	ppb	3760.189	1.10	1218067	4000	
Zr	90	2	72	140.259	ppb	140.259	25.33	580	1000	
Nb	93	2	72	5.164	ppb	5.164	4.28	11976	200	
Mo	95	2	115	4068.248	ppb	4068.248	1.80	2279603	2000	
Pd	105	2	115	0.284	ppb	0.284	7.85	263	100	
Ag	107	2	115	0.850	ppb	0.850	12.87	1770	100	
Cd	111	2	115	3929.482	ppb	3929.482	1.77	928310	2000	
Sn	120	2	115	4031.035	ppb	4031.035	1.10	2422317	2000	
Sb	121	2	115	3795.231	ppb	3795.231	1.75	2222125	1000	
Ba	137	2	115	3856.448	ppb	3856.448	2.34	676896	5000	
W	182	2	165	0.341	ppb	0.341	9.30	1454	100	
Pt	195	2	165	0.000	ppb	0.000	638.43	17	100	
Tl	205	2	165	3888.170	ppb	3888.170	1.49	20175915	2000	
Pb	208	2	165	3928.308	ppb	3928.308	1.51	26867073	5000	
Th	232	2	165	1.111	ppb	1.111	5.17	13047	2000	
U	238	2	165	0.013	ppb	0.013	108.46	210	2000	

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QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1278779	1.92	1460232	87.57	60	120	
Sc (IS)	45	1	HMI H2	21255401	0.75	23361340	90.99	60	120	
Sc (IS)	45	2	HMI He	594445	1.89	650472	91.39	60	120	
Sc (IS)	45	3	No Gas	57135856	0.80	59100497	96.68	60	120	
Ge Internal Standard	72	1	HMI H2	8144118	0.44	8906732	91.44	60	120	
Ge Internal Standard	72	2	HMI He	664819	1.87	726696	91.49	60	120	
In Internal Standard	115	2	HMI He	1813792	0.34	2021111	89.74	60	120	
Ho-165	165	2	HMI He	9438284	2.23	9971317	94.65	60	120	

Reagent

MS LLCCV_00002

CPI INTERNATIONAL

CERTIFICATE OF ANALYSIS

Multi-Element Aqueous RM

Product #: TA-CM-OCT18-DEN8-250

ICP-MS low level CCV

Lot #: 10088633-11

Matrix: 2% HNO_3/tr. HF

Element	Certified Concentration	Element	Certified Concentration	Element	Certified Concentration
Ag	0.5 µg/mL	Fe	5.0 µg/mL	Sn	1.0 µg/mL
Al	5.0 µg/mL	K	10.0 µg/mL	Sr	0.1 µg/mL
As	0.5 µg/mL	Li	1.0 µg/mL	Th	0.2 µg/mL
B	0.1 µg/mL	Mg	5.0 µg/mL	Ti	0.1 µg/mL
Ba	0.1 µg/mL	Mn	0.1 µg/mL	Tl	0.1 µg/mL
Be	0.1 µg/mL	Mo	0.2 µg/mL	U	0.1 µg/mL
Ca	5.0 µg/mL	Na	5.0 µg/mL	V	0.5 µg/mL
Cd	0.1 µg/mL	Ni	0.15 µg/mL	W	0.5 µg/mL
Co	0.1 µg/mL	Pb	0.1 µg/mL	Zn	1.0 µg/mL
Cr	0.2 µg/mL	Sb	0.2 µg/mL		
Cu	0.2 µg/mL	Se	0.5 µg/mL		

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO 17034**, and **ISO/IEC 17025**. This RM was prepared to the certified concentrations shown above by gravimetric methods using single-element concentrates, and was stabilized using high purity nitric acid (HNO_3), trace hydrofluoric acid (HF) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

April 18, 2019
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

This RM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM
Ag	3151	1077a		Hf	3122	—		S	3154	2770
Al	3101a	1075a		Hg	3133	3133		Sb	3102a	3102a
As	3103a	3103a		Ho	3123a	—		Sc	3148a	3148a
Au	3121	—		In	3124a	3124a		Se	3149	3149
B	3107	3107		K	3141a	3141a		Si	3150	1066a
Ba	3104a	1051b		La	3127a	3127a		Sm	3147a	—
Be	3105a	3105a		Li	3129a	3129a		Sn	3161a	1057b
Bi	3106	3106		Lu	3130a	—		SO_4^{-2}	3181	—
Br	3184	—		Mg	3131a	3131a		Sr	3153a	3153a
Ca	3109a	3109a		Mn	3132	3132		Ta	3155	—
Cd	3108	1053a		Mo	3134	3134		Tb	3157a	—
Ce	3110	3110		Na	3152a	3152a		Te	3156	—
Cl	3182	1818a		Nb	3137	—		Th	3159	—
Co	3113	3113		Nd	3135a	—		Ti	3162a	3162a
Cr	3112a	1078b		Ni	3136	1065b		Tl	3158	3158
Cs	3111a	—		NO_3^-	3185	—		Tm	3160a	—
Cu	3114	1080a		P	3139a	3139a		U	3164	—
Dy	3115a	—		Pb	3128	3128		V	3165	1052b
Er	3116a	—		Pd	3138	—		W	3163	3163
Eu	3117a	—		PO_4^{-3}	3186	—		Y	3167a	3167a
F	3183	—		Pr	3142a	—		Yb	3166a	—
Fe	3126a	1079b		Pt	3140	3140		Zn	3168a	3168a
Ga	3119a	—		Rb	3145a	—		Zr	3169	3169
Gd	3118a	—		Re	3143	—				
Ge	3120a	—		Rh	3144	3144				

Reagent

MV-568720.sec_00025

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 568720.SEC **Lot No.:** A0145767

Description : 8260 List 1/Std #5 Acrolein High

8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul

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

Expiration Date : August 31, 2019 **Storage:** 0°C or colder

Handling: This product is photosensitive.

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Acrolein	19,759.0 µg/mL	+/- 115.6933 µg/mL	Gravimetric
	CAS # 107-02-8.SEC (Lot X19C007)		+/- 633.5357 µg/mL	Unstressed
	Purity 99%		+/- 736.4159 µg/mL	Stressed

Solvent: Water
CAS # 7732-18-5
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

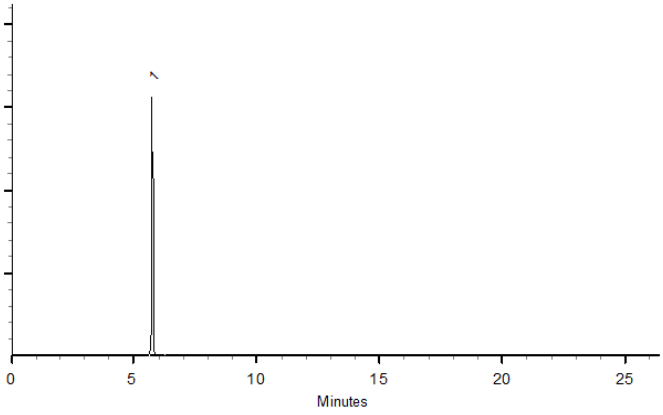
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°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.

Brandon Reish - Mix Technician

Date Mixed: 06-Feb-2019 **Balance:** 1128342314

Justine Albertson - Operations Tech-ARM QC

Date Passed: 11-Feb-2019

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

MV-569721.sec_00005

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 569721 **Lot No.:** A0123890

Description : 8260 List 1/ Std #2 Ketones (2015)

8260 List 1/ Std #2 Ketones (2015) 12,500 µg/ml, P&T Methanol/Water (90:10), 1 ml/ampul

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

Expiration Date : January 31, 2020 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Acetone	12,517.5 µg/mL	+/- 72.7778 µg/mL	Gravimetric
	CAS # 67-64-1 (Lot SHBH0922V)		+/- 755.2362 µg/mL	Unstressed
	Purity 99%		+/- 757.0293 µg/mL	Stressed
2	2-Butanone (MEK)	12,521.8 µg/mL	+/- 72.8025 µg/mL	Gravimetric
	CAS # 78-93-3 (Lot SHBF2461V)		+/- 755.4927 µg/mL	Unstressed
	Purity 99%		+/- 757.2863 µg/mL	Stressed
3	4-Methyl-2-pentanone (MIBK)	12,519.8 µg/mL	+/- 72.7909 µg/mL	Gravimetric
	CAS # 108-10-1 (Lot SHBG3630V)		+/- 755.3720 µg/mL	Unstressed
	Purity 99%		+/- 757.1654 µg/mL	Stressed
4	2-Hexanone	12,508.5 µg/mL	+/- 72.7255 µg/mL	Gravimetric
	CAS # 591-78-6 (Lot MKBW0198V)		+/- 754.6932 µg/mL	Unstressed
	Purity 99%		+/- 756.4850 µg/mL	Stressed

Solvent: P&T Methanol/Water (90:10)
CAS # 67-56-1/7732-18-5
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

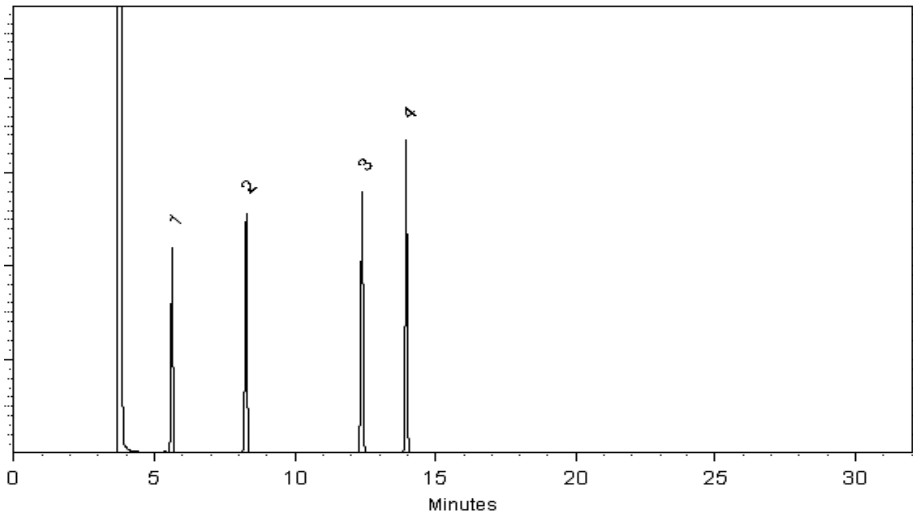
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°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.

F. Joseph Tallon - Mix Technician

Date Mixed: 03-Jan-2017 **Balance:** B251644995

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 05-Jan-2017

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

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

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

Manufacturing Notes:

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

Handling Notes:

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

Reagent

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Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 569721 **Lot No.:** A0131486

Description : 8260 List 1/ Std #2 Ketones (2015)

8260 List 1/ Std #2 Ketones (2015) 12,500µg/mL, P&T Methanol/Water (90:10), 1mL/ampul

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

Expiration Date : October 31, 2020 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Acetone		12,466.0 µg/mL	+/- 72.9912 µg/mL	Gravimetric
	CAS # 67-64-1	(Lot SHBG8398V)		+/- 752.1786 µg/mL	Unstressed
	Purity 99%			+/- 753.9642 µg/mL	Stressed
2	2-Butanone (MEK)		12,475.5 µg/mL	+/- 73.0468 µg/mL	Gravimetric
	CAS # 78-93-3	(Lot SHBF2461V)		+/- 752.7518 µg/mL	Unstressed
	Purity 99%			+/- 754.5387 µg/mL	Stressed
3	4-Methyl-2-pentanone (MIBK)		12,539.0 µg/mL	+/- 73.4186 µg/mL	Gravimetric
	CAS # 108-10-1	(Lot SHBG7318V)		+/- 756.5833 µg/mL	Unstressed
	Purity 99%			+/- 758.3793 µg/mL	Stressed
4	2-Hexanone		12,496.0 µg/mL	+/- 73.1668 µg/mL	Gravimetric
	CAS # 591-78-6	(Lot MKBW0198V)		+/- 753.9888 µg/mL	Unstressed
	Purity 99%			+/- 755.7786 µg/mL	Stressed

Solvent: P&T Methanol/Water (90:10)
CAS # 67-56-1/7732-18-5
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

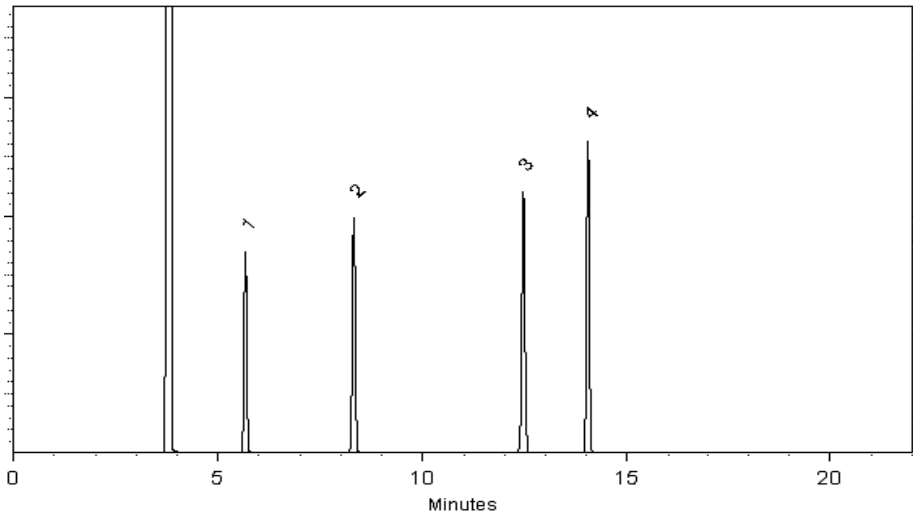
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°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.

Cydnei L. Crust - Mix Technician

Date Mixed: 09-Oct-2017 **Balance:** B707717271

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 11-Oct-2017

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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

Reagent

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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. : 569722.SEC **Lot No.:** A0142594

Description : 8260 List 1 / Std #3 Gases (2015)

8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul

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

Expiration Date : October 31, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Dichlorodifluoromethane (CFC-12)	2,499.3 µg/mL	+/- 25.7724 µg/mL	Gravimetric
	CAS # 75-71-8.SEC (Lot 24847)		+/- 141.7384 µg/mL	Unstressed
	Purity 99%		+/- 144.9810 µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,506.0 µg/mL	+/- 21.8612 µg/mL	Gravimetric
	CAS # 74-87-3.SEC (Lot 18343)		+/- 141.4482 µg/mL	Unstressed
	Purity 99%		+/- 144.7145 µg/mL	Stressed
3	Vinyl chloride	2,505.4 µg/mL	+/- 25.4396 µg/mL	Gravimetric
	CAS # 75-01-4.SEC (Lot MKBK6872V)		+/- 142.0168 µg/mL	Unstressed
	Purity 99%		+/- 145.2689 µg/mL	Stressed
4	1,3-Butadiene	2,500.1 µg/mL	+/- 22.0034 µg/mL	Gravimetric
	CAS # 106-99-0.SEC (Lot 22331)		+/- 141.1491 µg/mL	Unstressed
	Purity 99%		+/- 144.4071 µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,511.9 µg/mL	+/- 23.0453 µg/mL	Gravimetric
	CAS # 74-83-9.SEC (Lot Q119-46)		+/- 141.9646 µg/mL	Unstressed
	Purity 99%		+/- 145.2346 µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,498.5 µg/mL	+/- 23.5866 µg/mL	Gravimetric
	CAS # 75-00-3.SEC (Lot 00004202)		+/- 141.3133 µg/mL	Unstressed
	Purity 99%		+/- 144.5633 µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,450.0 µg/mL	+/- 14.3780 µg/mL	Gravimetric
	CAS # 75-43-4 * (Lot 7766400)		+/- 137.3830 µg/mL	Unstressed
	Purity 97%		+/- 140.5969 µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)		2,502.5 µg/mL	+/-	22.2947	µg/mL	Gravimetric
	CAS # 75-69-4.SEC	(Lot 253600)		+/-	141.3276	µg/mL	Unstressed
	Purity 99%			+/-	144.5877	µg/mL	Stressed

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

*** Restek is unable to identify a reliable and/or acceptable second source for this material - the same batch of neat material may have been used to produce both the primary and secondary standard. The primary and secondary standards were prepared using different equipment and personnel.**

Tech Tips:
Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

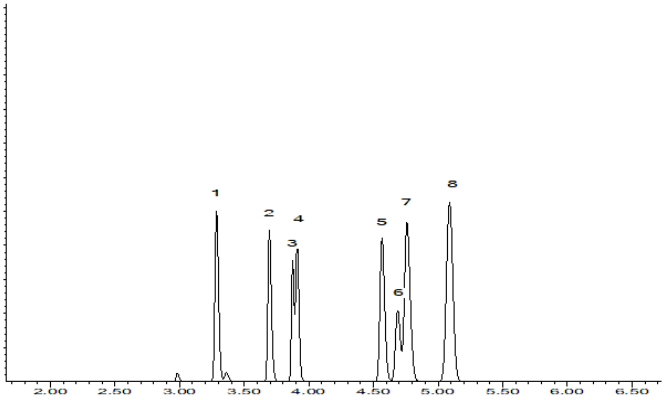
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



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

Brandon Reish - Mix Technician

Date Mixed: 24-Oct-2018 **Balance:** 1127510105

Justine Albertson - Operations Tech-ARM QC

Date Passed: 05-Nov-2018

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

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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. : 569722 **Lot No.:** A0143158

Description : 8260 List 1 / Std #3 Gases (2015)

8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul

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

Expiration Date : November 30, 2021 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Dichlorodifluoromethane (CFC-12)	2,500.9 µg/mL	+/- 17.2023 µg/mL		Gravimetric
	CAS # 75-71-8 (Lot 00012554)		+/- 140.5234 µg/mL		Unstressed
	Purity 99%		+/- 143.7976 µg/mL		Stressed
2	Chloromethane (methyl chloride)	2,500.4 µg/mL	+/- 17.0791 µg/mL		Gravimetric
	CAS # 74-87-3 (Lot SHBJ6334)		+/- 140.4796 µg/mL		Unstressed
	Purity 99%		+/- 143.7534 µg/mL		Stressed
3	Vinyl chloride	2,500.4 µg/mL	+/- 16.5693 µg/mL		Gravimetric
	CAS # 75-01-4 (Lot 00012557)		+/- 140.4224 µg/mL		Unstressed
	Purity 99%		+/- 143.6977 µg/mL		Stressed
4	1,3-Butadiene	2,500.1 µg/mL	+/- 17.0785 µg/mL		Gravimetric
	CAS # 106-99-0 (Lot SHBK2299)		+/- 140.4623 µg/mL		Unstressed
	Purity 99%		+/- 143.7357 µg/mL		Stressed
5	Bromomethane (methyl bromide)	2,500.9 µg/mL	+/- 16.5511 µg/mL		Gravimetric
	CAS # 74-83-9 (Lot 101604)		+/- 140.4457 µg/mL		Unstressed
	Purity 99%		+/- 143.7217 µg/mL		Stressed
6	Chloroethane (ethyl chloride)	2,502.0 µg/mL	+/- 16.0409 µg/mL		Gravimetric
	CAS # 75-00-3 (Lot 107-401039114-1)		+/- 140.4480 µg/mL		Unstressed
	Purity 99%		+/- 143.7268 µg/mL		Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/- 14.5352 µg/mL		Gravimetric
	CAS # 75-43-4 (Lot 7766400)		+/- 140.1725 µg/mL		Unstressed
	Purity 99%		+/- 143.4524 µg/mL		Stressed

8	Trichlorofluoromethane (CFC-11)		2,500.8	µg/mL	+/-	17.8012	µg/mL	Gravimetric
	CAS # 75-69-4	(Lot SHBH4155V)			+/-	140.5946	µg/mL	Unstressed
	Purity 99%				+/-	143.8670	µg/mL	Stressed

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

Tech Tips:
Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

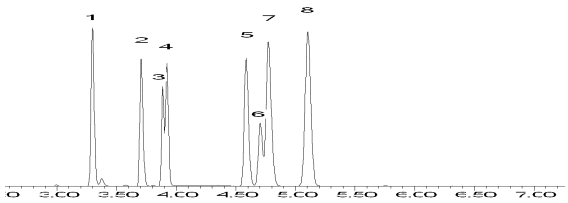
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



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

Joseph Jaglowski - Mix Technician

Date Mixed: 12-Nov-2018 **Balance:** B707717271

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 11-Dec-2018

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

MV-569723.sec_00005

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

Catalog No. : 569723.SEC **Lot No.:** A0143264

Description : 8260 List 1 / Std #4 2-CEVE (2015)

8260 List 1 / Std #4 2-CEVE (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul

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

Expiration Date : November 30, 2021 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	2-Chloroethyl vinyl ether	2,502.8 µg/mL	+/- 14.6878 µg/mL	Gravimetric
	CAS # 110-75-8.SEC (Lot BQZ2K-QD)		+/- 53.6224 µg/mL	Unstressed
	Purity 99%		+/- 55.1792 µg/mL	Stressed

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

Tech Tips:

Degradation of tetrachloroethylene to pentachloroethane may occur if solutions containing 2-chloroethyl vinyl ether are combined with solutions that contain tetrachloroethylene.

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

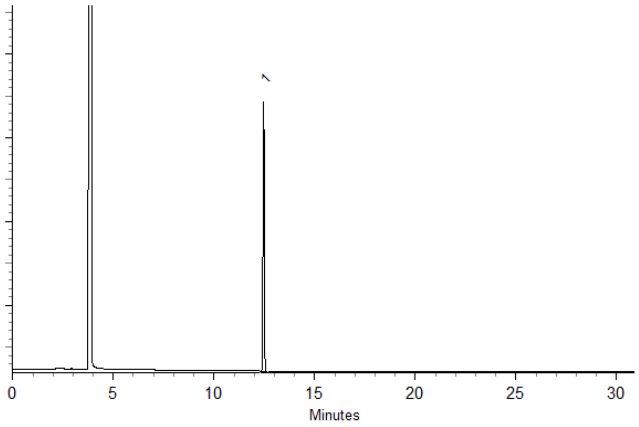
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°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.

Matt Fragassi - Mix Technician

Date Mixed: 14-Nov-2018 **Balance:** 1127510105

Justine Albertson - Operations Tech-ARM QC

Date Passed: 19-Nov-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

MV-569727.sec_00005

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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. : 569727.SEC **Lot No.:** A0131573

Description : 8260 List 2/ Std #3 Cyclohexanone (2015)

8260 List 2/ Std #3 Cyclohexanone (2015) 25,000µg/mL, Water, 1mL/ampul

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

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

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Cyclohexanone	24,978.0 µg/mL	+/- 146.2517 µg/mL	Gravimetric
	CAS # 108-94-1.SEC (Lot ZEHPG)		+/- 1,507.1328 µg/mL	Unstressed
	Purity 99%		+/- 1,510.7105 µg/mL	Stressed

Solvent: Water
CAS # 7732-18-5
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

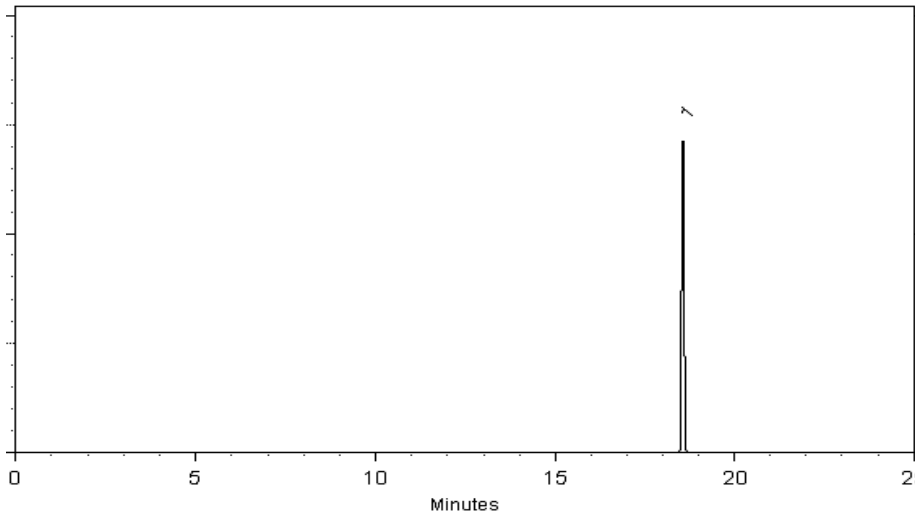
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°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.

Larry J. Moore - Mix Technician

Date Mixed: 11-Oct-2017 **Balance:** 1128353505

Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 13-Oct-2017

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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

Reagent

MV-571992_00002

Reagent

mv-8260 IS/SS_00001

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Certificate #3222.01

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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. : 570812 **Lot No.:** A0131478

Description : 8260 IS/Surrogate Mix (2016)

8260 IS/Surrogate Mix (2016) 250-5,000µg/mL, P&T Methanol, 5mL/ampul

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

Expiration Date : October 31, 2022 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	tert-Butyl-d9-alcohol **CAS #** 25725-11-5 **Purity** 98%	(Lot CD-107)	5,017.3 µg/mL	+/- 29.1695 µg/mL +/- 107.4207 µg/mL +/- 110.5436 µg/mL		Gravimetric Unstressed Stressed
2	Dibromofluoromethane **CAS #** 1868-53-7 **Purity** 99.8%	(Lot 0012017)	249.0 µg/mL	+/- 1.4511 µg/mL +/- 5.3320 µg/mL +/- 5.4870 µg/mL		Gravimetric Unstressed Stressed
3	1,2-Dichloroethane-d4 **CAS #** 17060-07-0 **Purity** 99%	(Lot PR-26748)	249.6 µg/mL	+/- 1.4545 µg/mL +/- 5.3449 µg/mL +/- 5.5002 µg/mL		Gravimetric Unstressed Stressed
4	1,4-Dioxane-d8 **CAS #** 17647-74-4 **Purity** 99%	(Lot I-19942)	4,979.2 µg/mL	+/- 28.9478 µg/mL +/- 106.6041 µg/mL +/- 109.7033 µg/mL		Gravimetric Unstressed Stressed
5	Fluorobenzene **CAS #** 462-06-6 **Purity** 99%	(Lot BCBK8171V)	250.0 µg/mL	+/- 1.4567 µg/mL +/- 5.3527 µg/mL +/- 5.5083 µg/mL		Gravimetric Unstressed Stressed
6	Toluene-d8 **CAS #** 2037-26-5 **Purity** 99%	(Lot PR-26623)	249.2 µg/mL	+/- 1.4522 µg/mL +/- 5.3363 µg/mL +/- 5.4914 µg/mL		Gravimetric Unstressed Stressed
7	Chlorobenzene-d5 **CAS #** 3114-55-4 **Purity** 99%	(Lot PR-23926)	249.6 µg/mL	+/- 1.4545 µg/mL +/- 5.3449 µg/mL +/- 5.5002 µg/mL		Gravimetric Unstressed Stressed

8	1-Bromo-4-fluorobenzene (BFB)		248.5	µg/mL	+/-	1.4481	µg/mL	Gravimetric
	CAS # 460-00-4	(Lot 20401KOV)			+/-	5.3213	µg/mL	Unstressed
	Purity 99%				+/-	5.4760	µg/mL	Stressed
9	1,4-Dichlorobenzene-d4		249.5	µg/mL	+/-	1.4540	µg/mL	Gravimetric
	CAS # 3855-82-1	(Lot PR-18488)			+/-	5.3427	µg/mL	Unstressed
	Purity 99%				+/-	5.4980	µg/mL	Stressed

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

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

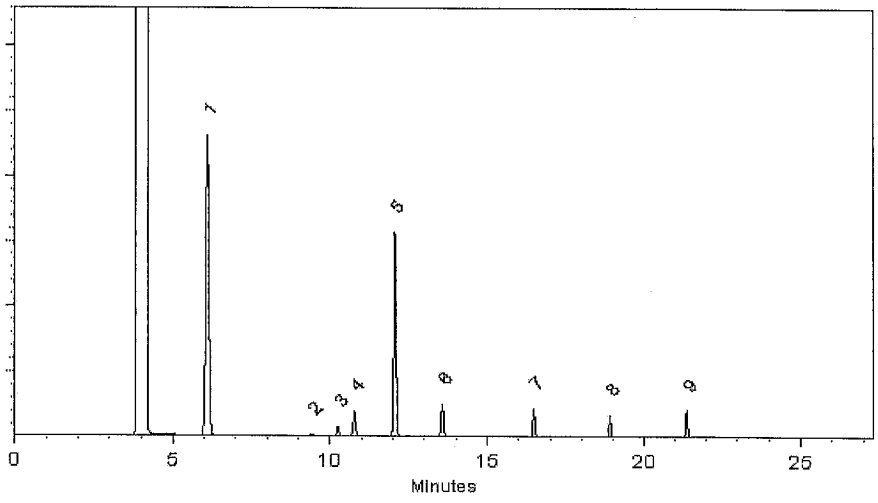
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°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.

Cydnei L. Crust
Cydnei L. Crust - Mix Technician

Date Mixed: 09-Oct-2017 **Balance:** B707717271

Jennifer Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 24-Oct-2017

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

General Certified Reference Material Notes

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

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

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

Manufacturing Notes:

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

Handling Notes:

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

Reagent

MV-CUS17739.s_00005

Certificate of Analysis
ISO Guide 34

Custom Standard

Product Number: CUS-17739 **Page:** 1 of 1

Lot Number: CS-4706 **Lot Issue Date:** 24-Sep-2018 **Expiration Date:** 31-Oct-2020

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent Technologies ISO 9001 registered quality system. A review of the gravimetric preparation data by our ISO 17025 accredited laboratory serves to verify the concentration of each analyte. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
1-chlorohexane	000544-10-5	RM12893	1005 ± 5 µg/mL
2-pentanone	000107-87-9	RM03775	4016 ± 20 µg/mL
sec-butanol	000078-92-2	RM01299	30132 ± 151 µg/mL

Matrix: methanol (purge & trap grade)

Storage: Store Frozen (-25° to -10°C).

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Managment System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

ver 1.1

250 Smith Street North Kingstown, Rhode Island 02852 www.ultrasci.com

Reagent

MV-STS110N1_00066

Certificate of Analysis

4-Bromofluorobenzene Solution

Product Number: STS-110N **Page:** 1 of 1

Lot Number: CH-3248Z **Lot Issue Date:** 31-Aug-2016 **Expiration Date:** 31-Oct-2019

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
4-bromofluorobenzene	000460-00-4	RM03365	2005 ± 10 µg/mL

Matrix: methanol (methyl alcohol)

Storage: Store Frozen (-25° to -10°C).

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Vincent Wang, Ph.D.
Director of QA/RA

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Reagent

pH 7.0 Buffer_00257

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ilac-MRA ACCREDITED
Chemical Testing
Cert#2495.02

SPEXertificate ®

Certificate of Reference Material

Catalog Number: PH-BUFF7-500 **Lot No.:** 1-53MJX
Description: Buffer Standard
Matrix: H2O

This certified material is intended primarily for use as a calibration standard or quality control standard for instrumentation employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value:

Analyte	Certified (pH units at 25°C)	Uncertainty (pH units)	NIST SRM
pH	7.00	± 0.03	185i, 186g, 191d

Refer to side 2 for certification details

Balances are calibrated regularly with weight sets traceable to NIST 32856, 32867. This CRM is guaranteed stable to ± 0.03 pH units on the certified value for a period of one year from the date of certification. This includes components of uncertainty associated with measurement, homogeneity, short and long term stability. This guarantee is valid only when the material is unopened and stored under laboratory conditions.

Date of Certification: APR -- 2019 Certifying Officer: Katherine Cullinan

Katherine Cullinan, QC Manager

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Report of Certification

This Certified Reference Material (CRM) has been prepared and certified under an ISO 9001 (certified by DQS), ISO 17025 (accredited by A2LA) and ISO 17034 (accredited by A2LA) quality system consistent with the following guides:

- ISO 9001: Quality management systems – Requirements
- ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories
- ISO 17034: General requirements for the competence of reference material producers
- ISO Guide 30: Reference Materials – Selected terms and definitions
- ISO Guide 31: Reference Materials – Contents of certificates and labels
- ISO Guide 35: Reference Materials -- General and principals for certification
- Guide to the Expression of Uncertainty in Measurement, 2008
- EURACHEM/CITAC Guide: Qualifying Uncertainty in Analytical Measurement – Third Edition
- NIST Technical Note 1297

Material Source:

All analytes and matrix materials are obtained and verified by SPEX CertiPrep from pre-qualified vendors as per ISO 9001, ISO 17025, and ISO 17034 guidelines. Vendor identifications are proprietary; however, sources of all materials used in the preparation and testing of SPEX CertiPrep CRMs are tracked and documented. For further assistance, please contact Sales Support at crmsales@spexcsp.com.

Instructions for Use:

Primary usage of this CRM is in neat form or diluted serially with matrix of a purity at or greater than the purity of the original matrix solution. If dilution is required, the diluent must be compatible with all certified analytes and contain stabilizers appropriate for the period of intended use. The CRM can also be used as a spike or with a spike, again with appropriate compatibility considerations. All solutions should be thoroughly mixed, by shaking, prior to use and never pipetted directly from the bottle. Do not return excess solution to the bottle. All surfaces that come in contact with the solution must be thoroughly cleaned and leached prior to use. Dilutions should be performed only with Class A volumetric glassware. See SDS for health and safety information.

Method of Preparation:

Clean laboratory procedures and techniques have been used throughout the preparation. All materials, equipment, analytical instrumentation and personnel have been qualified prior to use. The highest purity acids applicable, 18 megohm, double deionized water, acid-leached triple-rinsed bottles (where appropriate), and Class A/calibrated volumetrics have been used in all preparations.

Homogeneity:

The homogeneity of the CRM has been confirmed by procedures consistent with ISO 17025, ISO 17034, and ASTM D6362-98 Appendix X2. Random, replicate samples of the final, packaged material have been analyzed to prove homogeneity in accordance with our internal procedure 4600-HOMOGEN-1A. Since the product is highly homogeneous, any sample size taken for analysis would be within the uncertainty budget. This is consistent with the intended use of the CRM.

Statistical Estimator and Confidence Limits:

The certified value 'X' listed on the reverse of this document is at the 95% level of confidence and can be expressed as:

- $X = x \pm U$ where X=certified value, U=expanded uncertainty, x=property value
- $U = ku_c$ where k=2 is the coverage factor at the 95% confidence level
- u_c=combined standard uncertainty obtained by combining the individual element standard uncertainty components u_i, and $u_c = \sqrt{\Sigma u_i^2}$

Certification Report:

All certified values reported were derived from the Certification Report, SPEX CertiPrep's traceability documentation, identified by the lot number of this CRM. 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 assistance, please contact Sales Support at crmsales@spexcsp.com.

Legal Notice:

SPEX CertiPrep reference materials are not for any cosmetic, drug or household application and are to be used only by qualified individuals who are trained in appropriate procedures. No claims against SPEX CertiPrep, LLC. of any kind whatsoever, whether based on breach of warranty, alleged negligence, or otherwise, with respect to this Reference Material shall be greater than the purchase price. In no event shall SPEX CertiPrep, LLC. be liable for any loss of profits or any incidental, special, or consequential damages.

Reagent

PicricARestek_00087

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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. : 31499 **Lot No.:** A0148431

Description : Picric Acid Standard

Picric Acid Standard 1000µg/mL, Methanol, 1mL/1000µg/mL *PGI BOX REQUIRED* SHIP FED EX GROUND ONLY

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Picric Acid	1,001.0 µg/mL	+/- 5.9459	µg/mL	Gravimetric
	CAS # 88-89-1 (Lot 06130CU)		+/- 54.8400	µg/mL	Unstressed
	Purity 97%		+/- 63.9488	µg/mL	Stressed

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

Specific Reference Material Notes:
This is a derivatized analysis.

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

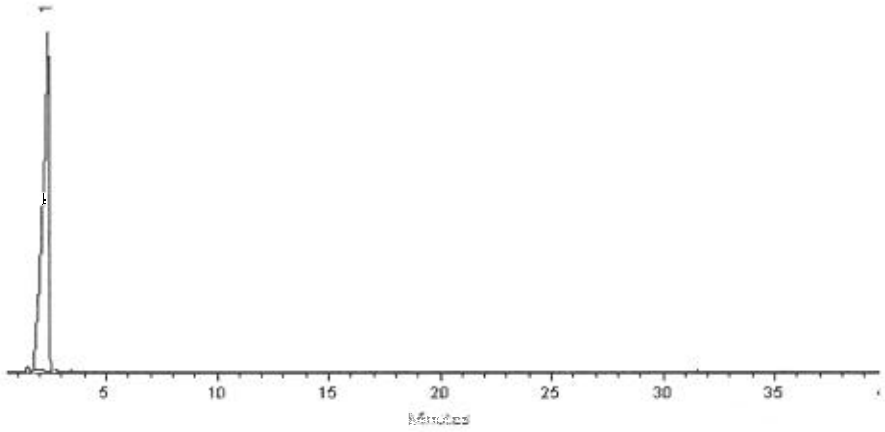
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210 nm



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.

Dustin J Lidgett

Dustin Lidgett - Mix Technician **Date Mixed:** 22-Apr-2019 **Balance:** 1127510105

Jennifer J Pollino

Jennifer Pollino - Operations Tech-ARM QC **Date Passed:** 25-Apr-2019

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

Reagent

TSS STD_00035

125 Market Street
New Haven, CT 06513
USA

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CERTIFICATE OF ANALYSIS

Wet Chemistry Reference Standard

Catalog No: WC-SOL
Description: Solids
Lot: 217045086-01
Solvent: N/A
Hazards: *Refer to SDS for complete safety information*



Signal Word: Danger

Date Certified: Jun 13, 2018
Expiration: Jul 13, 2020
Sample Size: 1 Unit
Components: 3
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: No

Included on ISO 17034 Scope of Accreditation: No

Component		SRM #	Prepared Concentration (µg/mL)
TS	Total Solids	N/A	2000
TDS	Total Dissolved Solids	N/A	1000
TSS	Total Suspended Solids	N/A	1000

The gravimetric uncertainty for this product is ±0.24%. The CRM uncertainty is ±2.4%.

Vial may contain either solid material or a combination of solid material with liquid. Empty contents of vial into 100 ml volumetric flask. Rinse vial and cap several times and pour into flask. Dilute to volume. Perform analysis according to currently accepted methodology.

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

All glassware used in preparation is Class A and calibrated regularly.

Use only cleaned Class A volumetric glassware. Keep bottle tightly capped.

Certified By: Meigan O'Leary

Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

AccuStandard

Method 8260B

Volatile Organic Compounds (GC/MS) by Method 8260B

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): DB-624 (60. ID: 0.25(mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
SP-S2	280-126873-1	100	104	99	101
SP-E1	280-126873-2	101	107	98	100
SP-S22	280-126873-4	101	109	99	101
TB-1062	280-126873-5	101	108	99	101
	MB 280-467213/8	98	100	99	98
	LCS 280-467213/4	102	100	98	98
	LCSD 280-467213/5	101	97	97	98

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	80-119
DCA = 1,2-Dichloroethane-d4 (Surr)	81-118
TOL = Toluene-d8 (Surr)	89-112
BFB = 4-Bromofluorobenzene (Surr)	85-114

Column to be used to flag recovery values

FORM II 8260B

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low Lab File ID: R7082.D

Lab ID: LCS 280-467213/4 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,1,1-Trichloroethane	25.0	24.4	97	74-131	
1,1,2,2-Tetrachloroethane	25.0	26.1	105	71-121	
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	21.8	87	70-136	
1,1,2-Trichloroethane	25.0	26.9	108	80-119	
1,1-Dichloroethane	25.0	26.0	104	77-125	
1,1-Dichloroethene	25.0	25.4	101	71-131	
1,2,3-Trichlorobenzene	25.0	25.7	103	69-129	
1,2,4-Trichlorobenzene	25.0	26.8	107	69-130	
1,2-Dibromo-3-Chloropropane	25.0	21.3	85	62-128	
1,2-Dichlorobenzene	25.0	25.0	100	80-119	
1,2-Dichloroethane	25.0	24.4	98	73-128	
1,2-Dichloropropane	25.0	25.4	102	78-122	
1,3-Dichlorobenzene	25.0	25.7	103	80-119	
1,4-Dichlorobenzene	25.0	25.1	100	79-118	
2-Butanone (MEK)	100	108	108	56-143	
2-Hexanone	100	98.0	98	57-139	
4-Methyl-2-pentanone (MIBK)	100	113	113	67-130	
Acetone	100	105	105	39-160	
Benzene	25.0	25.8	103	79-120	
Bromochloromethane	25.0	27.0	108	78-123	
Bromodichloromethane	25.0	23.4	94	79-125	
Bromoform	25.0	29.3	117	66-130	
Bromomethane	25.0	31.0	124	53-141	
Carbon disulfide	25.0	22.4	90	64-133	
Carbon tetrachloride	25.0	23.2	93	72-136	
Chlorobenzene	25.0	25.2	101	82-118	
Chloroethane	25.0	29.0	116	60-138	
Chloroform	25.0	26.4	106	79-124	
Chloromethane	25.0	23.7	95	50-139	
cis-1,2-Dichloroethene	25.0	26.3	105	78-123	
cis-1,3-Dichloropropene	25.0	24.2	97	75-124	
Cyclohexane	25.0	21.8	87	71-130	
Dibromochloromethane	25.0	22.9	92	74-126	
Dichlorodifluoromethane	25.0	21.5	86	32-152	
Ethylbenzene	25.0	25.9	103	79-121	
Ethylene Dibromide	25.0	25.2	101	77-121	
Isopropylbenzene	25.0	26.1	104	72-131	
Methyl acetate	50.0	49.2	98	56-136	
Methyl tert-butyl ether	25.0	27.8	111	71-124	
Methylcyclohexane	25.0	22.2	89	72-132	
Methylene Chloride	25.0	24.9	100	74-124	

Column to be used to flag recovery and RPD values

FORM III 8260B

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low Lab File ID: R7082.D

Lab ID: LCS 280-467213/4 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Styrene	25.0	27.3	109	78-123	
Tetrachloroethene	25.0	24.0	96	74-129	
Toluene	25.0	26.1	104	80-121	
trans-1,2-Dichloroethene	25.0	26.8	107	75-124	
trans-1,3-Dichloropropene	25.0	24.1	96	73-127	
Trichloroethene	25.0	25.0	100	79-123	
Trichlorofluoromethane	25.0	25.1	101	65-141	
Vinyl chloride	25.0	21.7	87	58-137	
Xylenes, Total	50.0	51.2	102	79-121	

Column to be used to flag recovery and RPD values

FORM III 8260B

FORM III
GC/MS VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low Lab File ID: R7083.D

Lab ID: LCSD 280-467213/5 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,1,1-Trichloroethane	25.0	22.2	89	9	20	74-131	
1,1,2,2-Tetrachloroethane	25.0	26.2	105	0	20	71-121	
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	22.6	90	4	20	70-136	
1,1,2-Trichloroethane	25.0	26.2	105	3	20	80-119	
1,1-Dichloroethane	25.0	23.9	96	8	20	77-125	
1,1-Dichloroethene	25.0	23.8	95	6	20	71-131	
1,2,3-Trichlorobenzene	25.0	25.9	103	0	20	69-129	
1,2,4-Trichlorobenzene	25.0	26.2	105	2	20	69-130	
1,2-Dibromo-3-Chloropropane	25.0	21.7	87	2	20	62-128	
1,2-Dichlorobenzene	25.0	24.2	97	3	20	80-119	
1,2-Dichloroethane	25.0	23.4	93	4	20	73-128	
1,2-Dichloropropane	25.0	23.7	95	7	20	78-122	
1,3-Dichlorobenzene	25.0	24.5	98	5	20	80-119	
1,4-Dichlorobenzene	25.0	24.3	97	3	20	79-118	
2-Butanone (MEK)	100	107	107	2	20	56-143	
2-Hexanone	100	95.7	96	2	20	57-139	
4-Methyl-2-pentanone (MIBK)	100	111	111	2	20	67-130	
Acetone	100	102	102	3	20	39-160	
Benzene	25.0	23.5	94	9	20	79-120	
Bromochloromethane	25.0	26.3	105	2	20	78-123	
Bromodichloromethane	25.0	22.1	88	6	20	79-125	
Bromoform	25.0	27.9	111	5	20	66-130	
Bromomethane	25.0	28.6	114	8	20	53-141	
Carbon disulfide	25.0	20.2	81	10	20	64-133	
Carbon tetrachloride	25.0	21.4	86	8	20	72-136	
Chlorobenzene	25.0	23.5	94	7	20	82-118	
Chloroethane	25.0	29.8	119	3	20	60-138	
Chloroform	25.0	24.5	98	8	20	79-124	
Chloromethane	25.0	23.6	94	1	20	50-139	
cis-1,2-Dichloroethene	25.0	24.6	98	7	20	78-123	
cis-1,3-Dichloropropene	25.0	22.7	91	7	20	75-124	
Cyclohexane	25.0	22.3	89	2	20	71-130	
Dibromochloromethane	25.0	21.7	87	6	20	74-126	
Dichlorodifluoromethane	25.0	25.8	103	18	20	32-152	
Ethylbenzene	25.0	24.2	97	7	20	79-121	
Ethylene Dibromide	25.0	24.5	98	3	20	77-121	
Isopropylbenzene	25.0	24.4	98	7	20	72-131	
Methyl acetate	50.0	47.7	95	3	20	56-136	
Methyl tert-butyl ether	25.0	26.7	107	4	20	71-124	
Methylcyclohexane	25.0	22.2	89	0	20	72-132	
Methylene Chloride	25.0	23.3	93	7	20	74-124	

Column to be used to flag recovery and RPD values

FORM III 8260B

FORM III
GC/MS VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low Lab File ID: R7083.D

Lab ID: LCSD 280-467213/5 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Styrene	25.0	25.6	102	6	20	78-123	
Tetrachloroethene	25.0	22.0	88	9	20	74-129	
Toluene	25.0	23.9	96	9	20	80-121	
trans-1,2-Dichloroethene	25.0	23.7	95	12	20	75-124	
trans-1,3-Dichloropropene	25.0	22.6	91	6	20	73-127	
Trichloroethene	25.0	22.7	91	10	20	79-123	
Trichlorofluoromethane	25.0	28.6	114	13	20	65-141	
Vinyl chloride	25.0	22.3	89	2	20	58-137	
Xylenes, Total	50.0	47.8	96	7	20	79-121	

Column to be used to flag recovery and RPD values

FORM III 8260B

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab File ID: R7085.D Lab Sample ID: MB 280-467213/8

Matrix: Water Heated Purge:(Y/N) N

Instrument ID: VMS_R1 Date Analyzed: 08/09/2019 22:28

GC Column: DB-624 (60.25) ID: 0.25(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-467213/4	R7082.D	08/09/2019 21:23
	LCSD 280-467213/5	R7083.D	08/09/2019 21:45
SP-S2	280-126873-1	R7087.D	08/09/2019 23:12
SP-E1	280-126873-2	R7088.D	08/09/2019 23:33
SP-S22	280-126873-4	R7089.D	08/09/2019 23:55
TB-1062	280-126873-5	R7090.D	08/10/2019 00:17

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab File ID: R6840.D BFB Injection Date: 08/03/2019

Instrument ID: VMS_R1 BFB Injection Time: 16:12

Analysis Batch No.: 466573

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	20.1	
75	30.0 - 60.0 % of mass 95	51.8	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	7.1	
173	Less than 2.0 % of mass 174	0.3	(0.5) 1
174	50.0 - 120.00 % of mass 95	66.7	
175	5.0 - 9.0 % of mass 174	4.8	(7.3) 1
176	95.0 - 101.0 % of mass 174	63.5	(95.3) 1
177	5.0 - 9.0 % of mass 176	4.2	(6.7) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD 280-466573/12	R6841.D	08/03/2019	16:56
	STD 280-466573/13	R6842.D	08/03/2019	17:17
	STD 280-466573/14	R6843.D	08/03/2019	17:39
	STD 280-466573/15	R6844.D	08/03/2019	18:01
	ICIS 280-466573/16	R6845.D	08/03/2019	18:22
	STD 280-466573/17	R6846.D	08/03/2019	18:44
	STD 280-466573/18	R6847.D	08/03/2019	19:06
	STD 280-466573/19	R6848.D	08/03/2019	19:27
	ICV 280-466573/20	R6850.D	08/03/2019	20:11

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab File ID: R7079.D BFB Injection Date: 08/09/2019

Instrument ID: VMS_R1 BFB Injection Time: 20:13

Analysis Batch No.: 467213

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.7	
75	30.0 - 60.0 % of mass 95	50.9	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.6	
173	Less than 2.0 % of mass 174	0.3	(0.5) 1
174	50.0 - 120.00 % of mass 95	65.0	
175	5.0 - 9.0 % of mass 174	4.3	(6.7) 1
176	95.0 - 101.0 % of mass 174	62.8	(96.7) 1
177	5.0 - 9.0 % of mass 176	4.1	(6.5) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCV 280-467213/2	R7080.D	08/09/2019	20:40
	CCV 280-467213/3	R7081.D	08/09/2019	21:01
	LCS 280-467213/4	R7082.D	08/09/2019	21:23
	LCSD 280-467213/5	R7083.D	08/09/2019	21:45
	MB 280-467213/8	R7085.D	08/09/2019	22:28
SP-S2	280-126873-1	R7087.D	08/09/2019	23:12
SP-E1	280-126873-2	R7088.D	08/09/2019	23:33
SP-S22	280-126873-4	R7089.D	08/09/2019	23:55
TB-1062	280-126873-5	R7090.D	08/10/2019	00:17
	CCVC 280-467213/34	R7108.D	08/10/2019	06:54

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Sample No.: ICIS 280-466573/16 Date Analyzed: 08/03/2019 18:22

Instrument ID: VMS_R1 GC Column: DB-624 (60.25) ID: 0.25(mm)

Lab File ID (Standard): R6845.D Heated Purge: (Y/N) N

Calibration ID: 37619

		TBAd9		FB		CBNZd5	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		3555441	3.27	4467079	5.07	958107	7.60
UPPER LIMIT		7110882	3.77	8934158	5.57	1916214	8.10
LOWER LIMIT		1777721	2.77	2233540	4.57	479054	7.10
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 280-466573/20		4912822	3.27	5349445	5.07	1166168	7.60
CCV 280-467213/2		4409906	3.27	4838297	5.06	1058272	7.60
CCV 280-467213/3		5004680	3.26	5041305	5.07	1122652	7.59
LCS 280-467213/4		5232378	3.26	5137497	5.07	1129729	7.59
LCSD 280-467213/5		5120662	3.26	5325387	5.07	1168254	7.59
MB 280-467213/8		4490421	3.26	4886890	5.07	1060663	7.59
280-126873-1	SP-S2	4240586	3.26	4657320	5.07	1010262	7.59
280-126873-2	SP-E1	4360708	3.26	4657855	5.07	1016607	7.59
280-126873-4	SP-S22	4084236	3.26	4561873	5.07	987459	7.59
280-126873-5	TB-1062	3695121	3.26	4251283	5.07	928832	7.59
CCVC 280-467213/34		4525448	3.27	4697018	5.07	1034903	7.59

TBAd9 = TBA-d9 (IS)
FB = Fluorobenzene
CBNZd5 = Chlorobenzene-d5

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 8260B

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Sample No.: ICIS 280-466573/16 Date Analyzed: 08/03/2019 18:22

Instrument ID: VMS_R1 GC Column: DB-624 (60.25) ID: 0.25(mm)

Lab File ID (Standard): R6845.D Heated Purge: (Y/N) N

Calibration ID: 37619

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		1314785	9.83				
UPPER LIMIT		2629570	10.33				
LOWER LIMIT		657393	9.33				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 280-466573/20		1609009	9.82				
CCV 280-467213/2		1472816	9.82				
CCV 280-467213/3		1519789	9.82				
LCS 280-467213/4		1596631	9.82				
LCSD 280-467213/5		1624238	9.82				
MB 280-467213/8		1464430	9.82				
280-126873-1	SP-S2	1380540	9.82				
280-126873-2	SP-E1	1399421	9.82				
280-126873-4	SP-S22	1341942	9.82				
280-126873-5	TB-1062	1263563	9.82				
CCVC 280-467213/34		1445533	9.82				

DCBd4 = 1,4-Dichlorobenzene-d4

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 8260B

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S2 Lab Sample ID: 280-126873-1

Matrix: Water Lab File ID: R7087.D

Analysis Method: 8260B Date Collected: 07/31/2019 08:45

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 23:12

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
71-55-6	1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16
79-34-5	1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.54	J	3.0	0.40	0.18
79-00-5	1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27
75-34-3	1,1-Dichloroethane	0.80	U	1.0	0.80	0.22
75-35-4	1,1-Dichloroethene	0.80	U	1.0	0.80	0.23
87-61-6	1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21
120-82-1	1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21
96-12-8	1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47
95-50-1	1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15
107-06-2	1,2-Dichloroethane	0.14	J	1.0	0.40	0.13
78-87-5	1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18
541-73-1	1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13
106-46-7	1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16
78-93-3	2-Butanone (MEK)	4.0	U	6.0	4.0	2.0
591-78-6	2-Hexanone	4.0	U	5.0	4.0	1.7
108-10-1	4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98
67-64-1	Acetone	6.4	U	10	6.4	1.9
71-43-2	Benzene	0.40	U	1.0	0.40	0.16
74-97-5	Bromochloromethane	0.20	U	1.0	0.20	0.10
75-27-4	Bromodichloromethane	0.40	U	1.0	0.40	0.17
75-25-2	Bromoform	1.0	U	1.0	1.0	0.46
74-83-9	Bromomethane	0.80	U	2.0	0.80	0.21
75-15-0	Carbon disulfide	0.80	U M	2.0	0.80	0.17
56-23-5	Carbon tetrachloride	0.40	U	2.0	0.40	0.19
108-90-7	Chlorobenzene	0.40	U	1.0	0.40	0.17
75-00-3	Chloroethane	1.6	U	2.0	1.6	0.41
67-66-3	Chloroform	0.40	U	1.0	0.40	0.16
74-87-3	Chloromethane	0.80	U	2.0	0.80	0.30
156-59-2	cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-01-5	cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16
110-82-7	Cyclohexane	0.80	U	2.0	0.80	0.28
124-48-1	Dibromochloromethane	0.40	U	1.0	0.40	0.17
75-71-8	Dichlorodifluoromethane	0.80	U M	2.0	0.80	0.31
100-41-4	Ethylbenzene	0.40	U	1.0	0.40	0.16

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S2 Lab Sample ID: 280-126873-1

Matrix: Water Lab File ID: R7087.D

Analysis Method: 8260B Date Collected: 07/31/2019 08:45

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 23:12

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
106-93-4	Ethylene Dibromide	0.40	U	1.0	0.40	0.18
98-82-8	Isopropylbenzene	0.40	U	1.0	0.40	0.19
79-20-9	Methyl acetate	4.0	U	5.0	4.0	1.6
1634-04-4	Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25
108-87-2	Methylcyclohexane	0.40	U	2.0	0.40	0.10
75-09-2	Methylene Chloride	2.0	U	5.0	2.0	0.94
100-42-5	Styrene	0.80	U	1.0	0.80	0.36
127-18-4	Tetrachloroethene	0.40	U	1.0	0.40	0.20
108-88-3	Toluene	0.40	U	1.0	0.40	0.17
156-60-5	trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-02-6	trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19
79-01-6	Trichloroethene	0.40	U	1.0	0.40	0.16
75-69-4	Trichlorofluoromethane	0.80	U	2.0	0.80	0.29
75-01-4	Vinyl chloride	0.20	U	1.5	0.20	0.10
1330-20-7	Xylenes, Total	0.80	U	1.0	0.80	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	104		81-118
460-00-4	4-Bromofluorobenzene (Surr)	101		85-114
1868-53-7	Dibromofluoromethane (Surr)	100		80-119
2037-26-5	Toluene-d8 (Surr)	99		89-112

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7087.D
Lims ID: 280-126873-D-1
Client ID: SP-S2
Sample Type: Client
Inject. Date: 09-Aug-2019 23:12:30 ALS Bottle#: 8 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 280-126873-D-1 HS pH
Misc. Info.: 280-0084350-013
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:43:53 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 09-Aug-2019 23:44:28

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.261	3.268	-0.007	0	4240586	1000.0	
* 1 Fluorobenzene	96	5.068	5.064	0.004	98	4657320	50.0	
* 2 Chlorobenzene-d5	119	7.594	7.598	-0.004	88	1010262	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.821	0.000	98	1380540	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.562	4.561	0.001	92	1061105	49.9	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.824	0.000	0	1419690	52.2	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	4399598	49.6	
$ 8 4-Bromofluorobenzene (Surr	95	8.693	8.692	0.001	85	1550760	50.3	
23 Dichlorodifluoromethane	85		1.660				ND	U
26 Chloromethane	50		1.855				ND	
27 Vinyl chloride	62		1.934				ND	
29 Bromomethane	94		2.192				ND	
30 Chloroethane	64		2.279				ND	
32 Trichlorofluoromethane	101		2.500				ND	
40 1,1,2-Trichloro-1,2,2-trif	151	2.920	2.905	0.015	90	2327	0.5438	
43 1,1-Dichloroethene	96		2.908				ND	
41 Acetone	43		2.935				ND	
48 Carbon disulfide	76		3.096				ND	U
45 Methyl acetate	43		3.159				ND	
50 Methylene Chloride	84		3.276				ND	
51 Methyl tert-butyl ether	73		3.463				ND	
53 trans-1,2-Dichloroethene	96		3.474				ND	
57 1,1-Dichloroethane	63		3.797				ND	
61 2-Butanone (MEK)	43		4.179				ND	
63 cis-1,2-Dichloroethene	96		4.205				ND	
67 Chlorobromomethane	128		4.385				ND	
68 Chloroform	83		4.445				ND	
71 1,1,1-Trichloroethane	97		4.588				ND	
72 Cyclohexane	56		4.644				ND	
74 Carbon tetrachloride	117		4.704				ND	
77 Benzene	78		4.854				ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
76 1,2-Dichloroethane	62	4.880	4.884	-0.004	29	3545	0.1365	
79 Trichloroethene	95		5.341				ND	
82 Methylcyclohexane	55		5.536				ND	
83 1,2-Dichloropropane	63		5.547				ND	U
86 Dichlorobromomethane	83		5.746				ND	
89 cis-1,3-Dichloropropene	75		6.095				ND	
90 4-Methyl-2-pentanone (MIBK	43		6.192				ND	
91 Toluene	91		6.380				ND	
93 trans-1,3-Dichloropropene	75		6.556				ND	
94 1,1,2-Trichloroethane	97		6.732				ND	
97 Tetrachloroethene	164		6.826				ND	
95 2-Hexanone	43		6.897				ND	
98 Chlorodibromomethane	129		7.073				ND	
100 Ethylene Dibromide	107		7.193				ND	
102 Chlorobenzene	112		7.624				ND	
103 Ethylbenzene	106		7.699				ND	
105 m-Xylene & p-Xylene	106		7.815				ND	
107 o-Xylene	106		8.179				ND	
106 Styrene	104		8.194				ND	
108 Bromoform	173		8.378				ND	
109 Isopropylbenzene	105		8.520				ND	
112 1,1,2,2-Tetrachloroethane	83		8.805				ND	
124 1,3-Dichlorobenzene	146		9.746				ND	
126 1,4-Dichlorobenzene	146		9.843				ND	
128 1,2-Dichlorobenzene	146		10.199				ND	
129 1,2-Dibromo-3-Chloropropan	157		10.979				ND	
130 1,2,4-Trichlorobenzene	180		11.804				ND	
133 1,2,3-Trichlorobenzene	180		12.291				ND	
S 139 Xylenes, Total	106		0.000				ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

mv-Cent IS/SS_00005 Amount Added: 5.00 Units: uL Run Reagent

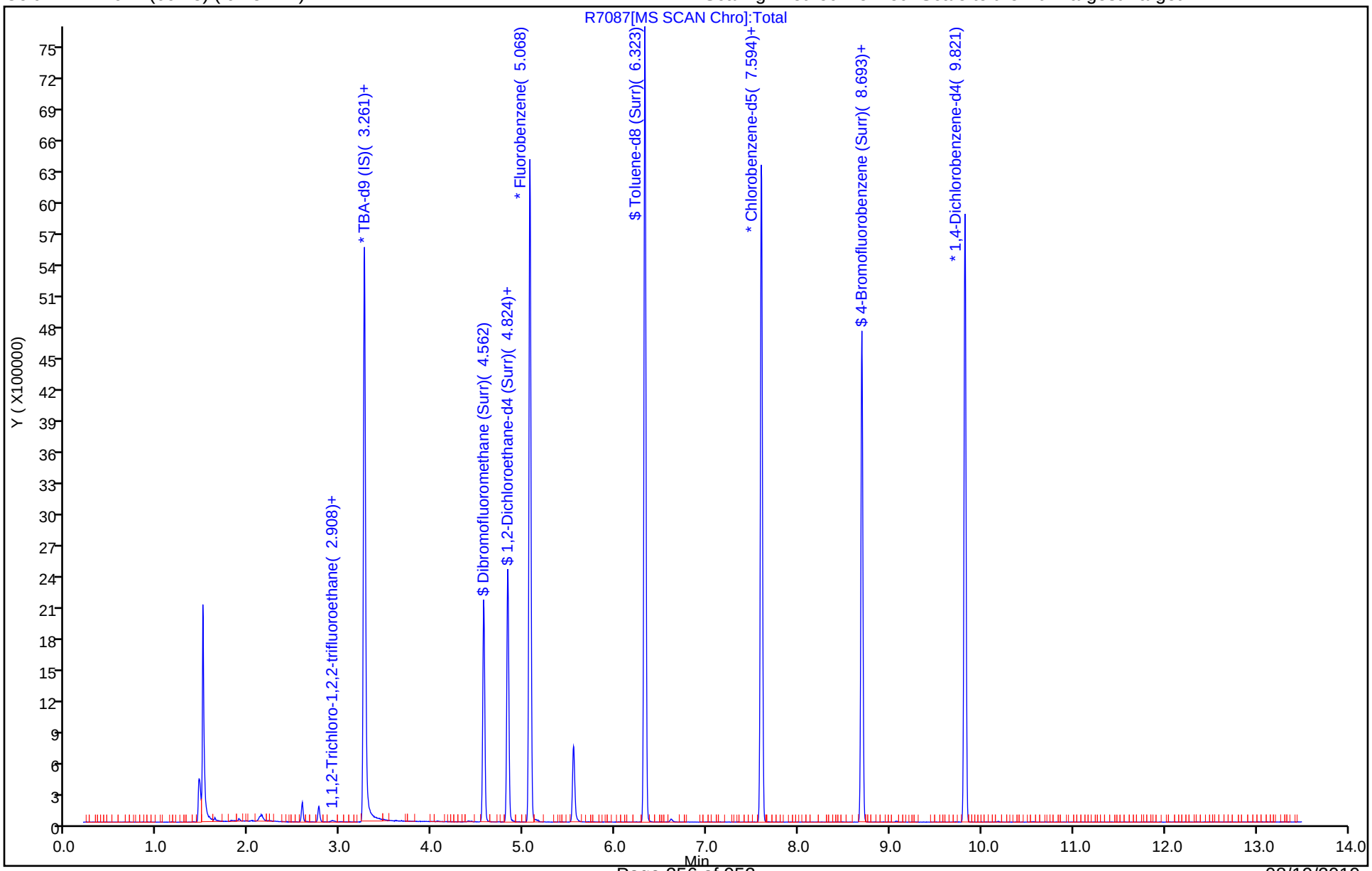
Report Date: 10-Aug-2019 15:45:09 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7087.D

Injection Date:	09-Aug-2019 23:12:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	280-126873-D-1	Lab Sample ID:	280-126873-1	Worklist Smp#:	13
Client ID:	SP-S2				
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

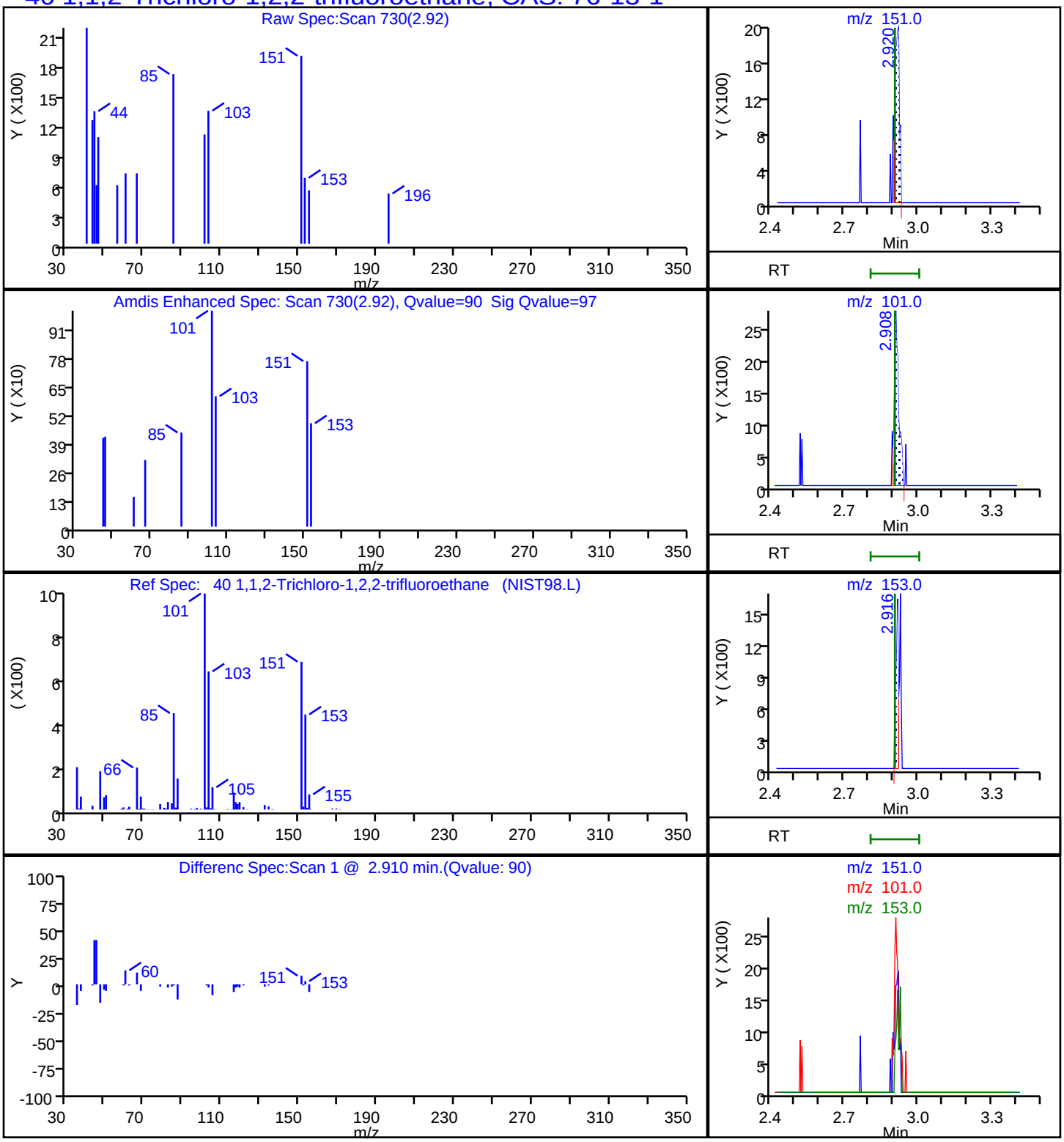
Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7087.D				
Lims ID:	280-126873-D-1				
Client ID:	SP-S2				
Sample Type:	Client				
Inject. Date:	09-Aug-2019 23:12:30	ALS Bottle#:	8	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Sample Info:	280-126873-D-1 HS pH				
Misc. Info.:	280-0084350-013				
Operator ID:	ZHANGJ	Instrument ID:	VMS_R1		
Method:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m				
Limit Group:	MSV - 8260B Water and Solid				
Last Update:	10-Aug-2019 15:43:53	Calib Date:	06-Aug-2019 11:27:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D				
Column 1 :	DB-624 (60.25) (0.25 mm)		Det: MS SCAN		
Process Host:	CTX0325				
First Level Reviewer: zhangji		Date:	09-Aug-2019 23:44:28		

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 Dibromofluoromethane (Surr)	50.0	49.9	99.86
$ 6 1,2-Dichloroethane-d4 (Surr)	50.0	52.2	104.32
$ 7 Toluene-d8 (Surr)	50.0	49.6	99.24
$ 8 4-Bromofluorobenzene (Surr)	50.0	50.3	100.58

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7087.D				
Injection Date:	09-Aug-2019 23:12:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-D-1	Lab Sample ID:	280-126873-1		
Client ID:	SP-S2				
Operator ID:	ZHANGJ	ALS Bottle#:	8	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

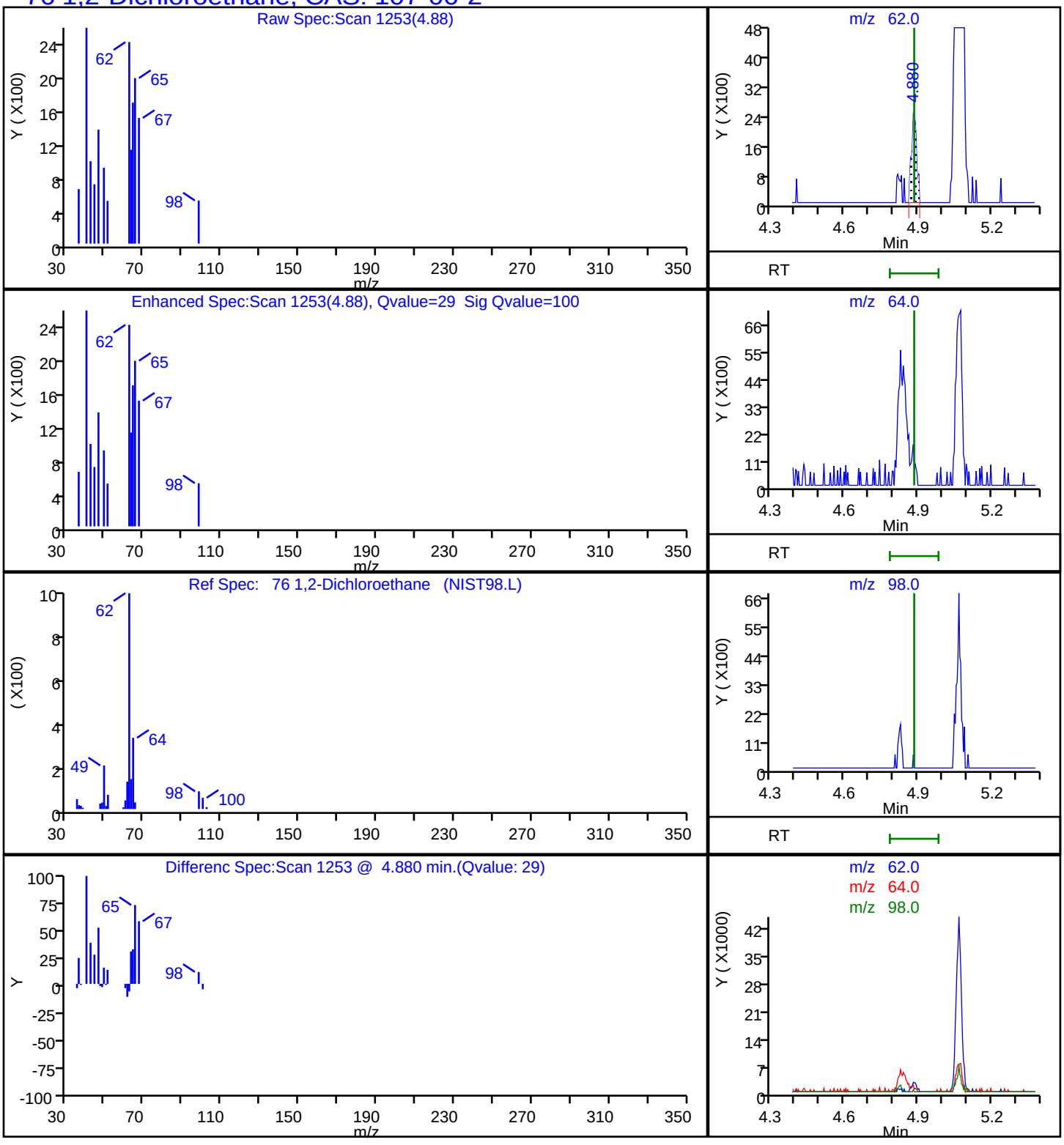
40 1,1,2-Trichloro-1,2,2-trifluoroethane, CAS: 76-13-1



Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7087.D				
Injection Date:	09-Aug-2019 23:12:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-D-1	Lab Sample ID:	280-126873-1		
Client ID:	SP-S2				
Operator ID:	ZHANGJ	ALS Bottle#:	8	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

76 1,2-Dichloroethane, CAS: 107-06-2



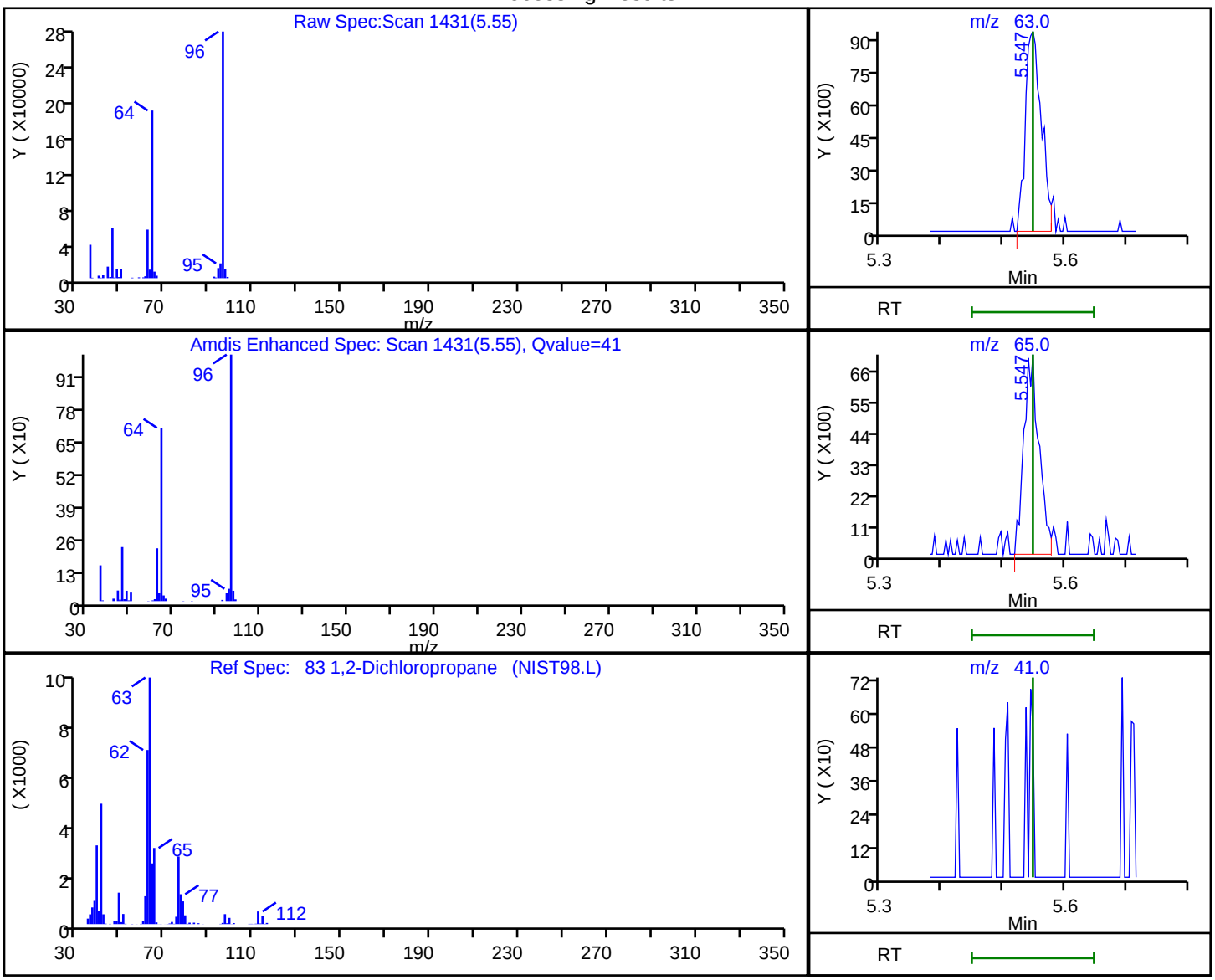
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7087.D				
Injection Date:	09-Aug-2019 23:12:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-D-1	Lab Sample ID:	280-126873-1		
Client ID:	SP-S2				
Operator ID:	ZHANGJ	ALS Bottle#:	8	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

83 1,2-Dichloropropane, CAS: 78-87-5

Processing Results



RT	Mass	Response	Amount
5.55	63.00	16973	0.226190
5.55	65.00	12359	
5.55	41.00	0	

Reviewer: zhangji, 09-Aug-2019 23:44:21

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

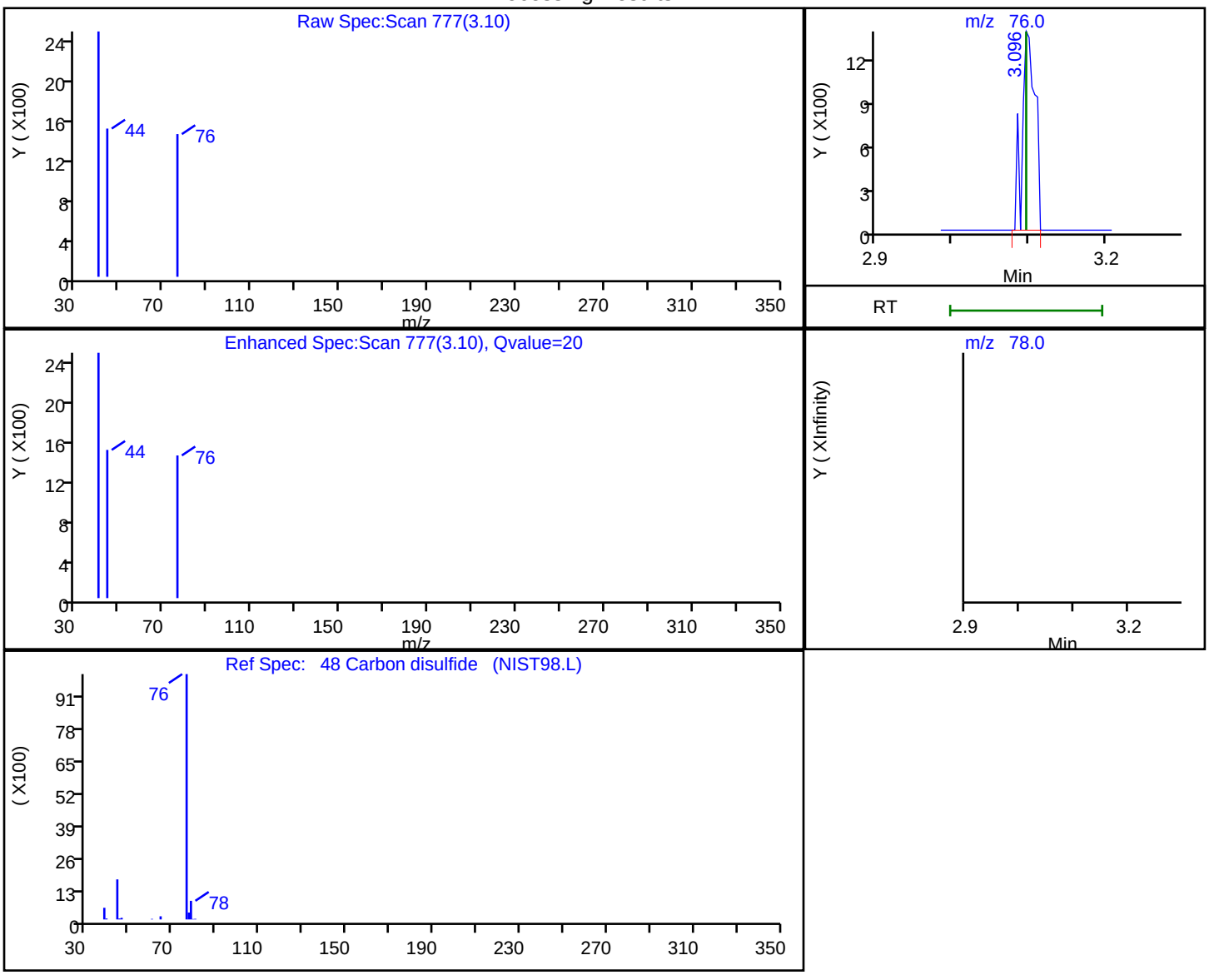
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7087.D				
Injection Date:	09-Aug-2019 23:12:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-D-1	Lab Sample ID:	280-126873-1		
Client ID:	SP-S2				
Operator ID:	ZHANGJ	ALS Bottle#:	8	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

48 Carbon disulfide, CAS: 75-15-0

Processing Results



RT	Mass	Response	Amount
3.10	76.00	1658	0.396787
3.10	78.00	0	

Reviewer: zhangji, 09-Aug-2019 23:44:18

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

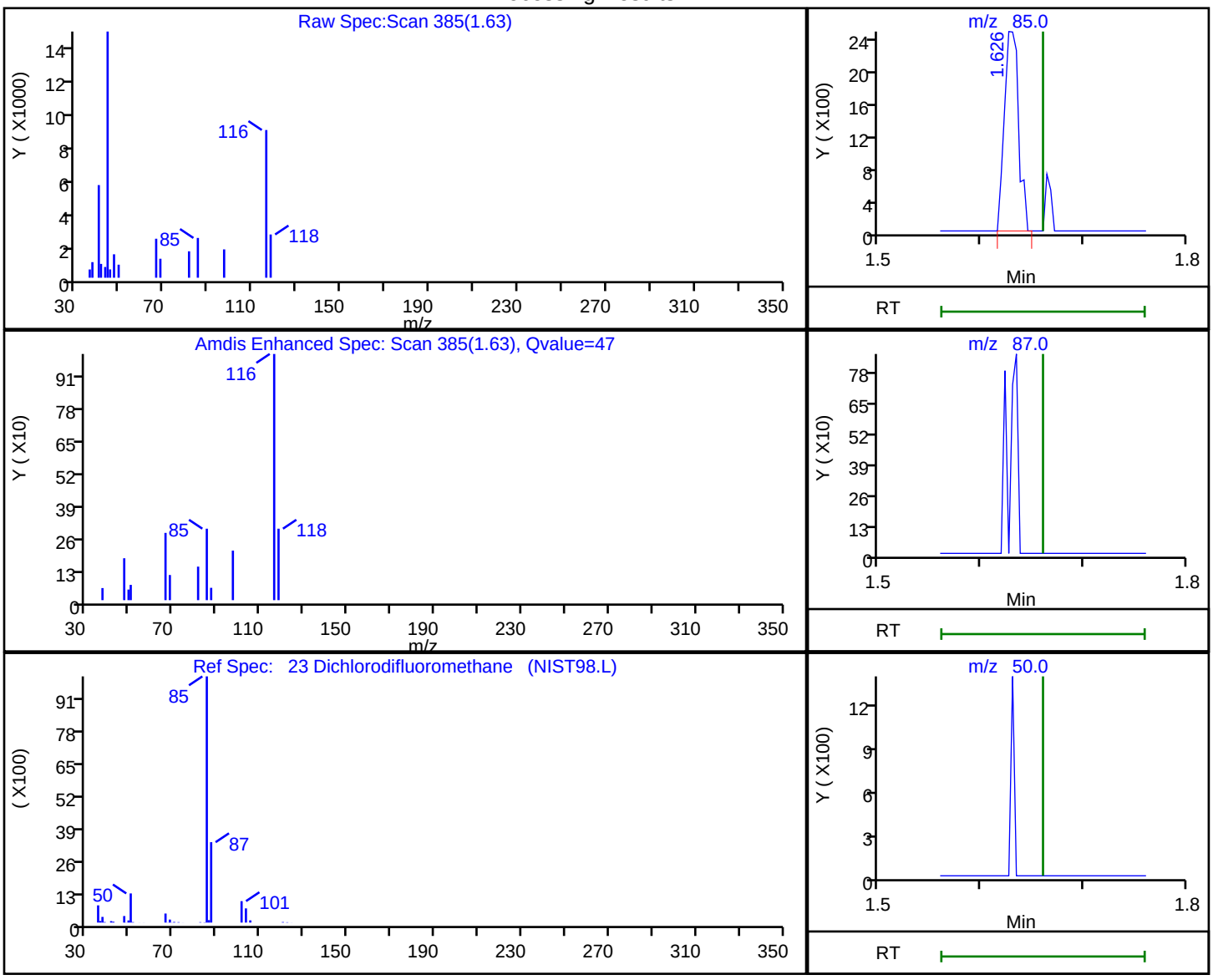
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7087.D				
Injection Date:	09-Aug-2019 23:12:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-D-1	Lab Sample ID:	280-126873-1		
Client ID:	SP-S2				
Operator ID:	ZHANGJ	ALS Bottle#:	8	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

23 Dichlorodifluoromethane, CAS: 75-71-8

Processing Results



RT	Mass	Response	Amount
1.63	85.00	2360	0.345303
1.66	87.00	0	
1.66	50.00	0	

Reviewer: zhangji, 09-Aug-2019 23:44:14

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

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-E1 Lab Sample ID: 280-126873-2

Matrix: Water Lab File ID: R7088.D

Analysis Method: 8260B Date Collected: 07/31/2019 08:56

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 23:33

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
71-55-6	1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16
79-34-5	1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.55	J	3.0	0.40	0.18
79-00-5	1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27
75-34-3	1,1-Dichloroethane	0.80	U	1.0	0.80	0.22
75-35-4	1,1-Dichloroethene	0.80	U	1.0	0.80	0.23
87-61-6	1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21
120-82-1	1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21
96-12-8	1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47
95-50-1	1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15
107-06-2	1,2-Dichloroethane	0.40	U	1.0	0.40	0.13
78-87-5	1,2-Dichloropropane	0.22	J	1.0	0.40	0.18
541-73-1	1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13
106-46-7	1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16
78-93-3	2-Butanone (MEK)	4.0	U	6.0	4.0	2.0
591-78-6	2-Hexanone	4.0	U	5.0	4.0	1.7
108-10-1	4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98
67-64-1	Acetone	6.4	U	10	6.4	1.9
71-43-2	Benzene	0.40	U	1.0	0.40	0.16
74-97-5	Bromochloromethane	0.20	U	1.0	0.20	0.10
75-27-4	Bromodichloromethane	0.40	U	1.0	0.40	0.17
75-25-2	Bromoform	1.0	U	1.0	1.0	0.46
74-83-9	Bromomethane	0.80	U	2.0	0.80	0.21
75-15-0	Carbon disulfide	0.40	J	2.0	0.80	0.17
56-23-5	Carbon tetrachloride	0.40	U	2.0	0.40	0.19
108-90-7	Chlorobenzene	0.40	U	1.0	0.40	0.17
75-00-3	Chloroethane	1.6	U	2.0	1.6	0.41
67-66-3	Chloroform	0.40	U	1.0	0.40	0.16
74-87-3	Chloromethane	0.80	U	2.0	0.80	0.30
156-59-2	cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-01-5	cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16
110-82-7	Cyclohexane	0.80	U	2.0	0.80	0.28
124-48-1	Dibromochloromethane	0.40	U	1.0	0.40	0.17
75-71-8	Dichlorodifluoromethane	0.41	J	2.0	0.80	0.31
100-41-4	Ethylbenzene	0.40	U	1.0	0.40	0.16

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-E1 Lab Sample ID: 280-126873-2

Matrix: Water Lab File ID: R7088.D

Analysis Method: 8260B Date Collected: 07/31/2019 08:56

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 23:33

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
106-93-4	Ethylene Dibromide	0.40	U	1.0	0.40	0.18
98-82-8	Isopropylbenzene	0.40	U	1.0	0.40	0.19
79-20-9	Methyl acetate	4.0	U	5.0	4.0	1.6
1634-04-4	Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25
108-87-2	Methylcyclohexane	0.40	U	2.0	0.40	0.10
75-09-2	Methylene Chloride	2.0	U	5.0	2.0	0.94
100-42-5	Styrene	0.80	U	1.0	0.80	0.36
127-18-4	Tetrachloroethene	0.40	U	1.0	0.40	0.20
108-88-3	Toluene	0.40	U	1.0	0.40	0.17
156-60-5	trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-02-6	trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19
79-01-6	Trichloroethene	0.40	U	1.0	0.40	0.16
75-69-4	Trichlorofluoromethane	0.80	U	2.0	0.80	0.29
75-01-4	Vinyl chloride	0.20	U	1.5	0.20	0.10
1330-20-7	Xylenes, Total	0.80	U	1.0	0.80	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		81-118
460-00-4	4-Bromofluorobenzene (Surr)	100		85-114
1868-53-7	Dibromofluoromethane (Surr)	101		80-119
2037-26-5	Toluene-d8 (Surr)	98		89-112

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7088.D
Lims ID: 280-126873-E-2
Client ID: SP-E1
Sample Type: Client
Inject. Date: 09-Aug-2019 23:33:30 ALS Bottle#: 9 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 280-126873-E-2 pH
Misc. Info.: 280-0084350-014
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:43:53 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.257	3.268	-0.011	0	4360708	1000.0	
* 1 Fluorobenzene	96	5.068	5.064	0.004	98	4657855	50.0	
* 2 Chlorobenzene-d5	119	7.594	7.598	-0.004	88	1016607	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.821	0.000	98	1399421	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.562	4.561	0.001	91	1075455	50.6	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.828	4.824	0.004	0	1461413	53.7	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	4377178	49.1	
$ 8 4-Bromofluorobenzene (Surr	95	8.693	8.692	0.001	82	1565524	50.1	
23 Dichlorodifluoromethane	85	1.626	1.660	-0.034	55	3542	0.4095	
26 Chloromethane	50		1.855				ND	
27 Vinyl chloride	62		1.934				ND	
29 Bromomethane	94		2.192				ND	
30 Chloroethane	64		2.279				ND	
32 Trichlorofluoromethane	101		2.500				ND	
40 1,1,2-Trichloro-1,2,2-trif	151	2.905	2.905	0.000	33	2382	0.5494	
43 1,1-Dichloroethene	96		2.908				ND	
41 Acetone	43		2.935				ND	
48 Carbon disulfide	76	3.111	3.096	0.015	33	1835	0.4009	
45 Methyl acetate	43		3.159				ND	
50 Methylene Chloride	84		3.276				ND	
51 Methyl tert-butyl ether	73		3.463				ND	
53 trans-1,2-Dichloroethene	96		3.474				ND	
57 1,1-Dichloroethane	63		3.797				ND	
61 2-Butanone (MEK)	43		4.179				ND	
63 cis-1,2-Dichloroethene	96		4.205				ND	
67 Chlorobromomethane	128		4.385				ND	
68 Chloroform	83		4.445				ND	
71 1,1,1-Trichloroethane	97		4.588				ND	
72 Cyclohexane	56		4.644				ND	
74 Carbon tetrachloride	117		4.704				ND	
77 Benzene	78		4.854				ND	
76 1,2-Dichloroethane	62		4.884				ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
79 Trichloroethene	95		5.341				ND	
82 Methylcyclohexane	55		5.536				ND	
83 1,2-Dichloropropane	63	5.548	5.547	0.001	41	16952	0.2250	
86 Dichlorobromomethane	83		5.746				ND	
89 cis-1,3-Dichloropropene	75		6.095				ND	
90 4-Methyl-2-pentanone (MIBK	43		6.192				ND	
91 Toluene	91		6.380				ND	
93 trans-1,3-Dichloropropene	75		6.556				ND	
94 1,1,2-Trichloroethane	97		6.732				ND	
97 Tetrachloroethene	164		6.826				ND	
95 2-Hexanone	43		6.897				ND	
98 Chlorodibromomethane	129		7.073				ND	
100 Ethylene Dibromide	107		7.193				ND	
102 Chlorobenzene	112		7.624				ND	
103 Ethylbenzene	106		7.699				ND	
105 m-Xylene & p-Xylene	106		7.815				ND	
107 o-Xylene	106		8.179				ND	
106 Styrene	104		8.194				ND	
108 Bromoform	173		8.378				ND	
109 Isopropylbenzene	105		8.520				ND	
112 1,1,2,2-Tetrachloroethane	83		8.805				ND	
124 1,3-Dichlorobenzene	146		9.746				ND	
126 1,4-Dichlorobenzene	146		9.843				ND	
128 1,2-Dichlorobenzene	146		10.199				ND	
129 1,2-Dibromo-3-Chloropropan	157		10.979				ND	
130 1,2,4-Trichlorobenzene	180		11.804				ND	
133 1,2,3-Trichlorobenzene	180		12.291				ND	
S 139 Xylenes, Total	106		0.000				ND	

Reagents:

mv-Cent IS/SS_00005 Amount Added: 5.00 Units: uL Run Reagent

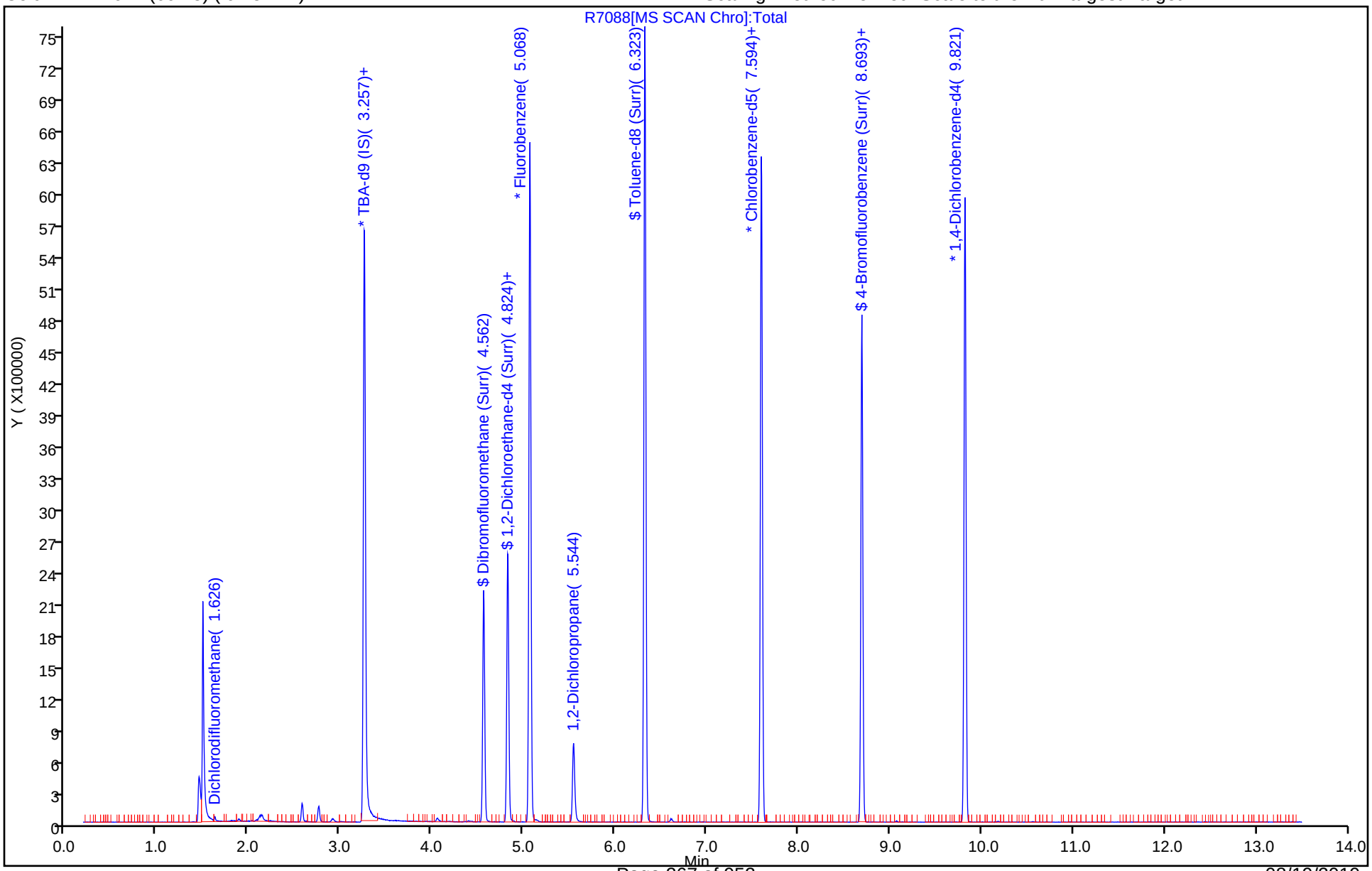
Report Date: 10-Aug-2019 15:45:12 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7088.D

Injection Date:	09-Aug-2019 23:33:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	280-126873-E-2	Lab Sample ID:	280-126873-2	Worklist Smp#:	14
Client ID:	SP-E1				
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	9
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7088.D
Lims ID: 280-126873-E-2
Client ID: SP-E1
Sample Type: Client
Inject. Date: 09-Aug-2019 23:33:30 ALS Bottle#: 9 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 280-126873-E-2 pH
Misc. Info.: 280-0084350-014
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:43:53 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

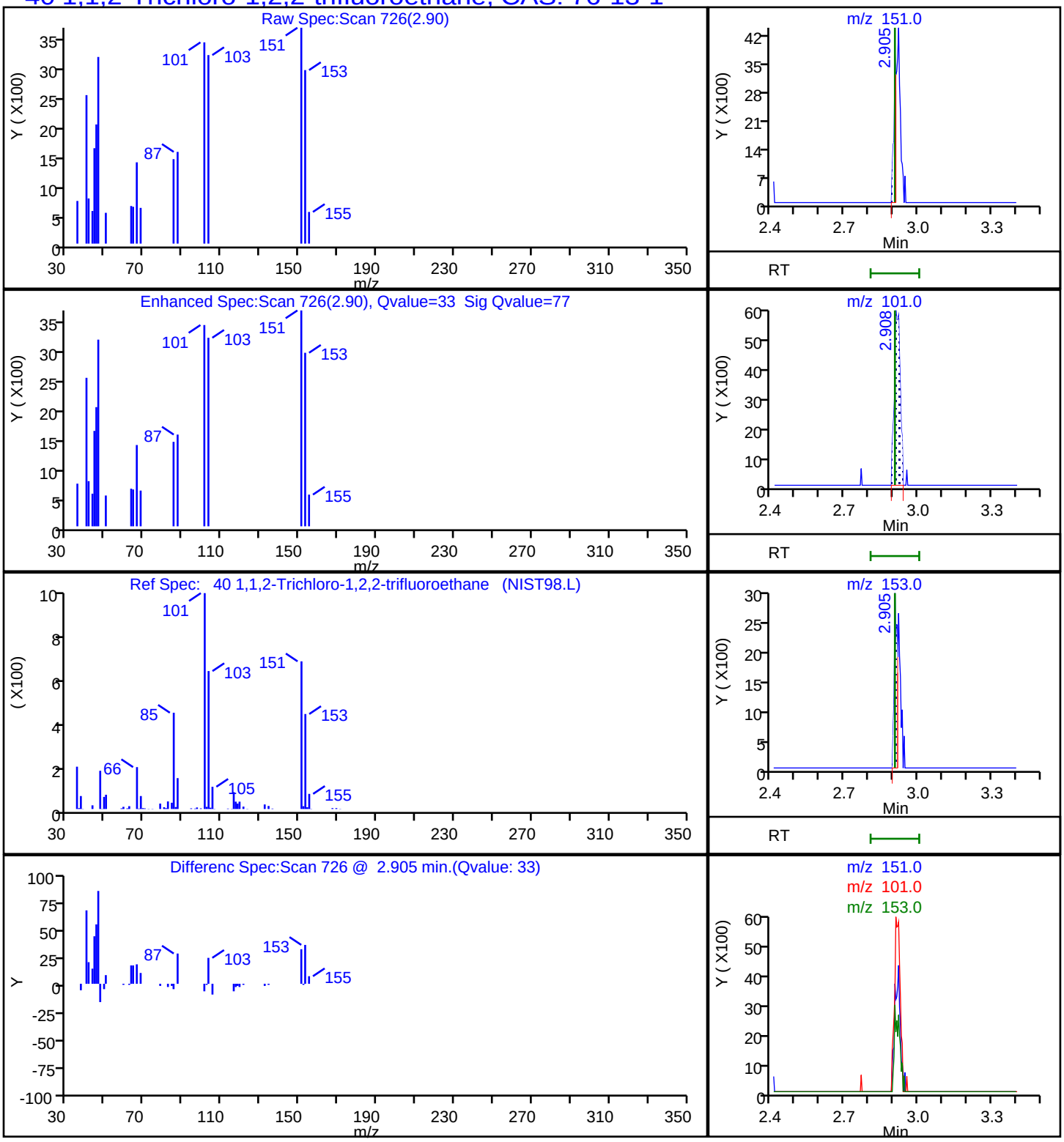
Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 Dibromofluoromethane (Surr)	50.0	50.6	101.20
$ 6 1,2-Dichloroethane-d4 (Surr)	50.0	53.7	107.37
$ 7 Toluene-d8 (Surr)	50.0	49.1	98.12
$ 8 4-Bromofluorobenzene (Surr)	50.0	50.1	100.17

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7088.D		
Injection Date:	09-Aug-2019 23:33:30	Instrument ID:	VMS_R1
Lims ID:	280-126873-E-2	Lab Sample ID:	280-126873-2
Client ID:	SP-E1		
Operator ID:	ZHANGJ	ALS Bottle#:	9 Worklist Smp#: 14
Purge Vol:	5.000 mL	Dil. Factor:	1.0000
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN

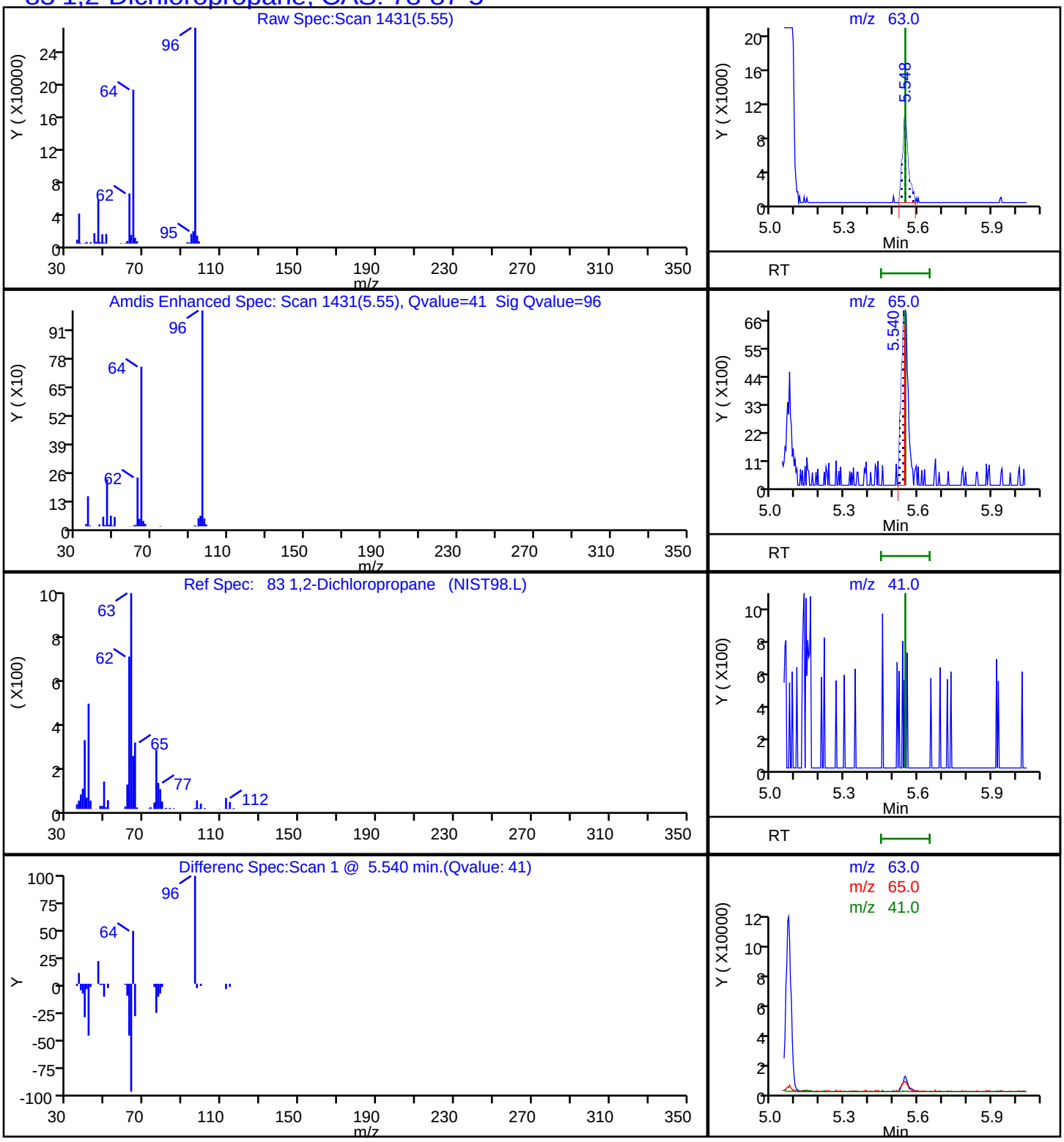
40 1,1,2-Trichloro-1,2,2-trifluoroethane, CAS: 76-13-1



Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7088.D				
Injection Date:	09-Aug-2019 23:33:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-E-2	Lab Sample ID:	280-126873-2		
Client ID:	SP-E1				
Operator ID:	ZHANGJ	ALS Bottle#:	9	Worklist Smp#:	14
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

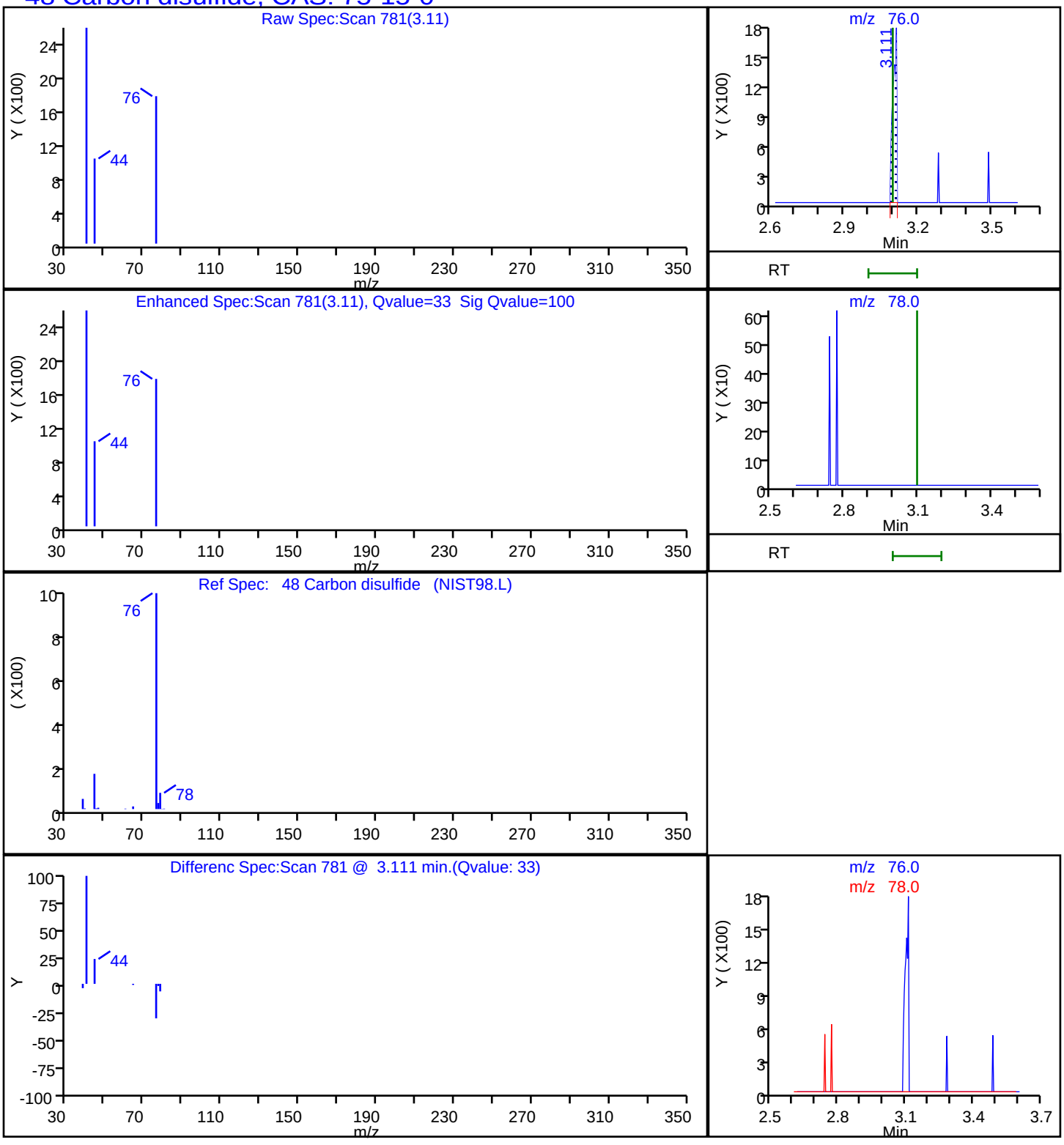
83 1,2-Dichloropropane, CAS: 78-87-5



Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7088.D				
Injection Date:	09-Aug-2019 23:33:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-E-2	Lab Sample ID:	280-126873-2		
Client ID:	SP-E1				
Operator ID:	ZHANGJ	ALS Bottle#:	9	Worklist Smp#:	14
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

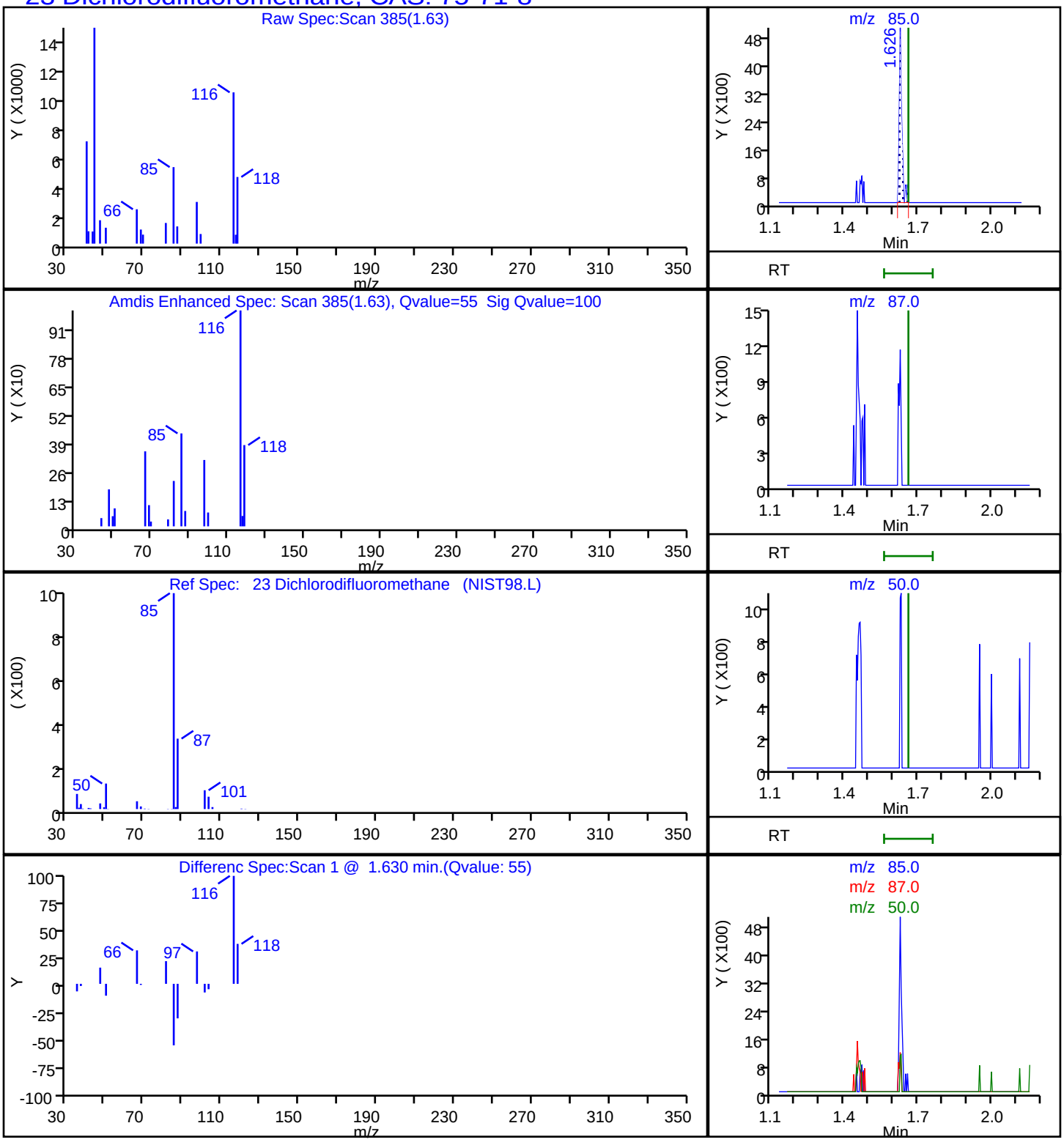
48 Carbon disulfide, CAS: 75-15-0



Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7088.D				
Injection Date:	09-Aug-2019 23:33:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-E-2	Lab Sample ID:	280-126873-2		
Client ID:	SP-E1				
Operator ID:	ZHANGJ	ALS Bottle#:	9	Worklist Smp#:	14
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

23 Dichlorodifluoromethane, CAS: 75-71-8



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S22 Lab Sample ID: 280-126873-4

Matrix: Water Lab File ID: R7089.D

Analysis Method: 8260B Date Collected: 07/31/2019 08:48

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 23:55

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
71-55-6	1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16
79-34-5	1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.49	J	3.0	0.40	0.18
79-00-5	1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27
75-34-3	1,1-Dichloroethane	0.80	U	1.0	0.80	0.22
75-35-4	1,1-Dichloroethene	0.80	U	1.0	0.80	0.23
87-61-6	1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21
120-82-1	1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21
96-12-8	1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47
95-50-1	1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15
107-06-2	1,2-Dichloroethane	0.40	U	1.0	0.40	0.13
78-87-5	1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18
541-73-1	1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13
106-46-7	1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16
78-93-3	2-Butanone (MEK)	4.0	U	6.0	4.0	2.0
591-78-6	2-Hexanone	4.0	U	5.0	4.0	1.7
108-10-1	4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98
67-64-1	Acetone	6.4	U	10	6.4	1.9
71-43-2	Benzene	0.40	U	1.0	0.40	0.16
74-97-5	Bromochloromethane	0.20	U	1.0	0.20	0.10
75-27-4	Bromodichloromethane	0.40	U	1.0	0.40	0.17
75-25-2	Bromoform	1.0	U	1.0	1.0	0.46
74-83-9	Bromomethane	0.80	U	2.0	0.80	0.21
75-15-0	Carbon disulfide	0.80	U M	2.0	0.80	0.17
56-23-5	Carbon tetrachloride	0.40	U	2.0	0.40	0.19
108-90-7	Chlorobenzene	0.40	U	1.0	0.40	0.17
75-00-3	Chloroethane	1.6	U	2.0	1.6	0.41
67-66-3	Chloroform	0.40	U	1.0	0.40	0.16
74-87-3	Chloromethane	0.80	U	2.0	0.80	0.30
156-59-2	cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-01-5	cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16
110-82-7	Cyclohexane	0.80	U	2.0	0.80	0.28
124-48-1	Dibromochloromethane	0.40	U	1.0	0.40	0.17
75-71-8	Dichlorodifluoromethane	0.35	J	2.0	0.80	0.31
100-41-4	Ethylbenzene	0.40	U	1.0	0.40	0.16

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S22 Lab Sample ID: 280-126873-4

Matrix: Water Lab File ID: R7089.D

Analysis Method: 8260B Date Collected: 07/31/2019 08:48

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 23:55

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
106-93-4	Ethylene Dibromide	0.40	U	1.0	0.40	0.18
98-82-8	Isopropylbenzene	0.40	U	1.0	0.40	0.19
79-20-9	Methyl acetate	4.0	U	5.0	4.0	1.6
1634-04-4	Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25
108-87-2	Methylcyclohexane	0.40	U	2.0	0.40	0.10
75-09-2	Methylene Chloride	2.0	U	5.0	2.0	0.94
100-42-5	Styrene	0.80	U	1.0	0.80	0.36
127-18-4	Tetrachloroethene	0.40	U	1.0	0.40	0.20
108-88-3	Toluene	0.40	U	1.0	0.40	0.17
156-60-5	trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-02-6	trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19
79-01-6	Trichloroethene	0.40	U	1.0	0.40	0.16
75-69-4	Trichlorofluoromethane	0.80	U	2.0	0.80	0.29
75-01-4	Vinyl chloride	0.20	U	1.5	0.20	0.10
1330-20-7	Xylenes, Total	0.80	U	1.0	0.80	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		81-118
460-00-4	4-Bromofluorobenzene (Surr)	101		85-114
1868-53-7	Dibromofluoromethane (Surr)	101		80-119
2037-26-5	Toluene-d8 (Surr)	99		89-112

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7089.D
Lims ID: 280-126873-D-4
Client ID: SP-S22
Sample Type: Client
Inject. Date: 09-Aug-2019 23:55:30 ALS Bottle#: 10 Worklist Smp#: 15
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 280-126873-D-4 HS pH
Misc. Info.: 280-0084350-015
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:43:53 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 10-Aug-2019 12:55:09

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.257	3.268	-0.011	0	4084236	1000.0	
* 1 Fluorobenzene	96	5.068	5.064	0.004	98	4561873	50.0	
* 2 Chlorobenzene-d5	119	7.594	7.598	-0.004	88	987459	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.817	9.821	-0.004	98	1341942	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.562	4.561	0.001	92	1047725	50.3	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.824	0.000	0	1447591	54.3	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	4294204	49.6	
$ 8 4-Bromofluorobenzene (Surr	95	8.693	8.692	0.001	82	1516043	50.6	
23 Dichlorodifluoromethane	85	1.623	1.660	-0.037	49	2457	0.3534	
26 Chloromethane	50		1.855				ND	
27 Vinyl chloride	62		1.934				ND	
29 Bromomethane	94		2.192				ND	
30 Chloroethane	64		2.279				ND	
32 Trichlorofluoromethane	101		2.500				ND	
40 1,1,2-Trichloro-1,2,2-trif	151	2.912	2.905	0.007	79	1768	0.4904	
43 1,1-Dichloroethene	96		2.908				ND	
41 Acetone	43		2.935				ND	
48 Carbon disulfide	76		3.096				ND	U
45 Methyl acetate	43		3.159				ND	
50 Methylene Chloride	84		3.276				ND	
51 Methyl tert-butyl ether	73		3.463				ND	
53 trans-1,2-Dichloroethene	96		3.474				ND	
57 1,1-Dichloroethane	63		3.797				ND	
61 2-Butanone (MEK)	43		4.179				ND	
63 cis-1,2-Dichloroethene	96		4.205				ND	
67 Chlorobromomethane	128		4.385				ND	
68 Chloroform	83		4.445				ND	
71 1,1,1-Trichloroethane	97		4.588				ND	
72 Cyclohexane	56		4.644				ND	
74 Carbon tetrachloride	117		4.704				ND	
77 Benzene	78		4.854				ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
76 1,2-Dichloroethane	62		4.884				ND	
79 Trichloroethene	95		5.341				ND	
82 Methylcyclohexane	55		5.536				ND	
83 1,2-Dichloropropane	63		5.547				ND	U
86 Dichlorobromomethane	83		5.746				ND	
89 cis-1,3-Dichloropropene	75		6.095				ND	
90 4-Methyl-2-pentanone (MIBK	43		6.192				ND	
91 Toluene	91		6.380				ND	
93 trans-1,3-Dichloropropene	75		6.556				ND	
94 1,1,2-Trichloroethane	97		6.732				ND	
97 Tetrachloroethene	164		6.826				ND	
95 2-Hexanone	43		6.897				ND	
98 Chlorodibromomethane	129		7.073				ND	
100 Ethylene Dibromide	107		7.193				ND	
102 Chlorobenzene	112		7.624				ND	
103 Ethylbenzene	106		7.699				ND	
105 m-Xylene & p-Xylene	106		7.815				ND	
107 o-Xylene	106		8.179				ND	
106 Styrene	104		8.194				ND	
108 Bromoform	173		8.378				ND	
109 Isopropylbenzene	105		8.520				ND	
112 1,1,2,2-Tetrachloroethane	83		8.805				ND	
124 1,3-Dichlorobenzene	146		9.746				ND	
126 1,4-Dichlorobenzene	146		9.843				ND	
128 1,2-Dichlorobenzene	146		10.199				ND	
129 1,2-Dibromo-3-Chloropropan	157		10.979				ND	
130 1,2,4-Trichlorobenzene	180		11.804				ND	
133 1,2,3-Trichlorobenzene	180		12.291				ND	
S 139 Xylenes, Total	106		0.000				ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

mv-Cent IS/SS_00005 Amount Added: 5.00 Units: uL Run Reagent

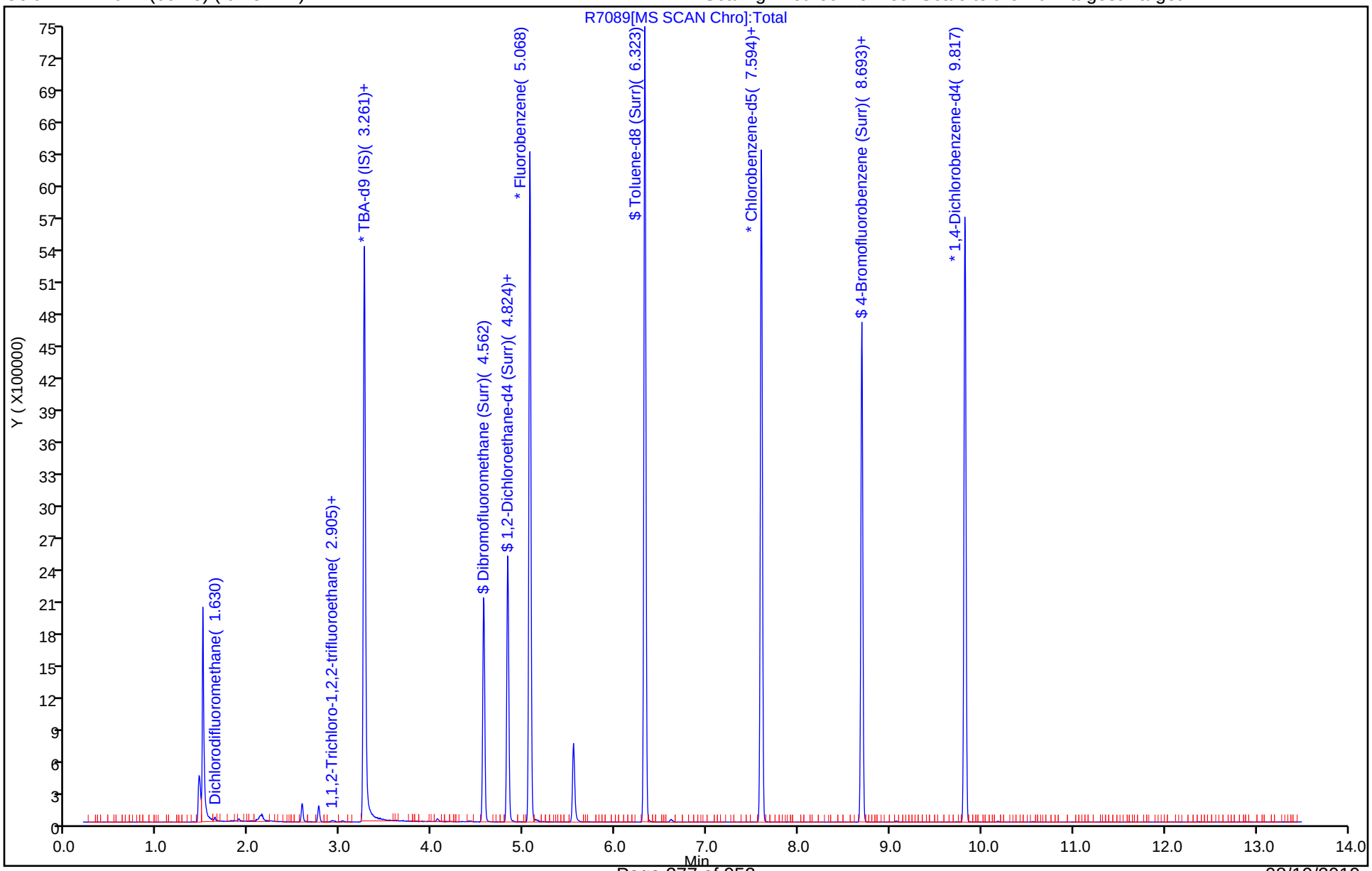
Report Date: 10-Aug-2019 15:45:14 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7089.D

Injection Date:	09-Aug-2019 23:55:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	280-126873-D-4	Lab Sample ID:	280-126873-4	Worklist Smp#:	15
Client ID:	SP-S22				
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	10
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7089.D
Lims ID: 280-126873-D-4
Client ID: SP-S22
Sample Type: Client
Inject. Date: 09-Aug-2019 23:55:30 ALS Bottle#: 10 Worklist Smp#: 15
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 280-126873-D-4 HS pH
Misc. Info.: 280-0084350-015
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:43:53 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 10-Aug-2019 12:55:09

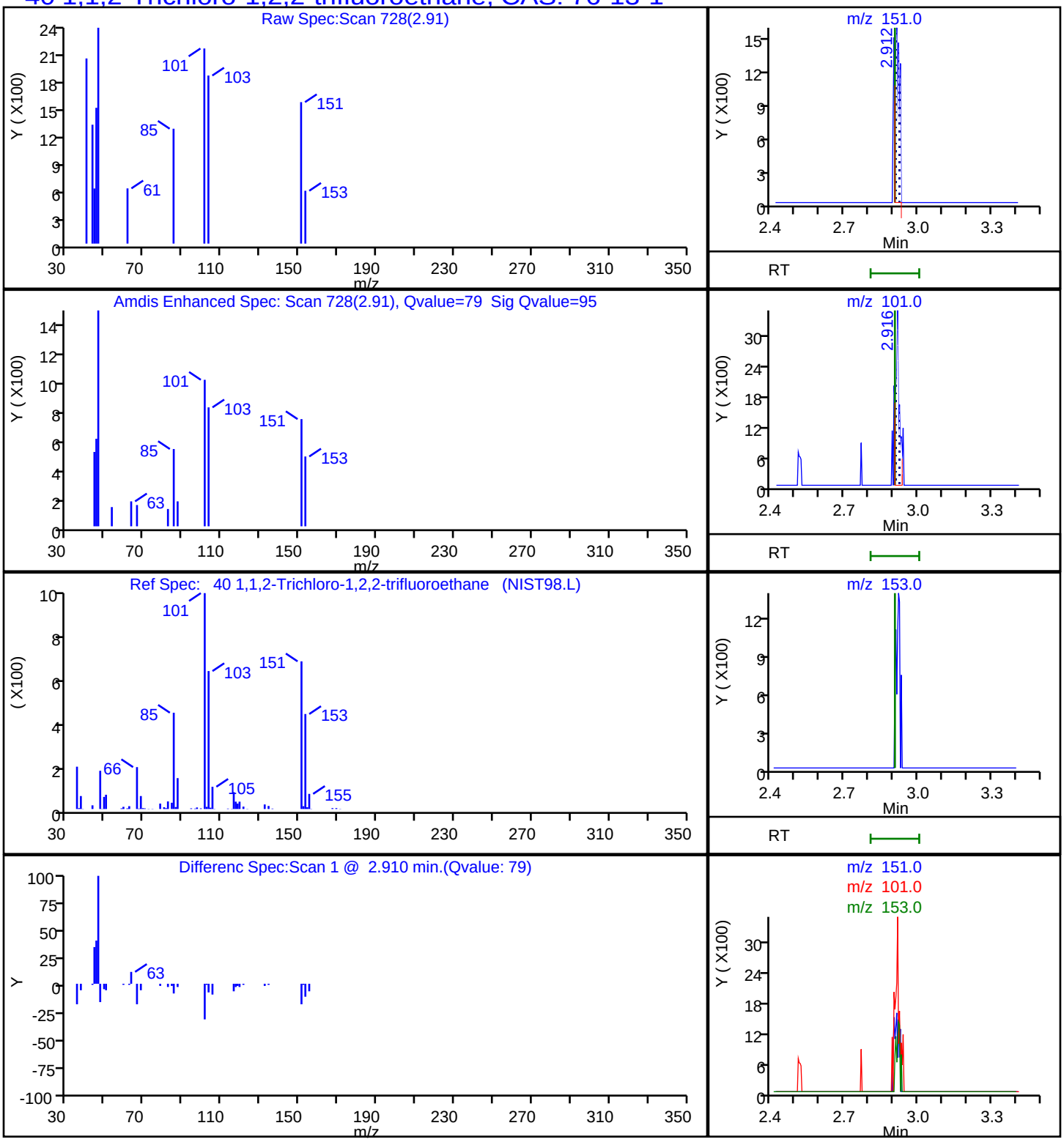
Compound	Amount Added	Amount Recovered	% Rec.
$ 5 Dibromofluoromethane (Surr)	50.0	50.3	100.67
$ 6 1,2-Dichloroethane-d4 (Surr)	50.0	54.3	108.59
$ 7 Toluene-d8 (Surr)	50.0	49.6	99.10
$ 8 4-Bromofluorobenzene (Surr)	50.0	50.6	101.15

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7089.D

Injection Date:	09-Aug-2019 23:55:30	Instrument ID:	VMS_R1
Lims ID:	280-126873-D-4	Lab Sample ID:	280-126873-4
Client ID:	SP-S22		
Operator ID:	ZHANGJ	ALS Bottle#:	10 Worklist Smp#: 15
Purge Vol:	5.000 mL	Dil. Factor:	1.0000
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN

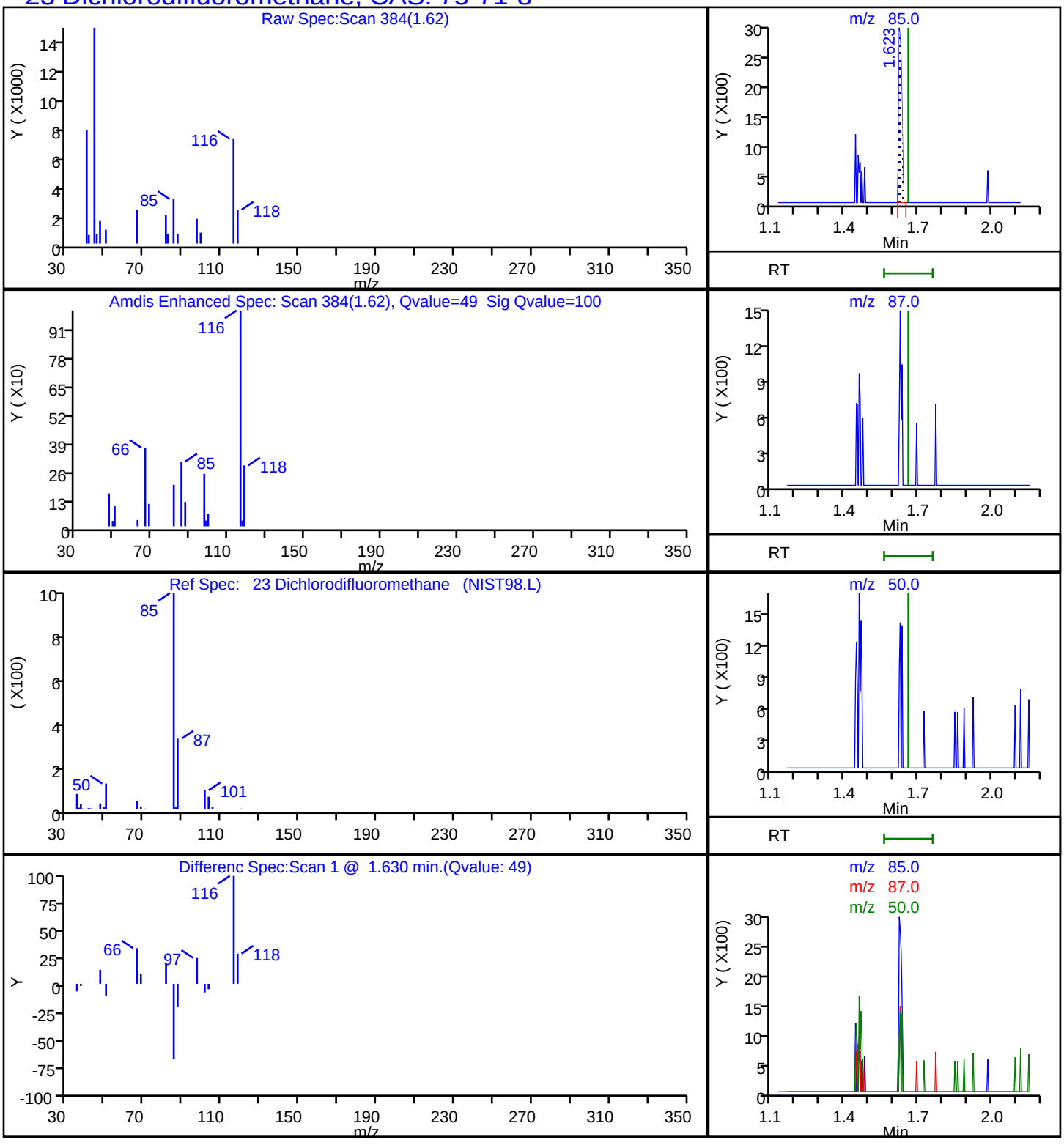
40 1,1,2-Trichloro-1,2,2-trifluoroethane, CAS: 76-13-1



Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7089.D				
Injection Date:	09-Aug-2019 23:55:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-D-4	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	ZHANGJ	ALS Bottle#:	10	Worklist Smp#:	15
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

23 Dichlorodifluoromethane, CAS: 75-71-8



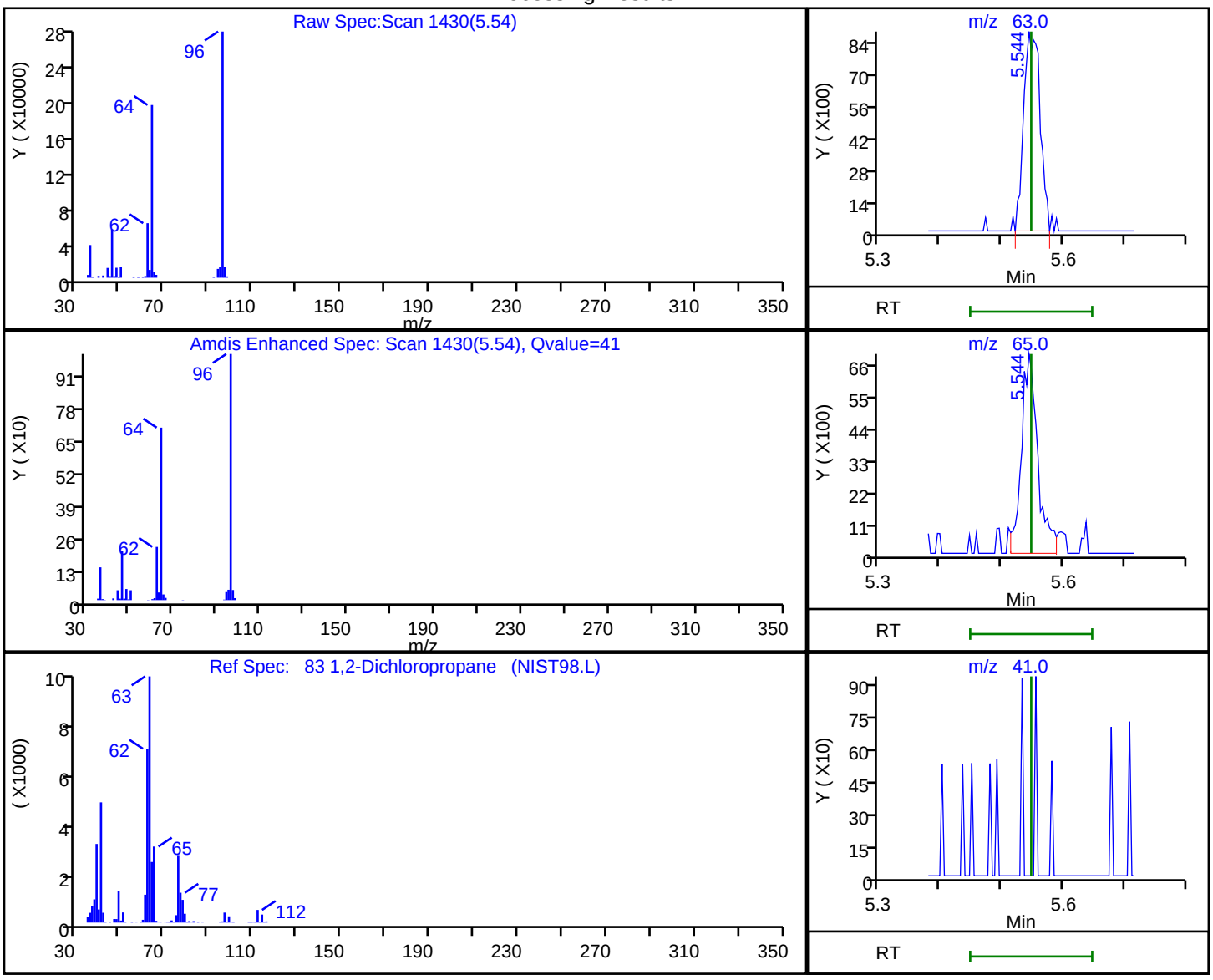
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7089.D				
Injection Date:	09-Aug-2019 23:55:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-D-4	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	ZHANGJ	ALS Bottle#:	10	Worklist Smp#:	15
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

83 1,2-Dichloropropane, CAS: 78-87-5

Processing Results



RT	Mass	Response	Amount
5.54	63.00	16493	0.219032
5.54	65.00	13050	
5.55	41.00	0	

Reviewer: zhangji, 10-Aug-2019 12:54:59

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

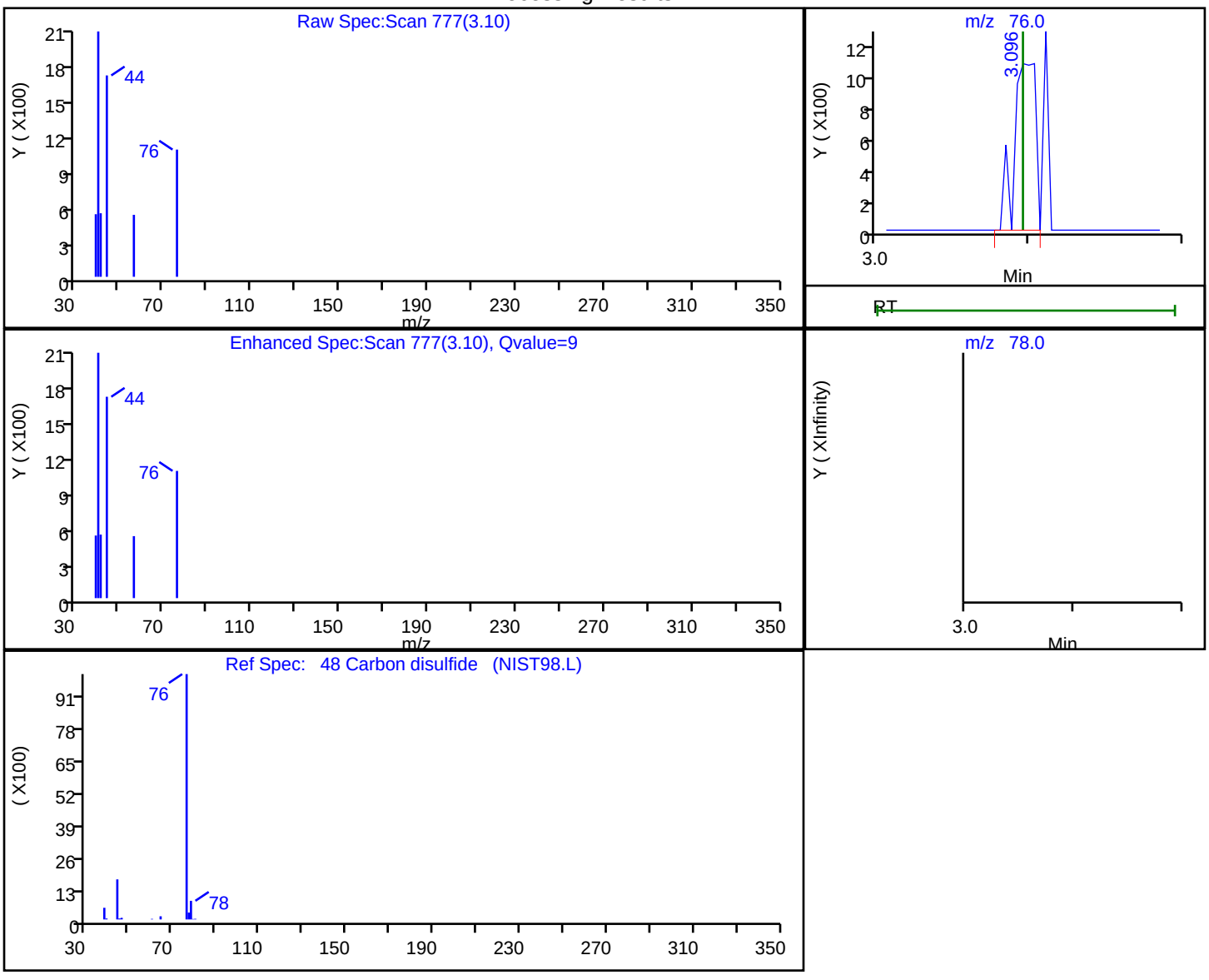
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7089.D				
Injection Date:	09-Aug-2019 23:55:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-D-4	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	ZHANGJ	ALS Bottle#:	10	Worklist Smp#:	15
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

48 Carbon disulfide, CAS: 75-15-0

Processing Results



RT	Mass	Response	Amount
3.10	76.00	1040	0.383057
3.10	78.00	0	

Reviewer: zhangji, 10-Aug-2019 12:55:02

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

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: TB-1062 Lab Sample ID: 280-126873-5

Matrix: Water Lab File ID: R7090.D

Analysis Method: 8260B Date Collected: 07/31/2019 08:45

Sample wt/vol: 5(mL) Date Analyzed: 08/10/2019 00:17

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
71-55-6	1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16
79-34-5	1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.40	U	3.0	0.40	0.18
79-00-5	1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27
75-34-3	1,1-Dichloroethane	0.80	U	1.0	0.80	0.22
75-35-4	1,1-Dichloroethene	0.80	U	1.0	0.80	0.23
87-61-6	1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21
120-82-1	1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21
96-12-8	1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47
95-50-1	1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15
107-06-2	1,2-Dichloroethane	0.40	U	1.0	0.40	0.13
78-87-5	1,2-Dichloropropane	0.40	U	1.0	0.40	0.18
541-73-1	1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13
106-46-7	1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16
78-93-3	2-Butanone (MEK)	4.0	U	6.0	4.0	2.0
591-78-6	2-Hexanone	4.0	U	5.0	4.0	1.7
108-10-1	4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98
67-64-1	Acetone	6.4	U	10	6.4	1.9
71-43-2	Benzene	0.40	U	1.0	0.40	0.16
74-97-5	Bromochloromethane	0.20	U	1.0	0.20	0.10
75-27-4	Bromodichloromethane	0.40	U	1.0	0.40	0.17
75-25-2	Bromoform	1.0	U	1.0	1.0	0.46
74-83-9	Bromomethane	0.80	U	2.0	0.80	0.21
75-15-0	Carbon disulfide	0.80	U M	2.0	0.80	0.17
56-23-5	Carbon tetrachloride	0.40	U	2.0	0.40	0.19
108-90-7	Chlorobenzene	0.40	U	1.0	0.40	0.17
75-00-3	Chloroethane	1.6	U	2.0	1.6	0.41
67-66-3	Chloroform	0.40	U	1.0	0.40	0.16
74-87-3	Chloromethane	0.80	U	2.0	0.80	0.30
156-59-2	cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-01-5	cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16
110-82-7	Cyclohexane	0.80	U	2.0	0.80	0.28
124-48-1	Dibromochloromethane	0.40	U	1.0	0.40	0.17
75-71-8	Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31
100-41-4	Ethylbenzene	0.40	U	1.0	0.40	0.16

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: TB-1062 Lab Sample ID: 280-126873-5

Matrix: Water Lab File ID: R7090.D

Analysis Method: 8260B Date Collected: 07/31/2019 08:45

Sample wt/vol: 5(mL) Date Analyzed: 08/10/2019 00:17

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
106-93-4	Ethylene Dibromide	0.40	U	1.0	0.40	0.18
98-82-8	Isopropylbenzene	0.40	U	1.0	0.40	0.19
79-20-9	Methyl acetate	4.0	U	5.0	4.0	1.6
1634-04-4	Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25
108-87-2	Methylcyclohexane	0.40	U	2.0	0.40	0.10
75-09-2	Methylene Chloride	2.0	U	5.0	2.0	0.94
100-42-5	Styrene	0.80	U	1.0	0.80	0.36
127-18-4	Tetrachloroethene	0.40	U	1.0	0.40	0.20
108-88-3	Toluene	0.40	U	1.0	0.40	0.17
156-60-5	trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-02-6	trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19
79-01-6	Trichloroethene	0.40	U	1.0	0.40	0.16
75-69-4	Trichlorofluoromethane	0.80	U	2.0	0.80	0.29
75-01-4	Vinyl chloride	0.20	U	1.5	0.20	0.10
1330-20-7	Xylenes, Total	0.80	U	1.0	0.80	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		81-118
460-00-4	4-Bromofluorobenzene (Surr)	101		85-114
1868-53-7	Dibromofluoromethane (Surr)	101		80-119
2037-26-5	Toluene-d8 (Surr)	99		89-112

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7090.D
Lims ID: 280-126873-A-5
Client ID: TB-1062
Sample Type: Client
Inject. Date: 10-Aug-2019 00:17:30 ALS Bottle#: 11 Worklist Smp#: 16
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 280-126873-A-5 pH
Misc. Info.: 280-0084350-016
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:43:53 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 10-Aug-2019 13:02:17

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.261	3.268	-0.007	0	3695121	1000.0	
* 1 Fluorobenzene	96	5.068	5.064	0.004	98	4251283	50.0	
* 2 Chlorobenzene-d5	119	7.594	7.598	-0.004	88	928832	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.821	0.000	98	1263563	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.561	0.000	91	979729	50.5	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.824	0.000	0	1342363	54.0	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	4033094	49.5	
$ 8 4-Bromofluorobenzene (Surr	95	8.692	8.692	0.000	84	1428442	50.6	
23 Dichlorodifluoromethane	85		1.660				ND	
26 Chloromethane	50		1.855				ND	
27 Vinyl chloride	62		1.934				ND	
29 Bromomethane	94		2.192				ND	
30 Chloroethane	64		2.279				ND	
32 Trichlorofluoromethane	101		2.500				ND	
40 1,1,2-Trichloro-1,2,2-trif	151		2.905				ND	
43 1,1-Dichloroethene	96		2.908				ND	
41 Acetone	43		2.935				ND	
48 Carbon disulfide	76		3.096				ND	U
45 Methyl acetate	43		3.159				ND	
50 Methylene Chloride	84		3.276				ND	
51 Methyl tert-butyl ether	73		3.463				ND	
53 trans-1,2-Dichloroethene	96		3.474				ND	
57 1,1-Dichloroethane	63		3.797				ND	
61 2-Butanone (MEK)	43		4.179				ND	
63 cis-1,2-Dichloroethene	96		4.205				ND	
67 Chlorobromomethane	128		4.385				ND	
68 Chloroform	83		4.445				ND	
71 1,1,1-Trichloroethane	97		4.588				ND	
72 Cyclohexane	56		4.644				ND	
74 Carbon tetrachloride	117		4.704				ND	
77 Benzene	78		4.854				ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
76 1,2-Dichloroethane	62		4.884				ND	
79 Trichloroethene	95		5.341				ND	
82 Methylcyclohexane	55		5.536				ND	
83 1,2-Dichloropropane	63		5.547				ND	
86 Dichlorobromomethane	83		5.746				ND	
89 cis-1,3-Dichloropropene	75		6.095				ND	
90 4-Methyl-2-pentanone (MIBK	43		6.192				ND	
91 Toluene	91		6.380				ND	
93 trans-1,3-Dichloropropene	75		6.556				ND	
94 1,1,2-Trichloroethane	97		6.732				ND	
97 Tetrachloroethene	164		6.826				ND	
95 2-Hexanone	43		6.897				ND	
98 Chlorodibromomethane	129		7.073				ND	
100 Ethylene Dibromide	107		7.193				ND	
102 Chlorobenzene	112		7.624				ND	
103 Ethylbenzene	106		7.699				ND	
105 m-Xylene & p-Xylene	106		7.815				ND	U
107 o-Xylene	106		8.179				ND	
106 Styrene	104		8.194				ND	
108 Bromoform	173		8.378				ND	
109 Isopropylbenzene	105		8.520				ND	
112 1,1,2,2-Tetrachloroethane	83		8.805				ND	
124 1,3-Dichlorobenzene	146		9.746				ND	
126 1,4-Dichlorobenzene	146		9.843				ND	
128 1,2-Dichlorobenzene	146		10.199				ND	
129 1,2-Dibromo-3-Chloropropan	157		10.979				ND	
130 1,2,4-Trichlorobenzene	180		11.804				ND	
133 1,2,3-Trichlorobenzene	180		12.291				ND	
S 139 Xylenes, Total	106		0.000				ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

mv-Cent IS/SS_00005 Amount Added: 5.00 Units: uL Run Reagent

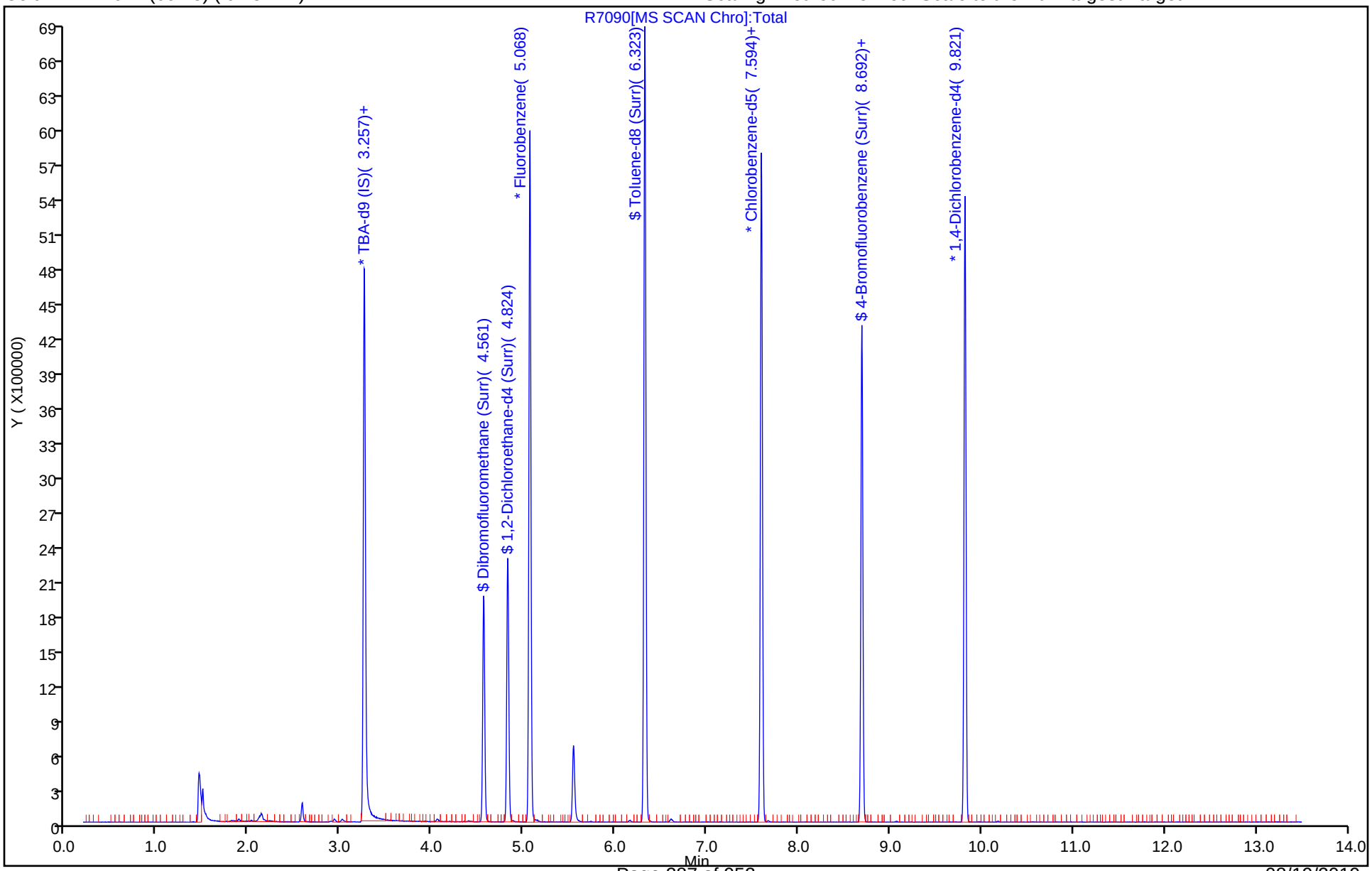
Report Date: 10-Aug-2019 15:45:16 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7090.D

Injection Date:	10-Aug-2019 00:17:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	280-126873-A-5	Lab Sample ID:	280-126873-5	Worklist Smp#:	16
Client ID:	TB-1062				
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	11
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7090.D
Lims ID: 280-126873-A-5
Client ID: TB-1062
Sample Type: Client
Inject. Date: 10-Aug-2019 00:17:30 ALS Bottle#: 11 Worklist Smp#: 16
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 280-126873-A-5 pH
Misc. Info.: 280-0084350-016
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:43:53 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 10-Aug-2019 13:02:17

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 Dibromofluoromethane (Surr)	50.0	50.5	101.01
$ 6 1,2-Dichloroethane-d4 (Surr)	50.0	54.0	108.05
$ 7 Toluene-d8 (Surr)	50.0	49.5	98.95
$ 8 4-Bromofluorobenzene (Surr)	50.0	50.6	101.22

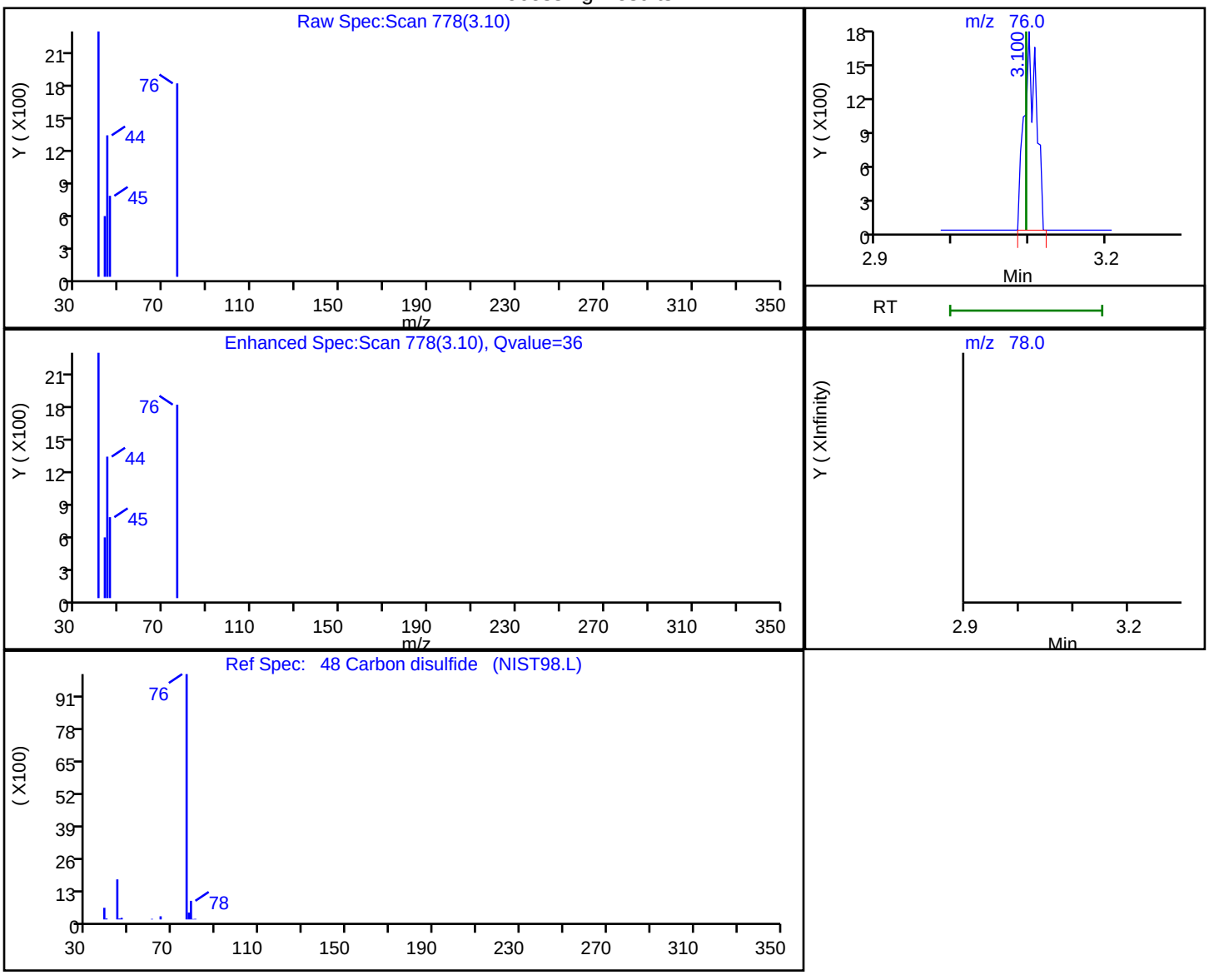
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7090.D				
Injection Date:	10-Aug-2019 00:17:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-A-5	Lab Sample ID:	280-126873-5		
Client ID:	TB-1062				
Operator ID:	ZHANGJ	ALS Bottle#:	11	Worklist Smp#:	16
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

48 Carbon disulfide, CAS: 75-15-0

Processing Results



RT	Mass	Response	Amount
3.10	76.00	1958	0.408001
3.10	78.00	0	

Reviewer: zhangji, 10-Aug-2019 13:02:12

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

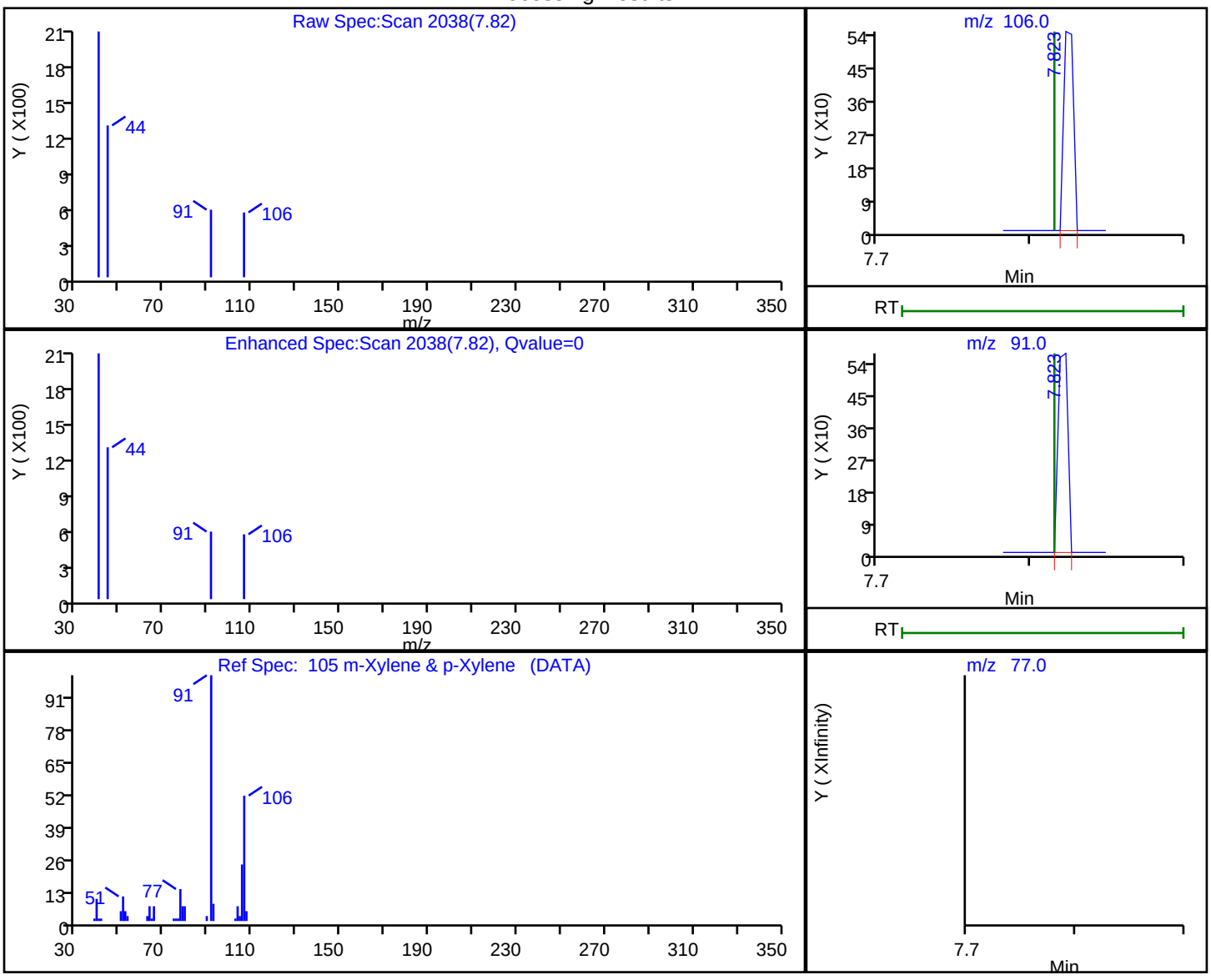
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7090.D				
Injection Date:	10-Aug-2019 00:17:30	Instrument ID:	VMS_R1		
Lims ID:	280-126873-A-5	Lab Sample ID:	280-126873-5		
Client ID:	TB-1062				
Operator ID:	ZHANGJ	ALS Bottle#:	11	Worklist Smp#:	16
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

105 m-Xylene & p-Xylene, CAS: 179601-23-1

Processing Results



RT	Mass	Response	Amount
7.82	106.00	243	0.239920
7.82	91.00	253	
7.82	77.00	0	

Reviewer: zhangji, 10-Aug-2019 13:02:15

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

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 280-466573/12	R6841.D
Level 2	STD 280-466573/13	R6842.D
Level 3	STD 280-466573/14	R6843.D
Level 4	STD 280-466573/15	R6844.D
Level 5	ICIS 280-466573/16	R6845.D
Level 6	STD 280-466573/17	R6846.D
Level 7	STD 280-466573/18	R6847.D
Level 8	STD 280-466573/19	R6848.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 8	LVL 4	LVL 5		B	M1	M2								
Dichlorodifluoromethane	0.1058 0.2021	0.1504 0.1881	0.2102 0.1904	0.1906	0.1876	Lin2	-0.043	0.1977							0.9930		0.9900
Chloromethane	0.1330 0.1790	0.1463 0.1655	0.1645 0.1812	0.1693	0.1769	Ave		0.1645			0.1000	10.3		15.0			
Vinyl chloride	+++++ 0.1646	0.1184 0.1508	0.1502 0.1835	0.1550	0.1584	Ave		0.1544				12.7		30.0			
Bromomethane	+++++ 0.0297	0.0393 0.0280	0.0369 +++++	0.0337	0.0299	Lin2	0.0103	0.0301							0.9960		0.9900
Chloroethane	+++++ 0.1064	0.0897 0.0977	0.1089 +++++	0.0990	0.1006	Lin2	-0.008	0.1026							0.9960		0.9900
Dichlorofluoromethane	0.2349 0.3355	0.2654 0.3001	0.3457 0.3138	0.3334	0.3351	Ave		0.3080				12.8		15.0			
Trichlorofluoromethane	0.1812 0.2603	0.1752 0.2442	0.2463 0.2558	0.2354	0.2486	Ave		0.2309				14.5		15.0			
Ethyl ether	0.1716 0.1684	0.1376 0.1579	0.1655 0.1624	0.1732	0.1733	Ave		0.1637				7.3		15.0			
Acrolein	0.0363 0.0450	0.0322 0.0414	0.0386 0.0436	0.0427	0.0439	Ave		0.0405				11.0		15.0			
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0396 0.1067	0.0783 0.1007	0.0826 0.1103	0.1035	0.1017	Lin2	-0.032	0.1051							0.9980		0.9900
1,1-Dichloroethene	+++++ 0.1568	0.1196 0.1475	0.1334 0.1569	0.1444	0.1548	Ave		0.1448				9.6		30.0			
Acetone	0.2529 0.1129	0.1709 0.1018	0.1407 0.1058	0.1237	0.1126	Lin2	0.2818	0.1080							0.9960		0.9900
Iodomethane	0.2055 0.2542	0.1778 0.2404	0.1867 0.2582	0.2162	0.2404	Ave		0.2224				13.7		15.0			
Carbon disulfide	0.3741 0.4685	0.2843 0.4447	0.2697 0.4826	0.3457	0.4502	Lin1	-0.167	0.4662							0.9970		0.9900

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

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

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 8	LVL 4	LVL 5		B	M1	M2								
Methyl acetate	0.3432 0.2598	0.2930 0.2380	0.2628 0.2430	0.2591	0.2538	Ave		0.2691				12.7		15.0			
3-Chloro-1-propene	0.2465 0.2987	0.2095 0.2775	0.2067 0.2581	0.2504	0.2845	Ave		0.2540				13.1		15.0			
Methylene Chloride	0.2283 0.1851	0.1785 0.1721	0.1980 0.1818	0.1893	0.1884	Ave		0.1902				9.1		15.0			
t-Butyl alcohol	0.0275 0.0418	0.0249 0.0403	0.0248 +++++	0.0313	0.0360	Lin1	-0.141	0.0397							0.9950		0.9900
Acrylonitrile	0.1339 0.1268	0.1258 0.1130	0.1334 0.0923	0.1392	0.1295	Ave		0.1242				12.1		15.0			
Methyl tert-butyl ether	0.4534 0.5372	0.4049 0.5060	0.4897 0.5170	0.4943	0.5245	Ave		0.4909				8.8		15.0			
trans-1,2-Dichloroethene	0.1483 0.1818	0.1361 0.1717	0.1659 0.1769	0.1809	0.1843	Ave		0.1683				10.3		15.0			
Hexane	0.5141 1.0232	0.8114 0.9492	0.9219 0.9658	1.0633	1.0170	Lin2	-0.239	1.0171							0.9980		0.9900
Vinyl acetate	+++++ 0.4748	0.2403 0.4467	0.2694 +++++	0.3653	0.4532	Lin1	-0.613	0.4589							0.9980		0.9900
1,1-Dichloroethane	0.3099 0.3440	0.2905 0.3176	0.3228 0.3233	0.3435	0.3501	Ave		0.3252			0.1000	6.2		15.0			
2-Butanone (MEK)	0.1804 0.1937	0.1647 0.1741	0.1635 0.1716	0.1979	0.1948	Ave		0.1801				7.7		15.0			
cis-1,2-Dichloroethene	0.1764 0.2037	0.1675 0.1916	0.1893 0.1991	0.1991	0.2026	Ave		0.1912				6.8		15.0			
2,2-Dichloropropane	+++++ 0.2159	0.0949 0.2144	0.1013 +++++	0.1309	0.1814	Lin1	-0.187	0.2077							0.9910		0.9900
sec-Butyl Alcohol	0.3072 0.8866	0.3881 0.8007	0.4201 +++++	0.6617	0.8926	Lin1	-13.00	0.8479							0.9950		0.9900
Bromochloromethane	0.0604 0.0885	0.0627 0.0824	0.0850 0.0885	0.0819	0.0865	Ave		0.0795				14.3		15.0			
Tetrahydrofuran	0.1686 0.1284	0.1155 0.1164	0.1192 0.1203	0.1273	0.1287	Ave		0.1280				13.4		15.0			
Chloroform	+++++ 0.3249	0.2608 0.3027	0.2891 0.3174	0.3188	0.3252	Ave		0.3055				7.7		30.0			
1,1,1-Trichloroethane	0.1573 0.2494	0.1434 0.2369	0.1653 0.2569	0.1941	0.2329	Lin1	-0.095	0.2478							0.9980		0.9900
Cyclohexane	0.1636 0.2986	0.2230 0.2740	0.2643 0.2876	0.3017	0.2892	Lin2	-0.065	0.2922							0.9990		0.9900
1,1-Dichloropropene	+++++ 0.2554	0.2033 0.2371	0.2138 0.2466	0.2484	0.2538	Ave		0.2369				8.6		15.0			

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

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

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 8	LVL 4	LVL 5		B	M1	M2								
Carbon tetrachloride	+++++ 0.1759	0.0683 0.1727	0.0838 +++++	0.1020	0.1487	Lin1	-0.158	0.1685							0.9910		0.9900
Isobutyl alcohol	+++++ 0.3547	0.2126 0.3168	0.2441 +++++	0.2666	0.3665	Lin1	-4.271	0.3403							0.9940		0.9900
Benzene	0.7336 0.7761	0.7212 0.7193	0.7878 0.7085	0.7876	0.7817	Ave		0.7520				4.6		15.0			
1,2-Dichloroethane	0.3307 0.2679	0.2827 0.2456	0.2955 0.2516	0.2810	0.2751	Ave		0.2788				9.6		15.0			
Trichloroethene	0.0806 0.1942	0.1608 0.1798	0.1690 0.1893	0.1852	0.1943	Lin2	-0.051	0.1923							0.9970		0.9900
2-Pentanone	0.2103 0.2959	0.1946 0.2660	0.2326 0.2228	0.2919	0.2956	Qua	-0.527	0.3251	-0.000127						0.9990		0.9900
Methylcyclohexane	0.0877 0.2021	0.1639 0.1883	0.1829 0.1897	0.2059	0.1977	Lin2	-0.052	0.2009							0.9970		0.9900
1,2-Dichloropropane	+++++ 0.2059	0.3399 0.1917	0.2666 +++++	0.2252	0.2092	Lin2	0.1364	0.2024							0.9980		0.9900
1,4-Dioxane	0.0039 0.0054	0.0055 0.0050	0.0051 0.0053	0.0054	0.0053	Ave		0.0051				10.5		15.0			
Dibromomethane	0.1226 0.1211	0.1063 0.1133	0.1157 0.1184	0.1152	0.1180	Ave		0.1163				4.4		15.0			
Bromodichloromethane	+++++ 0.2170	0.0782 0.2095	0.1224 0.2269	0.1562	0.2023	Lin1	-0.195	0.2191							0.9970		0.9900
2-Chloroethyl vinyl ether	0.0570 0.1729	0.0991 0.1581	0.1359 0.1680	0.1494	0.1693	Lin2	-0.056	0.1643							0.9980		0.9900
cis-1,3-Dichloropropene	+++++ 1.3003	0.5504 1.2529	0.6271 1.3398	0.8712	1.2203	Lin1	-1.188	1.3028							0.9970		0.9900
4-Methyl-2-pentanone (MIBK)	+++++ 0.3250	0.2206 0.2931	0.2676 +++++	0.3308	0.3294	Ave		0.2944				14.9		15.0			
Toluene	0.7212 0.7926	0.6954 0.7368	0.7744 0.7130	0.7897	0.7965	Ave		0.7525				5.4		30.0			
trans-1,3-Dichloropropene	+++++ 0.2391	0.0742 0.2343	0.0853 0.2560	0.1285	0.2101	Lin1	-0.289	0.2434							0.9930		0.9900
Ethyl methacrylate	0.5725 1.3876	0.5602 1.2892	0.7035 1.3344	1.0170	1.3329	Lin1	-0.675	1.3326							0.9980		0.9900
1,1,2-Trichloroethane	0.1394 0.1674	0.1353 0.1583	0.1512 0.1647	0.1671	0.1700	Ave		0.1567				8.5		15.0			
Tetrachloroethene	0.4519 0.5854	0.3248 0.5474	0.5221 0.6031	0.5655	0.5754	Lin1	-0.138	0.5847							0.9980		0.9900
1,3-Dichloropropane	0.8364 1.4523	1.2902 1.3427	1.4076 1.3607	1.4877	1.4926	Lin2	-0.273	1.4582							0.9960		0.9900

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

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

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 8	LVL 4	LVL 5		B	M1	M2								
2-Hexanone	0.7718 1.1590	0.7918 1.0415	0.9773 0.8984	1.2056	1.1894	Qua	-0.684	1.2592	-0.000452						0.9990		0.9900
Dibromochloromethane	+++++ 0.6337	0.2404 0.6269	0.3012 +++++	0.3515	0.5545	Lin1	-0.589	0.6128							0.9920		0.9900
Ethylene Dibromide	0.5293 0.8542	0.5010 0.7940	0.5396 0.8315	0.7398	0.8395	Lin1	-0.273	0.8282							0.9990		0.9900
1-Chlorohexane	+++++ 1.0417	1.0256 0.9598	0.9032 1.0253	0.9912	1.0287	Ave		0.9965				5.0		15.0			
Chlorobenzene	2.1962 2.2514	1.9904 2.0759	2.1604 2.1740	2.2439	2.2436	Ave		2.1670			0.3000	4.2		15.0			
1,1,1,2-Tetrachloroethane	+++++ 0.6495	0.2682 0.6304	0.3047 +++++	0.3853	0.5921	Lin1	-0.571	0.6282							0.9940		0.9900
Ethylbenzene	1.0349 1.2282	1.0525 1.1406	1.1390 1.1977	1.2464	1.2406	Ave		1.1600				7.1		30.0			
m-Xylene & p-Xylene	0.7134 1.4942	1.2747 1.3703	1.3996 1.4479	1.4663	1.4795	Lin2	-0.344	1.4875							0.9960		0.9900
o-Xylene	1.0986 1.4474	1.0841 1.3421	1.3117 1.3842	1.4487	1.4538	Ave		1.3213				11.4		15.0			
Styrene	1.8677 2.5021	1.8092 2.3070	2.0618 2.3709	2.4569	2.5119	Ave		2.2359				12.7		15.0			
Bromoform	0.0997 0.3708	0.0982 +++++	0.1206 +++++	0.1676	0.3071	Qua	-0.133	0.1765	0.0026211		0.1000				1.0000		0.9900
Isopropylbenzene	2.0440 2.6403	2.0743 2.3986	2.4081 2.3235	2.6293	2.6493	Ave		2.3959				10.1		15.0			
Cyclohexanone	0.0407 0.0874	0.0432 0.0781	0.0534 0.0759	0.0864	0.0900	Lin1	-0.969	0.0805							0.9950		0.9900
1,1,2,2-Tetrachloroethane	0.7645 0.8517	0.7070 0.7860	0.7481 0.8048	0.8161	0.8529	Ave		0.7914			0.3000	6.4		15.0			
Bromobenzene	0.6091 0.6215	0.5172 0.5769	0.6137 0.6038	0.6079	0.6223	Ave		0.5965				5.9		15.0			
trans-1,4-Dichloro-2-butene	0.1993 0.2754	0.1235 0.2549	0.1276 0.2647	0.2299	0.2598	Lin1	-0.103	0.2638							0.9980		0.9900
1,2,3-Trichloropropane	0.1781 0.2963	0.2508 0.2704	0.2694 0.2785	0.3073	0.2990	Lin2	-0.054	0.2933							0.9970		0.9900
N-Propylbenzene	0.4314 0.6951	0.5748 0.6396	0.6291 0.6631	0.7048	0.6970	Ave		0.6294				14.5		15.0			
2-Chlorotoluene	0.3012 0.6171	0.4872 0.5632	0.5980 0.5840	0.6180	0.6200	Lin2	-0.145	0.6148							0.9960		0.9900
1,3,5-Trimethylbenzene	1.6527 2.1300	1.6938 1.9554	1.9519 1.9632	2.1636	2.1723	Ave		1.9604				10.2		15.0			

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

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

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 8	LVL 4	LVL 5		B	M1	M2								
4-Chlorotoluene	0.5746 0.6482	0.3718 0.5957	0.6244 0.6103	0.6709	0.6482	Lin1	-0.059	0.6197							0.9980		0.9900
tert-Butylbenzene	0.8929 1.6827	1.3442 1.5456	1.4806 1.5969	1.6851	1.7158	Lin2	-0.369	1.6613							0.9980		0.9900
1,2,4-Trimethylbenzene	1.6166 2.1863	1.6782 2.0000	1.9762 1.9994	2.2103	2.2139	Ave		1.9851				11.6		15.0			
sec-Butylbenzene	0.3167 0.4848	0.3396 0.4446	0.4016 0.4682	0.4709	0.4965	Lin2	-0.088	0.4681							0.9960		0.9900
1,3-Dichlorobenzene	0.9734 1.1158	0.9432 1.0442	1.0870 1.0921	1.1352	1.1385	Ave		1.0662				6.9		15.0			
4-Isopropyltoluene	1.5044 2.0504	1.4512 1.8873	1.7895 1.9290	2.0687	2.0770	Ave		1.8447				13.4		15.0			
1,4-Dichlorobenzene	1.1807 1.1590	0.9960 1.0720	1.0879 1.1327	1.1885	1.1643	Ave		1.1226				5.9		15.0			
n-Butylbenzene	0.6999 1.8266	1.3907 1.6861	1.5156 1.7034	1.8855	1.8738	Lin2	-0.532	1.8153							0.9970		0.9900
1,2-Dichlorobenzene	+++++ 1.0795	0.4210 0.9949	1.0211 1.0543	1.0849	1.0760	Lin1	-0.387	1.0528							0.9990		0.9900
1,2-Dibromo-3-Chloropropane	+++++ 0.1947	+++++ 0.1876	0.0522 0.2150	0.0864	0.1664	Lin1	-0.484	0.2027							0.9900		0.9900
1,2,4-Trichlorobenzene	0.4202 0.5923	0.4350 0.5608	0.4876 0.5971	0.5566	0.5847	Ave		0.5293				13.5		15.0			
Hexachlorobutadiene	+++++ 0.1969	0.1424 0.1867	0.1449 0.2047	0.2006	0.1964	Ave		0.1818				14.6		15.0			
Naphthalene	1.5848 2.4113	1.4166 2.2601	1.7923 2.2618	2.2631	2.3817	Lin1	-0.570	2.3062							0.9990		0.9900
1,2,3-Trichlorobenzene	+++++ 0.5498	0.4310 0.5182	0.4926 0.5510	0.5259	0.5414	Ave		0.5157				8.3		15.0			
Dibromofluoromethane (Surr)	0.2277 0.2325	0.2204 0.2342	0.2220 0.2356	0.2226	0.2301	Ave		0.2281				2.6		15.0			
1,2-Dichloroethane-d4 (Surr)	0.3073 0.2874	0.2939 0.2844	0.3085 0.2801	0.2880	0.2882	Ave		0.2922				3.6		15.0			
Toluene-d8 (Surr)	4.3628 4.3653	4.4515 4.3351	4.4355 4.3462	4.4280	4.3799	Ave		4.3881				1.0		15.0			
4-Bromofluorobenzene (Surr)	1.1472 1.1080	1.1511 1.0905	1.1325 1.0483	1.1355	1.1217	Ave		1.1168				3.1		15.0			

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

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 280-466573/12	R6841.D
Level 2	STD 280-466573/13	R6842.D
Level 3	STD 280-466573/14	R6843.D
Level 4	STD 280-466573/15	R6844.D
Level 5	ICIS 280-466573/16	R6845.D
Level 6	STD 280-466573/17	R6846.D
Level 7	STD 280-466573/18	R6847.D
Level 8	STD 280-466573/19	R6848.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Dichlorodifluoromethane	FB	Lin2	4179 1422029	11883 1849448	34248 4015215	162144	838171	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Chloromethane	FB	Ave	5254 1259975	11557 1627519	26796 3821745	144055	790243	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Vinyl chloride	FB	Ave	+++++ 1158083	9348 1482665	24472 3869462	131820	707516	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
Bromomethane	FB	Lin2	+++++ 208887	3105 275322	6013 +++++	28631	133521	+++++ 75.0	1.00 100	2.00 +++++	10.0	50.0
Chloroethane	FB	Lin2	+++++ 748550	7086 960983	17745 +++++	84206	449506	+++++ 75.0	1.00 100	2.00 +++++	10.0	50.0
Dichlorofluoromethane	FB	Ave	9277 2360966	20964 2951013	56315 6619271	283633	1496763	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Trichlorofluoromethane	FB	Ave	7156 1831677	13837 2401533	40134 5394711	200246	1110297	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Ethyl ether	FB	Ave	6776 1185151	10866 1552453	26956 3426260	147347	774253	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Acrolein	FB	Ave	14167 3128921	25085 4021833	62086 9081825	358644	1935898	4.94 741	9.88 988	19.8 1975	98.8	494
1,1,2-Trichloro-1,2,2-trifluoroetha ne	FB	Lin2	1565 751232	6184 990398	13464 2326792	88054	454096	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,1-Dichloroethene	FB	Ave	+++++ 1103574	9450 1450804	21736 3308535	122842	691406	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
Acetone	FB	Lin2	39958 3178533	53993 4003307	91721 8925430	420912	2011211	2.00 300	4.00 400	8.00 800	40.0	200
Iodomethane	FB	Ave	8116 1789017	14045 2363525	30409 5445777	183951	1074059	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Carbon disulfide	FB	Lin1	14776 3297265	22458 4372552	43946 10178939	294067	2011209	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Methyl acetate	FB	Ave	27114 3655982	46285 4681063	85645 10249810	440853	2267427	1.00 150	2.00 200	4.00 400	20.0	100

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	9736 2101754	16547 2729221	33676 5444074	212990	1270798	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Methylene Chloride	FB	Ave	9018 1302524	14096 1692245	32265 3834503	161002	841711	0.500 75.0	1.00 100	2.00 200	10.0	50.0
t-Butyl alcohol	FB	Lin1	10846 2943606	19631 3960192	40399 +++++	266564	1607832	5.00 750	10.0 1000	20.0 +++++	100	500
Acrylonitrile	FB	Ave	52876 8921695	99357 11113236	217392 19463331	1183970	5783427	5.00 750	10.0 1000	20.0 2000	100	500
Methyl tert-butyl ether	FB	Ave	17909 3780324	31985 4976093	79777 10903717	420494	2342888	0.500 75.0	1.00 100	2.00 200	10.0	50.0
trans-1,2-Dichloroethene	FB	Ave	5859 1279525	10753 1688810	27026 3731567	153873	823258	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Hexane	CBNZ d5	Lin2	4301 1566988	13549 2038859	31971 4476222	192234	974396	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Vinyl acetate	FB	Lin1	+++++ 6682658	37955 8785241	87790 +++++	621614	4048770	+++++ 150	2.00 200	4.00 +++++	20.0	100
1,1-Dichloroethane	FB	Ave	12242 2420975	22947 3122976	52598 6818650	292228	1563975	0.500 75.0	1.00 100	2.00 200	10.0	50.0
2-Butanone (MEK)	FB	Ave	28498 5453889	52040 6847598	106538 14481632	673502	3479983	2.00 300	4.00 400	8.00 800	40.0	200
cis-1,2-Dichloroethene	FB	Ave	6966 1433604	13232 1883865	30848 4199572	169420	905233	0.500 75.0	1.00 100	2.00 200	10.0	50.0
2,2-Dichloropropane	FB	Lin1	+++++ 1519126	7499 2108590	16503 +++++	111335	810132	+++++ 75.0	1.00 100	2.00 +++++	10.0	50.0
sec-Butyl Alcohol	TBAd 9	Lin1	12517 8534735	31349 11267611	67915 +++++	596270	4760601	15.0 2250	30.0 3000	60.0 +++++	300	1500
Bromochloromethane	FB	Ave	2387 622947	4952 810227	13843 1867624	69654	386194	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Tetrahydrofuran	FB	Ave	13316 1806905	18238 2289294	38836 5075115	216670	1150205	1.00 150	2.00 200	4.00 400	20.0	100
Chloroform	FB	Ave	+++++ 2286142	20597 2976426	47096 6695516	271205	1452710	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
1,1,1-Trichloroethane	FB	Lin1	6214 1755015	11328 2329796	26925 5418634	165092	1040596	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Cyclohexane	FB	Lin2	6463 2101137	17612 2694763	43060 6065852	256702	1291664	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,1-Dichloropropene	FB	Ave	+++++ 1797275	16056 2331096	34838 5201533	211320	1133577	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
Carbon tetrachloride	FB	Lin1	+++++ 1238006	5396 1698183	13651 +++++	86734	664361	+++++ 75.0	1.00 100	2.00 +++++	10.0	50.0
Isobutyl alcohol	TBAd 9	Lin1	+++++ 2845763	14309 3714803	32884 +++++	200183	1628683	+++++ 1875	25.0 2500	50.0 +++++	250	1250

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Benzene	FB	Ave	28977 5461413	56966 7073316	128353 14943547	670065	3491784	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,2-Dichloroethane	FB	Ave	13062 1885098	22331 2415002	48140 5306224	239070	1229064	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Trichloroethene	FB	Lin2	3183 1366636	12701 1767598	27527 3993654	157566	867737	0.500 75.0	1.00 100	2.00 200	10.0	50.0
2-Pentanone	FB	Qua	33234 8329061	61473 10462357	151569 18793384	993250	5282514	2.00 300	4.00 400	8.00 800	40.0	200
Methylcyclohexane	FB	Lin2	3463 1422138	12942 1852028	29802 4000387	175182	883171	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,2-Dichloropropane	FB	Lin2	+++++ 1448988	26847 1884710	43435 +++++	191575	934299	+++++ 75.0	1.00 100	2.00 +++++	10.0	50.0
1,4-Dioxane	FB	Ave	3050 760043	8689 975327	16747 2229365	92534	477534	10.0 1500	20.0 2000	40.0 4000	200	1000
Dibromomethane	FB	Ave	4841 852479	8395 1114280	18844 2498328	97979	527067	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Bromodichloromethane	FB	Lin1	+++++ 1526821	6178 2059820	19946 4786000	132913	903766	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
2-Chloroethyl vinyl ether	FB	Lin2	2250 1216416	7831 1554677	22136 3543000	127066	756296	0.500 75.0	1.00 100	2.00 200	10.0	50.0
cis-1,3-Dichloropropene	CBNZ d5	Lin1	+++++ 1991348	9190 2691198	21747 6209574	157497	1169176	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	+++++ 9149411	69709 11528601	174363 +++++	1125794	5885756	+++++ 300	4.00 400	8.00 +++++	40.0	200
Toluene	FB	Ave	28487 5577845	54925 7245500	126169 15038174	671827	3558068	0.500 75.0	1.00 100	2.00 200	10.0	50.0
trans-1,3-Dichloropropene	FB	Lin1	+++++ 1682714	5861 2303691	13900 5399832	109321	938719	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
Ethyl methacrylate	CBNZ d5	Lin1	4790 2125048	9354 2769134	24396 6184698	183864	1277105	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,1,2-Trichloroethane	FB	Ave	5506 1178192	10687 1556237	24641 3472972	142152	759348	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Tetrachloroethene	CBNZ d5	Lin1	3781 896454	5424 1175760	18105 2795226	102241	551332	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,3-Dichloropropane	CBNZ d5	Lin2	6997 2224108	21543 2884155	48815 6306679	268972	1430032	0.500 75.0	1.00 100	2.00 200	10.0	50.0
2-Hexanone	CBNZ d5	Qua	25829 7099406	52884 8948847	135569 16655916	871876	4558161	2.00 300	4.00 400	8.00 800	40.0	200
Dibromochloromethane	CBNZ d5	Lin1	+++++ 970509	4014 1346640	10446 +++++	63551	531225	+++++ 75.0	1.00 100	2.00 +++++	10.0	50.0
Ethylene Dibromide	CBNZ d5	Lin1	4428 1308190	8365 1705420	18712 3853760	133757	804302	0.500 75.0	1.00 100	2.00 200	10.0	50.0

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
1-Chlorohexane	CBNZ d5	Ave	+++++ 1595308	17125 2061709	31324 4751991	179203	985558	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
Chlorobenzene	CBNZ d5	Ave	18374 3447889	33235 4459155	74921 10076394	405671	2149614	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Lin1	+++++ 994700	4479 1354037	10567 +++++	69653	567281	+++++ 75.0	1.00 100	2.00 +++++	10.0	50.0
Ethylbenzene	CBNZ d5	Ave	8658 1880892	17574 2449987	39499 5550967	225343	1188674	0.500 75.0	1.00 100	2.00 200	10.0	50.0
m-Xylene & p-Xylene	CBNZ d5	Lin2	5968 2288218	21285 2943384	48537 6710886	265097	1417481	0.500 75.0	1.00 100	2.00 200	10.0	50.0
o-Xylene	CBNZ d5	Ave	9191 2216599	18103 2882817	45490 6415425	261905	1392942	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Styrene	CBNZ d5	Ave	15625 3831832	30210 4955391	71501 10988829	444193	2406701	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Bromoform	CBNZ d5	Qua	834 567804	1639 +++++	4182 +++++	30304	294206	0.500 75.0	1.00 +++++	2.00 +++++	10.0	50.0
Isopropylbenzene	DCBd 4	Ave	22425 5541090	45692 7115903	111967 14972975	641351	3483319	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Cyclohexanone	CBNZ d5	Lin1	13633 5354083	28867 6708414	74105 14080657	625111	3450933	20.0 3000	40.0 4000	80.0 8000	400	2000
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	8387 1787479	15573 2331782	34781 5186003	199074	1121339	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Bromobenzene	DCBd 4	Ave	6683 1304403	11392 1711351	28532 3890720	148283	818212	0.500 75.0	1.00 100	2.00 200	10.0	50.0
trans-1,4-Dichloro-2-butene	DCBd 4	Lin1	2187 577924	2720 756222	5934 1705798	56073	341642	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,2,3-Trichloropropane	DCBd 4	Lin2	1954 621833	5524 802103	12526 1794627	74954	393072	0.500 75.0	1.00 100	2.00 200	10.0	50.0
N-Propylbenzene	DCBd 4	Ave	4733 1458716	12661 1897598	29248 4273026	171921	916418	0.500 75.0	1.00 100	2.00 200	10.0	50.0
2-Chlorotoluene	DCBd 4	Lin2	3304 1295065	10731 1670979	27804 3763573	150743	815219	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	18132 4469988	37311 5801131	90755 12651039	527745	2856130	0.500 75.0	1.00 100	2.00 200	10.0	50.0
4-Chlorotoluene	DCBd 4	Lin1	6304 1360273	8189 1767301	29032 3932959	163648	852179	0.500 75.0	1.00 100	2.00 200	10.0	50.0
tert-Butylbenzene	DCBd 4	Lin2	9796 3531363	29609 4585299	68841 10290886	411032	2255913	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	17736 4588218	36968 5933415	91884 12884652	539153	2910765	0.500 75.0	1.00 100	2.00 200	10.0	50.0
sec-Butylbenzene	DCBd 4	Lin2	3475 1017402	7481 1319055	18674 3017013	114870	652851	0.500 75.0	1.00 100	2.00 200	10.0	50.0

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

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 466573

SDG No.:

Instrument ID: VMS_R1 GC Column: DB-624 (60. ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/03/2019 16:56 Calibration End Date: 08/03/2019 19:27 Calibration ID: 37619

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
1,3-Dichlorobenzene	DCBd 4	Ave	10679 2341599	20776 3097792	50538 7037779	276910	1496817	0.500 75.0	1.00 100	2.00 200	10.0	50.0
4-Isopropyltoluene	DCBd 4	Ave	16505 4302939	31966 5598955	83203 12430713	504598	2730752	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,4-Dichlorobenzene	DCBd 4	Ave	12954 2432401	21940 3180201	50582 7299078	289902	1530865	0.500 75.0	1.00 100	2.00 200	10.0	50.0
n-Butylbenzene	DCBd 4	Lin2	7679 3833462	30634 5002122	70470 10976757	459913	2463656	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,2-Dichlorobenzene	DCBd 4	Lin1	+++++ 2265383	9274 2951629	47476 6794314	264622	1414658	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Lin1	+++++ 408692	+++++ 556428	2425 1385757	21064	218773	+++++ 75.0	+++++ 100	2.00 200	10.0	50.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	4610 1243009	9583 1663870	22673 3847942	135769	768816	0.500 75.0	1.00 100	2.00 200	10.0	50.0
Hexachlorobutadiene	DCBd 4	Ave	+++++ 413191	3137 553755	6739 1319273	48931	258167	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
Naphthalene	DCBd 4	Lin1	17387 5060470	31204 6705155	83332 14575473	552021	3131447	0.500 75.0	1.00 100	2.00 200	10.0	50.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	+++++ 1153916	9494 1537244	22903 3550482	128271	711832	+++++ 75.0	1.00 100	2.00 200	10.0	50.0
Dibromofluoromethane (Surr)	FB	Ave	899467 1090777	870515 1151394	904334 1242491	946720	1027869	50.0 50.0	50.0 50.0	50.0 50.0	50.0	50.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	1213987 1348319	1160663 1398186	1256337 1477145	1224897	1287420	50.0 50.0	50.0 50.0	50.0 50.0	50.0	50.0
Toluene-d8 (Surr)	CBNZ d5	Ave	3649977 4456767	3716593 4655981	3845499 5036020	4002755	4196406	50.0 50.0	50.0 50.0	50.0 50.0	50.0	50.0
4-Bromofluorobenzene (Surr)	DCBd 4	Ave	1258564 1550196	1267789 1617625	1316415 1688812	1384870	1474770	50.0 50.0	50.0 50.0	50.0 50.0	50.0	50.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD
Lin2 = Linear 1/conc^2 ISTD
Qua = Quadratic ISTD

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Lims ID: STD
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 03-Aug-2019 16:56:30 ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: STD 005
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:50:49 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: seifertj Date: 05-Aug-2019 08:32:08

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.268	3.272	-0.004	0	2716371	1000.0	1000.0	
* 1 Fluorobenzene	96	5.067	5.068	-0.001	99	3949862	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	88	836610	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.825	-0.004	98	1097108	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.565	-0.004	91	899467	50.0	49.9	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.828	-0.004	0	1213987	50.0	52.6	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	3649977	50.0	49.7	
$ 8 4-Bromofluorobenzene (Surr	95	8.696	8.696	0.000	82	1258564	50.0	51.4	
23 Dichlorodifluoromethane	85	1.664	1.660	0.004	92	4179	0.5000	0.4847	
26 Chloromethane	50	1.855	1.855	0.000	97	5254	0.5000	0.4044	
27 Vinyl chloride	62	1.937	1.937	0.000	94	3933	0.5000	0.3225	
29 Bromomethane	94		2.192				ND	ND	U
30 Chloroethane	64		2.282				ND	ND	U
31 Dichlorofluoromethane	67	2.477	2.473	0.004	90	9277	0.5000	0.3813	
32 Trichlorofluoromethane	101	2.496	2.500	-0.004	73	7156	0.5000	0.3924	
35 Ethyl ether	59	2.721	2.725	-0.004	95	6776	0.5000	0.5239	
39 Acrolein	56	2.833	2.833	0.000	99	14167	4.94	4.43	
40 1,1,2-Trichloro-1,2,2-trif	151	2.905	2.908	-0.003	60	1565	0.5000	0.4946	
43 1,1-Dichloroethene	96	2.908	2.912	-0.004	43	2423	0.5000	0.2119	
41 Acetone	43	2.942	2.938	0.004	100	39958	2.00	2.07	
44 Iodomethane	142	3.036	3.036	0.000	96	8116	0.5000	0.4619	
48 Carbon disulfide	76	3.096	3.099	-0.003	98	14776	0.5000	0.7598	
45 Methyl acetate	43	3.163	3.163	0.000	97	27114	1.00	1.28	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	86	9736	0.5000	0.4853	
50 Methylene Chloride	84	3.279	3.279	0.000	47	9018	0.5000	0.6002	
49 2-Methyl-2-propanol	59	3.332	3.332	0.000	35	10846	5.00	7.00	
52 Acrylonitrile	53	3.437	3.444	-0.007	100	52876	5.00	5.39	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	91	17909	0.5000	0.4618	
53 trans-1,2-Dichloroethene	96	3.478	3.478	0.000	94	5859	0.5000	0.4408	
54 Hexane	57	3.665	3.669	-0.004	83	4301	0.5000	0.4874	
55 Vinyl acetate	43	3.778	3.774	0.004	97	22220	1.00	1.95	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.797	3.797	0.000	93	12242	0.5000	0.4765	
61 2-Butanone (MEK)	43	4.187	4.183	0.004	97	28498	2.00	2.00	
63 cis-1,2-Dichloroethene	96	4.213	4.209	0.004	82	6966	0.5000	0.4612	
64 2,2-Dichloropropane	77		4.220				ND	ND	
62 sec-Butyl Alcohol	45	4.292	4.299	-0.007	89	12517	15.0	20.8	
67 Chlorobromomethane	128	4.389	4.389	0.000	77	2387	0.5000	0.3801	
69 Tetrahydrofuran	42	4.396	4.397	-0.001	85	13316	1.00	1.32	
68 Chloroform	83	4.438	4.445	-0.007	46	6654	0.5000	0.2757	
71 1,1,1-Trichloroethane	97	4.591	4.588	0.003	1	6214	0.5000	0.7006	
72 Cyclohexane	56	4.644	4.648	-0.004	93	6463	0.5000	0.5009	
73 1,1-Dichloropropene	75	4.696	4.700	-0.004	89	5776	0.5000	0.3086	
74 Carbon tetrachloride	117		4.708				ND	ND	
70 Isobutyl alcohol	41		4.719				ND	ND	U
77 Benzene	78	4.854	4.854	0.000	89	28977	0.5000	0.4878	
76 1,2-Dichloroethane	62	4.880	4.884	-0.004	95	13062	0.5000	0.5931	
14 n-Heptane	43		5.038				ND	ND	
79 Trichloroethene	95	5.337	5.345	-0.008	58	3183	0.5000	0.4739	
80 2-Pentanone	43	5.446	5.446	0.000	98	33234	2.00	2.92	
82 Methylcyclohexane	55	5.540	5.540	0.000	34	3463	0.5000	0.4757	
83 1,2-Dichloropropane	63	5.547	5.551	-0.004	46	20546	0.5000	0.6110	
84 1,4-Dioxane	88	5.600	5.600	0.000	3	3050	10.0	7.55	
85 Dibromomethane	93	5.619	5.622	-0.003	55	4841	0.5000	0.5268	
86 Dichlorobromomethane	83	5.738	5.746	-0.008	84	3824	0.5000	1.11	
87 2-Chloroethyl vinyl ether	63	5.941	5.948	-0.007	22	2250	0.5000	0.5151	
89 cis-1,3-Dichloropropene	75	6.091	6.095	-0.004	93	5557	0.5000	1.17	
90 4-Methyl-2-pentanone (MIBK	43	6.200	6.196	0.004	96	33999	2.00	1.46	
91 Toluene	91	6.380	6.383	-0.003	96	28487	0.5000	0.4792	
93 trans-1,3-Dichloropropene	75		6.559				ND	ND	
92 Ethyl methacrylate	69	6.582	6.582	0.000	90	4790	0.5000	0.7215	
94 1,1,2-Trichloroethane	97	6.739	6.736	0.003	88	5506	0.5000	0.4449	M
97 Tetrachloroethene	164	6.822	6.826	-0.004	83	3781	0.5000	0.6217	M
96 1,3-Dichloropropane	76	6.874	6.882	-0.008	48	6997	0.5000	0.4738	
95 2-Hexanone	43	6.904	6.901	0.003	94	25829	2.00	1.77	M
98 Chlorodibromomethane	129	7.073	7.077	-0.004	16	2162	0.5000	1.17	
100 Ethylene Dibromide	107	7.193	7.193	0.000	78	4428	0.5000	0.6494	
101 1-Chlorohexane	91		7.583				ND	ND	
102 Chlorobenzene	112	7.620	7.624	-0.004	41	18374	0.5000	0.5068	
104 1,1,1,2-Tetrachloroethane	131	7.695	7.699	-0.004	38	2173	0.5000	1.12	
103 Ethylbenzene	106	7.699	7.703	-0.004	97	8658	0.5000	0.4461	
105 m-Xylene & p-Xylene	106	7.826	7.819	0.007	0	5968	0.5000	0.4709	
107 o-Xylene	106	8.179	8.179	0.000	96	9191	0.5000	0.4157	
106 Styrene	104	8.198	8.198	0.000	89	15625	0.5000	0.4176	
108 Bromoform	173	8.385	8.381	0.004	1	834	0.5000	1.02	Ma
109 Isopropylbenzene	105	8.520	8.520	0.000	95	22425	0.5000	0.4266	
111 Cyclohexanone	55	8.617	8.621	-0.004	95	13633	20.0	22.2	
112 1,1,2,2-Tetrachloroethane	83	8.801	8.809	-0.008	1	8387	0.5000	0.4830	
116 Bromobenzene	156	8.842	8.839	0.003	96	6683	0.5000	0.5106	
113 trans-1,4-Dichloro-2-buten	53	8.850	8.846	0.004	46	2187	0.5000	0.7677	
114 1,2,3-Trichloropropane	110	8.880	8.872	0.008	76	1954	0.5000	0.4874	
115 N-Propylbenzene	120	8.921	8.921	0.000	98	4733	0.5000	0.3427	
118 2-Chlorotoluene	126	9.015	9.019	-0.004	67	3304	0.5000	0.4810	
117 1,3,5-Trimethylbenzene	105	9.097	9.090	0.007	96	18132	0.5000	0.4215	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.131	9.135	-0.004	97	6304	0.5000	0.5581	
120 tert-Butylbenzene	119	9.405	9.401	0.004	93	9796	0.5000	0.4909	
121 1,2,4-Trimethylbenzene	105	9.457	9.461	-0.004	96	17736	0.5000	0.4072	
122 sec-Butylbenzene	134	9.618	9.622	-0.004	94	3475	0.5000	0.5266	
124 1,3-Dichlorobenzene	146	9.750	9.750	0.000	56	10679	0.5000	0.4565	
123 4-Isopropyltoluene	119	9.768	9.768	0.000	96	16505	0.5000	0.4078	
126 1,4-Dichlorobenzene	146	9.851	9.847	0.004	87	12954	0.5000	0.5259	
127 n-Butylbenzene	91	10.169	10.173	-0.004	59	7679	0.5000	0.4859	
128 1,2-Dichlorobenzene	146	10.203	10.203	0.000	91	11530	0.5000	0.8668	
129 1,2-Dibromo-3-Chloropropan	157	10.979	10.983	-0.004	1	579	0.5000	2.52	M
130 1,2,4-Trichlorobenzene	180	11.808	11.804	0.004	84	4610	0.5000	0.3969	
131 Hexachlorobutadiene	225		11.943				ND	ND	
132 Naphthalene	128	12.074	12.074	0.000	96	17387	0.5000	0.5906	
133 1,2,3-Trichlorobenzene	180		12.295				ND	ND	
S 140 1,2-Dichloroethene, Total	96				0		1.00	0.9021	
S 138 1,2-Dichloroethene, Total	1				0		1.00	0.9021	
S 134 Trihalomethanes, Total	1				0		2.00	3.58	
S 137 1,3-Dichloropropene, Total	1				0		1.00	1.17	
S 136 Total BTEX	1				0			2.30	
S 139 Xylenes, Total	106				0		1.00	0.8866	
S 135 Xylenes, Total (URS)	1				0		1.00	0.8866	

QC Flag Legend

Processing Flags
- ND - Not Detected or Marked ND

Review Flags
- M - Manually Integrated
- U - Marked Undetected
- a - User Assigned ID

Reagents:

MV-MegaMain B_00015	Amount Added:	0.50	Units: uL		
MV-Gas B_00035	Amount Added:	0.50	Units: uL		
mv-Cent IS/SS_00005	Amount Added:	5.00	Units: uL	Run Reagent	

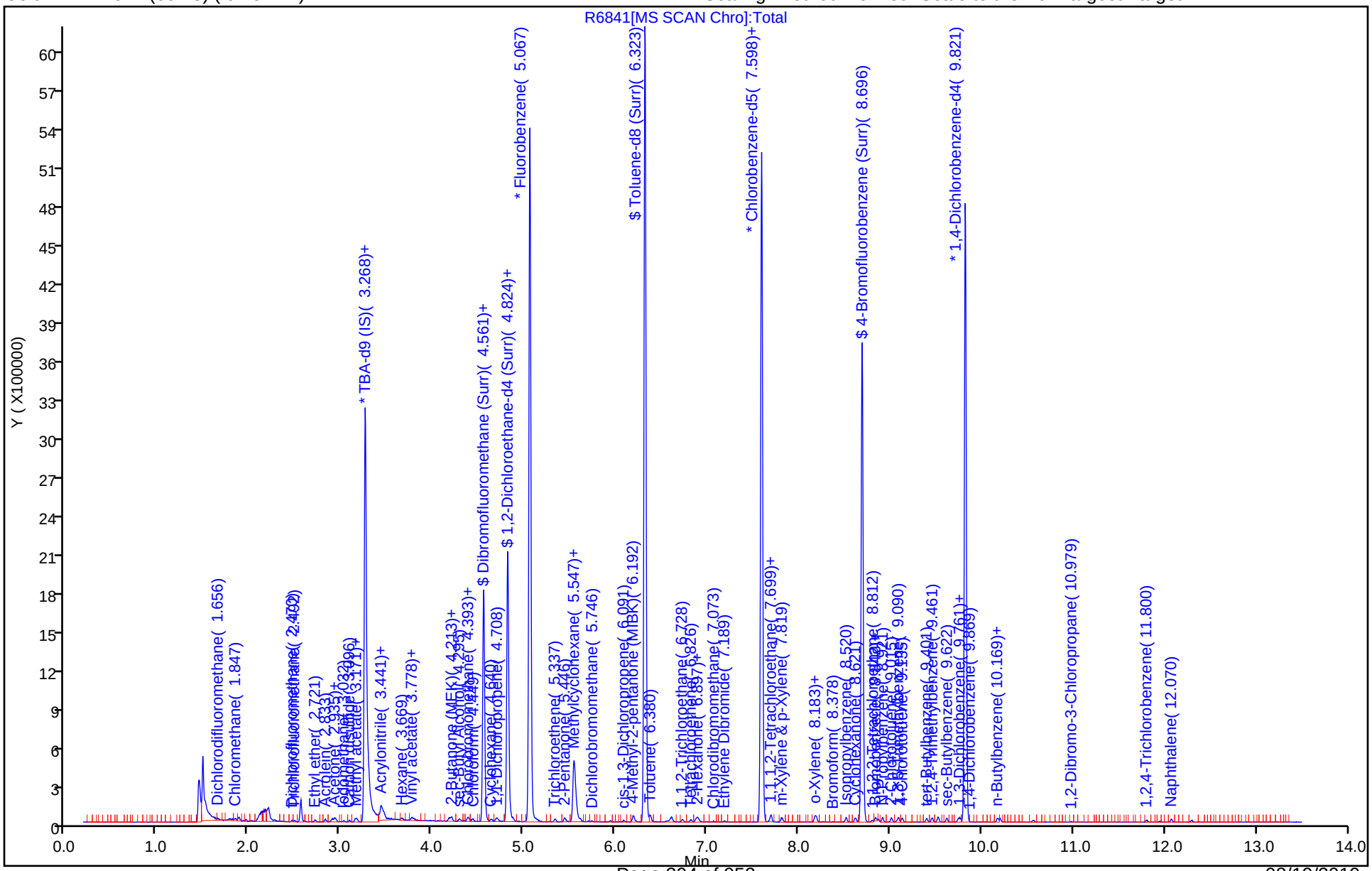
Report Date: 05-Aug-2019 11:50:52 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D

Injection Date:	03-Aug-2019 16:56:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	STD			Worklist Smp#:	12
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	1
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

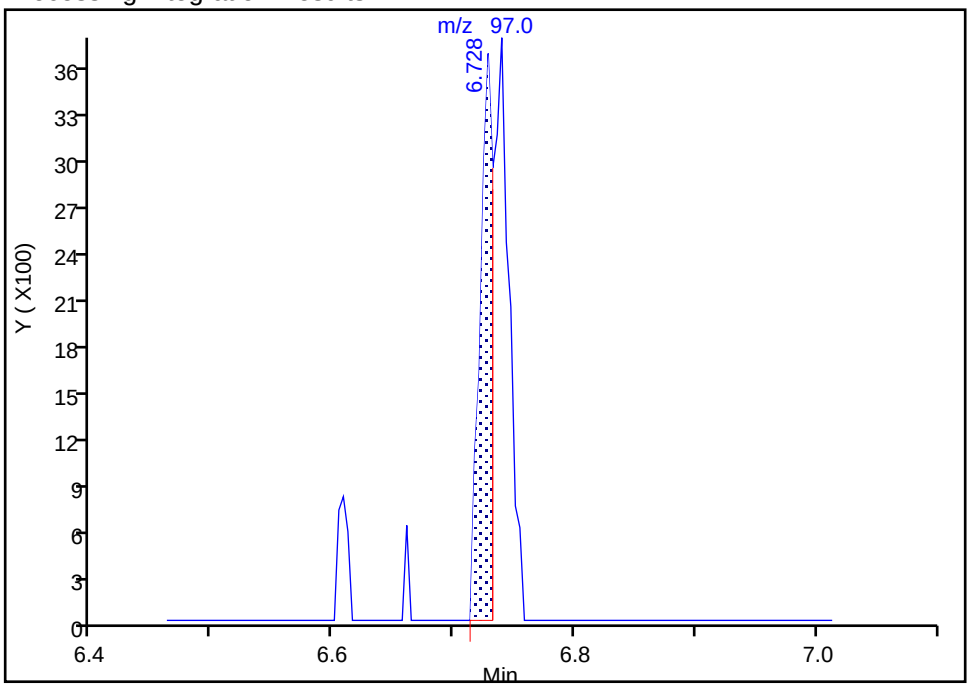
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Injection Date: 03-Aug-2019 16:56:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

94 1,1,2-Trichloroethane, CAS: 79-00-5

Signal: 1

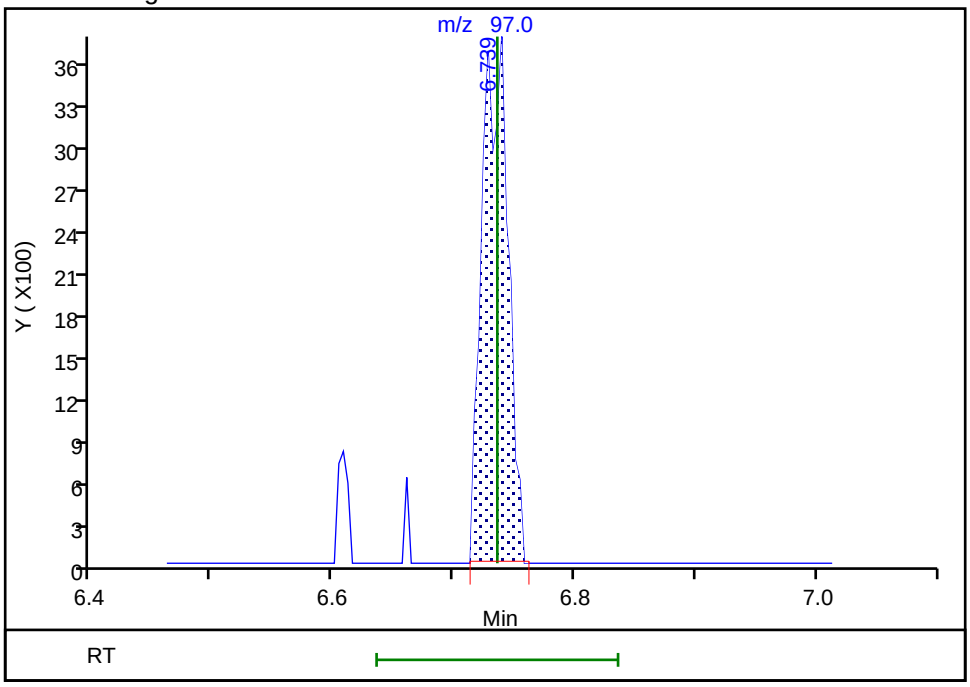
Processing Integration Results

RT: 6.73
Area: 2719
Amount: 0.477108
Amount Units: ug/l



Manual Integration Results

RT: 6.74
Area: 5506
Amount: 0.444873
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:30:03
Audit Action: Manually Integrated Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

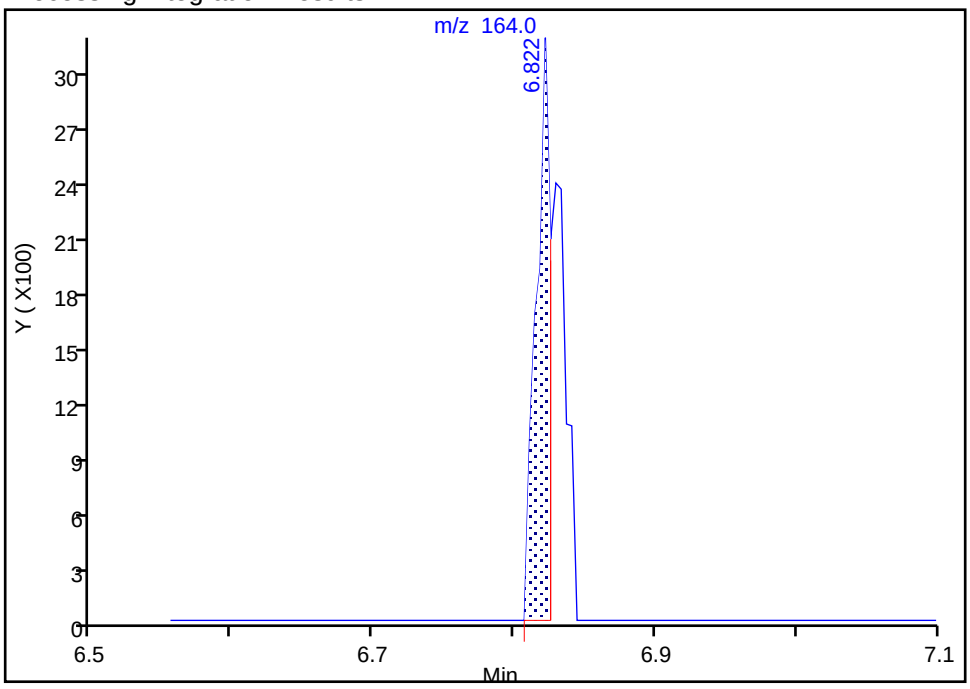
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Injection Date: 03-Aug-2019 16:56:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

97 Tetrachloroethene, CAS: 127-18-4

Signal: 1

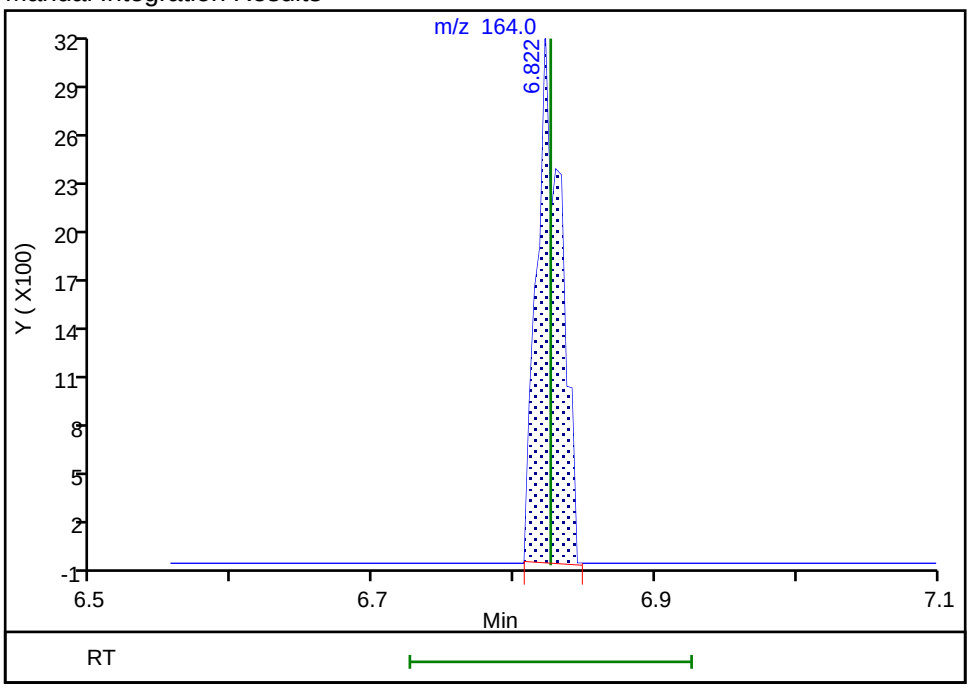
Processing Integration Results

RT: 6.82
Area: 2225
Amount: 0.527929
Amount Units: ug/l



Manual Integration Results

RT: 6.82
Area: 3781
Amount: 0.621720
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:30:46
Audit Action: Manually Integrated Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

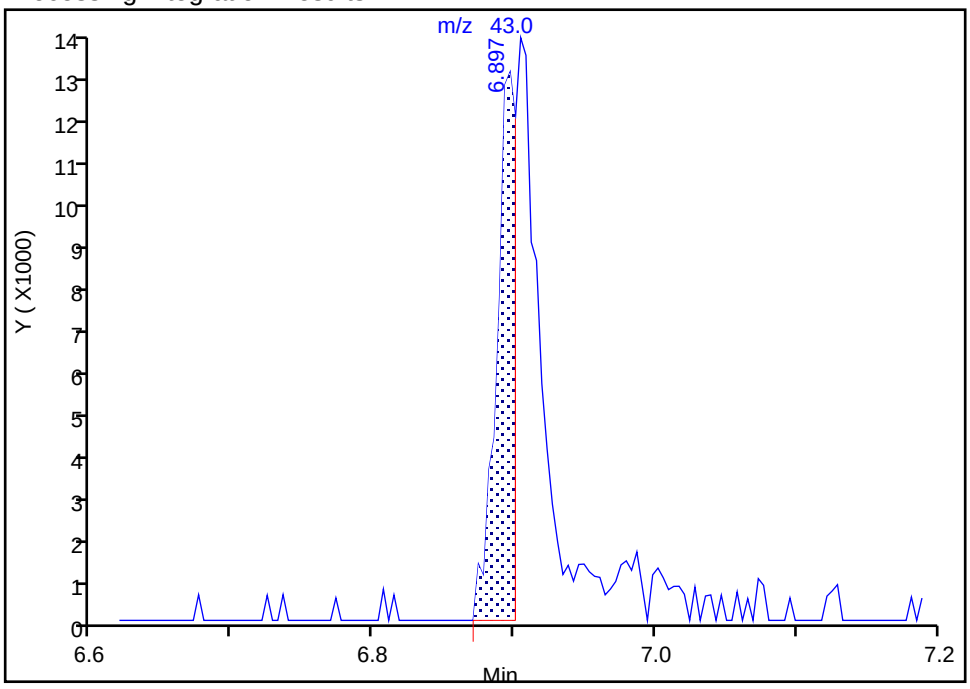
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Injection Date: 03-Aug-2019 16:56:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

95 2-Hexanone, CAS: 591-78-6

Signal: 1

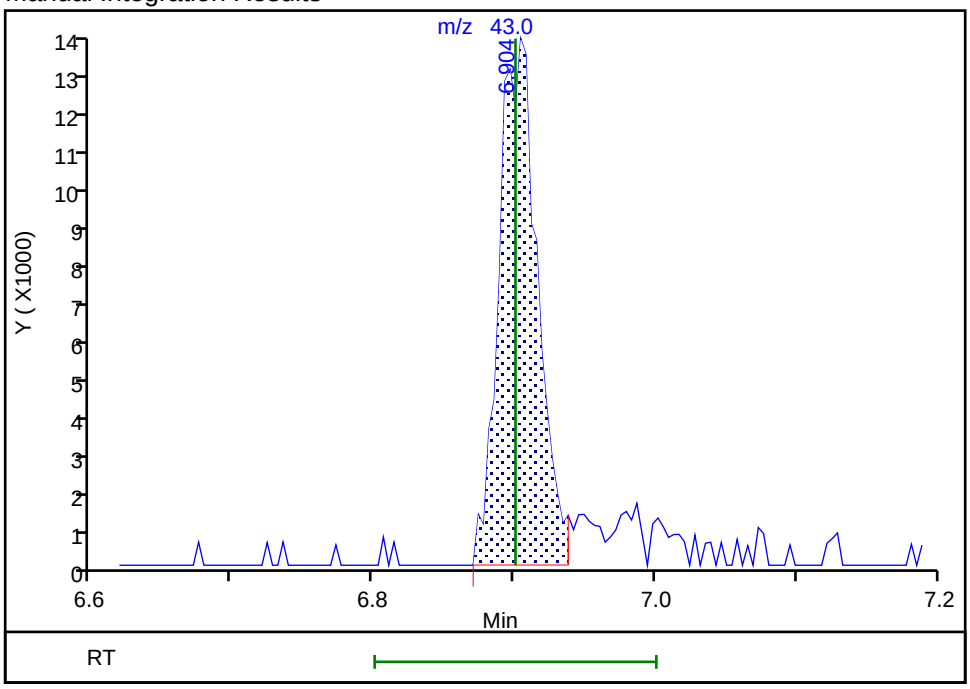
Processing Integration Results

RT: 6.90
Area: 12276
Amount: 1.301227
Amount Units: ug/l



Manual Integration Results

RT: 6.90
Area: 25829
Amount: 1.769976
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:31:35
Audit Action: Manually Integrated Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

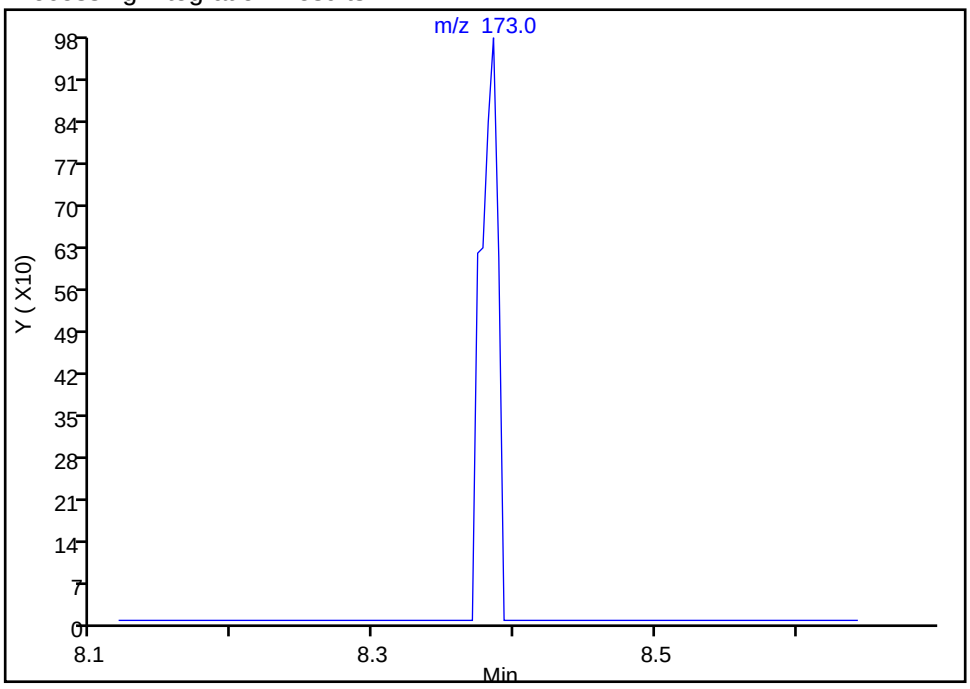
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Injection Date: 03-Aug-2019 16:56:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

108 Bromoform, CAS: 75-25-2

Signal: 1

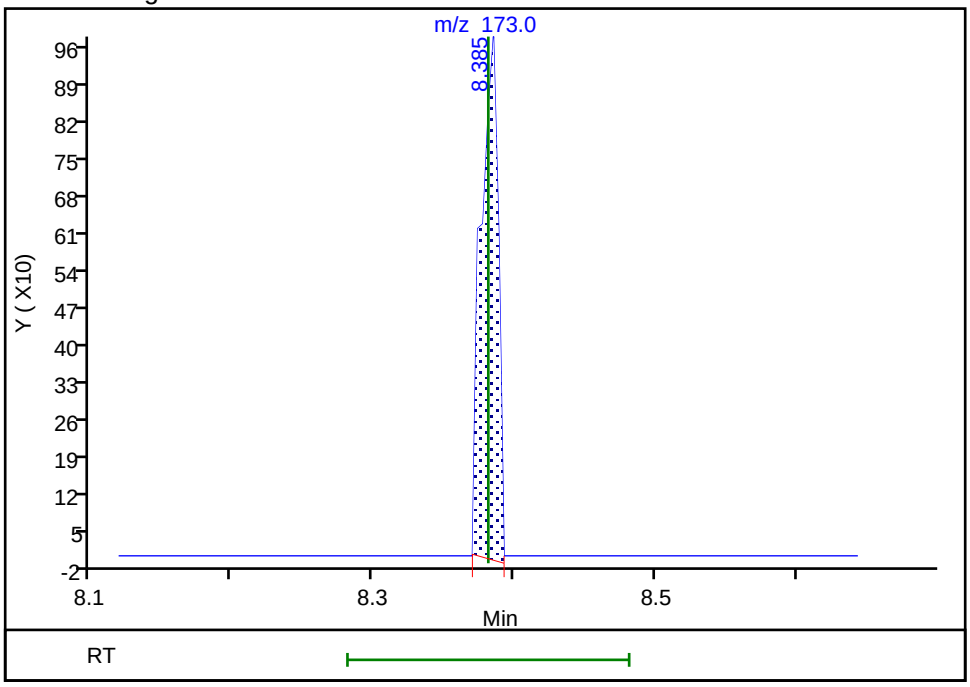
Not Detected
Expected RT: 8.38

Processing Integration Results



Manual Integration Results

RT: 8.39
Area: 834
Amount: 1.018390
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 10:47:25
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

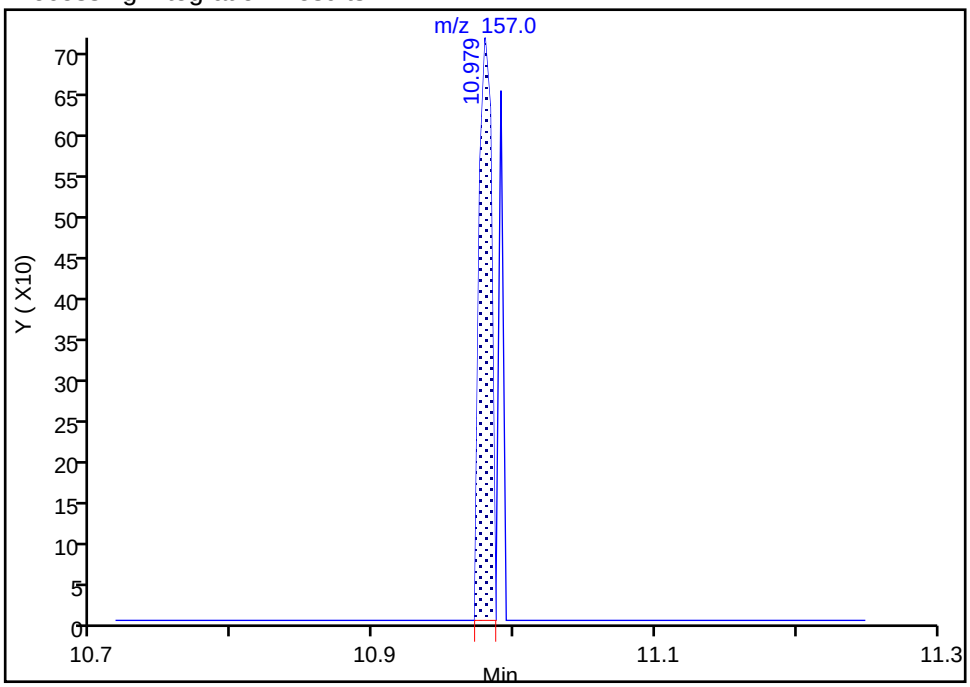
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Injection Date: 03-Aug-2019 16:56:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

129 1,2-Dibromo-3-Chloropropane, CAS: 96-12-8

Signal: 1

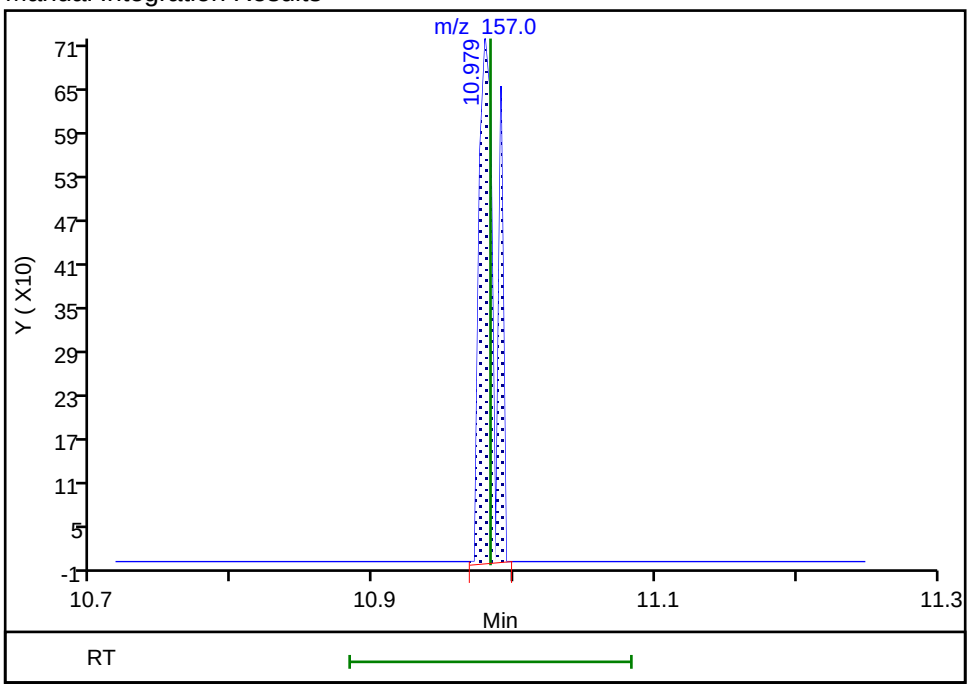
Processing Integration Results

RT: 10.98
Area: 428
Amount: 2.407113
Amount Units: ug/l



Manual Integration Results

RT: 10.98
Area: 579
Amount: 2.517656
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 09:00:15
Audit Action: Manually Integrated Audit Reason: Split Peak

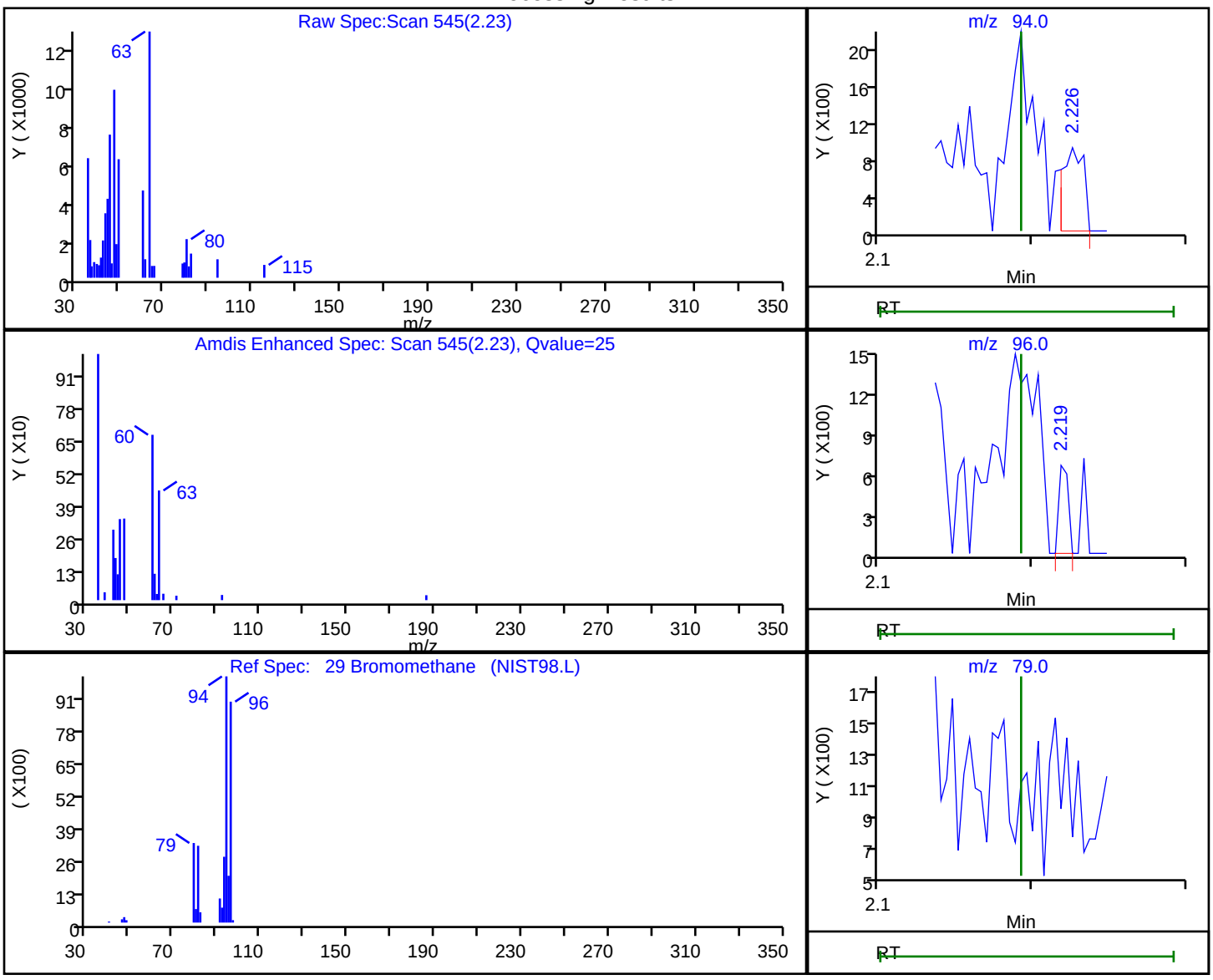
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Injection Date: 03-Aug-2019 16:56:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

29 Bromomethane, CAS: 74-83-9

Processing Results



RT	Mass	Response	Amount
2.23	94.00	869	0.128205
2.22	96.00	268	
2.22	79.00	0	

Reviewer: seifertj, 05-Aug-2019 08:26:02
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

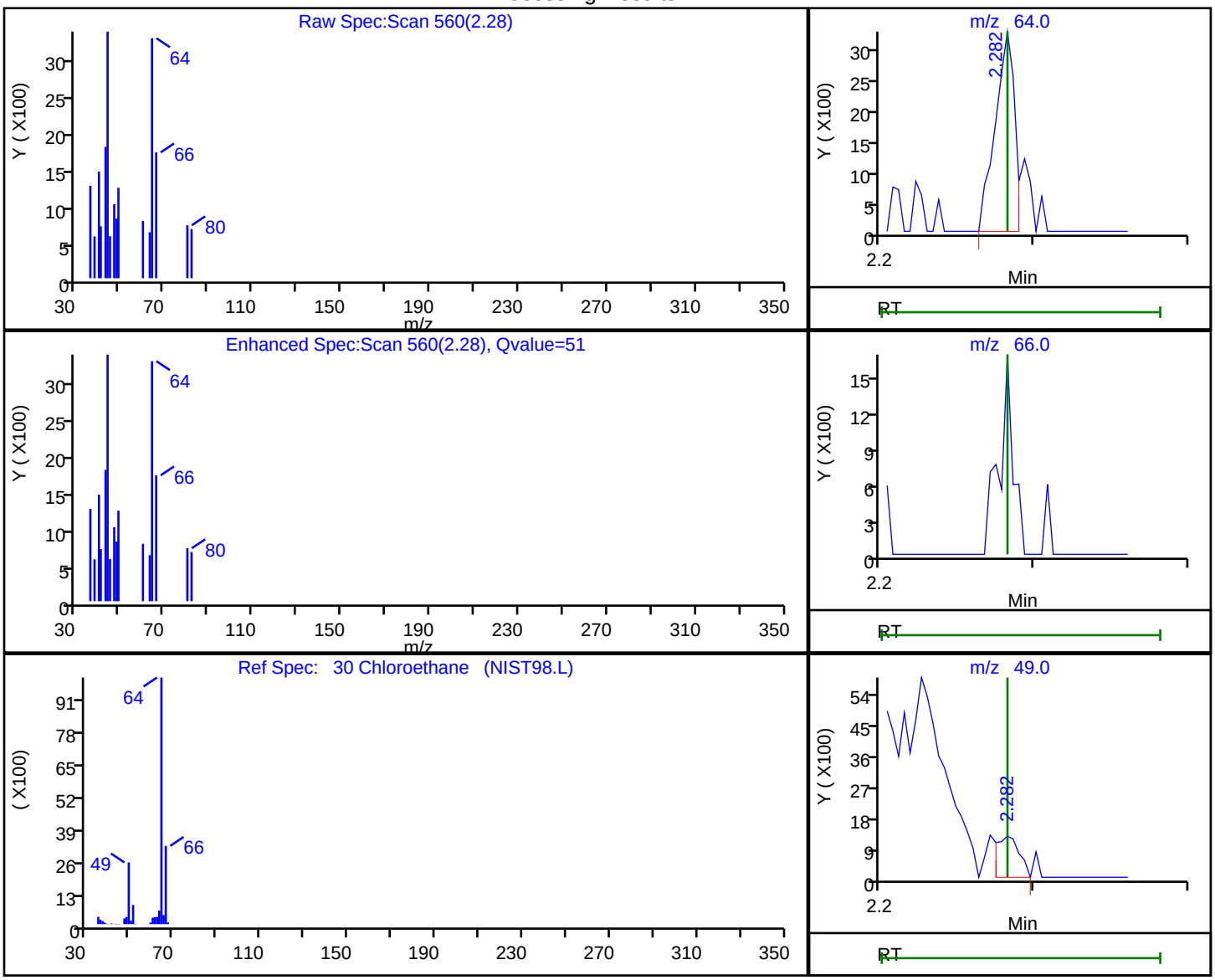
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Injection Date: 03-Aug-2019 16:56:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

30 Chloroethane, CAS: 75-00-3

Processing Results



RT	Mass	Response	Amount
2.28	64.00	2851	0.414556
2.29	66.00	0	
2.28	49.00	1260	

Reviewer: seifertj, 05-Aug-2019 08:26:05
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

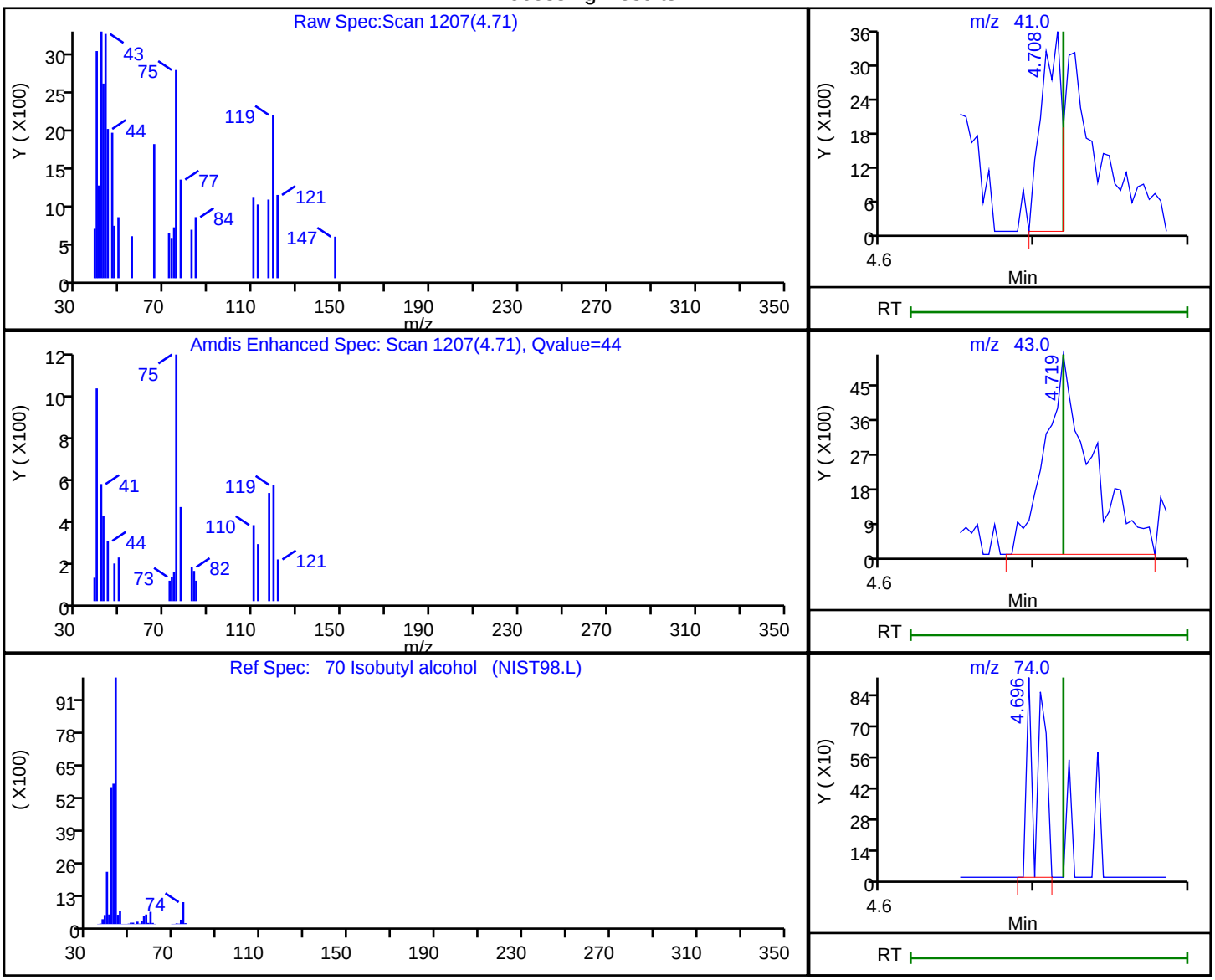
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6841.D
Injection Date: 03-Aug-2019 16:56:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 1 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

70 Isobutyl alcohol, CAS: 78-83-1

Processing Results



RT	Mass	Response	Amount
4.71	41.00	3280	16.098745
4.72	43.00	11106	
4.70	74.00	545	

Reviewer: seifertj, 05-Aug-2019 08:48:25
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D
Lims ID: STD
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 03-Aug-2019 17:17:30 ALS Bottle#: 2 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: STD 010
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:50:57 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: zhangji Date: 03-Aug-2019 17:37:17

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.268	3.272	-0.004	0	2692491	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.068	0.000	98	3949263	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	88	834899	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.825	-0.004	98	1101399	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.565	-0.004	92	870515	50.0	48.3	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.828	-0.004	0	1160663	50.0	50.3	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	3716593	50.0	50.7	
$ 8 4-Bromofluorobenzene (Surr	95	8.692	8.696	-0.004	82	1267789	50.0	51.5	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	98	11883	1.00	0.9780	
26 Chloromethane	50	1.855	1.855	0.000	96	11557	1.00	0.8896	
27 Vinyl chloride	62	1.934	1.937	-0.003	97	9348	1.00	0.7666	
29 Bromomethane	94	2.192	2.192	0.000	35	3105	1.00	0.9649	
30 Chloroethane	64	2.279	2.282	-0.003	74	7086	1.00	0.9526	
31 Dichlorofluoromethane	67	2.470	2.473	-0.003	96	20964	1.00	0.8618	
32 Trichlorofluoromethane	101	2.496	2.500	-0.004	95	13837	1.00	0.7588	
35 Ethyl ether	59	2.721	2.725	-0.004	91	10866	1.00	0.8402	
39 Acrolein	56	2.837	2.833	0.004	98	25085	9.88	7.85	
40 1,1,2-Trichloro-1,2,2-trif	151	2.905	2.908	-0.003	64	6184	1.00	1.05	
43 1,1-Dichloroethene	96	2.908	2.912	-0.004	94	9450	1.00	0.8264	
41 Acetone	43	2.938	2.938	0.000	99	53993	4.00	3.72	
44 Iodomethane	142	3.036	3.036	0.000	99	14045	1.00	0.7995	
48 Carbon disulfide	76	3.099	3.099	0.000	100	22458	1.00	0.9685	
45 Methyl acetate	43	3.163	3.163	0.000	98	46285	2.00	2.18	
47 3-Chloro-1-propene	41	3.186	3.182	0.004	89	16547	1.00	0.8248	
50 Methylene Chloride	84	3.279	3.279	0.000	41	14096	1.00	0.9384	
49 2-Methyl-2-propanol	59	3.332	3.332	0.000	87	19631	10.0	9.81	
52 Acrylonitrile	53	3.444	3.444	0.000	99	99357	10.0	10.1	
51 Methyl tert-butyl ether	73	3.471	3.463	0.008	93	31985	1.00	0.8250	
53 trans-1,2-Dichloroethene	96	3.482	3.478	0.004	96	10753	1.00	0.8091	
54 Hexane	57	3.673	3.669	0.004	92	13549	1.00	1.03	Ma
55 Vinyl acetate	43	3.774	3.774	0.000	98	37955	2.00	2.38	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.797	3.797	0.000	95	22947	1.00	0.8933	
61 2-Butanone (MEK)	43	4.179	4.183	-0.004	100	52040	4.00	3.66	
63 cis-1,2-Dichloroethene	96	4.205	4.209	-0.004	84	13232	1.00	0.8763	
64 2,2-Dichloropropane	77	4.217	4.220	-0.003	39	7499	1.00	1.36	M
62 sec-Butyl Alcohol	45	4.295	4.299	-0.004	92	31349	30.0	29.1	
67 Chlorobromomethane	128	4.385	4.389	-0.004	81	4952	1.00	0.7888	
69 Tetrahydrofuran	42	4.400	4.397	0.003	90	18238	2.00	1.80	
68 Chloroform	83	4.441	4.445	-0.004	94	20597	1.00	0.8535	
71 1,1,1-Trichloroethane	97	4.584	4.588	-0.004	97	11328	1.00	0.9619	
72 Cyclohexane	56	4.648	4.648	0.000	93	17612	1.00	0.9840	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	94	16056	1.00	0.8581	
74 Carbon tetrachloride	117	4.704	4.708	-0.004	57	5396	1.00	1.34	
70 Isobutyl alcohol	41	4.711	4.719	-0.008	67	14309	25.0	28.2	
77 Benzene	78	4.854	4.854	0.000	92	56966	1.00	0.9591	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	95	22331	1.00	1.01	
14 n-Heptane	43	5.038	5.038	0.000	53	12701	1.00	0.9209	M
79 Trichloroethene	95	5.341	5.345	-0.004	95	12701	1.00	1.10	
80 2-Pentanone	43	5.446	5.446	0.000	99	61473	4.00	4.02	
82 Methylcyclohexane	55	5.540	5.540	0.000	88	12942	1.00	1.07	
83 1,2-Dichloropropane	63	5.551	5.551	0.000	47	26847	1.00	1.01	
84 1,4-Dioxane	88	5.592	5.600	-0.008	66	8689	20.0	21.5	
85 Dibromomethane	93	5.622	5.622	0.000	75	8395	1.00	0.9137	M
86 Dichlorobromomethane	83	5.746	5.746	0.000	59	6178	1.00	1.25	
87 2-Chloroethyl vinyl ether	63	5.945	5.948	-0.003	88	7831	1.00	0.9452	
89 cis-1,3-Dichloropropene	75	6.098	6.095	0.003	93	9190	1.00	1.33	
90 4-Methyl-2-pentanone (MIBK	43	6.196	6.196	0.000	97	69709	4.00	3.00	
91 Toluene	91	6.383	6.383	0.000	97	54925	1.00	0.9242	
93 trans-1,3-Dichloropropene	75	6.556	6.559	-0.003	55	5861	1.00	1.49	M
92 Ethyl methacrylate	69	6.582	6.582	0.000	84	9354	1.00	0.9271	
94 1,1,2-Trichloroethane	97	6.728	6.736	-0.008	91	10687	1.00	0.8636	
97 Tetrachloroethene	164	6.829	6.826	0.003	90	5424	1.00	0.7908	
96 1,3-Dichloropropane	76	6.878	6.882	-0.004	85	21543	1.00	1.07	
95 2-Hexanone	43	6.901	6.901	0.000	99	52884	4.00	3.06	
98 Chlorodibromomethane	129	7.069	7.077	-0.008	86	4014	1.00	1.35	M
100 Ethylene Dibromide	107	7.193	7.193	0.000	97	8365	1.00	0.9348	
101 1-Chlorohexane	91	7.587	7.583	0.004	33	17125	1.00	1.03	
102 Chlorobenzene	112	7.628	7.624	0.004	93	33235	1.00	0.9185	
104 1,1,1,2-Tetrachloroethane	131	7.699	7.699	0.000	38	4479	1.00	1.34	
103 Ethylbenzene	106	7.703	7.703	0.000	98	17574	1.00	0.9073	
105 m-Xylene & p-Xylene	106	7.819	7.819	0.000	0	21285	1.00	1.09	
107 o-Xylene	106	8.179	8.179	0.000	97	18103	1.00	0.8205	
106 Styrene	104	8.194	8.198	-0.004	94	30210	1.00	0.8091	
108 Bromoform	173	8.374	8.381	-0.007	1	1639	1.00	1.28	
109 Isopropylbenzene	105	8.524	8.520	0.004	97	45692	1.00	0.8657	
111 Cyclohexanone	55	8.625	8.621	0.004	94	28867	40.0	33.5	
112 1,1,2,2-Tetrachloroethane	83	8.805	8.809	-0.004	94	15573	1.00	0.8933	
116 Bromobenzene	156	8.846	8.839	0.007	93	11392	1.00	0.8669	
113 trans-1,4-Dichloro-2-buten	53	8.846	8.846	0.000	9	2720	1.00	0.8580	
114 1,2,3-Trichloropropane	110	8.869	8.872	-0.003	85	5524	1.00	1.04	
115 N-Propylbenzene	120	8.917	8.921	-0.004	85	12661	1.00	0.9133	M
118 2-Chlorotoluene	126	9.019	9.019	0.000	94	10731	1.00	1.03	
117 1,3,5-Trimethylbenzene	105	9.086	9.090	-0.004	95	37311	1.00	0.8640	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.139	9.135	0.004	97	8189	1.00	0.6944	
120 tert-Butylbenzene	119	9.401	9.401	0.000	92	29609	1.00	1.03	
121 1,2,4-Trimethylbenzene	105	9.461	9.461	0.000	97	36968	1.00	0.8454	
122 sec-Butylbenzene	134	9.618	9.622	-0.004	94	7481	1.00	0.9138	
124 1,3-Dichlorobenzene	146	9.750	9.750	0.000	97	20776	1.00	0.8846	
123 4-Isopropyltoluene	119	9.765	9.768	-0.003	94	31966	1.00	0.7867	
126 1,4-Dichlorobenzene	146	9.851	9.847	0.004	90	21940	1.00	0.8872	
127 n-Butylbenzene	91	10.169	10.173	-0.004	97	30634	1.00	1.06	
128 1,2-Dichlorobenzene	146	10.196	10.203	-0.007	73	9274	1.00	0.7676	
129 1,2-Dibromo-3-Chloropropan	157	10.983	10.983	0.000	56	893	1.00	2.59	M
130 1,2,4-Trichlorobenzene	180	11.804	11.804	0.000	89	9583	1.00	0.8219	
131 Hexachlorobutadiene	225	11.946	11.943	0.003	1	3137	1.00	0.7833	M
132 Naphthalene	128	12.077	12.074	0.003	95	31204	1.00	0.8612	
133 1,2,3-Trichlorobenzene	180	12.287	12.295	-0.008	89	9494	1.00	0.8358	M
S 140 1,2-Dichloroethene, Total	96				0		2.00	1.69	
S 138 1,2-Dichloroethene, Total	1				0		2.00	1.69	
S 134 Trihalomethanes, Total	1				0		4.00	4.74	
S 137 1,3-Dichloropropene, Total	1				0		2.00	2.83	
S 136 Total BTEX	1				0			4.70	
S 139 Xylenes, Total	106				0		2.00	1.91	
S 135 Xylenes, Total (URS)	1				0		2.00	1.91	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

MV-Gas B_00035	Amount Added:	1.00	Units: uL	
MV-MegaMain B_00015	Amount Added:	1.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added:	5.00	Units: uL	Run Reagent

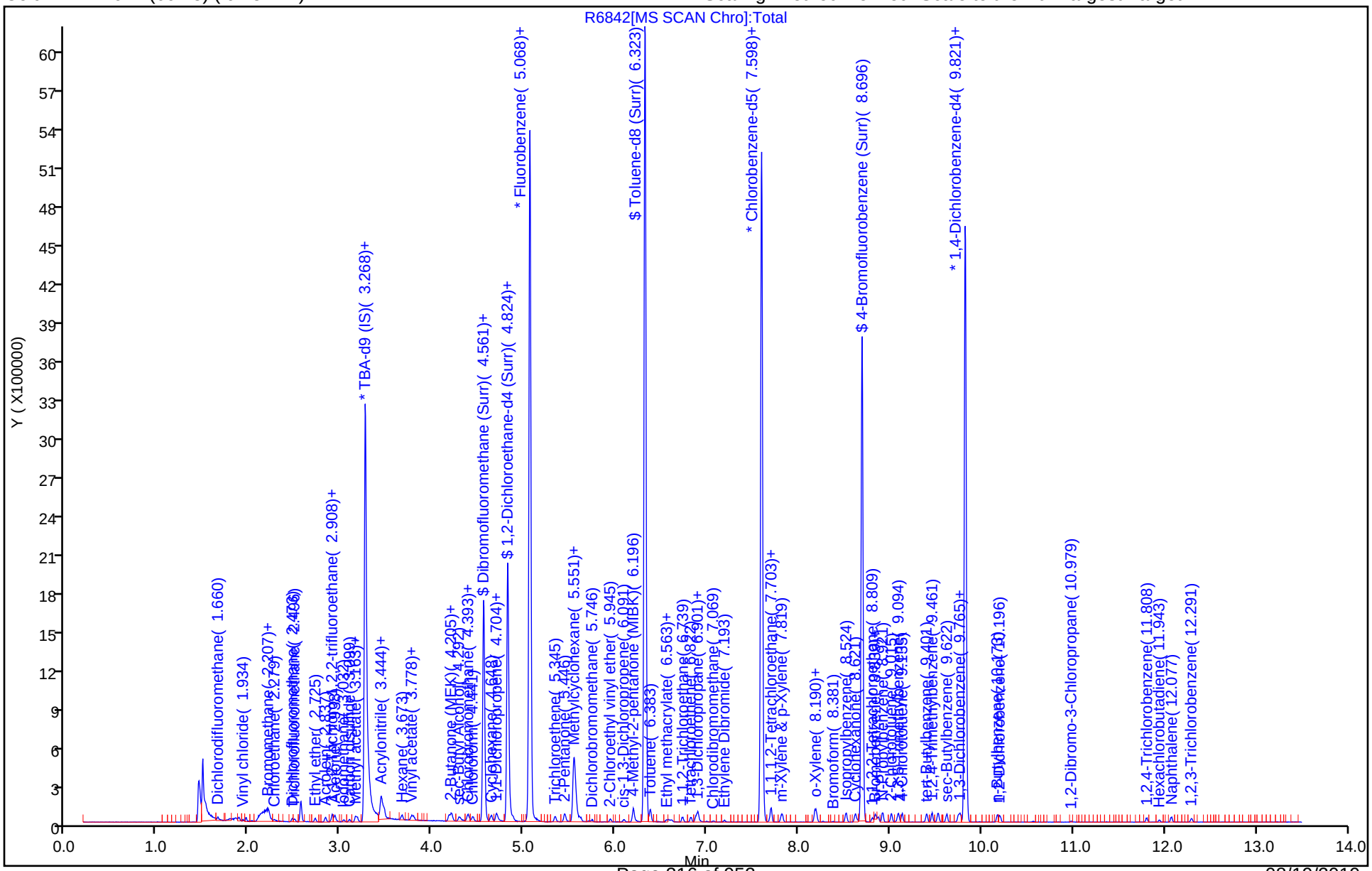
Report Date: 05-Aug-2019 11:51:00 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D

Injection Date:	03-Aug-2019 17:17:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	STD			Worklist Smp#:	13
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

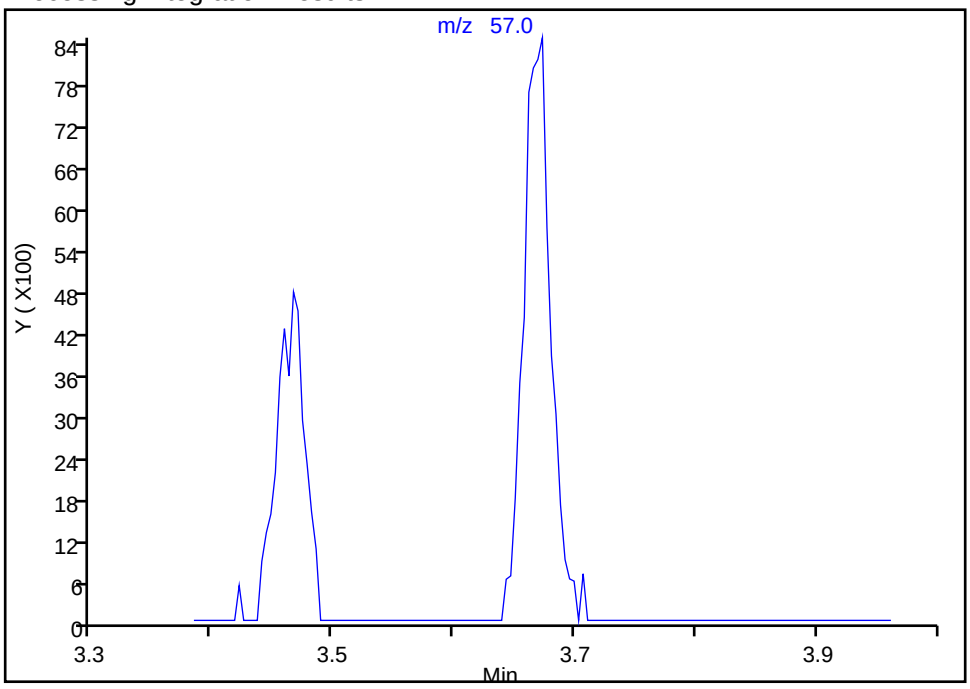
Data File:	\\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D				
Injection Date:	03-Aug-2019 17:17:30	Instrument ID:	VMS_R1		
Lims ID:	STD				
Client ID:					
Operator ID:	ZHANGJ	ALS Bottle#:	2	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

54 Hexane, CAS: 110-54-3

Signal: 1

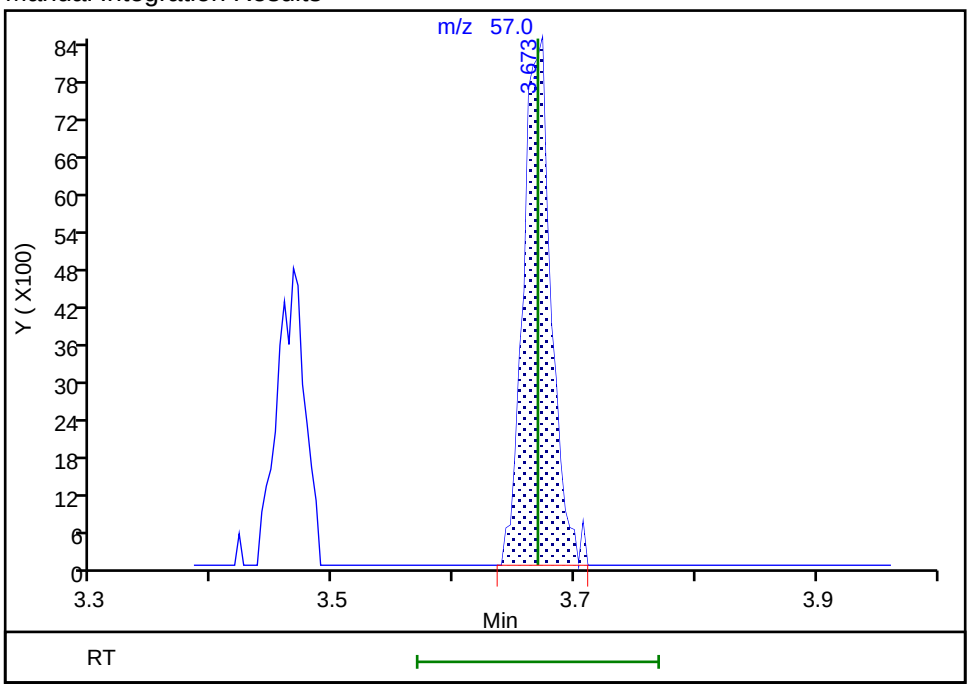
Not Detected
Expected RT: 3.67

Processing Integration Results



Manual Integration Results

RT: 3.67
Area: 13549
Amount: 1.032434
Amount Units: ug/l



Reviewer: zhangji, 03-Aug-2019 17:35:07
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

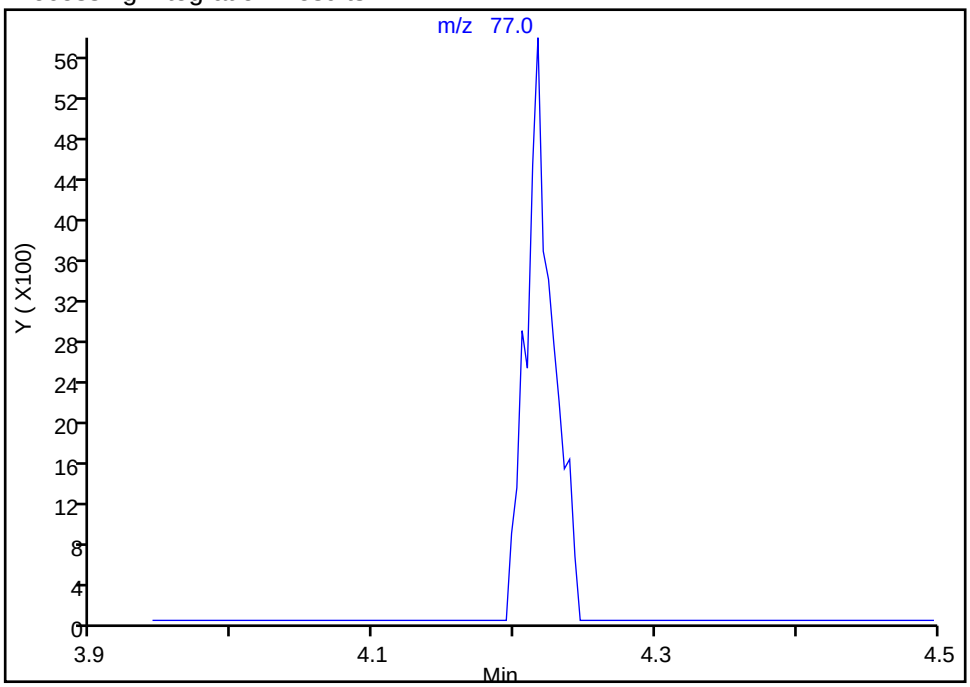
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D
Injection Date: 03-Aug-2019 17:17:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 2 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

64 2,2-Dichloropropane, CAS: 594-20-7

Signal: 1

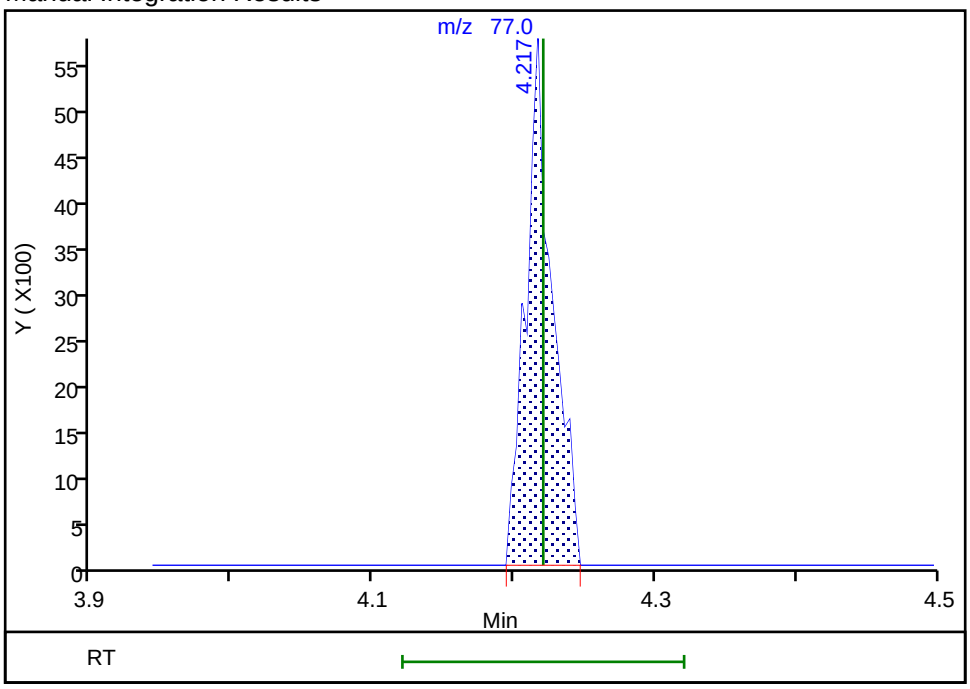
Not Detected
Expected RT: 4.22

Processing Integration Results



Manual Integration Results

RT: 4.22
Area: 7499
Amount: 1.357684
Amount Units: ug/l



Reviewer: zhangji, 03-Aug-2019 17:35:17
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

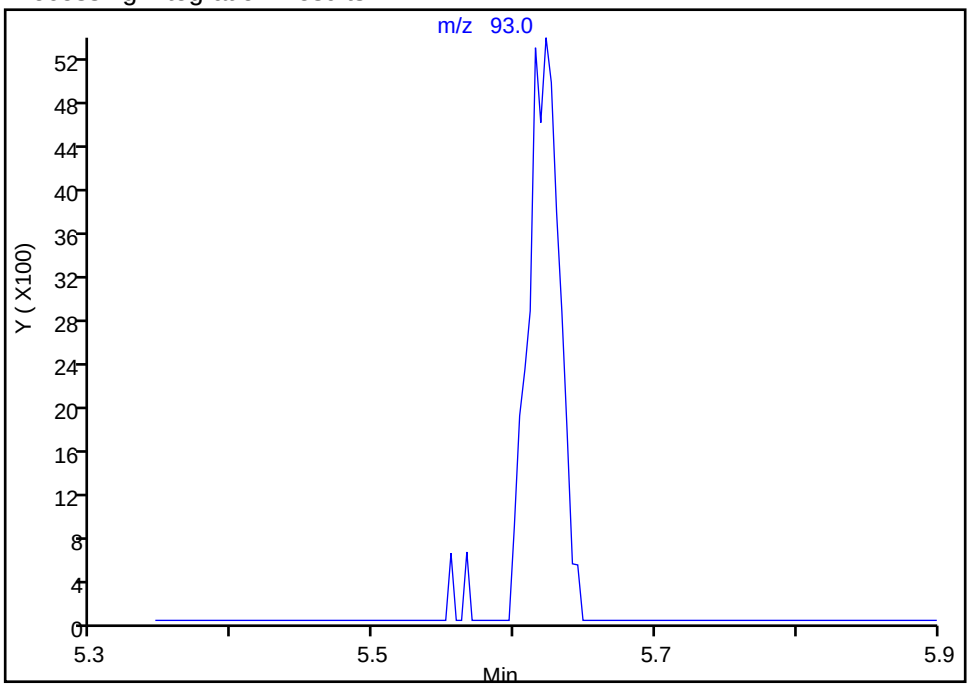
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D
Injection Date: 03-Aug-2019 17:17:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 2 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

85 Dibromomethane, CAS: 74-95-3

Signal: 1

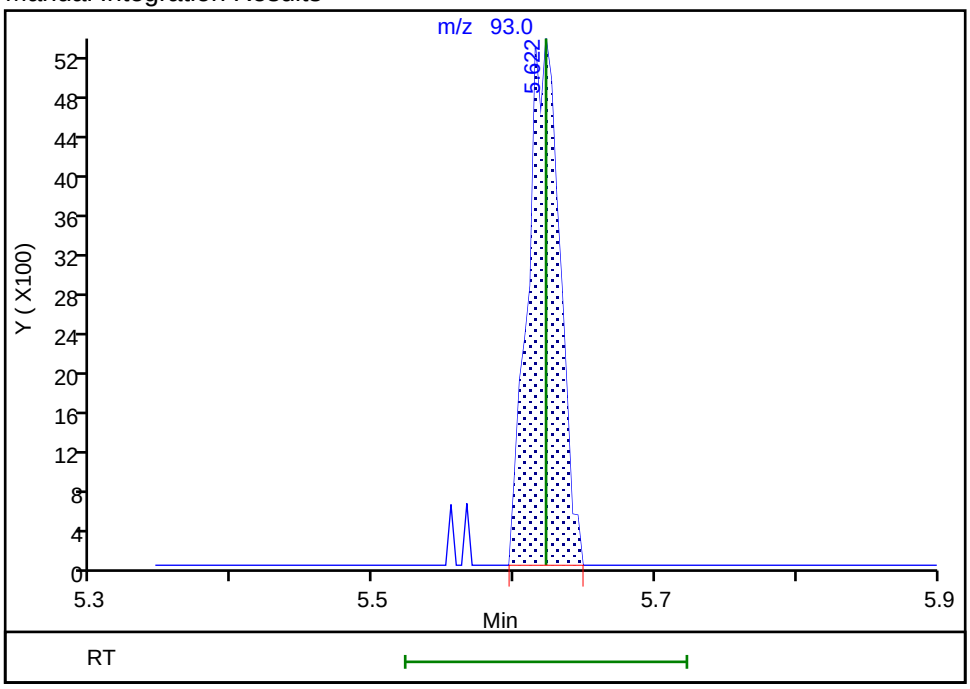
Not Detected
Expected RT: 5.62

Processing Integration Results



Manual Integration Results

RT: 5.62
Area: 8395
Amount: 0.913723
Amount Units: ug/l



Reviewer: zhangji, 03-Aug-2019 17:35:34
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

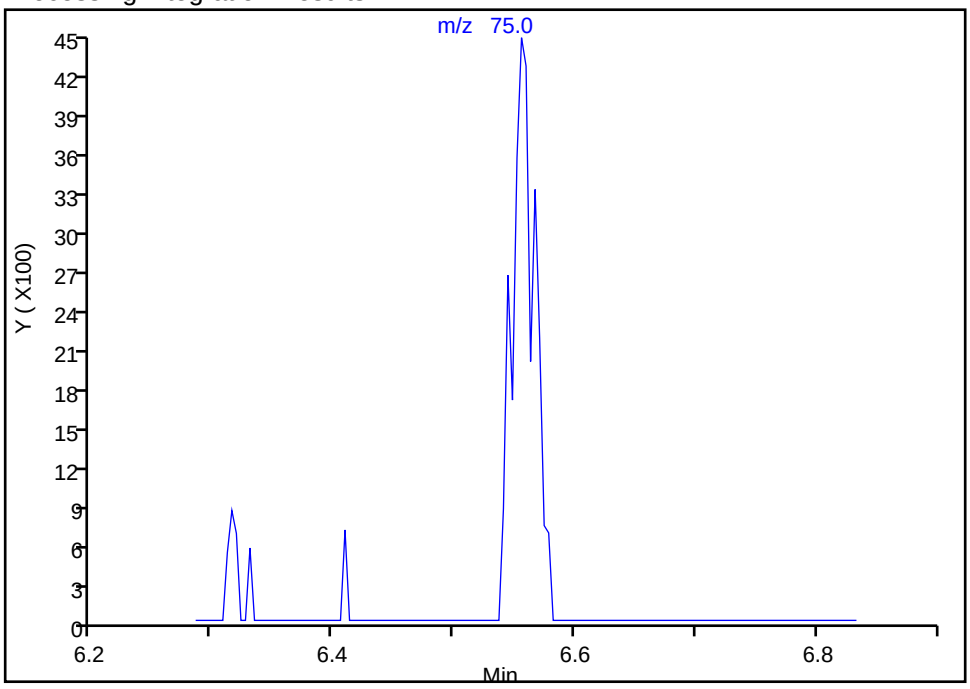
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D
Injection Date: 03-Aug-2019 17:17:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 2 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

93 trans-1,3-Dichloropropene, CAS: 10061-02-6

Signal: 1

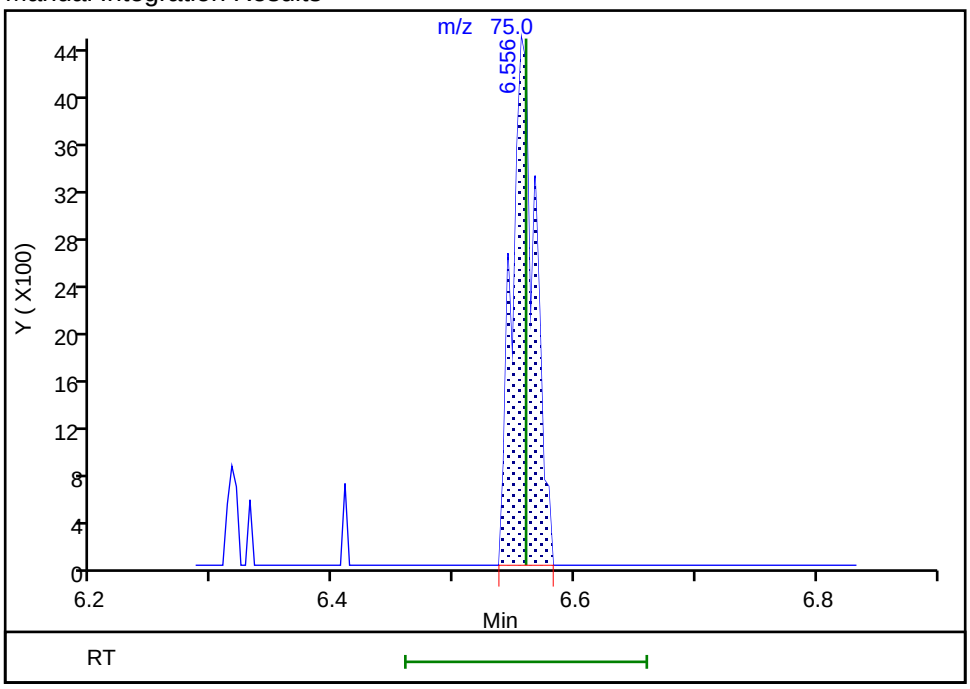
Not Detected
Expected RT: 6.56

Processing Integration Results



Manual Integration Results

RT: 6.56
Area: 5861
Amount: 1.492240
Amount Units: ug/l



Reviewer: zhangji, 03-Aug-2019 17:35:42
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

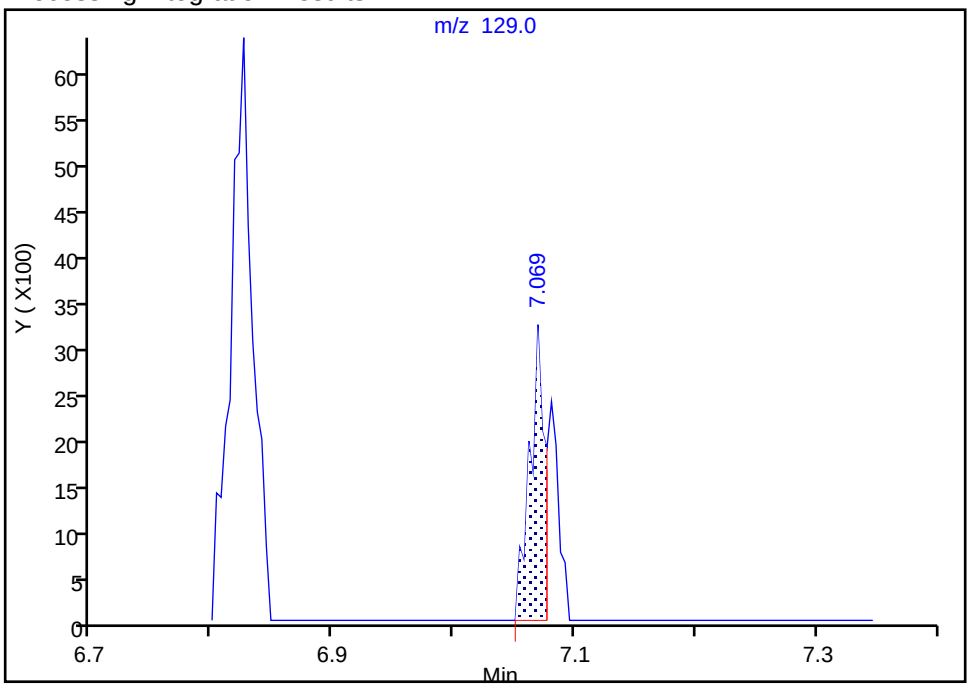
Data File:	\\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D				
Injection Date:	03-Aug-2019 17:17:30	Instrument ID:	VMS_R1		
Lims ID:	STD				
Client ID:					
Operator ID:	ZHANGJ	ALS Bottle#:	2	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

98 Chlorodibromomethane, CAS: 124-48-1

Signal: 1

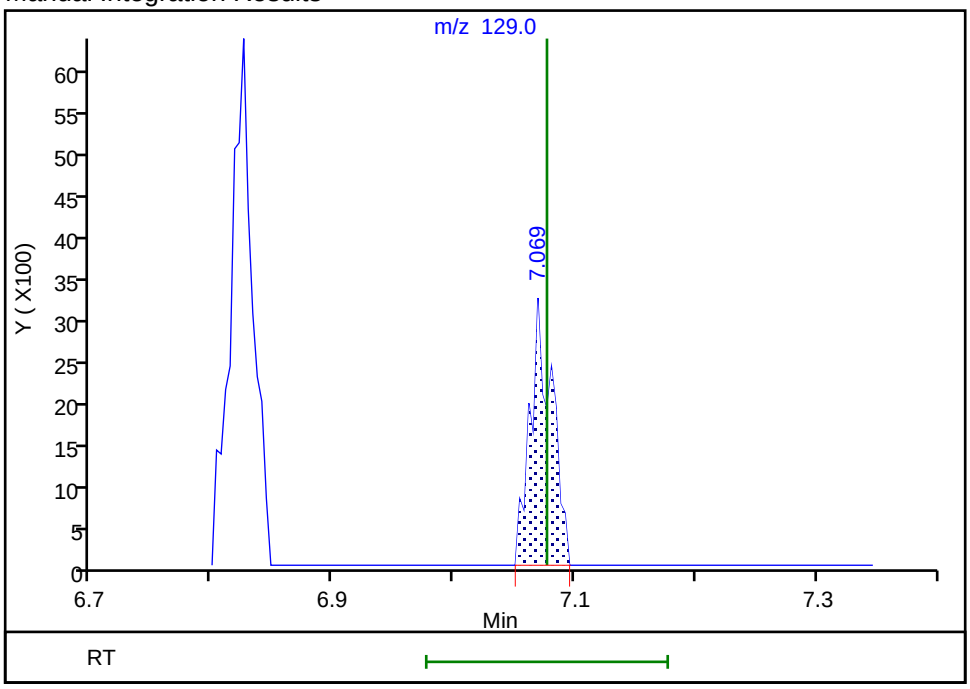
Processing Integration Results

RT: 7.07
Area: 2734
Amount: 1.000000
Amount Units: ug/l



Manual Integration Results

RT: 7.07
Area: 4014
Amount: 1.353959
Amount Units: ug/l



Reviewer: zhangji, 03-Aug-2019 17:35:51
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

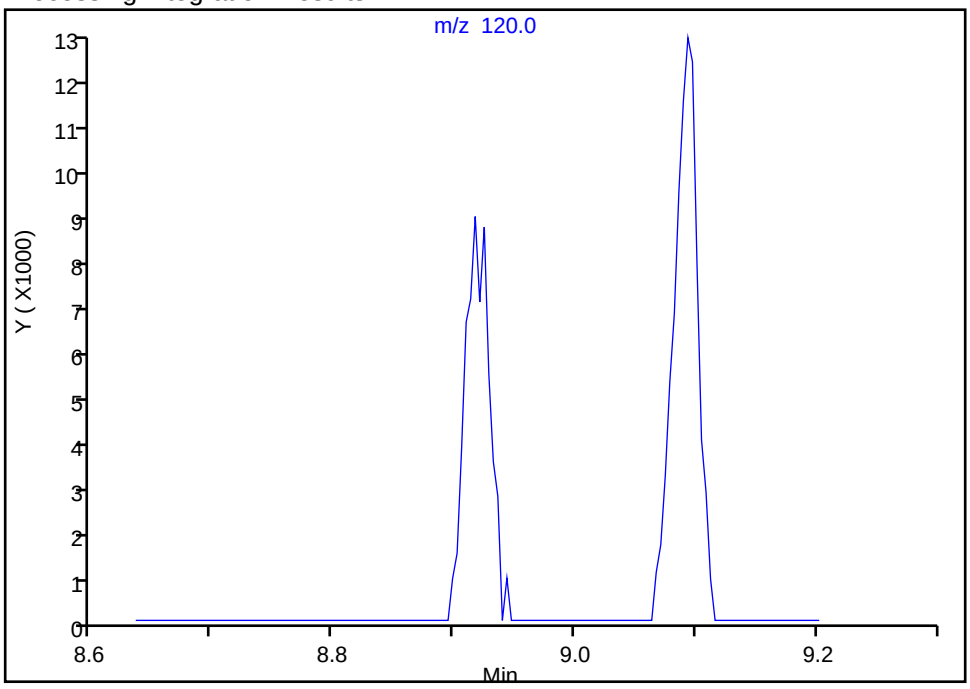
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D
Injection Date: 03-Aug-2019 17:17:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 2 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

115 N-Propylbenzene, CAS: 103-65-1

Signal: 1

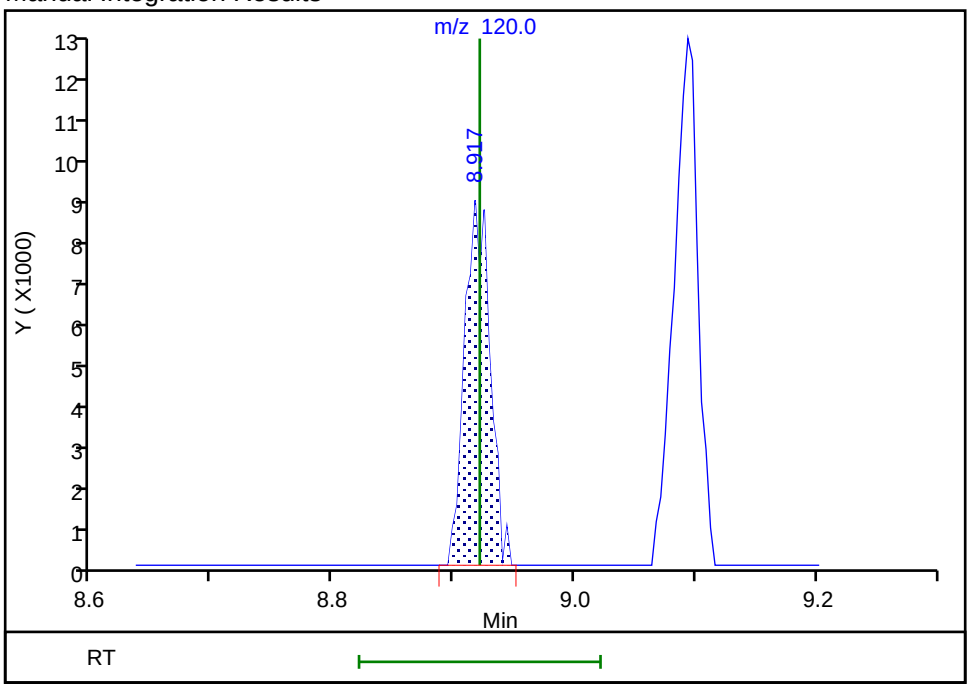
Not Detected
Expected RT: 8.92

Processing Integration Results



Manual Integration Results

RT: 8.92
Area: 12661
Amount: 0.913265
Amount Units: ug/l



Reviewer: zhangji, 03-Aug-2019 17:36:01
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

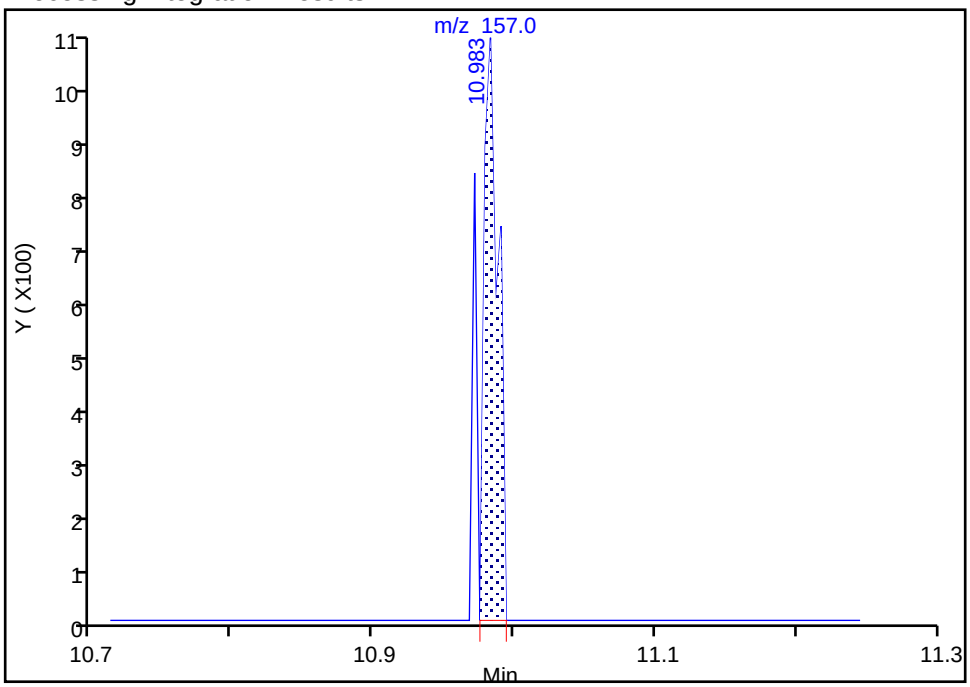
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D
Injection Date: 03-Aug-2019 17:17:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 2 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

129 1,2-Dibromo-3-Chloropropane, CAS: 96-12-8

Signal: 1

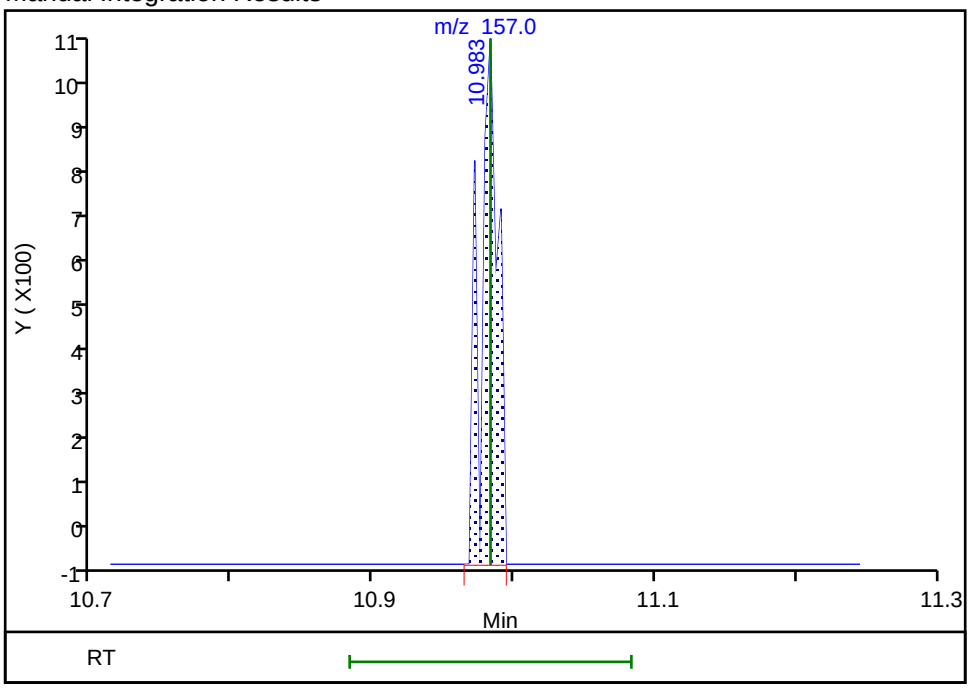
Processing Integration Results

RT: 10.98
Area: 709
Amount: 2.483842
Amount Units: ug/l



Manual Integration Results

RT: 10.98
Area: 893
Amount: 2.587488
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:59:46
Audit Action: Manually Integrated Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

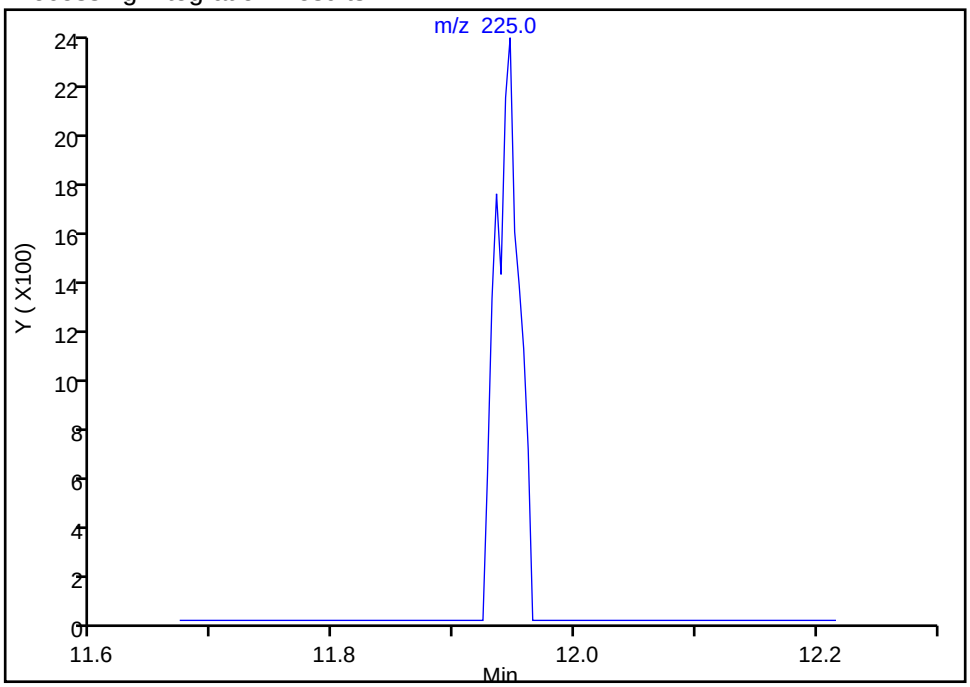
Data File:	\\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D				
Injection Date:	03-Aug-2019 17:17:30	Instrument ID:	VMS_R1		
Lims ID:	STD				
Client ID:					
Operator ID:	ZHANGJ	ALS Bottle#:	2	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

131 Hexachlorobutadiene, CAS: 87-68-3

Signal: 1

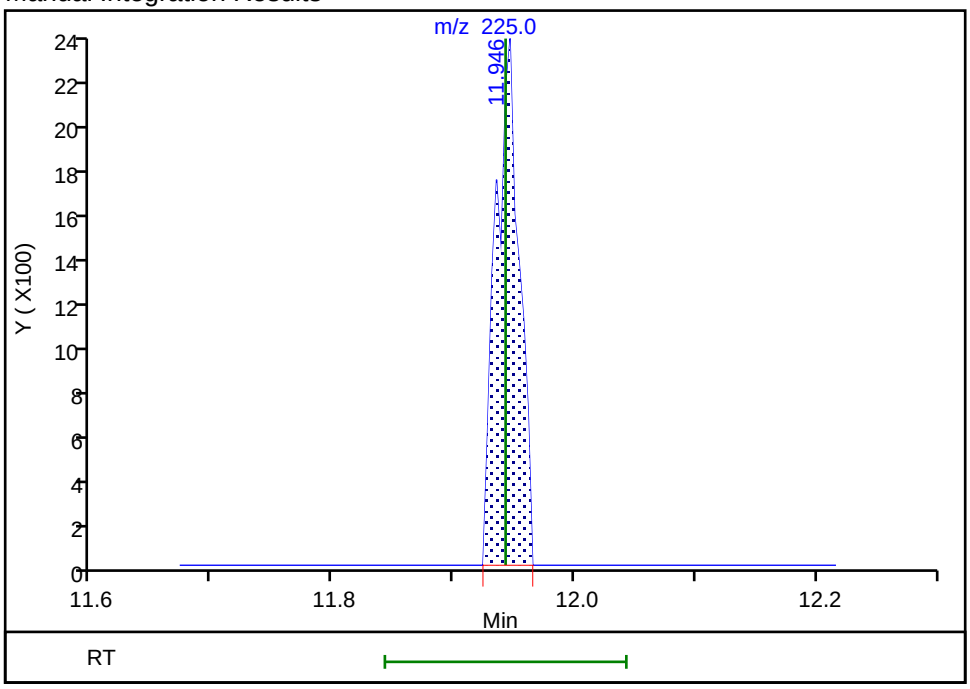
Not Detected
Expected RT: 11.94

Processing Integration Results



Manual Integration Results

RT: 11.95
Area: 3137
Amount: 0.783350
Amount Units: ug/l



Reviewer: zhangji, 03-Aug-2019 17:36:12
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

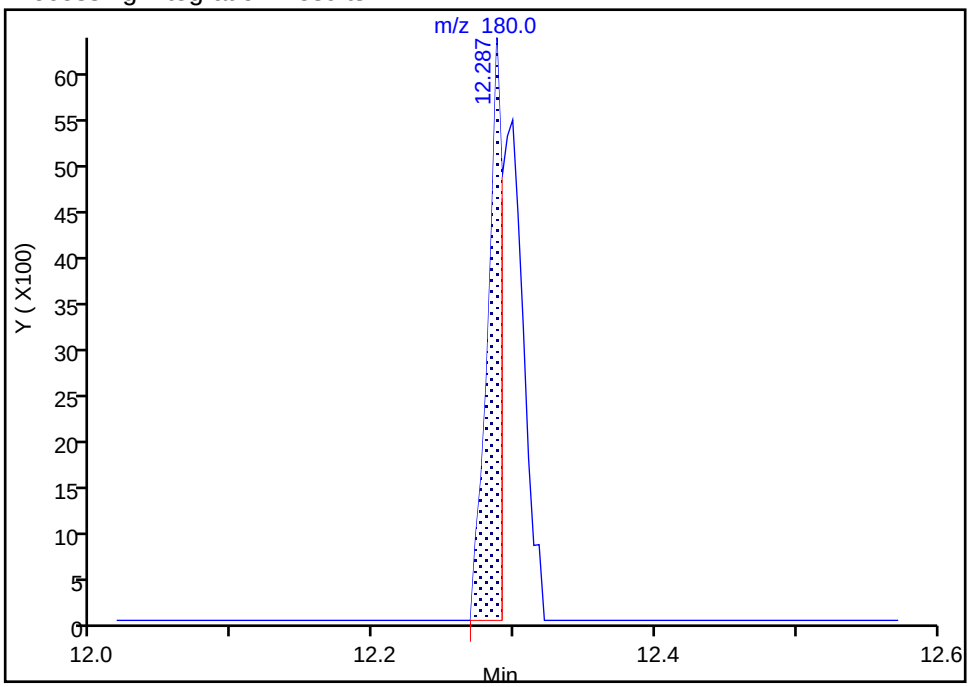
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6842.D
Injection Date: 03-Aug-2019 17:17:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 2 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

133 1,2,3-Trichlorobenzene, CAS: 87-61-6

Signal: 1

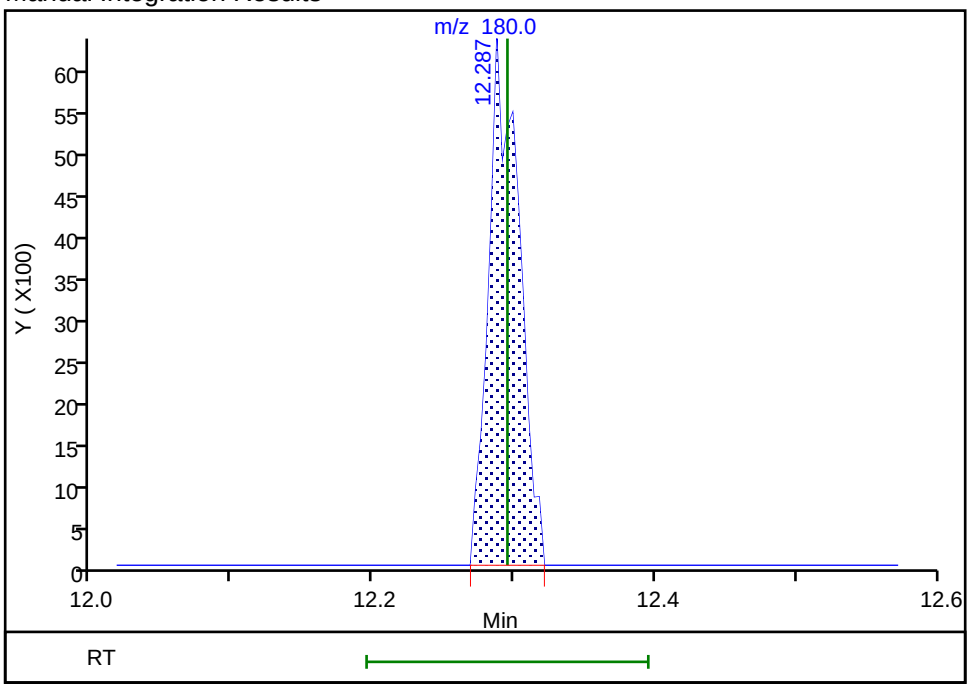
Processing Integration Results

RT: 12.29
Area: 4605
Amount: 1.000000
Amount Units: ug/l



Manual Integration Results

RT: 12.29
Area: 9494
Amount: 0.835770
Amount Units: ug/l



Reviewer: zhangji, 03-Aug-2019 17:36:24
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6843.D
Lims ID: STD
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 03-Aug-2019 17:39:30 ALS Bottle#: 3 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: STD 020
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:51:05 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: seifertj Date: 05-Aug-2019 08:25:05

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.268	3.272	-0.004	0	2694637	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.068	0.000	99	4072965	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	88	866982	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.825	-0.004	98	1162376	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.565	-0.004	92	904334	50.0	48.7	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.828	4.828	0.000	0	1256337	50.0	52.8	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	3845499	50.0	50.5	
$ 8 4-Bromofluorobenzene (Surr	95	8.696	8.696	0.000	82	1316415	50.0	50.7	
23 Dichlorodifluoromethane	85	1.664	1.660	0.004	98	34248	2.00	2.34	
26 Chloromethane	50	1.855	1.855	0.000	98	26796	2.00	2.00	
27 Vinyl chloride	62	1.934	1.937	-0.003	97	24472	2.00	1.95	
29 Bromomethane	94	2.196	2.192	0.004	37	6013	2.00	2.11	
30 Chloroethane	64	2.282	2.282	0.000	99	17745	2.00	2.20	
31 Dichlorofluoromethane	67	2.470	2.473	-0.003	97	56315	2.00	2.24	
32 Trichlorofluoromethane	101	2.500	2.500	0.000	97	40134	2.00	2.13	
35 Ethyl ether	59	2.721	2.725	-0.004	95	26956	2.00	2.02	
39 Acrolein	56	2.833	2.833	0.000	97	62086	19.8	18.8	
40 1,1,2-Trichloro-1,2,2-trif	151	2.912	2.908	0.004	65	13464	2.00	1.88	
43 1,1-Dichloroethene	96	2.912	2.912	0.000	94	21736	2.00	1.84	
41 Acetone	43	2.938	2.938	0.000	98	91721	8.00	7.81	
44 Iodomethane	142	3.036	3.036	0.000	99	30409	2.00	1.68	
48 Carbon disulfide	76	3.096	3.099	-0.003	100	43946	2.00	1.52	
45 Methyl acetate	43	3.163	3.163	0.000	98	85645	4.00	3.91	
47 3-Chloro-1-propene	41	3.186	3.182	0.004	91	33676	2.00	1.63	
50 Methylene Chloride	84	3.276	3.279	-0.003	30	32265	2.00	2.08	
49 2-Methyl-2-propanol	59	3.328	3.332	-0.004	87	40399	20.0	16.0	
52 Acrylonitrile	53	3.444	3.444	0.000	99	217392	20.0	21.5	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	95	79777	2.00	2.00	
53 trans-1,2-Dichloroethene	96	3.478	3.478	0.000	94	27026	2.00	1.97	
54 Hexane	57	3.666	3.669	-0.003	94	31971	2.00	2.05	
55 Vinyl acetate	43	3.774	3.774	0.000	98	87790	4.00	3.68	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.800	3.797	0.003	96	52598	2.00	1.99	
61 2-Butanone (MEK)	43	4.183	4.183	0.000	100	106538	8.00	7.26	
63 cis-1,2-Dichloroethene	96	4.209	4.209	0.000	83	30848	2.00	1.98	
64 2,2-Dichloropropane	77	4.220	4.220	0.000	71	16503	2.00	1.88	
62 sec-Butyl Alcohol	45	4.295	4.299	-0.004	96	67915	60.0	45.1	
67 Chlorobromomethane	128	4.385	4.389	-0.004	95	13843	2.00	2.14	
69 Tetrahydrofuran	42	4.393	4.397	-0.004	92	38836	4.00	3.72	
68 Chloroform	83	4.445	4.445	0.000	94	47096	2.00	1.89	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	97	26925	2.00	1.72	
72 Cyclohexane	56	4.648	4.648	0.000	89	43060	2.00	2.03	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	94	34838	2.00	1.81	
74 Carbon tetrachloride	117	4.704	4.708	-0.004	56	13651	2.00	1.93	M
70 Isobutyl alcohol	41	4.719	4.719	0.000	85	32884	50.0	48.4	
77 Benzene	78	4.854	4.854	0.000	94	128353	2.00	2.10	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	96	48140	2.00	2.12	
14 n-Heptane	43	5.041	5.038	0.003	89	25735	2.00	1.81	
79 Trichloroethene	95	5.345	5.345	0.000	95	27527	2.00	2.02	
80 2-Pentanone	43	5.446	5.446	0.000	99	151569	8.00	7.37	
82 Methylcyclohexane	55	5.540	5.540	0.000	92	29802	2.00	2.08	
83 1,2-Dichloropropane	63	5.555	5.551	0.004	48	43435	2.00	1.96	Ma
84 1,4-Dioxane	88	5.600	5.600	0.000	74	16747	40.0	40.2	
85 Dibromomethane	93	5.622	5.622	0.000	87	18844	2.00	1.99	
86 Dichlorobromomethane	83	5.746	5.746	0.000	96	19946	2.00	2.01	
87 2-Chloroethyl vinyl ether	63	5.945	5.948	-0.003	92	22136	2.00	2.00	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	93	21747	2.00	1.87	
90 4-Methyl-2-pentanone (MIBK	43	6.200	6.196	0.004	98	174363	8.00	7.27	
91 Toluene	91	6.383	6.383	0.000	97	126169	2.00	2.06	
93 trans-1,3-Dichloropropene	75	6.559	6.559	0.000	90	13900	2.00	1.89	
92 Ethyl methacrylate	69	6.582	6.582	0.000	87	24396	2.00	1.56	
94 1,1,2-Trichloroethane	97	6.736	6.736	0.000	91	24641	2.00	1.93	
97 Tetrachloroethene	164	6.822	6.826	-0.004	89	18105	2.00	2.02	
96 1,3-Dichloropropane	76	6.882	6.882	0.000	90	48815	2.00	2.12	
95 2-Hexanone	43	6.901	6.901	0.000	99	135569	8.00	6.77	
98 Chlorodibromomethane	129	7.073	7.077	-0.004	88	10446	2.00	1.94	M
100 Ethylene Dibromide	107	7.193	7.193	0.000	96	18712	2.00	1.63	
101 1-Chlorohexane	91	7.587	7.583	0.004	85	31324	2.00	1.81	
102 Chlorobenzene	112	7.628	7.624	0.004	93	74921	2.00	1.99	
104 1,1,1,2-Tetrachloroethane	131	7.699	7.699	0.000	37	10567	2.00	1.88	
103 Ethylbenzene	106	7.703	7.703	0.000	99	39499	2.00	1.96	
105 m-Xylene & p-Xylene	106	7.815	7.819	-0.004	0	48537	2.00	2.11	
107 o-Xylene	106	8.179	8.179	0.000	97	45490	2.00	1.99	
106 Styrene	104	8.198	8.198	0.000	94	71501	2.00	1.84	
108 Bromoform	173	8.385	8.381	0.004	91	4182	2.00	2.05	M
109 Isopropylbenzene	105	8.520	8.520	0.000	96	111967	2.00	2.01	
111 Cyclohexanone	55	8.621	8.621	0.000	93	74105	80.0	65.2	
112 1,1,2,2-Tetrachloroethane	83	8.809	8.809	0.000	93	34781	2.00	1.89	
116 Bromobenzene	156	8.842	8.839	0.003	95	28532	2.00	2.06	
113 trans-1,4-Dichloro-2-buten	53	8.846	8.846	0.000	29	5934	2.00	1.36	
114 1,2,3-Trichloropropane	110	8.872	8.872	0.000	82	12526	2.00	2.02	
115 N-Propylbenzene	120	8.921	8.921	0.000	99	29248	2.00	2.00	
118 2-Chlorotoluene	126	9.015	9.019	-0.004	96	27804	2.00	2.18	
117 1,3,5-Trimethylbenzene	105	9.094	9.090	0.004	92	90755	2.00	1.99	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.135	9.135	0.000	98	29032	2.00	2.11	
120 tert-Butylbenzene	119	9.401	9.401	0.000	93	68841	2.00	2.00	
121 1,2,4-Trimethylbenzene	105	9.461	9.461	0.000	96	91884	2.00	1.99	
122 sec-Butylbenzene	134	9.618	9.622	-0.004	95	18674	2.00	1.90	
124 1,3-Dichlorobenzene	146	9.750	9.750	0.000	95	50538	2.00	2.04	
123 4-Isopropyltoluene	119	9.772	9.768	0.004	96	83203	2.00	1.94	
126 1,4-Dichlorobenzene	146	9.851	9.847	0.004	88	50582	2.00	1.94	
127 n-Butylbenzene	91	10.169	10.173	-0.004	97	70470	2.00	1.96	
128 1,2-Dichlorobenzene	146	10.199	10.203	-0.004	94	47476	2.00	2.31	
129 1,2-Dibromo-3-Chloropropan	157	10.987	10.983	0.004	60	2425	2.00	2.90	M
130 1,2,4-Trichlorobenzene	180	11.804	11.804	0.000	91	22673	2.00	1.84	
131 Hexachlorobutadiene	225	11.939	11.943	-0.004	92	6739	2.00	1.59	
132 Naphthalene	128	12.074	12.074	0.000	98	83332	2.00	1.80	
133 1,2,3-Trichlorobenzene	180	12.295	12.295	0.000	94	22903	2.00	1.91	
S 140 1,2-Dichloroethene, Total	96				0		4.00	3.95	
S 138 1,2-Dichloroethene, Total	1				0		4.00	3.95	
S 134 Trihalomethanes, Total	1				0		8.00	7.90	
S 137 1,3-Dichloropropene, Total	1				0		4.00	3.76	
S 136 Total BTEX	1				0			10.2	
S 139 Xylenes, Total	106				0		4.00	4.10	
S 135 Xylenes, Total (URS)	1				0		4.00	4.10	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

MV-Gas B_00035	Amount Added:	2.00	Units: uL	
MV-MegaMain B_00015	Amount Added:	2.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added:	5.00	Units: uL	Run Reagent

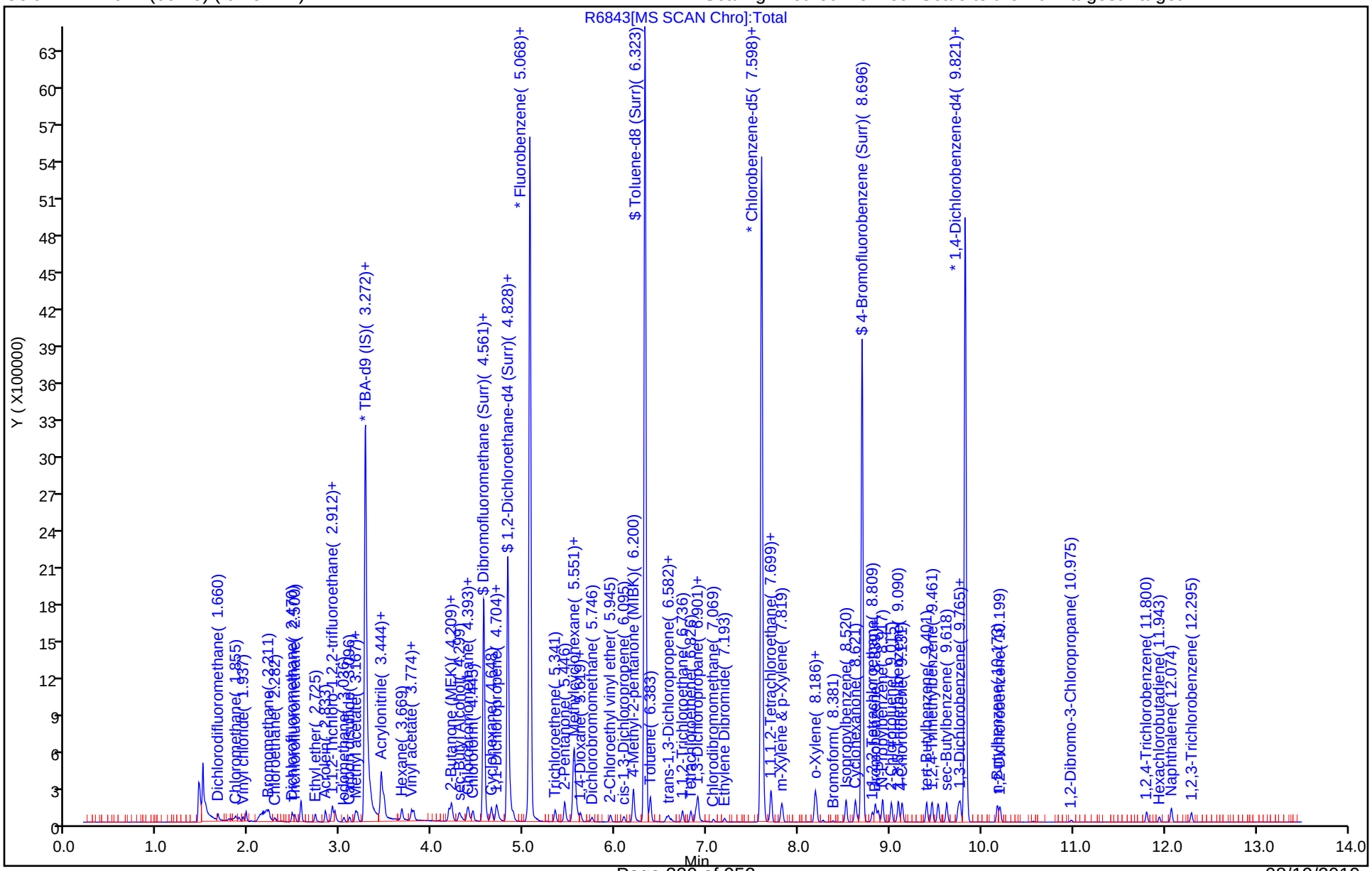
Report Date: 05-Aug-2019 11:51:08 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6843.D

Injection Date:	03-Aug-2019 17:39:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	STD			Worklist Smp#:	14
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

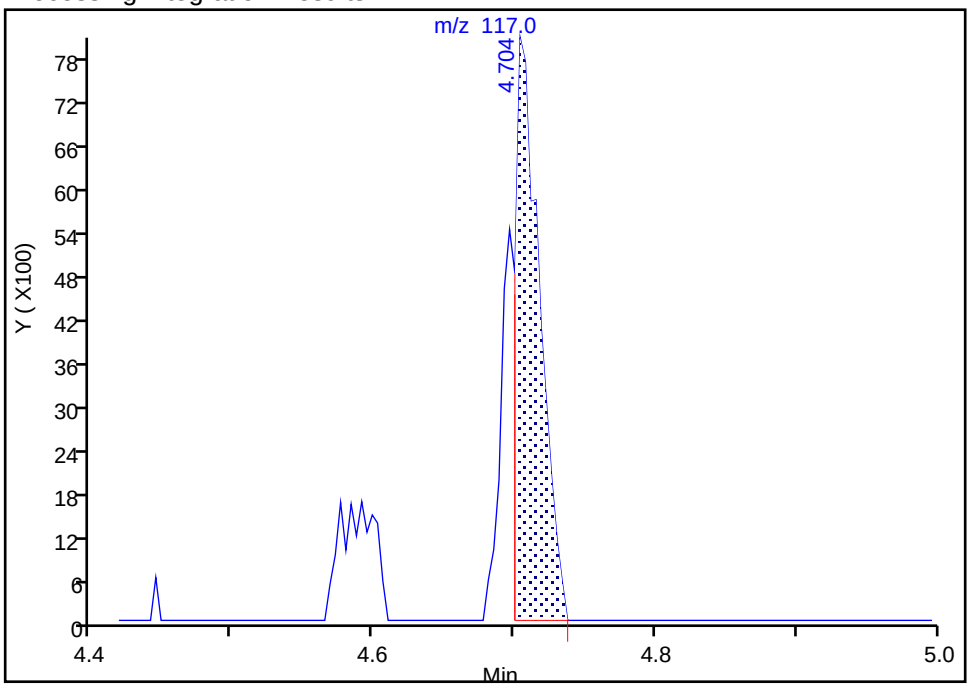
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6843.D
Injection Date: 03-Aug-2019 17:39:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 3 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

74 Carbon tetrachloride, CAS: 56-23-5

Signal: 1

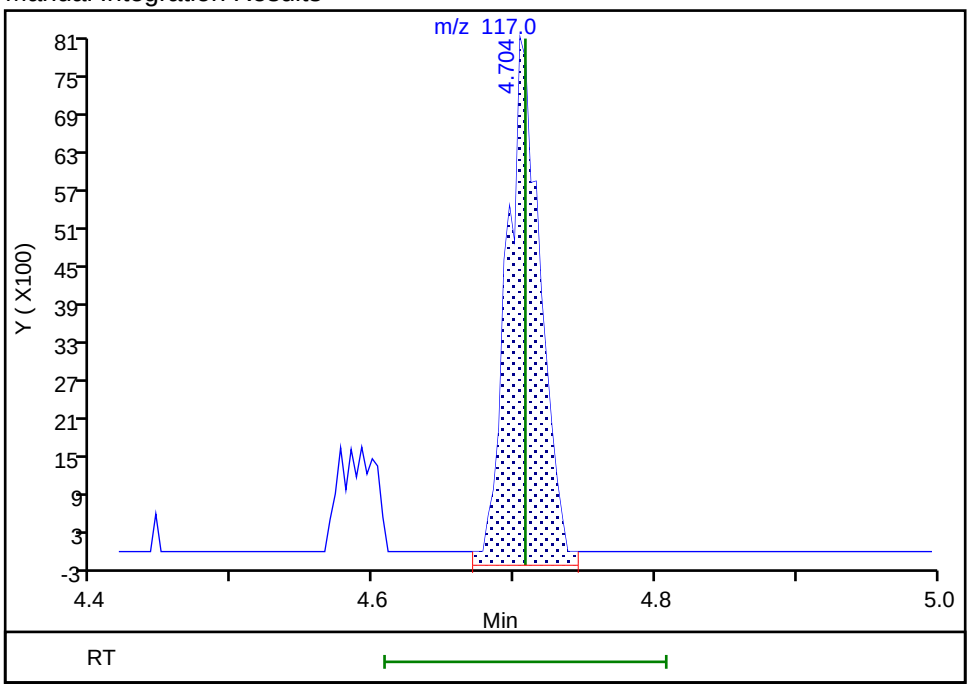
Processing Integration Results

RT: 4.70
Area: 9611
Amount: 1.824398
Amount Units: ug/l



Manual Integration Results

RT: 4.70
Area: 13651
Amount: 1.932060
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:19:15
Audit Action: Manually Integrated Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

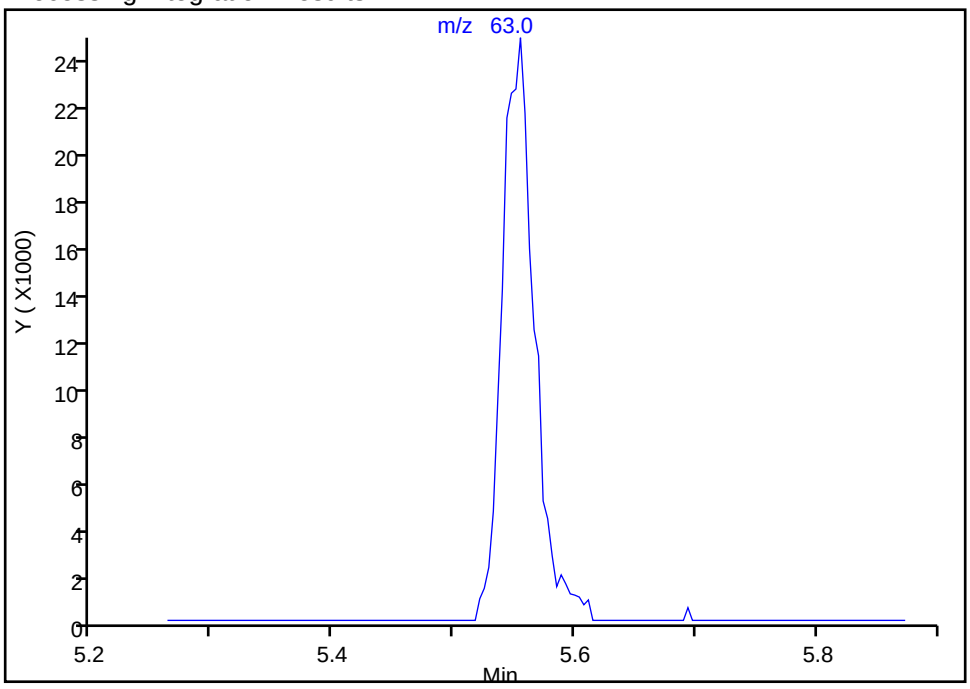
Data File:	\\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6843.D				
Injection Date:	03-Aug-2019 17:39:30	Instrument ID:	VMS_R1		
Lims ID:	STD				
Client ID:					
Operator ID:	ZHANGJ	ALS Bottle#:	3	Worklist Smp#:	14
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

83 1,2-Dichloropropane, CAS: 78-87-5

Signal: 1

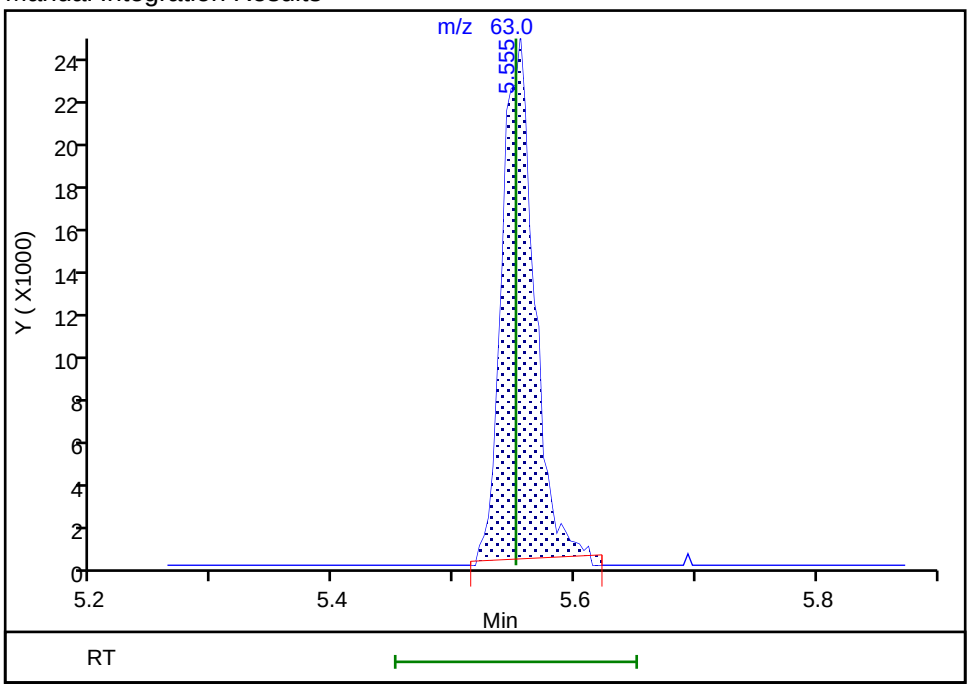
Not Detected
Expected RT: 5.55

Processing Integration Results



Manual Integration Results

RT: 5.55
Area: 43435
Amount: 1.960651
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:19:53
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

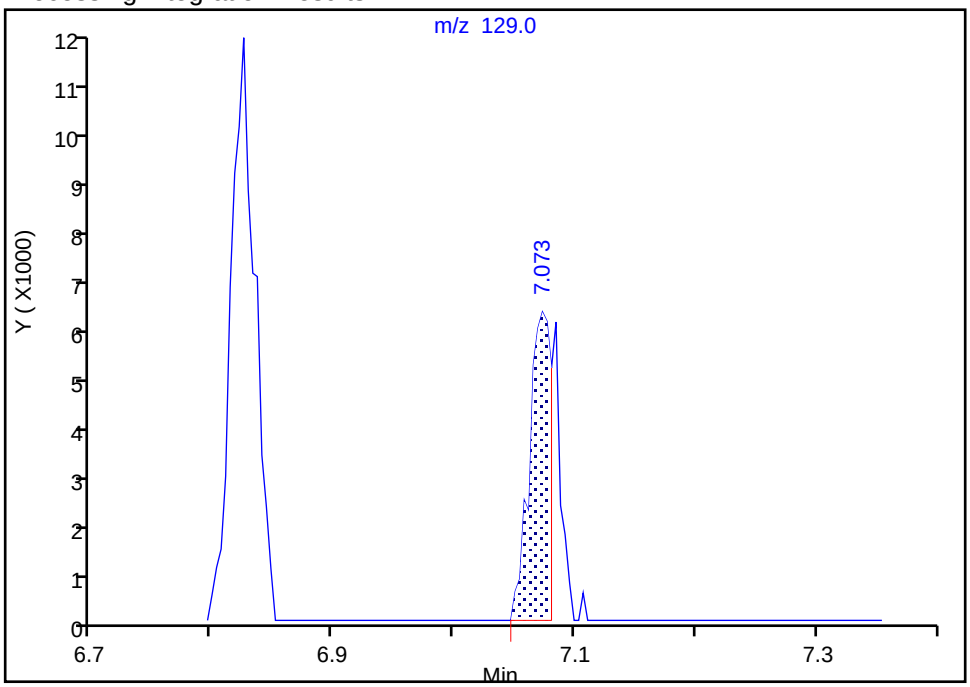
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6843.D
Injection Date: 03-Aug-2019 17:39:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 3 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

98 Chlorodibromomethane, CAS: 124-48-1

Signal: 1

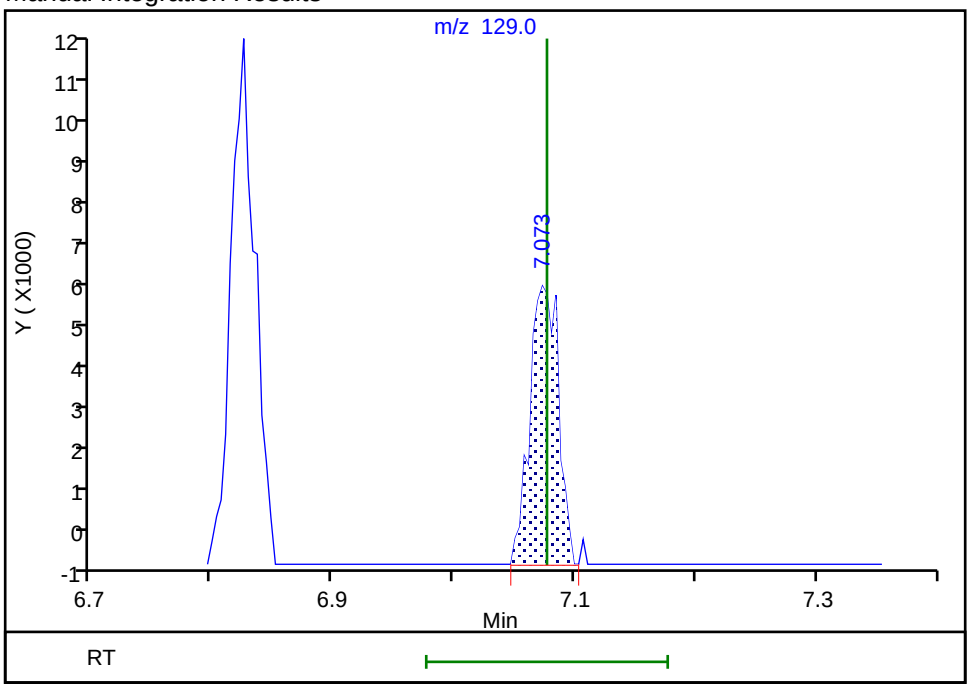
Processing Integration Results

RT: 7.07
Area: 7888
Amount: 4.915458
Amount Units: ug/l



Manual Integration Results

RT: 7.07
Area: 10446
Amount: 1.944798
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:20:28
Audit Action: Manually Integrated Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

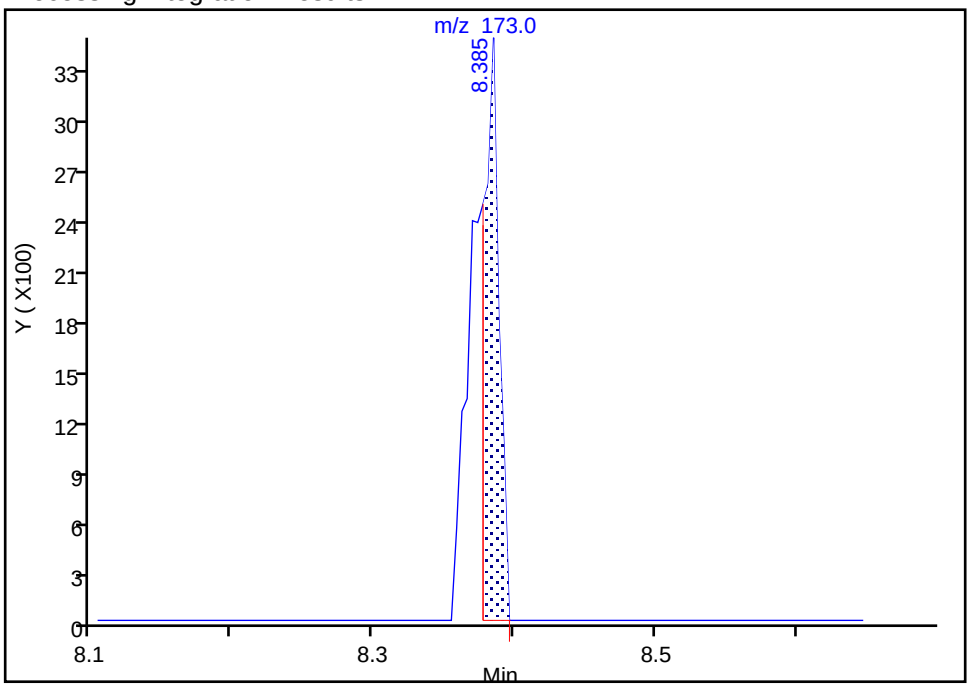
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6843.D
Injection Date: 03-Aug-2019 17:39:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 3 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

108 Bromoform, CAS: 75-25-2

Signal: 1

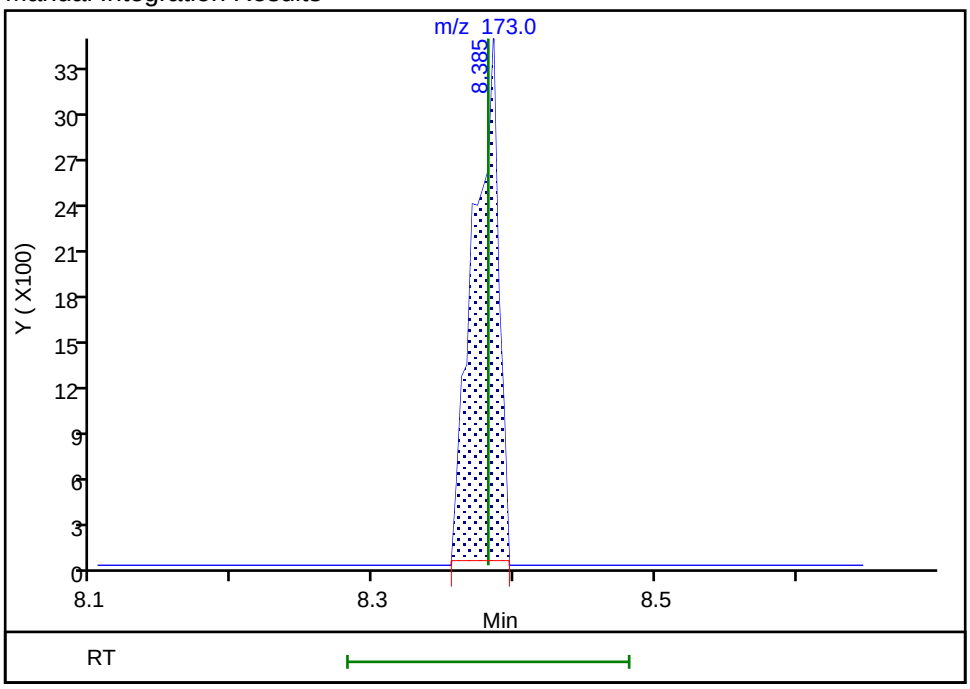
Processing Integration Results

RT: 8.39
Area: 2519
Amount: 10.099637
Amount Units: ug/l



Manual Integration Results

RT: 8.39
Area: 4182
Amount: 2.054941
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 10:42:06
Audit Action: Manually Integrated Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

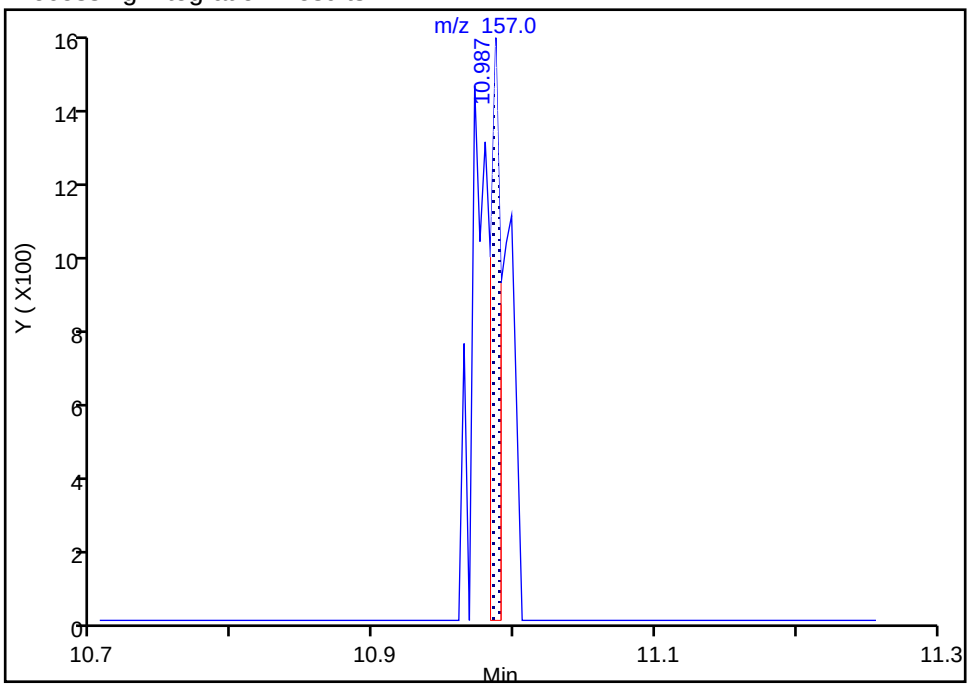
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6843.D
Injection Date: 03-Aug-2019 17:39:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 3 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

129 1,2-Dibromo-3-Chloropropane, CAS: 96-12-8

Signal: 1

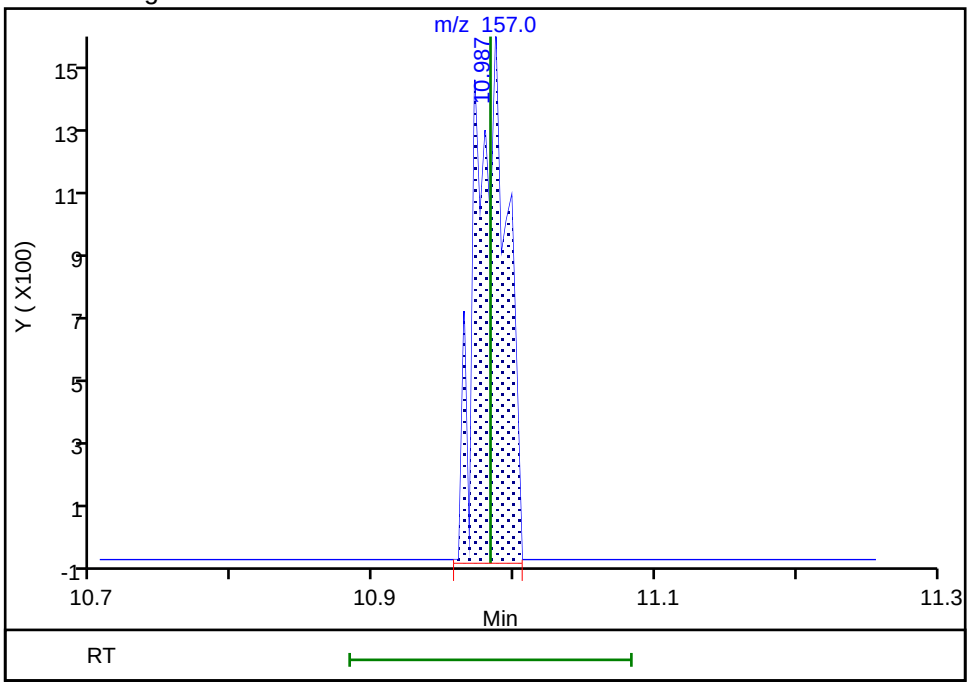
Processing Integration Results

RT: 10.99
Area: 779
Amount: 2.580222
Amount Units: ug/l



Manual Integration Results

RT: 10.99
Area: 2425
Amount: 2.902176
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:59:15
Audit Action: Manually Integrated Audit Reason: Split Peak

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6844.D
Lims ID: STD
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 03-Aug-2019 18:01:30 ALS Bottle#: 4 Worklist Smp#: 15
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: STD 10
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:51:14 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: seifertj Date: 05-Aug-2019 08:18:18

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.272	3.272	0.000	0	3003902	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.068	0.000	99	4253588	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	87	903960	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.825	9.825	0.000	98	1219622	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.565	-0.004	92	946720	50.0	48.8	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.828	-0.004	0	1224897	50.0	49.3	
$ 7 Toluene-d8 (Surr)	98	6.327	6.323	0.004	94	4002755	50.0	50.5	
$ 8 4-Bromofluorobenzene (Surr	95	8.696	8.696	0.000	83	1384870	50.0	50.8	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	99	162144	10.0	9.86	
26 Chloromethane	50	1.859	1.855	0.004	99	144055	10.0	10.3	
27 Vinyl chloride	62	1.934	1.937	-0.003	98	131820	10.0	10.0	
29 Bromomethane	94	2.192	2.192	0.000	92	28631	10.0	10.8	a
30 Chloroethane	64	2.279	2.282	-0.003	99	84206	10.0	9.73	
31 Dichlorofluoromethane	67	2.470	2.473	-0.003	96	283633	10.0	10.8	
32 Trichlorofluoromethane	101	2.500	2.500	0.000	98	200246	10.0	10.2	
35 Ethyl ether	59	2.725	2.725	0.000	93	147347	10.0	10.6	
39 Acrolein	56	2.833	2.833	0.000	100	358644	98.8	104.2	
40 1,1,2-Trichloro-1,2,2-trif	151	2.908	2.908	0.000	66	88054	10.0	10.2	
43 1,1-Dichloroethene	96	2.912	2.912	0.000	95	122842	10.0	9.97	
41 Acetone	43	2.938	2.938	0.000	100	420912	40.0	43.2	
44 Iodomethane	142	3.036	3.036	0.000	99	183951	10.0	9.72	
48 Carbon disulfide	76	3.100	3.099	0.001	99	294067	10.0	7.77	
45 Methyl acetate	43	3.163	3.163	0.000	98	440853	20.0	19.3	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	90	212990	10.0	9.86	
50 Methylene Chloride	84	3.279	3.279	0.000	97	161002	10.0	9.95	
49 2-Methyl-2-propanol	59	3.328	3.332	-0.004	91	266564	100.0	82.5	
52 Acrylonitrile	53	3.444	3.444	0.000	100	1183970	100.0	112.0	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	96	420494	10.0	10.1	
53 trans-1,2-Dichloroethene	96	3.478	3.478	0.000	98	153873	10.0	10.8	
54 Hexane	57	3.669	3.669	0.000	93	192234	10.0	10.7	
55 Vinyl acetate	43	3.774	3.774	0.000	97	621614	20.0	17.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.797	3.797	0.000	96	292228	10.0	10.6	
61 2-Butanone (MEK)	43	4.183	4.183	0.000	100	673502	40.0	44.0	
63 cis-1,2-Dichloroethene	96	4.209	4.209	0.000	82	169420	10.0	10.4	
64 2,2-Dichloropropane	77	4.217	4.220	-0.003	78	111335	10.0	7.20	
62 sec-Butyl Alcohol	45	4.295	4.299	-0.004	95	596270	300.0	249.4	
67 Chlorobromomethane	128	4.385	4.389	-0.004	95	69654	10.0	10.3	
69 Tetrahydrofuran	42	4.393	4.397	-0.004	89	216670	20.0	19.9	
68 Chloroform	83	4.445	4.445	0.000	93	271205	10.0	10.4	
71 1,1,1-Trichloroethane	97	4.591	4.588	0.003	99	165092	10.0	8.21	
72 Cyclohexane	56	4.648	4.648	0.000	91	256702	10.0	10.5	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	96	211320	10.0	10.5	
74 Carbon tetrachloride	117	4.708	4.708	0.000	61	86734	10.0	6.99	
70 Isobutyl alcohol	41	4.719	4.719	0.000	92	200183	250.0	208.4	
77 Benzene	78	4.854	4.854	0.000	97	670065	10.0	10.5	
76 1,2-Dichloroethane	62	4.888	4.884	0.004	97	239070	10.0	10.1	
14 n-Heptane	43	5.038	5.038	0.000	95	159964	10.0	10.8	
79 Trichloroethene	95	5.341	5.345	-0.004	96	157566	10.0	9.89	
80 2-Pentanone	43	5.446	5.446	0.000	99	993250	40.0	38.1	
82 Methylcyclohexane	55	5.536	5.540	-0.004	94	175182	10.0	10.5	
83 1,2-Dichloropropane	63	5.551	5.551	0.000	84	191575	10.0	10.5	
84 1,4-Dioxane	88	5.596	5.600	-0.004	95	92534	200.0	212.6	
85 Dibromomethane	93	5.622	5.622	0.000	91	97979	10.0	9.90	
86 Dichlorobromomethane	83	5.746	5.746	0.000	99	132913	10.0	8.02	
87 2-Chloroethyl vinyl ether	63	5.948	5.948	0.000	91	127066	10.0	9.43	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	94	157497	10.0	7.60	
90 4-Methyl-2-pentanone (MIBK	43	6.196	6.196	0.000	98	1125794	40.0	44.9	
91 Toluene	91	6.383	6.383	0.000	98	671827	10.0	10.5	
93 trans-1,3-Dichloropropene	75	6.560	6.559	0.001	95	109321	10.0	6.47	
92 Ethyl methacrylate	69	6.582	6.582	0.000	89	183864	10.0	8.14	
94 1,1,2-Trichloroethane	97	6.736	6.736	0.000	92	142152	10.0	10.7	
97 Tetrachloroethene	164	6.822	6.826	-0.004	91	102241	10.0	9.91	
96 1,3-Dichloropropane	76	6.882	6.882	0.000	94	268972	10.0	10.4	
95 2-Hexanone	43	6.901	6.901	0.000	98	871876	40.0	39.4	
98 Chlorodibromomethane	129	7.073	7.077	-0.004	91	63551	10.0	6.70	
100 Ethylene Dibromide	107	7.193	7.193	0.000	97	133757	10.0	9.26	
101 1-Chlorohexane	91	7.583	7.583	0.000	95	179203	10.0	9.95	
102 Chlorobenzene	112	7.628	7.624	0.004	94	405671	10.0	10.4	
104 1,1,1,2-Tetrachloroethane	131	7.699	7.699	0.000	70	69653	10.0	7.04	
103 Ethylbenzene	106	7.703	7.703	0.000	98	225343	10.0	10.7	
105 m-Xylene & p-Xylene	106	7.819	7.819	0.000	0	265097	10.0	10.1	
107 o-Xylene	106	8.179	8.179	0.000	98	261905	10.0	11.0	
106 Styrene	104	8.194	8.198	-0.004	94	444193	10.0	11.0	
108 Bromoform	173	8.378	8.381	-0.003	91	30304	10.0	9.03	
109 Isopropylbenzene	105	8.520	8.520	0.000	96	641351	10.0	11.0	
111 Cyclohexanone	55	8.621	8.621	0.000	94	625111	400.0	441.8	
112 1,1,2,2-Tetrachloroethane	83	8.809	8.809	0.000	95	199074	10.0	10.3	
116 Bromobenzene	156	8.842	8.839	0.003	97	148283	10.0	10.2	
113 trans-1,4-Dichloro-2-buten	53	8.846	8.846	0.000	58	56073	10.0	9.10	
114 1,2,3-Trichloropropane	110	8.876	8.872	0.004	84	74954	10.0	10.7	
115 N-Propylbenzene	120	8.917	8.921	-0.004	99	171921	10.0	11.2	
118 2-Chlorotoluene	126	9.019	9.019	0.000	95	150743	10.0	10.3	
117 1,3,5-Trimethylbenzene	105	9.090	9.090	0.000	95	527745	10.0	11.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.135	9.135	0.000	98	163648	10.0	10.9	
120 tert-Butylbenzene	119	9.401	9.401	0.000	93	411032	10.0	10.4	
121 1,2,4-Trimethylbenzene	105	9.457	9.461	-0.004	98	539153	10.0	11.1	
122 sec-Butylbenzene	134	9.622	9.622	0.000	95	114870	10.0	10.2	
124 1,3-Dichlorobenzene	146	9.746	9.750	-0.004	96	276910	10.0	10.6	
123 4-Isopropyltoluene	119	9.768	9.768	0.000	97	504598	10.0	11.2	
126 1,4-Dichlorobenzene	146	9.847	9.847	0.000	94	289902	10.0	10.6	
127 n-Butylbenzene	91	10.169	10.173	-0.004	98	459913	10.0	10.7	
128 1,2-Dichlorobenzene	146	10.203	10.203	0.000	96	264622	10.0	10.7	
129 1,2-Dibromo-3-Chloropropan	157	10.983	10.983	0.000	68	21064	10.0	6.65	
130 1,2,4-Trichlorobenzene	180	11.808	11.804	0.004	93	135769	10.0	10.5	
131 Hexachlorobutadiene	225	11.939	11.943	-0.004	95	48931	10.0	11.0	
132 Naphthalene	128	12.074	12.074	0.000	97	552021	10.0	10.1	
133 1,2,3-Trichlorobenzene	180	12.291	12.295	-0.004	93	128271	10.0	10.2	
S 140 1,2-Dichloroethene, Total	96				0		20.0	21.2	
S 138 1,2-Dichloroethene, Total	1				0		20.0	21.2	
S 134 Trihalomethanes, Total	1				0		40.0	34.2	
S 137 1,3-Dichloropropene, Total	1				0		20.0	14.1	
S 136 Total BTEX	1				0			52.8	
S 139 Xylenes, Total	106				0		20.0	21.1	
S 135 Xylenes, Total (URS)	1				0		20.0	21.1	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

MV-Gas B_00035	Amount Added:	10.00	Units: uL	
MV-MegaMain B_00015	Amount Added:	10.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added:	5.00	Units: uL	Run Reagent

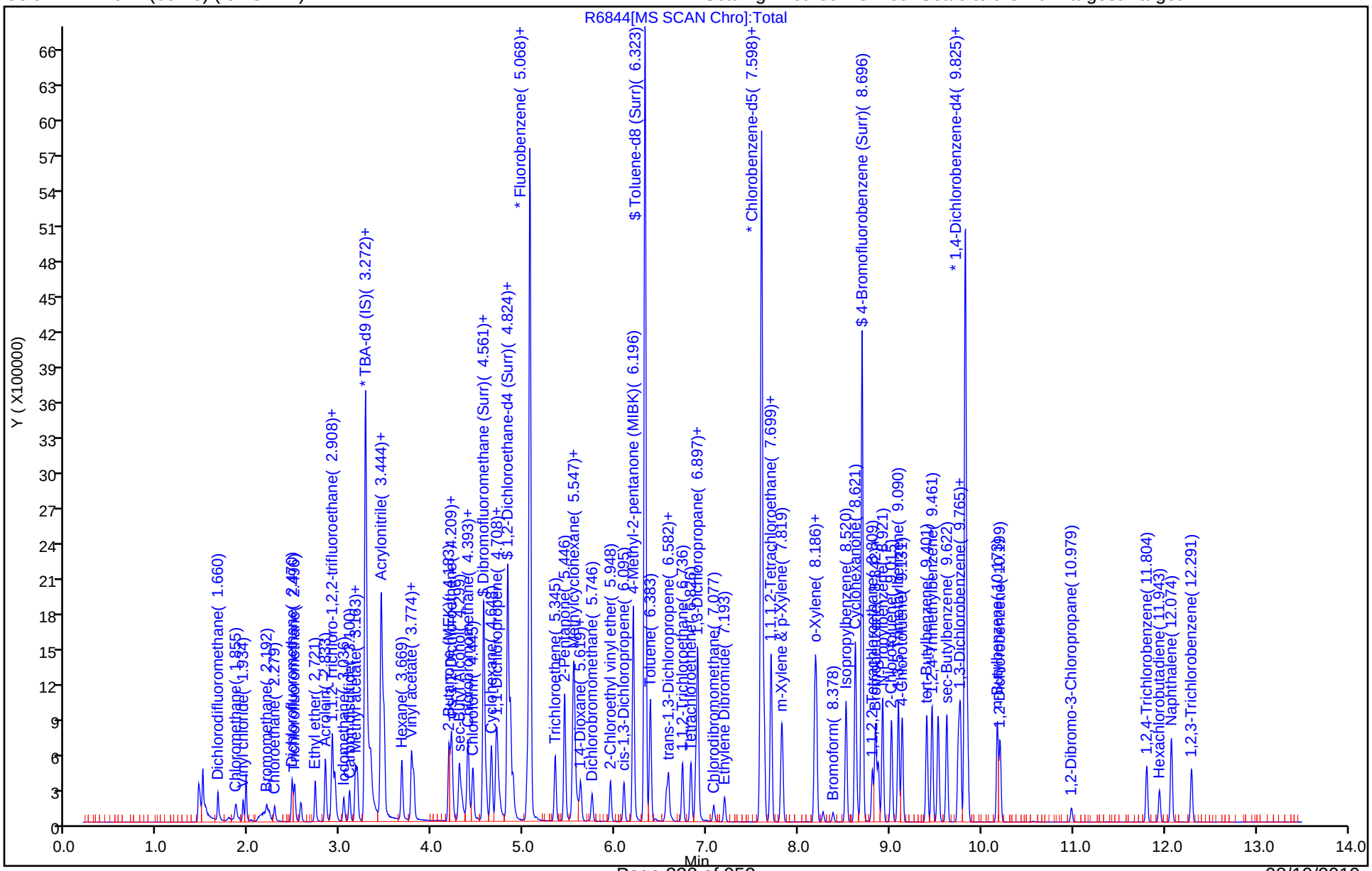
Report Date: 05-Aug-2019 11:51:17 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6844.D

Injection Date:	03-Aug-2019 18:01:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	STD			Worklist Smp#:	15
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	4
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

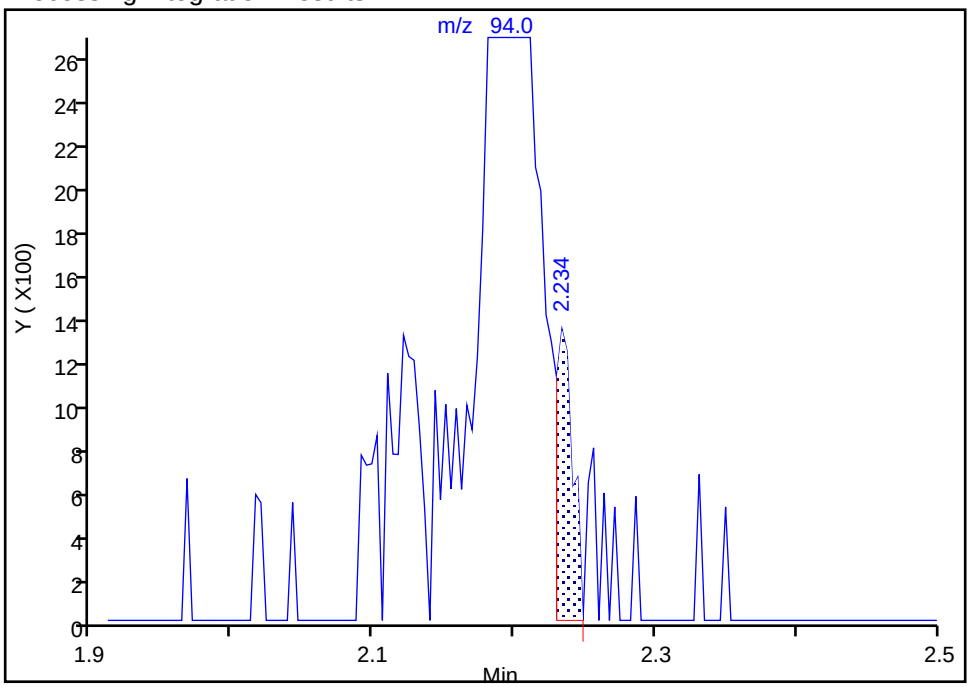
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6844.D
Injection Date: 03-Aug-2019 18:01:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 4 Worklist Smp#: 15
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

29 Bromomethane, CAS: 74-83-9

Signal: 1

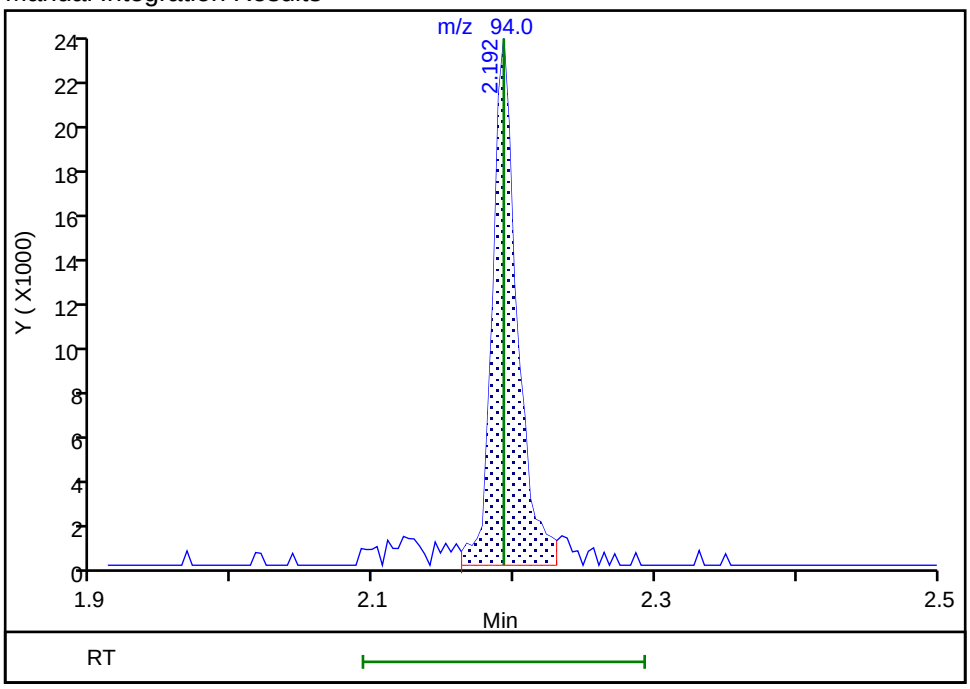
Processing Integration Results

RT: 2.23
Area: 1091
Amount: 2.360273
Amount Units: ug/l



Manual Integration Results

RT: 2.19
Area: 28631
Amount: 10.841932
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:17:33
Audit Action: Assigned Compound ID Audit Reason: Wrong peak

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6845.D
Lims ID: ICIS
Client ID:
Sample Type: ICIS Calib Level: 5
Inject. Date: 03-Aug-2019 18:22:30 ALS Bottle#: 5 Worklist Smp#: 16
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: STD 50
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:51:23 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: seifertj Date: 05-Aug-2019 08:17:02

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.272	3.272	0.000	0	3555441	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.068	0.000	99	4467079	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	87	958107	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.825	9.825	0.000	98	1314785	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.565	4.565	0.000	92	1027869	50.0	50.4	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.828	4.828	0.000	0	1287420	50.0	49.3	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	4196406	50.0	49.9	
$ 8 4-Bromofluorobenzene (Surr	95	8.696	8.696	0.000	83	1474770	50.0	50.2	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	99	838171	50.0	47.7	
26 Chloromethane	50	1.855	1.855	0.000	99	790243	50.0	53.8	
27 Vinyl chloride	62	1.937	1.937	0.000	98	707516	50.0	51.3	
29 Bromomethane	94	2.192	2.192	0.000	91	133521	50.0	49.3	a
30 Chloroethane	64	2.282	2.282	0.000	100	449506	50.0	49.1	
31 Dichlorofluoromethane	67	2.473	2.473	0.000	96	1496763	50.0	54.4	
32 Trichlorofluoromethane	101	2.500	2.500	0.000	98	1110297	50.0	53.8	
35 Ethyl ether	59	2.725	2.725	0.000	92	774253	50.0	52.9	
39 Acrolein	56	2.833	2.833	0.000	100	1935898	493.8	535.5	
40 1,1,2-Trichloro-1,2,2-trif	151	2.908	2.908	0.000	96	454096	50.0	48.7	
43 1,1-Dichloroethene	96	2.912	2.912	0.000	95	691406	50.0	53.5	
41 Acetone	43	2.938	2.938	0.000	100	2011211	200.0	205.8	
44 Iodomethane	142	3.036	3.036	0.000	100	1074059	50.0	54.1	
48 Carbon disulfide	76	3.099	3.099	0.000	99	2011209	50.0	48.6	
45 Methyl acetate	43	3.163	3.163	0.000	98	2267427	100.0	94.3	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	91	1270798	50.0	56.0	
50 Methylene Chloride	84	3.279	3.279	0.000	97	841711	50.0	49.5	
49 2-Methyl-2-propanol	59	3.332	3.332	0.000	93	1607832	500.0	457.1	
52 Acrylonitrile	53	3.444	3.444	0.000	99	5783427	500.0	521.1	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	97	2342888	50.0	53.4	
53 trans-1,2-Dichloroethene	96	3.478	3.478	0.000	96	823258	50.0	54.8	
54 Hexane	57	3.669	3.669	0.000	93	974396	50.0	50.2	
55 Vinyl acetate	43	3.774	3.774	0.000	97	4048770	100.0	100.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.797	3.797	0.000	96	1563975	50.0	53.8	
61 2-Butanone (MEK)	43	4.183	4.183	0.000	100	3479983	200.0	216.3	
63 cis-1,2-Dichloroethene	96	4.209	4.209	0.000	83	905233	50.0	53.0	
64 2,2-Dichloropropane	77	4.220	4.220	0.000	87	810132	50.0	44.6	
62 sec-Butyl Alcohol	45	4.299	4.299	0.000	98	4760601	1500.0	1594.5	
67 Chlorobromomethane	128	4.389	4.389	0.000	97	386194	50.0	54.4	
69 Tetrahydrofuran	42	4.397	4.397	0.000	91	1150205	100.0	100.5	
68 Chloroform	83	4.445	4.445	0.000	93	1452710	50.0	53.2	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	98	1040596	50.0	47.4	
72 Cyclohexane	56	4.648	4.648	0.000	91	1291664	50.0	49.7	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	97	1133577	50.0	53.6	
74 Carbon tetrachloride	117	4.708	4.708	0.000	94	664361	50.0	45.1	
70 Isobutyl alcohol	41	4.719	4.719	0.000	92	1628683	1250.0	1358.6	
77 Benzene	78	4.854	4.854	0.000	97	3491784	50.0	52.0	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	97	1229064	50.0	49.4	
14 n-Heptane	43	5.038	5.038	0.000	95	817035	50.0	52.4	
79 Trichloroethene	95	5.345	5.345	0.000	97	867737	50.0	50.8	
80 2-Pentanone	43	5.446	5.446	0.000	99	5282514	200.0	199.0	
82 Methylcyclohexane	55	5.540	5.540	0.000	93	883171	50.0	49.5	
83 1,2-Dichloropropane	63	5.551	5.551	0.000	93	934299	50.0	51.0	
84 1,4-Dioxane	88	5.600	5.600	0.000	98	477534	1000.0	1044.8	
85 Dibromomethane	93	5.622	5.622	0.000	92	527067	50.0	50.7	
86 Dichlorobromomethane	83	5.746	5.746	0.000	99	903766	50.0	47.1	
87 2-Chloroethyl vinyl ether	63	5.948	5.948	0.000	91	756296	50.0	51.9	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	95	1169176	50.0	47.7	
90 4-Methyl-2-pentanone (MIBK	43	6.196	6.196	0.000	97	5885756	200.0	223.8	
91 Toluene	91	6.383	6.383	0.000	98	3558068	50.0	52.9	
93 trans-1,3-Dichloropropene	75	6.559	6.559	0.000	95	938719	50.0	44.3	
92 Ethyl methacrylate	69	6.582	6.582	0.000	90	1277105	50.0	50.5	
94 1,1,2-Trichloroethane	97	6.736	6.736	0.000	92	759348	50.0	54.2	
97 Tetrachloroethene	164	6.826	6.826	0.000	93	551332	50.0	49.4	
96 1,3-Dichloropropane	76	6.882	6.882	0.000	95	1430032	50.0	51.4	
95 2-Hexanone	43	6.901	6.901	0.000	97	4558161	200.0	204.5	
98 Chlorodibromomethane	129	7.077	7.077	0.000	91	531225	50.0	46.2	
100 Ethylene Dibromide	107	7.193	7.193	0.000	98	804302	50.0	51.0	
101 1-Chlorohexane	91	7.583	7.583	0.000	98	985558	50.0	51.6	
102 Chlorobenzene	112	7.624	7.624	0.000	93	2149614	50.0	51.8	
104 1,1,1,2-Tetrachloroethane	131	7.699	7.699	0.000	88	567281	50.0	48.0	
103 Ethylbenzene	106	7.703	7.703	0.000	99	1188674	50.0	53.5	
105 m-Xylene & p-Xylene	106	7.819	7.819	0.000	0	1417481	50.0	50.0	
107 o-Xylene	106	8.179	8.179	0.000	97	1392942	50.0	55.0	
106 Styrene	104	8.198	8.198	0.000	95	2406701	50.0	56.2	
108 Bromoform	173	8.381	8.381	0.000	93	294206	50.0	50.2	
109 Isopropylbenzene	105	8.520	8.520	0.000	96	3483319	50.0	55.3	
111 Cyclohexanone	55	8.621	8.621	0.000	93	3450933	2000.0	2250.2	
112 1,1,2,2-Tetrachloroethane	83	8.809	8.809	0.000	95	1121339	50.0	53.9	
116 Bromobenzene	156	8.839	8.839	0.000	98	818212	50.0	52.2	
113 trans-1,4-Dichloro-2-buten	53	8.846	8.846	0.000	70	341642	50.0	49.6	
114 1,2,3-Trichloropropane	110	8.872	8.872	0.000	85	393072	50.0	51.1	
115 N-Propylbenzene	120	8.921	8.921	0.000	99	916418	50.0	55.4	
118 2-Chlorotoluene	126	9.019	9.019	0.000	95	815219	50.0	50.7	
117 1,3,5-Trimethylbenzene	105	9.090	9.090	0.000	94	2856130	50.0	55.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.135	9.135	0.000	98	852179	50.0	52.4	
120 tert-Butylbenzene	119	9.401	9.401	0.000	93	2255913	50.0	51.9	
121 1,2,4-Trimethylbenzene	105	9.461	9.461	0.000	98	2910765	50.0	55.8	
122 sec-Butylbenzene	134	9.622	9.622	0.000	94	652851	50.0	53.2	
124 1,3-Dichlorobenzene	146	9.750	9.750	0.000	97	1496817	50.0	53.4	
123 4-Isopropyltoluene	119	9.768	9.768	0.000	97	2730752	50.0	56.3	
126 1,4-Dichlorobenzene	146	9.847	9.847	0.000	94	1530865	50.0	51.9	
127 n-Butylbenzene	91	10.173	10.173	0.000	98	2463656	50.0	51.9	
128 1,2-Dichlorobenzene	146	10.203	10.203	0.000	95	1414658	50.0	51.5	
129 1,2-Dibromo-3-Chloropropan	157	10.983	10.983	0.000	77	218773	50.0	43.4	
130 1,2,4-Trichlorobenzene	180	11.804	11.804	0.000	94	768816	50.0	55.2	
131 Hexachlorobutadiene	225	11.943	11.943	0.000	96	258167	50.0	54.0	
132 Naphthalene	128	12.074	12.074	0.000	97	3131447	50.0	51.9	
133 1,2,3-Trichlorobenzene	180	12.295	12.295	0.000	94	711832	50.0	52.5	
S 140 1,2-Dichloroethene, Total	96				0		100.0	107.8	
S 138 1,2-Dichloroethene, Total	1				0		100.0	107.8	
S 134 Trihalomethanes, Total	1				0		200.0	196.7	
S 137 1,3-Dichloropropene, Total	1				0		100.0	92.1	
S 139 Xylenes, Total	106				0		100.0	105.0	
S 135 Xylenes, Total (URS)	1				0		100.0	105.0	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

MV-Gas B_00035	Amount Added: 50.00	Units: uL	
MV-MegaMain B_00015	Amount Added: 50.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent

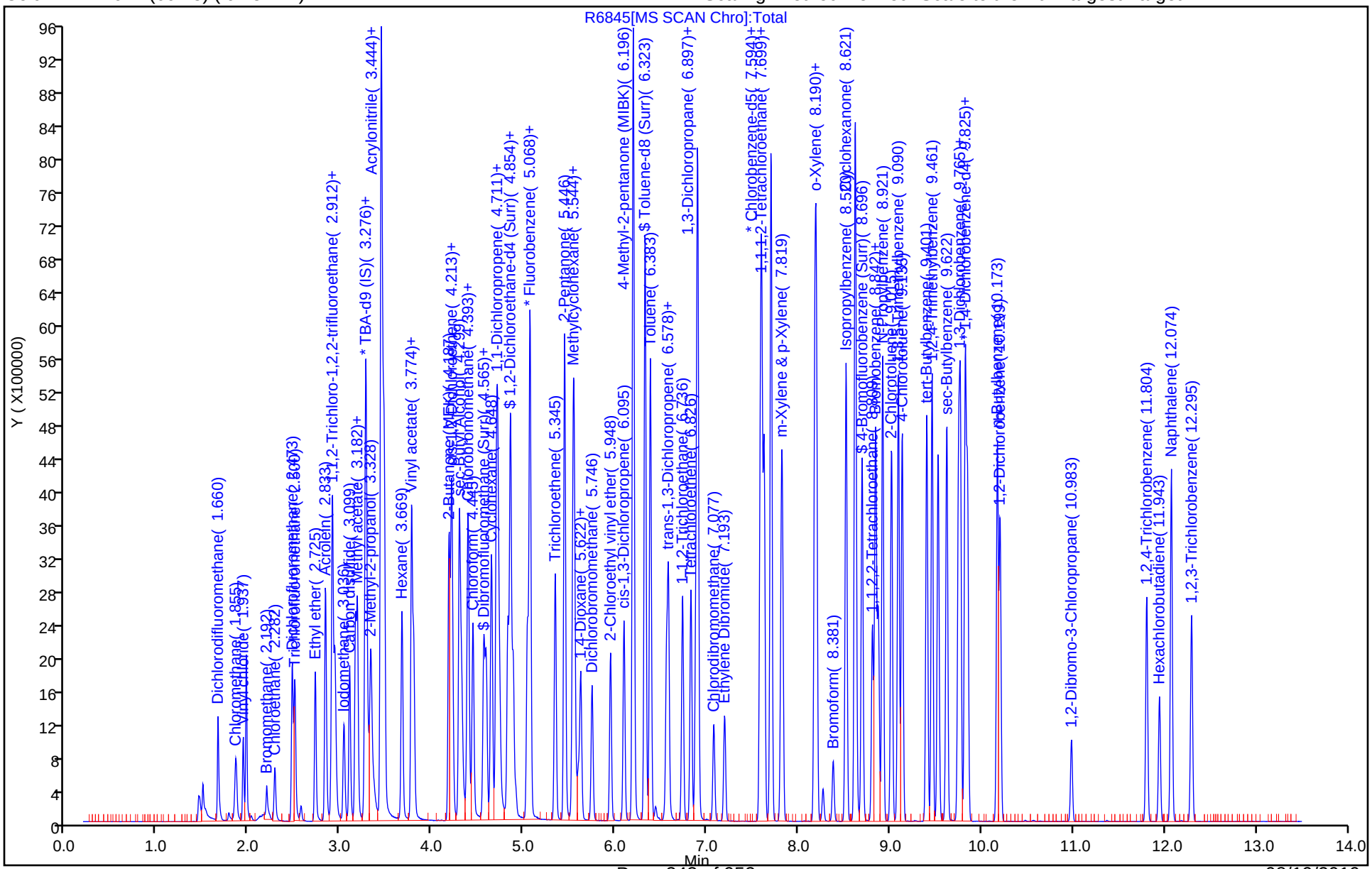
Report Date: 05-Aug-2019 11:51:26 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6845.D

Injection Date:	03-Aug-2019 18:22:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	ICIS			Worklist Smp#:	16
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	5
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

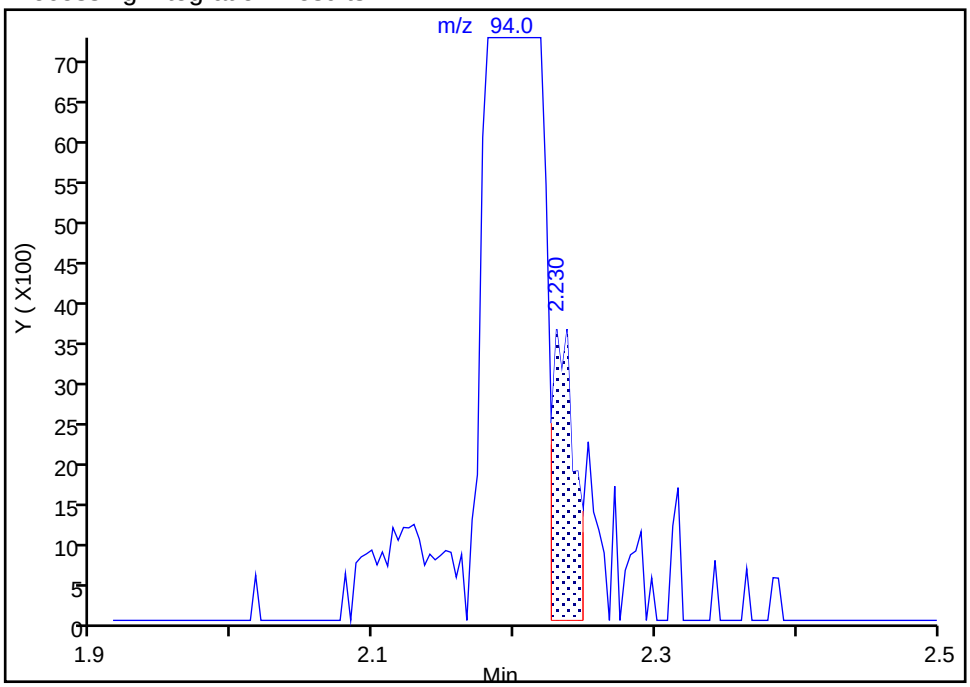
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6845.D
Injection Date: 03-Aug-2019 18:22:30 Instrument ID: VMS_R1
Lims ID: ICIS
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 5 Worklist Smp#: 16
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

29 Bromomethane, CAS: 74-83-9

Signal: 1

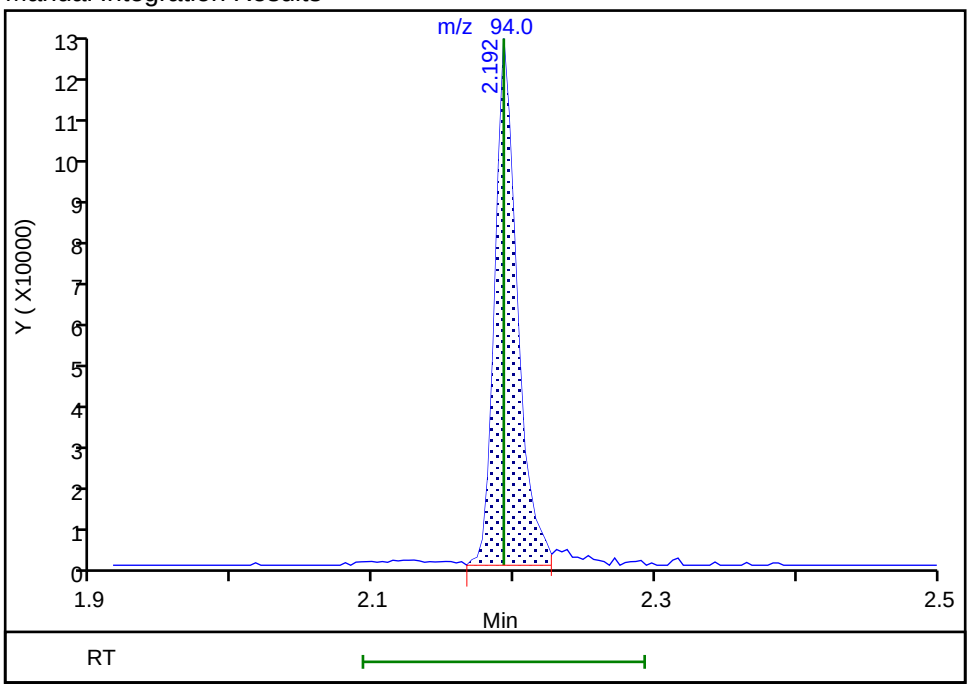
Processing Integration Results

RT: 2.23
Area: 4012
Amount: 1.971154
Amount Units: ug/l



Manual Integration Results

RT: 2.19
Area: 133521
Amount: 49.319394
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:15:57
Audit Action: Assigned Compound ID Audit Reason: Wrong peak

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6846.D
Lims ID: STD
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 03-Aug-2019 18:44:30 ALS Bottle#: 6 Worklist Smp#: 17
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: STD 75
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:51:31 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: seifertj Date: 05-Aug-2019 08:35:42

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.272	3.272	0.000	0	4278434	1000.0	1000.0	
* 1 Fluorobenzene	96	5.067	5.068	-0.001	99	4691605	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	86	1020948	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.825	-0.004	97	1399087	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.565	4.565	0.000	92	1090777	50.0	51.0	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.828	4.828	0.000	0	1348319	50.0	49.2	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	93	4456767	50.0	49.7	
$ 8 4-Bromofluorobenzene (Surr	95	8.696	8.696	0.000	84	1550196	50.0	49.6	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	100	1422029	75.0	76.9	
26 Chloromethane	50	1.855	1.855	0.000	99	1259975	75.0	81.6	
27 Vinyl chloride	62	1.934	1.937	-0.003	98	1158083	75.0	79.9	
29 Bromomethane	94	2.192	2.192	0.000	91	208887	75.0	73.6	
30 Chloroethane	64	2.286	2.282	0.004	100	748550	75.0	77.8	
31 Dichlorofluoromethane	67	2.473	2.473	0.000	96	2360966	75.0	81.7	
32 Trichlorofluoromethane	101	2.503	2.500	0.003	98	1831677	75.0	84.6	
35 Ethyl ether	59	2.725	2.725	0.000	92	1185151	75.0	77.1	
39 Acrolein	56	2.833	2.833	0.000	100	3128921	740.6	824.1	
40 1,1,2-Trichloro-1,2,2-trif	151	2.908	2.908	0.000	96	751232	75.0	76.5	
43 1,1-Dichloroethene	96	2.912	2.912	0.000	98	1103574	75.0	81.2	
41 Acetone	43	2.938	2.938	0.000	100	3178533	300.0	311.0	
44 Iodomethane	142	3.036	3.036	0.000	99	1789017	75.0	85.7	
48 Carbon disulfide	76	3.099	3.099	0.000	99	3297265	75.0	75.7	
45 Methyl acetate	43	3.163	3.163	0.000	98	3655982	150.0	144.8	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	92	2101754	75.0	88.2	
50 Methylene Chloride	84	3.279	3.279	0.000	95	1302524	75.0	73.0	
49 2-Methyl-2-propanol	59	3.332	3.332	0.000	95	2943606	750.0	794.1	
52 Acrylonitrile	53	3.444	3.444	0.000	98	8921695	750.0	765.4	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	96	3780324	75.0	82.1	
53 trans-1,2-Dichloroethene	96	3.478	3.478	0.000	97	1279525	75.0	81.0	
54 Hexane	57	3.673	3.669	0.004	93	1566988	75.0	75.7	
55 Vinyl acetate	43	3.774	3.774	0.000	97	6682658	150.0	156.5	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.797	3.797	0.000	96	2420975	75.0	79.3	
61 2-Butanone (MEK)	43	4.183	4.183	0.000	100	5453889	300.0	322.7	
63 cis-1,2-Dichloroethene	96	4.209	4.209	0.000	83	1433604	75.0	79.9	
64 2,2-Dichloropropane	77	4.220	4.220	0.000	91	1519126	75.0	78.9	
62 sec-Butyl Alcohol	45	4.299	4.299	0.000	99	8534735	2250.0	2368.0	
67 Chlorobromomethane	128	4.389	4.389	0.000	98	622947	75.0	83.5	
69 Tetrahydrofuran	42	4.396	4.397	-0.001	90	1806905	150.0	150.4	
68 Chloroform	83	4.445	4.445	0.000	94	2286142	75.0	79.7	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	98	1755015	75.0	75.9	
72 Cyclohexane	56	4.648	4.648	0.000	91	2101137	75.0	76.9	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	97	1797275	75.0	80.9	
74 Carbon tetrachloride	117	4.704	4.708	-0.004	95	1238006	75.0	79.2	
70 Isobutyl alcohol	41	4.723	4.719	0.004	95	2845763	1875.0	1967.0	
77 Benzene	78	4.854	4.854	0.000	96	5461413	75.0	77.4	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	97	1885098	75.0	72.1	
14 n-Heptane	43	5.041	5.038	0.003	95	1309946	75.0	80.0	
79 Trichloroethene	95	5.345	5.345	0.000	98	1366636	75.0	76.0	
80 2-Pentanone	43	5.446	5.446	0.000	99	8329061	300.0	313.1	
82 Methylcyclohexane	55	5.540	5.540	0.000	93	1422138	75.0	75.7	
83 1,2-Dichloropropane	63	5.551	5.551	0.000	94	1448988	75.0	75.6	
84 1,4-Dioxane	88	5.596	5.600	-0.004	96	760043	1500.0	1583.2	
85 Dibromomethane	93	5.622	5.622	0.000	92	852479	75.0	78.1	
86 Dichlorobromomethane	83	5.746	5.746	0.000	99	1526821	75.0	75.2	
87 2-Chloroethyl vinyl ether	63	5.948	5.948	0.000	92	1216416	75.0	79.2	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	95	1991348	75.0	75.8	
90 4-Methyl-2-pentanone (MIBK	43	6.196	6.196	0.000	97	9149411	300.0	331.2	
91 Toluene	91	6.383	6.383	0.000	98	5577845	75.0	79.0	
93 trans-1,3-Dichloropropene	75	6.559	6.559	0.000	94	1682714	75.0	74.9	
92 Ethyl methacrylate	69	6.578	6.582	-0.004	89	2125048	75.0	78.6	
94 1,1,2-Trichloroethane	97	6.736	6.736	0.000	92	1178192	75.0	80.1	
97 Tetrachloroethene	164	6.826	6.826	0.000	94	896454	75.0	75.3	
96 1,3-Dichloropropane	76	6.882	6.882	0.000	97	2224108	75.0	74.9	
95 2-Hexanone	43	6.901	6.901	0.000	97	7099406	300.0	311.5	
98 Chlorodibromomethane	129	7.077	7.077	0.000	90	970509	75.0	78.5	
100 Ethylene Dibromide	107	7.193	7.193	0.000	98	1308190	75.0	77.7	
101 1-Chlorohexane	91	7.583	7.583	0.000	98	1595308	75.0	78.4	
102 Chlorobenzene	112	7.624	7.624	0.000	93	3447889	75.0	77.9	
104 1,1,1,2-Tetrachloroethane	131	7.695	7.699	-0.004	92	994700	75.0	78.5	
103 Ethylbenzene	106	7.703	7.703	0.000	98	1880892	75.0	79.4	
105 m-Xylene & p-Xylene	106	7.819	7.819	0.000	0	2288218	75.0	75.6	
107 o-Xylene	106	8.179	8.179	0.000	97	2216599	75.0	82.2	
106 Styrene	104	8.198	8.198	0.000	95	3831832	75.0	83.9	
108 Bromoform	173	8.381	8.381	0.000	94	567804	75.0	74.9	
109 Isopropylbenzene	105	8.520	8.520	0.000	96	5541090	75.0	82.7	
111 Cyclohexanone	55	8.621	8.621	0.000	92	5354083	3000.0	3270.8	
112 1,1,2,2-Tetrachloroethane	83	8.809	8.809	0.000	94	1787479	75.0	80.7	
116 Bromobenzene	156	8.839	8.839	0.000	98	1304403	75.0	78.1	
113 trans-1,4-Dichloro-2-buten	53	8.846	8.846	0.000	76	577924	75.0	78.7	
114 1,2,3-Trichloropropane	110	8.872	8.872	0.000	84	621833	75.0	76.0	
115 N-Propylbenzene	120	8.921	8.921	0.000	99	1458716	75.0	82.8	
118 2-Chlorotoluene	126	9.019	9.019	-0.001	96	1295065	75.0	75.5	
117 1,3,5-Trimethylbenzene	105	9.093	9.090	0.003	95	4469988	75.0	81.5	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.135	9.135	0.000	98	1360273	75.0	78.5	
120 tert-Butylbenzene	119	9.401	9.401	0.000	93	3531363	75.0	76.2	
121 1,2,4-Trimethylbenzene	105	9.461	9.461	0.000	98	4588218	75.0	82.6	
122 sec-Butylbenzene	134	9.618	9.622	-0.004	94	1017402	75.0	77.9	
124 1,3-Dichlorobenzene	146	9.746	9.750	-0.004	97	2341599	75.0	78.5	
123 4-Isopropyltoluene	119	9.768	9.768	0.000	97	4302939	75.0	83.4	
126 1,4-Dichlorobenzene	146	9.847	9.847	0.000	93	2432401	75.0	77.4	
127 n-Butylbenzene	91	10.173	10.173	0.000	98	3833462	75.0	75.8	
128 1,2-Dichlorobenzene	146	10.203	10.203	0.000	97	2265383	75.0	77.3	
129 1,2-Dibromo-3-Chloropropan	157	10.983	10.983	0.000	80	408692	75.0	74.5	
130 1,2,4-Trichlorobenzene	180	11.804	11.804	0.000	94	1243009	75.0	83.9	
131 Hexachlorobutadiene	225	11.942	11.943	-0.001	97	413191	75.0	81.2	
132 Naphthalene	128	12.074	12.074	0.000	97	5060470	75.0	78.7	
133 1,2,3-Trichlorobenzene	180	12.291	12.295	-0.004	95	1153916	75.0	80.0	
S 140 1,2-Dichloroethene, Total	96				0		150.0	161.0	
S 138 1,2-Dichloroethene, Total	1				0		150.0	161.0	
S 134 Trihalomethanes, Total	1				0		300.0	308.3	
S 137 1,3-Dichloropropene, Total	1				0		150.0	150.6	
S 136 Total BTEX	1				0			393.5	
S 139 Xylenes, Total	106				0		150.0	157.7	
S 135 Xylenes, Total (URS)	1				0		150.0	157.7	

Reagents:

MV-Gas B_00035	Amount Added: 75.00	Units: uL	
MV-MegaMain B_00015	Amount Added: 75.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent

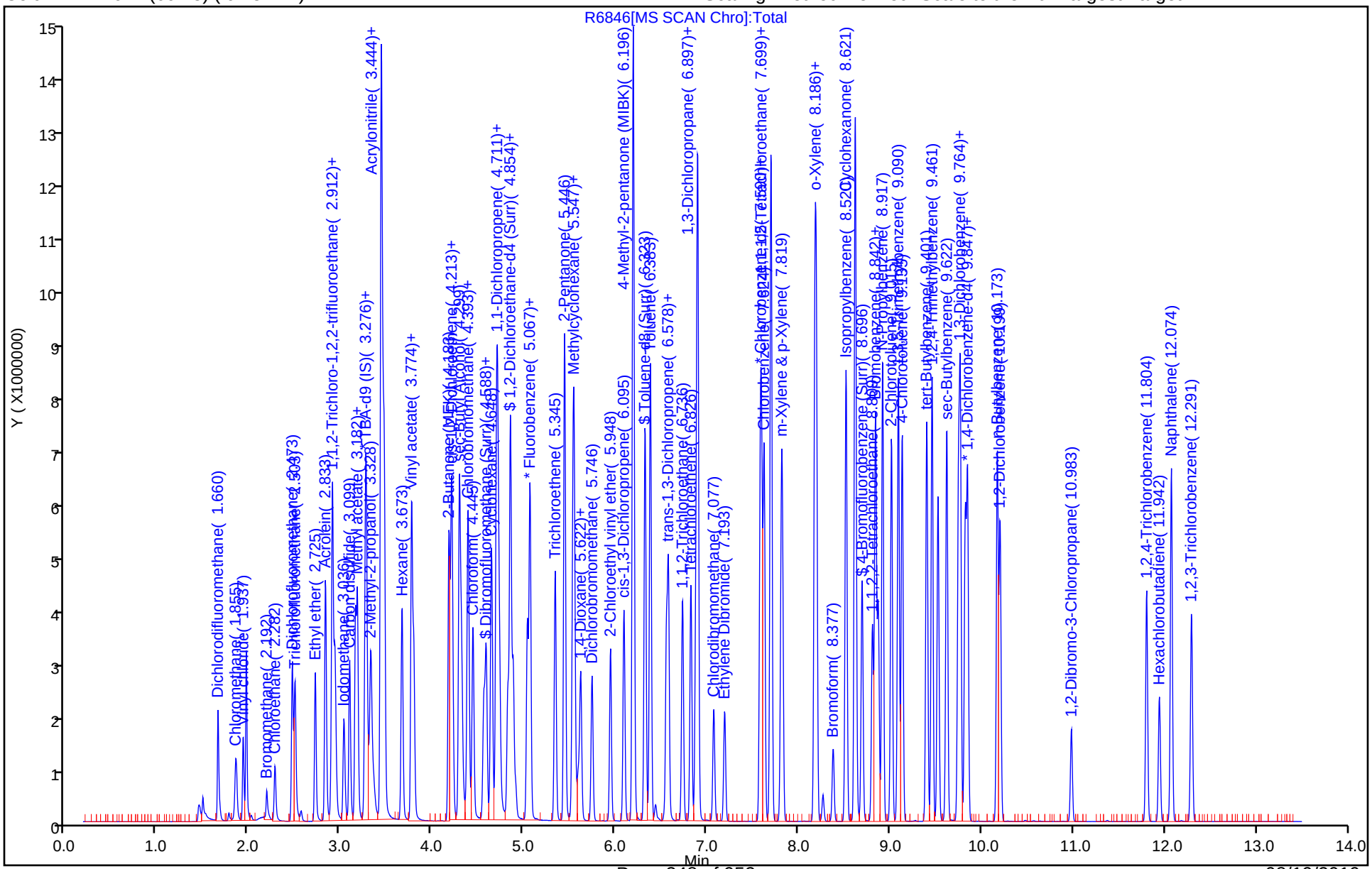
Report Date: 05-Aug-2019 11:51:35 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6846.D

Injection Date:	03-Aug-2019 18:44:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	STD			Worklist Smp#:	17
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	6
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6847.D
Lims ID: STD
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 03-Aug-2019 19:06:30 ALS Bottle#: 7 Worklist Smp#: 18
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: STD 100
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:51:40 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: seifertj Date: 05-Aug-2019 08:36:51

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.268	3.272	-0.004	0	4690793	1000.0	1000.0	
* 1 Fluorobenzene	96	5.067	5.068	-0.001	99	4916717	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	87	1074009	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.825	-0.004	96	1483350	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.565	-0.004	92	1151394	50.0	51.3	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.828	-0.004	0	1398186	50.0	48.7	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	93	4655981	50.0	49.4	
$ 8 4-Bromofluorobenzene (Surr	95	8.696	8.696	0.000	85	1617625	50.0	48.8	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	99	1849448	100.0	95.3	
26 Chloromethane	50	1.855	1.855	0.000	99	1627519	100.0	100.6	
27 Vinyl chloride	62	1.934	1.937	-0.003	98	1482665	100.0	97.7	
29 Bromomethane	94	2.192	2.192	0.000	93	275322	100.0	92.7	
30 Chloroethane	64	2.282	2.282	0.000	100	960983	100.0	95.3	
31 Dichlorofluoromethane	67	2.473	2.473	0.000	96	2951013	100.0	97.4	
32 Trichlorofluoromethane	101	2.503	2.500	0.003	99	2401533	100.0	105.8	
35 Ethyl ether	59	2.725	2.725	0.000	93	1552453	100.0	96.4	
39 Acrolein	56	2.833	2.833	0.000	99	4021833	987.5	1010.8	
40 1,1,2-Trichloro-1,2,2-trif	151	2.908	2.908	0.000	95	990398	100.0	96.1	
43 1,1-Dichloroethene	96	2.912	2.912	0.000	97	1450804	100.0	101.9	
41 Acetone	43	2.938	2.938	0.000	100	4003307	400.0	374.2	
44 Iodomethane	142	3.036	3.036	0.000	99	2363525	100.0	108.1	
48 Carbon disulfide	76	3.099	3.099	0.000	99	4372552	100.0	95.7	
45 Methyl acetate	43	3.163	3.163	0.000	98	4681063	200.0	176.9	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	93	2729221	100.0	109.3	
50 Methylene Chloride	84	3.279	3.279	0.000	94	1692245	100.0	90.5	
49 2-Methyl-2-propanol	59	3.328	3.332	-0.004	95	3960192	1000.0	1018.5	
52 Acrylonitrile	53	3.444	3.444	0.000	99	11113236	1000.0	909.8	
51 Methyl tert-butyl ether	73	3.467	3.463	0.004	95	4976093	100.0	103.1	
53 trans-1,2-Dichloroethene	96	3.478	3.478	0.000	98	1688810	100.0	102.1	
54 Hexane	57	3.669	3.669	0.000	93	2038859	100.0	93.6	
55 Vinyl acetate	43	3.774	3.774	0.000	97	8785241	200.0	196.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.797	3.797	0.000	96	3122976	100.0	97.7	
61 2-Butanone (MEK)	43	4.183	4.183	0.000	100	6847598	400.0	386.7	
63 cis-1,2-Dichloroethene	96	4.209	4.209	0.000	82	1883865	100.0	100.2	
64 2,2-Dichloropropane	77	4.220	4.220	0.000	89	2108590	100.0	104.1	
62 sec-Butyl Alcohol	45	4.299	4.299	0.000	99	11267611	3000.0	2848.3	
67 Chlorobromomethane	128	4.385	4.389	-0.004	98	810227	100.0	103.7	
69 Tetrahydrofuran	42	4.396	4.397	-0.001	89	2289294	200.0	181.8	
68 Chloroform	83	4.445	4.445	0.000	93	2976426	100.0	99.1	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	98	2329796	100.0	96.0	
72 Cyclohexane	56	4.648	4.648	0.000	91	2694763	100.0	94.0	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	98	2331096	100.0	100.1	
74 Carbon tetrachloride	117	4.708	4.708	0.000	97	1698183	100.0	103.4	
70 Isobutyl alcohol	41	4.723	4.719	0.004	94	3714803	2500.0	2339.5	
77 Benzene	78	4.854	4.854	0.000	96	7073316	100.0	95.7	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	97	2415002	100.0	88.1	
14 n-Heptane	43	5.037	5.038	-0.001	95	1686588	100.0	98.2	
79 Trichloroethene	95	5.341	5.345	-0.004	99	1767598	100.0	93.7	
80 2-Pentanone	43	5.446	5.446	0.000	99	10462357	400.0	387.9	
82 Methylcyclohexane	55	5.540	5.540	0.000	93	1852028	100.0	94.0	
83 1,2-Dichloropropane	63	5.551	5.551	0.000	95	1884710	100.0	94.0	
84 1,4-Dioxane	88	5.600	5.600	0.000	96	975327	2000.0	1938.7	
85 Dibromomethane	93	5.622	5.622	0.000	93	1114280	100.0	97.4	
86 Dichlorobromomethane	83	5.746	5.746	0.000	99	2059820	100.0	96.5	
87 2-Chloroethyl vinyl ether	63	5.948	5.948	0.000	91	1554677	100.0	96.6	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	95	2691198	100.0	97.1	
90 4-Methyl-2-pentanone (MIBK	43	6.196	6.196	0.000	96	11528601	400.0	398.2	
91 Toluene	91	6.383	6.383	0.000	99	7245500	100.0	97.9	
93 trans-1,3-Dichloropropene	75	6.559	6.559	0.000	96	2303691	100.0	97.4	
92 Ethyl methacrylate	69	6.578	6.582	-0.004	89	2769134	100.0	97.2	
94 1,1,2-Trichloroethane	97	6.736	6.736	0.000	91	1556237	100.0	101.0	
97 Tetrachloroethene	164	6.826	6.826	0.000	95	1175760	100.0	93.9	
96 1,3-Dichloropropane	76	6.882	6.882	0.000	95	2884155	100.0	92.3	
95 2-Hexanone	43	6.901	6.901	-0.001	97	8948847	400.0	384.5	
98 Chlorodibromomethane	129	7.077	7.077	0.000	90	1346640	100.0	103.3	
100 Ethylene Dibromide	107	7.193	7.193	0.000	99	1705420	100.0	96.2	
101 1-Chlorohexane	91	7.583	7.583	0.000	98	2061709	100.0	96.3	
102 Chlorobenzene	112	7.624	7.624	0.000	94	4459155	100.0	95.8	
104 1,1,1,2-Tetrachloroethane	131	7.699	7.699	0.000	93	1354037	100.0	101.3	
103 Ethylbenzene	106	7.703	7.703	0.000	98	2449987	100.0	98.3	
105 m-Xylene & p-Xylene	106	7.819	7.819	0.000	0	2943384	100.0	92.3	
107 o-Xylene	106	8.179	8.179	0.000	97	2882817	100.0	101.6	
106 Styrene	104	8.194	8.198	-0.004	95	4955391	100.0	103.2	
108 Bromoform	173	8.377	8.381	-0.004	94	814195	100.0	91.4	
109 Isopropylbenzene	105	8.520	8.520	0.000	96	7115903	100.0	100.1	
111 Cyclohexanone	55	8.621	8.621	0.000	92	6708414	4000.0	3893.3	
112 1,1,2,2-Tetrachloroethane	83	8.809	8.809	0.000	94	2331782	100.0	99.3	
116 Bromobenzene	156	8.839	8.839	0.000	97	1711351	100.0	96.7	
113 trans-1,4-Dichloro-2-buten	53	8.846	8.846	0.000	70	756222	100.0	97.0	
114 1,2,3-Trichloropropane	110	8.872	8.872	0.000	84	802103	100.0	92.4	
115 N-Propylbenzene	120	8.921	8.921	0.000	99	1897598	100.0	101.6	
118 2-Chlorotoluene	126	9.015	9.019	-0.004	96	1670979	100.0	91.9	
117 1,3,5-Trimethylbenzene	105	9.090	9.090	0.000	95	5801131	100.0	99.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.131	9.135	-0.004	98	1767301	100.0	96.2	
120 tert-Butylbenzene	119	9.401	9.401	0.000	93	4585299	100.0	93.3	
121 1,2,4-Trimethylbenzene	105	9.461	9.461	0.000	98	5933415	100.0	100.7	
122 sec-Butylbenzene	134	9.618	9.622	-0.004	94	1319055	100.0	95.2	
124 1,3-Dichlorobenzene	146	9.746	9.750	-0.004	97	3097792	100.0	97.9	
123 4-Isopropyltoluene	119	9.768	9.768	0.000	97	5598955	100.0	102.3	
126 1,4-Dichlorobenzene	146	9.847	9.847	0.000	94	3180201	100.0	95.5	
127 n-Butylbenzene	91	10.173	10.173	0.000	98	5002122	100.0	93.2	
128 1,2-Dichlorobenzene	146	10.203	10.203	0.000	96	2951629	100.0	94.9	
129 1,2-Dibromo-3-Chloropropan	157	10.983	10.983	0.000	81	556428	100.0	94.9	
130 1,2,4-Trichlorobenzene	180	11.804	11.804	0.000	94	1663870	100.0	106.0	
131 Hexachlorobutadiene	225	11.942	11.943	-0.001	97	553755	100.0	102.7	
132 Naphthalene	128	12.070	12.074	-0.004	97	6705155	100.0	98.2	
133 1,2,3-Trichlorobenzene	180	12.295	12.295	0.000	95	1537244	100.0	100.5	
S 140 1,2-Dichloroethene, Total	96				0		200.0	202.3	
S 138 1,2-Dichloroethene, Total	1				0		200.0	202.3	
S 134 Trihalomethanes, Total	1				0		400.0	390.2	
S 137 1,3-Dichloropropene, Total	1				0		200.0	194.5	
S 136 Total BTEX	1				0			485.8	
S 139 Xylenes, Total	106				0		200.0	193.9	
S 135 Xylenes, Total (URS)	1				0		200.0	193.9	

Reagents:

MV-Gas B_00035	Amount Added: 100.00	Units: uL	
MV-MegaMain B_00015	Amount Added: 100.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent

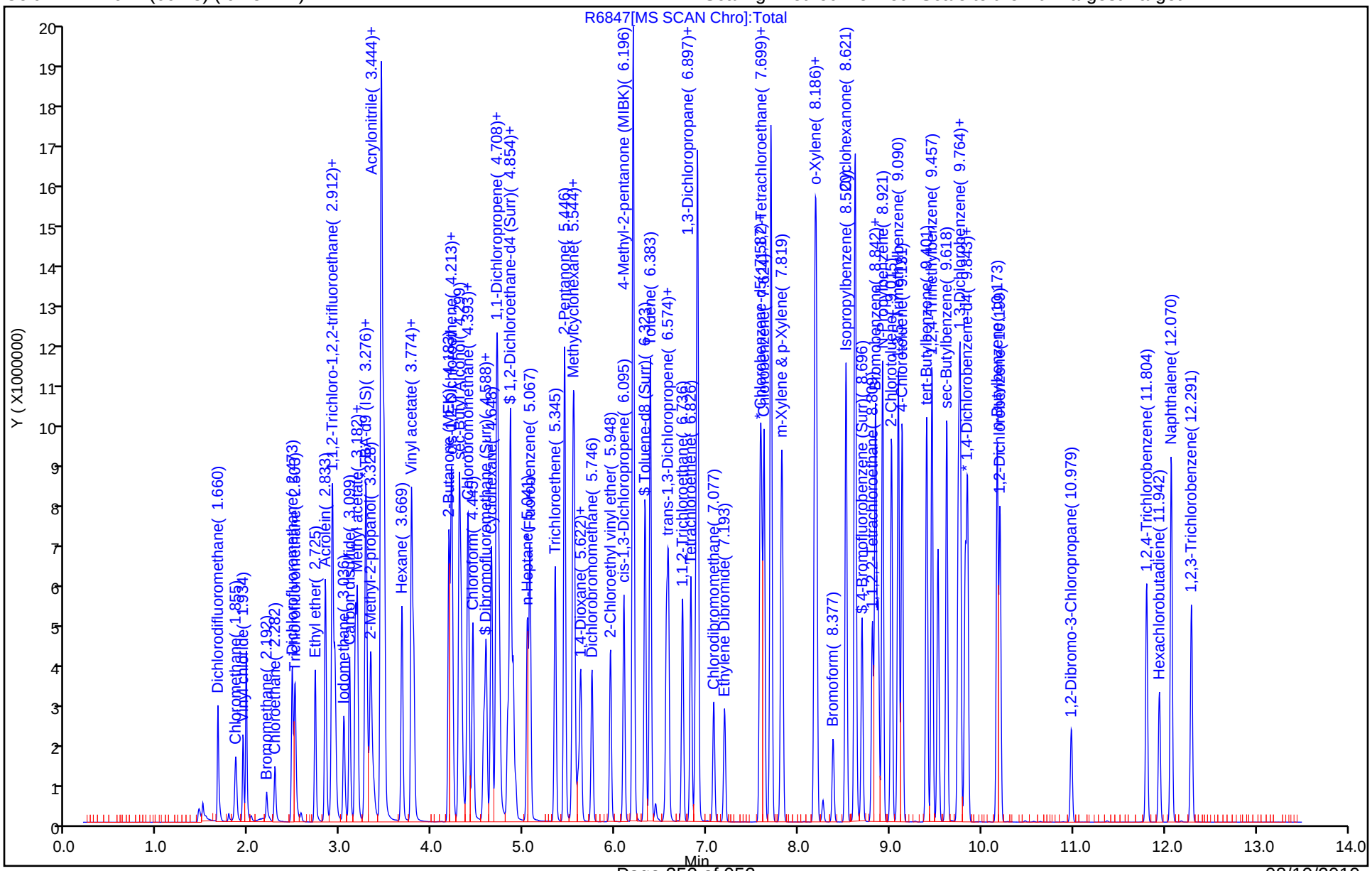
Report Date: 05-Aug-2019 11:51:44 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6847.D

Injection Date:	03-Aug-2019 19:06:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	STD			Worklist Smp#:	18
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D
Lims ID: STD
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 03-Aug-2019 19:27:30 ALS Bottle#: 8 Worklist Smp#: 19
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: STD 200
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:51:49 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: seifertj Date: 05-Aug-2019 08:38:13

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.283	3.272	0.011	0	2044514	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.068	0.000	99	5273064	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	84	1158718	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.825	-0.004	96	1611049	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.562	4.565	-0.003	93	1242491	50.0	51.6	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.828	-0.004	0	1477145	50.0	47.9	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	93	5036020	50.0	49.5	
$ 8 4-Bromofluorobenzene (Surr	95	8.696	8.696	0.000	85	1688812	50.0	46.9	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	99	4015215	200.0	192.8	
26 Chloromethane	50	1.855	1.855	0.000	99	3821745	200.0	220.3	
27 Vinyl chloride	62	1.934	1.937	-0.003	98	3869462	200.0	237.7	
29 Bromomethane	94	2.189	2.192	-0.003	91	509852	200.0	160.3	
30 Chloroethane	64		2.282				ND	ND	U
31 Dichlorofluoromethane	67	2.462	2.473	-0.011	97	6619271	200.0	203.8	
32 Trichlorofluoromethane	101	2.489	2.500	-0.012	97	5394711	200.0	221.6	
35 Ethyl ether	59	2.721	2.725	-0.004	91	3426260	200.0	198.4	
39 Acrolein	56	2.833	2.833	0.000	100	9081825	1975.0	2128.3	
40 1,1,2-Trichloro-1,2,2-trif	151	2.901	2.908	-0.007	95	2326792	200.0	210.2	
43 1,1-Dichloroethene	96	2.905	2.912	-0.007	98	3308535	200.0	216.7	
41 Acetone	43	2.938	2.938	0.000	100	8925430	800.0	780.8	
44 Iodomethane	142	3.032	3.036	-0.004	99	5445777	200.0	232.2	
48 Carbon disulfide	76	3.092	3.099	-0.007	99	10178939	200.0	207.4	
45 Methyl acetate	43	3.163	3.163	0.000	98	10249810	400.0	361.2	
47 3-Chloro-1-propene	41	3.178	3.182	-0.004	93	5444074	200.0	203.3	
50 Methylene Chloride	84	3.276	3.279	-0.003	94	3834503	200.0	191.2	
49 2-Methyl-2-propanol	59	3.339	3.332	0.007	97	4543320	2000.0	1089.2	
52 Acrylonitrile	53	3.441	3.444	-0.003	98	19463331	2000.0	1485.6	e
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	95	10903717	200.0	210.6	
53 trans-1,2-Dichloroethene	96	3.474	3.478	-0.004	99	3731567	200.0	210.3	
54 Hexane	57	3.666	3.669	-0.003	92	4476222	200.0	190.1	a
55 Vinyl acetate	43	3.767	3.774	-0.007	97	15696641	400.0	325.7	e

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.793	3.797	-0.004	96	6818650	200.0	198.8	
61 2-Butanone (MEK)	43	4.187	4.183	0.004	100	14481632	800.0	762.5	
63 cis-1,2-Dichloroethene	96	4.205	4.209	-0.004	81	4199572	200.0	208.3	
64 2,2-Dichloropropane	77	4.217	4.220	-0.003	86	5146703	200.0	235.9	
62 sec-Butyl Alcohol	45	4.344	4.299	0.045	99	24718530	6000.0	14274	M
67 Chlorobromomethane	128	4.385	4.389	-0.004	98	1867624	200.0	222.8	
69 Tetrahydrofuran	42	4.397	4.397	0.000	89	5075115	400.0	375.8	
68 Chloroform	83	4.445	4.445	0.000	93	6695516	200.0	207.8	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	98	5418634	200.0	207.7	
72 Cyclohexane	56	4.644	4.648	-0.004	90	6065852	200.0	197.1	
73 1,1-Dichloropropene	75	4.696	4.700	-0.004	99	5201533	200.0	208.2	
74 Carbon tetrachloride	117	4.704	4.708	-0.004	97	4148739	200.0	234.4	
70 Isobutyl alcohol	41	4.756	4.719	0.037	95	8417029	5000.0	12109	
77 Benzene	78	4.850	4.854	-0.004	98	14943547	200.0	188.4	e
76 1,2-Dichloroethane	62	4.884	4.884	0.000	97	5306224	200.0	180.5	
14 n-Heptane	43	5.038	5.038	0.000	94	3689845	200.0	200.4	
79 Trichloroethene	95	5.341	5.345	-0.004	99	3993654	200.0	197.2	
80 2-Pentanone	43	5.442	5.446	-0.004	97	18793384	800.0	802.0	e
82 Methylcyclohexane	55	5.536	5.540	-0.004	92	4000387	200.0	189.1	
83 1,2-Dichloropropane	63	5.551	5.551	0.000	97	4070546	200.0	190.1	
84 1,4-Dioxane	88	5.615	5.600	0.015	94	2229365	4000.0	4131.9	
85 Dibromomethane	93	5.622	5.622	0.000	96	2498328	200.0	203.7	
86 Dichlorobromomethane	83	5.746	5.746	0.000	99	4786000	200.0	208.0	
87 2-Chloroethyl vinyl ether	63	5.949	5.948	0.000	91	3543000	200.0	204.8	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	96	6209574	200.0	206.6	
90 4-Methyl-2-pentanone (MIBK	43	6.188	6.196	-0.008	95	19288201	800.0	621.2	e
91 Toluene	91	6.380	6.383	-0.003	95	15038174	200.0	189.5	e
93 trans-1,3-Dichloropropene	75	6.560	6.559	0.001	97	5399832	200.0	211.5	
92 Ethyl methacrylate	69	6.582	6.582	0.000	89	6184698	200.0	200.8	
94 1,1,2-Trichloroethane	97	6.736	6.736	0.000	91	3472972	200.0	210.2	
97 Tetrachloroethene	164	6.826	6.826	0.000	96	2795226	200.0	206.5	
96 1,3-Dichloropropane	76	6.882	6.882	0.000	96	6306679	200.0	186.8	
95 2-Hexanone	43	6.897	6.901	-0.004	91	16655916	800.0	803.0	e
98 Chlorodibromomethane	129	7.073	7.077	-0.004	93	3277912	200.0	231.8	
100 Ethylene Dibromide	107	7.193	7.193	0.000	98	3853760	200.0	201.1	
101 1-Chlorohexane	91	7.583	7.583	0.000	97	4751991	200.0	205.8	
102 Chlorobenzene	112	7.624	7.624	0.000	94	10076394	200.0	200.7	
104 1,1,1,2-Tetrachloroethane	131	7.699	7.699	0.000	93	3245753	200.0	223.9	
103 Ethylbenzene	106	7.695	7.703	-0.008	98	5550967	200.0	206.5	e
105 m-Xylene & p-Xylene	106	7.819	7.819	0.000	0	6710886	200.0	194.9	
107 o-Xylene	106	8.179	8.179	0.000	96	6415425	200.0	209.5	
106 Styrene	104	8.198	8.198	0.000	94	10988829	200.0	212.1	
108 Bromoform	173	8.378	8.381	-0.003	95	2084210	200.0	154.7	
109 Isopropylbenzene	105	8.516	8.520	-0.004	96	14972975	200.0	194.0	e
111 Cyclohexanone	55	8.625	8.621	0.004	91	14080657	8000.0	7563.1	
112 1,1,2,2-Tetrachloroethane	83	8.809	8.809	0.000	94	5186003	200.0	203.4	
116 Bromobenzene	156	8.839	8.839	0.000	96	3890720	200.0	202.4	
113 trans-1,4-Dichloro-2-buten	53	8.846	8.846	0.000	69	1705798	200.0	201.1	
114 1,2,3-Trichloropropane	110	8.872	8.872	0.000	84	1794627	200.0	190.1	
115 N-Propylbenzene	120	8.921	8.921	0.000	97	4273026	200.0	210.7	
118 2-Chlorotoluene	126	9.019	9.019	0.000	96	3763573	200.0	190.2	
117 1,3,5-Trimethylbenzene	105	9.094	9.090	0.004	95	12651039	200.0	200.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.135	9.135	0.000	98	3932959	200.0	197.1	
120 tert-Butylbenzene	119	9.401	9.401	0.000	93	10290886	200.0	192.5	
121 1,2,4-Trimethylbenzene	105	9.461	9.461	0.000	97	12884652	200.0	201.4	
122 sec-Butylbenzene	134	9.618	9.622	-0.004	95	3017013	200.0	200.2	e
124 1,3-Dichlorobenzene	146	9.750	9.750	0.000	97	7037779	200.0	204.9	
123 4-Isopropyltoluene	119	9.768	9.768	0.000	96	12430713	200.0	209.1	
126 1,4-Dichlorobenzene	146	9.847	9.847	0.000	94	7299078	200.0	201.8	
127 n-Butylbenzene	91	10.173	10.173	0.000	98	10976757	200.0	188.0	
128 1,2-Dichlorobenzene	146	10.203	10.203	0.000	97	6794314	200.0	200.7	
129 1,2-Dibromo-3-Chloropropan	157	10.983	10.983	0.000	91	1385757	200.0	214.6	
130 1,2,4-Trichlorobenzene	180	11.804	11.804	0.000	94	3847942	200.0	225.6	
131 Hexachlorobutadiene	225	11.943	11.943	0.000	98	1319273	200.0	225.2	
132 Naphthalene	128	12.070	12.074	-0.004	98	14575473	200.0	196.4	e
133 1,2,3-Trichlorobenzene	180	12.291	12.295	-0.004	95	3550482	200.0	213.7	
S 140 1,2-Dichloroethene, Total	96				0		400.0	418.6	
S 138 1,2-Dichloroethene, Total	1				0		400.0	418.6	
S 134 Trihalomethanes, Total	1				0		800.0	802.3	
S 137 1,3-Dichloropropene, Total	1				0		400.0	418.1	
S 136 Total BTEX	1				0			988.8	
S 139 Xylenes, Total	106				0		400.0	404.4	
S 135 Xylenes, Total (URS)	1				0		400.0	404.4	

QC Flag Legend

Processing Flags
- ND - Not Detected or Marked ND
- e - Potential Peak Saturated

Review Flags
- M - Manually Integrated
- U - Marked Undetected
- a - User Assigned ID

Reagents:

MV-Gas B_00035	Amount Added: 200.00	Units: uL	
MV-MegaMain B_00015	Amount Added: 200.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent

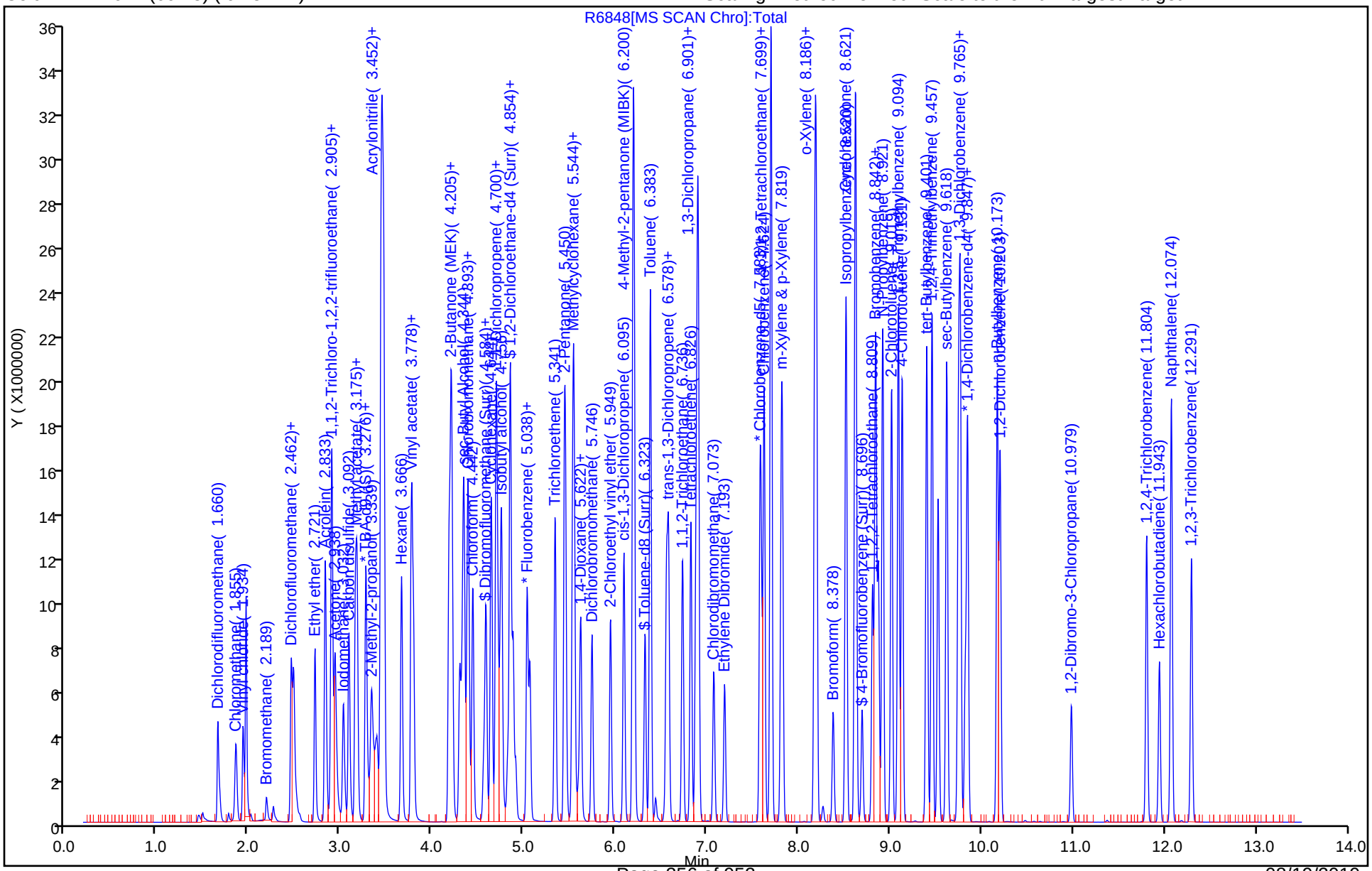
Report Date: 05-Aug-2019 11:51:53 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Injection Date:	03-Aug-2019 19:27:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	STD			Worklist Smp#:	19
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

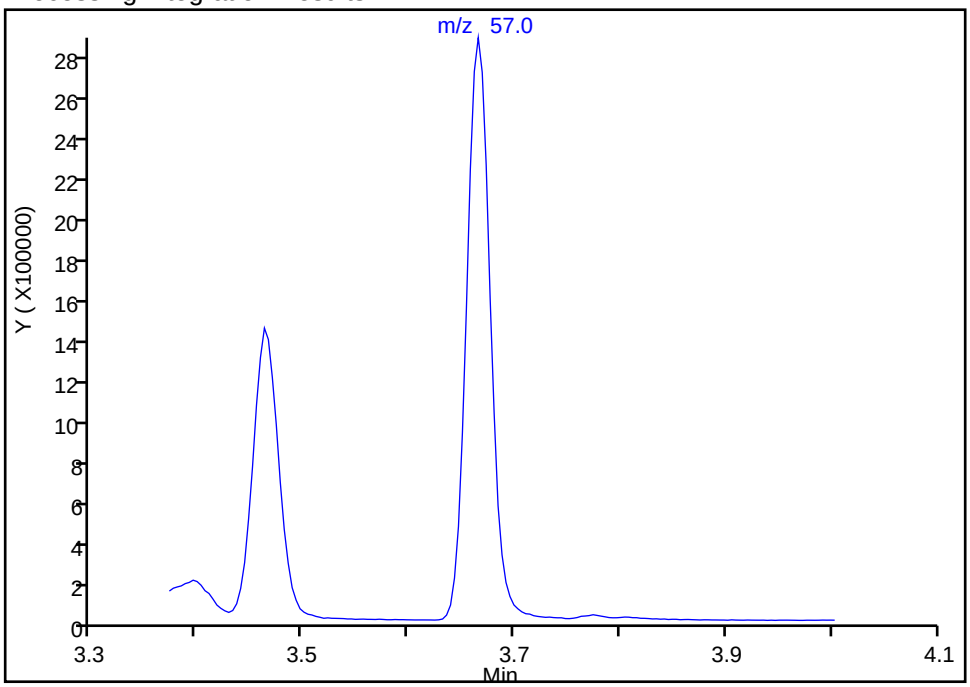
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D
Injection Date: 03-Aug-2019 19:27:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 8 Worklist Smp#: 19
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

54 Hexane, CAS: 110-54-3

Signal: 1

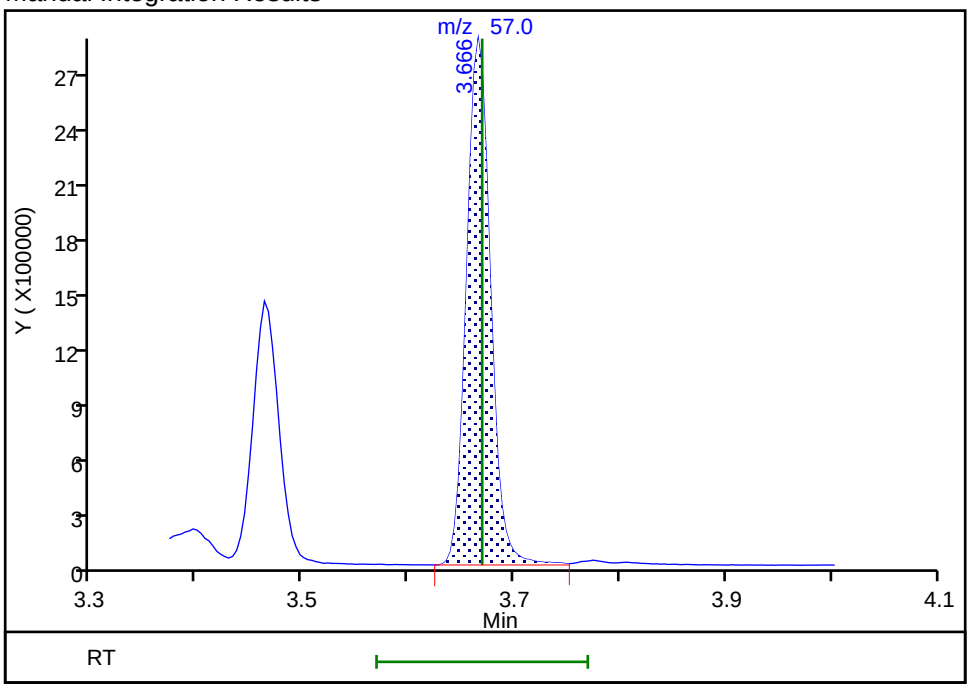
Not Detected
Expected RT: 3.67

Processing Integration Results



Manual Integration Results

RT: 3.67
Area: 4476222
Amount: 190.1482
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:37:49
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

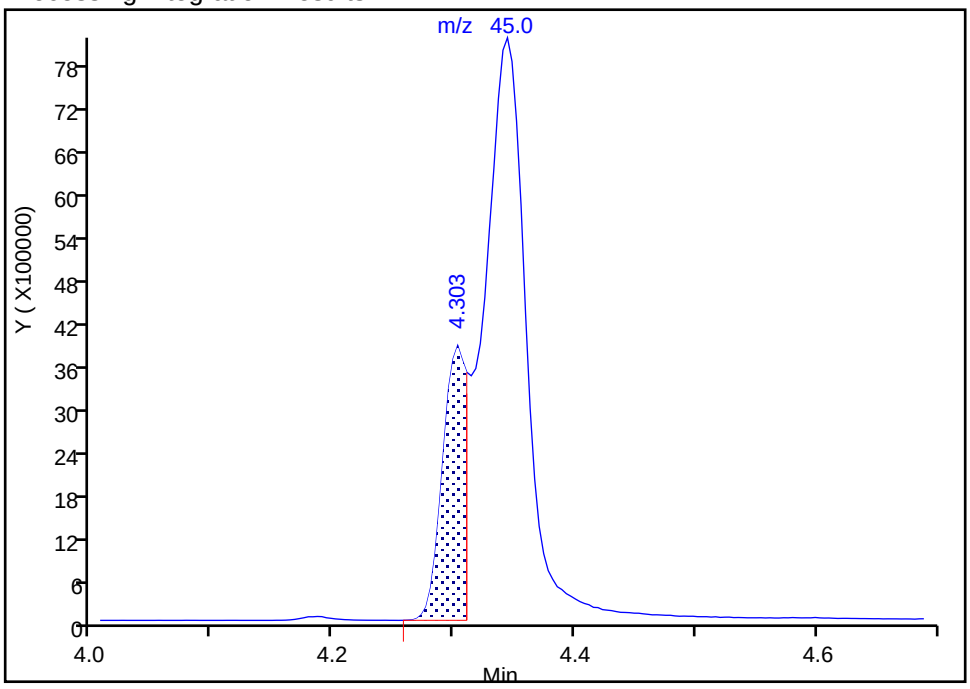
Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D
Injection Date: 03-Aug-2019 19:27:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 8 Worklist Smp#: 19
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

62 sec-Butyl Alcohol, CAS: 78-92-2

Signal: 1

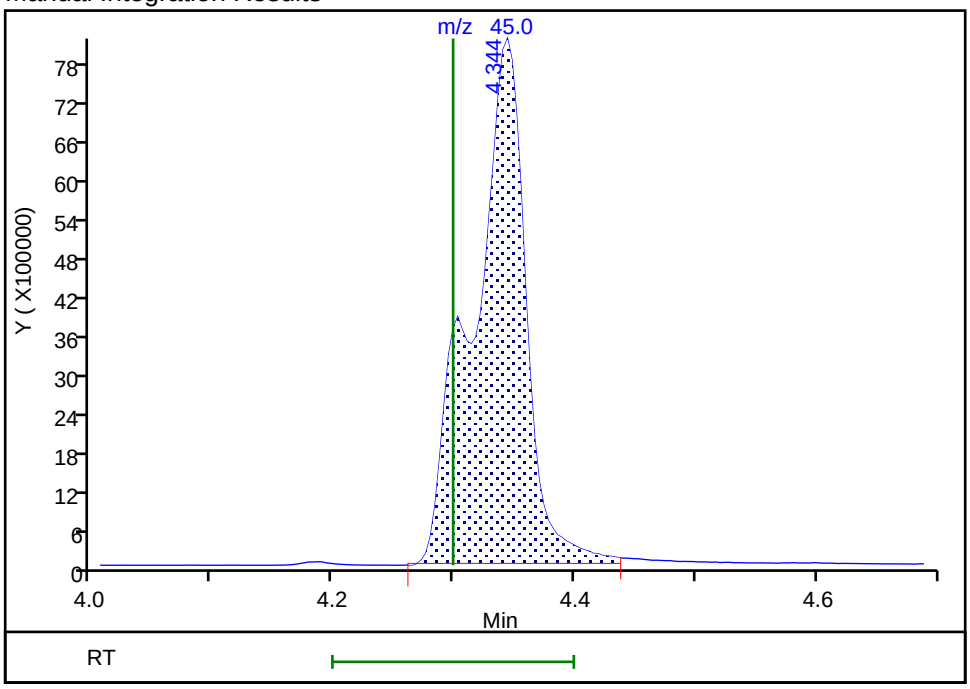
Processing Integration Results

RT: 4.30
Area: 5325787
Amount: 3669.3719
Amount Units: ug/l



Manual Integration Results

RT: 4.34
Area: 24718530
Amount: 14274
Amount Units: ug/l



Reviewer: seifertj, 05-Aug-2019 08:38:40
Audit Action: Manually Integrated Audit Reason: Split Peak

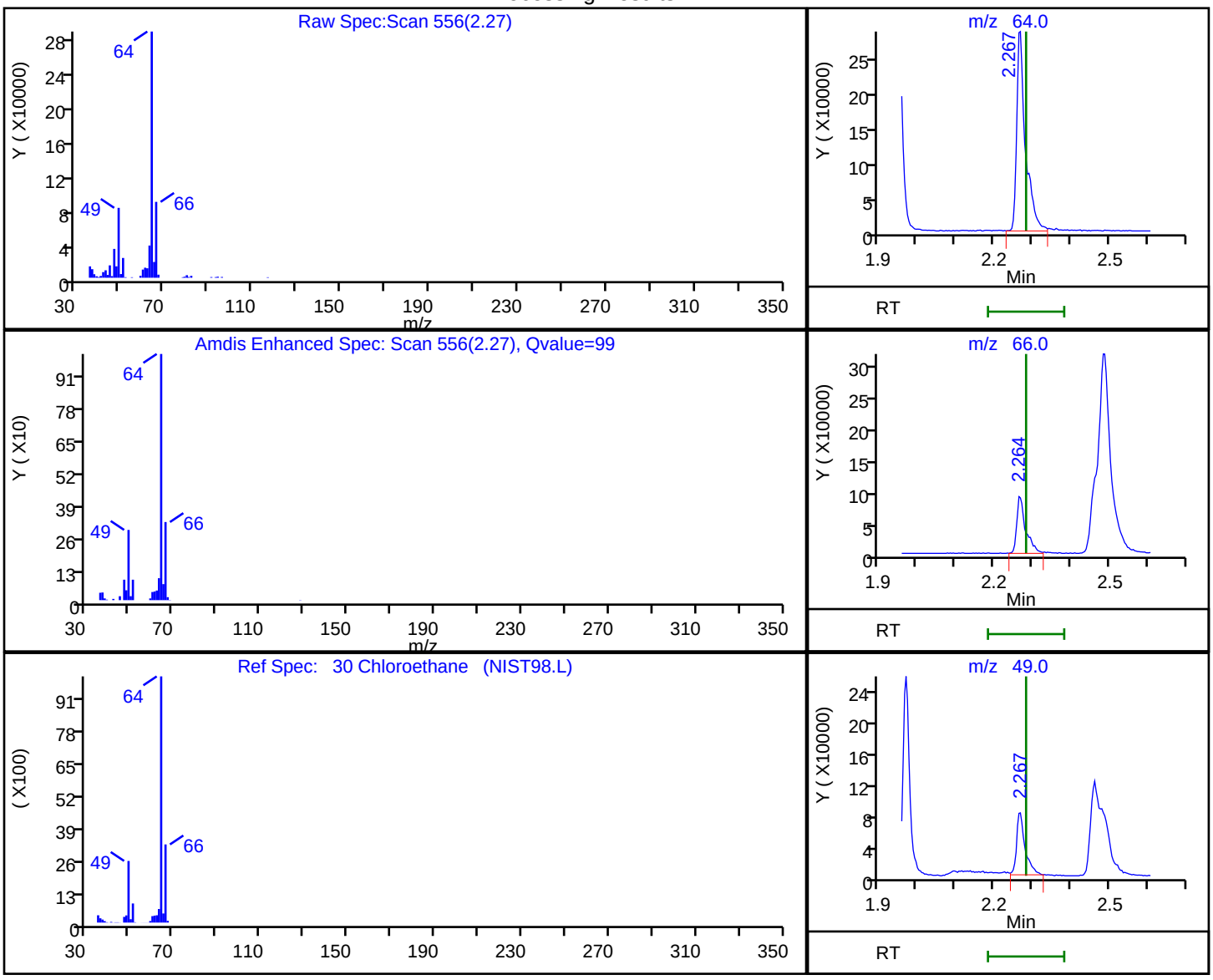
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D
Injection Date: 03-Aug-2019 19:27:30 Instrument ID: VMS_R1
Lims ID: STD
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 8 Worklist Smp#: 19
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Column: DB-624 (60.25) (0.25 mm) Detector MS SCAN

30 Chloroethane, CAS: 75-00-3

Processing Results



RT	Mass	Response	Amount
2.27	64.00	462750	49.201273
2.26	66.00	147934	
2.27	49.00	125567	

Reviewer: seifertj, 05-Aug-2019 08:41:41
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-466573/20 Calibration Date: 08/03/2019 20:11

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R6850.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Lin2		0.1813		46.1	50.0	-7.9	20.0
Chloromethane	Ave	0.1645	0.1626	0.1000	49.4	50.0	-1.1	20.0
Vinyl chloride	Ave	0.1544	0.1537		49.8	50.0	-0.4	20.0
Bromomethane	Lin2		0.0358		59.1	50.0	18.1	20.0
Chloroethane	Lin2		0.1228		59.9	50.0	19.8	20.0
Dichlorofluoromethane	Ave	0.3080	0.3157		51.3	50.0	2.5	20.0
Trichlorofluoromethane	Ave	0.2309	0.2432		52.7	50.0	5.4	20.0
Ethyl ether	Ave	0.1637	0.1608		49.1	50.0	-1.8	20.0
Acrolein	Ave	0.0405	0.0432		527	494	6.7	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Lin2		0.1060		50.7	50.0	1.5	20.0
1,1-Dichloroethene	Ave	0.1448	0.1483		51.2	50.0	2.4	20.0
Acetone	Lin2		0.1065		194	200	-2.8	20.0
Iodomethane	Ave	0.2224	0.2464		55.4	50.0	10.8	20.0
Carbon disulfide	Lin1		0.4462		48.2	50.0	-3.6	20.0
Methyl acetate	Ave	0.2691	0.2507		93.2	100	-6.8	20.0
3-Chloro-1-propene	Ave	0.2540	0.2823		55.6	50.0	11.2	20.0
Methylene Chloride	Ave	0.1902	0.1815		47.7	50.0	-4.6	20.0
t-Butyl alcohol	Lin1		0.0397		504	500	0.8	20.0
Acrylonitrile	Ave	0.1242	0.1224		493	500	-1.5	20.0
Methyl tert-butyl ether	Ave	0.4909	0.5217		53.1	50.0	6.3	20.0
trans-1,2-Dichloroethene	Ave	0.1683	0.1766		52.5	50.0	4.9	20.0
Hexane	Lin2		0.9453		46.7	50.0	-6.6	20.0
Vinyl acetate	Lin1		0.4437		98.0	100	-2.0	20.0
1,1-Dichloroethane	Ave	0.3252	0.3301	0.1000	50.7	50.0	1.5	20.0
2-Butanone (MEK)	Ave	0.1801	0.1820		202	200	1.1	20.0
cis-1,2-Dichloroethene	Ave	0.1912	0.1956		51.1	50.0	2.3	20.0
2,2-Dichloropropane	Lin1		0.2092		51.3	50.0	2.5	20.0
sec-Butyl Alcohol	Lin1		0.8646		1540	1500	3.0	20.0
Bromochloromethane	Ave	0.0795	0.0890		56.0	50.0	11.9	20.0
Tetrahydrofuran	Ave	0.1280	0.1198		93.6	100	-6.4	20.0
Chloroform	Ave	0.3055	0.3104		50.8	50.0	1.6	20.0
1,1,1-Trichloroethane	Lin1		0.2361		48.0	50.0	-4.0	20.0
Cyclohexane	Lin2		0.2820		48.5	50.0	-3.0	20.0
1,1-Dichloropropene	Ave	0.2369	0.2495		52.7	50.0	5.3	20.0
Carbon tetrachloride	Lin1		0.1659		50.2	50.0	0.4	20.0
Isobutyl alcohol	Lin1		0.3063		1140	1250	-9.0	20.0
Benzene	Ave	0.7520	0.7668		51.0	50.0	2.0	20.0
1,2-Dichloroethane	Ave	0.2788	0.2543		45.6	50.0	-8.8	20.0
Trichloroethene	Lin2		0.1883		49.2	50.0	-1.6	20.0
2-Pentanone	Qua		0.2846		191	200	-4.5	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-466573/20 Calibration Date: 08/03/2019 20:11

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R6850.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Lin2		0.1919		48.0	50.0	-4.0	20.0
1,2-Dichloropropane	Lin2		0.1992		48.5	50.0	-2.9	20.0
1,4-Dioxane	Ave	0.0051	0.0053		1040	1000	4.1	20.0
Dibromomethane	Ave	0.1163	0.1162		49.9	50.0	-0.1	20.0
Bromodichloromethane	Lin1		0.1973		45.9	50.0	-8.2	20.0
2-Chloroethyl vinyl ether	Lin2		0.1649		50.5	50.0	1.0	20.0
cis-1,3-Dichloropropene	Lin1		1.245		48.7	50.0	-2.6	20.0
4-Methyl-2-pentanone (MIBK)	Ave	0.2944	0.3116		212	200	5.8	20.0
Toluene	Ave	0.7525	0.7722		51.3	50.0	2.6	20.0
trans-1,3-Dichloropropene	Lin1		0.2393		50.3	50.0	0.7	20.0
Ethyl methacrylate	Lin1		1.307		49.5	50.0	-0.9	20.0
1,1,2-Trichloroethane	Ave	0.1567	0.1647		52.6	50.0	5.1	20.0
Tetrachloroethene	Lin1		0.5769		49.6	50.0	-0.9	20.0
1,3-Dichloropropane	Lin2		1.410		48.5	50.0	-2.9	20.0
2-Hexanone	Qua		1.111		190	200	-5.0	20.0
Dibromochloromethane	Lin1		0.5765		48.0	50.0	-4.0	20.0
Ethylene Dibromide	Lin1		0.8263		50.2	50.0	0.4	20.0
1-Chlorohexane	Ave	0.996	1.030		51.7	50.0	3.3	20.0
Chlorobenzene	Ave	2.167	2.174	0.3000	50.2	50.0	0.3	20.0
1,1,1,2-Tetrachloroethane	Lin1		0.6300		51.1	50.0	2.1	20.0
Ethylbenzene	Ave	1.160	1.193		51.4	50.0	2.8	20.0
m-Xylene & p-Xylene	Lin2		1.456		49.2	50.0	-1.7	20.0
o-Xylene	Ave	1.321	1.397		52.9	50.0	5.7	20.0
Styrene	Ave	2.236	2.408		53.8	50.0	7.7	20.0
Bromoform	Qua		0.3294	0.1000	52.7	50.0	5.5	20.0
Isopropylbenzene	Ave	2.396	2.522		52.6	50.0	5.3	20.0
Cyclohexanone	Lin1		0.0786		1970	2000	-1.7	20.0
1,1,2,2-Tetrachloroethane	Ave	0.7914	0.8230	0.3000	52.0	50.0	4.0	20.0
Bromobenzene	Ave	0.5965	0.6159		51.6	50.0	3.2	20.0
trans-1,4-Dichloro-2-butene	Lin1		0.2444		46.7	50.0	-6.6	20.0
1,2,3-Trichloropropane	Lin2		0.2870		49.1	50.0	-1.8	20.0
N-Propylbenzene	Ave	0.6294	0.6824		54.2	50.0	8.4	20.0
2-Chlorotoluene	Lin2		0.6018		49.2	50.0	-1.6	20.0
1,3,5-Trimethylbenzene	Ave	1.960	2.052		52.3	50.0	4.7	20.0
4-Chlorotoluene	Lin1		0.6257		50.6	50.0	1.2	20.0
tert-Butylbenzene	Lin2		1.635		49.4	50.0	-1.2	20.0
1,2,4-Trimethylbenzene	Ave	1.985	2.070		52.1	50.0	4.3	20.0
sec-Butylbenzene	Lin2		0.4695		50.3	50.0	0.7	20.0
1,3-Dichlorobenzene	Ave	1.066	1.106		51.9	50.0	3.7	20.0
4-Isopropyltoluene	Ave	1.845	1.983		53.8	50.0	7.5	20.0
1,4-Dichlorobenzene	Ave	1.123	1.137		50.6	50.0	1.2	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-466573/20 Calibration Date: 08/03/2019 20:11

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R6850.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
n-Butylbenzene	Lin2		1.739		48.2	50.0	-3.6	20.0
1,2-Dichlorobenzene	Lin1		1.076		51.5	50.0	2.9	20.0
1,2-Dibromo-3-Chloropropane	Lin1		0.1750		45.6	50.0	-8.9	20.0
1,2,4-Trichlorobenzene	Ave	0.5293	0.5679		53.6	50.0	7.3	20.0
Hexachlorobutadiene	Ave	0.1818	0.1783		49.0	50.0	-1.9	20.0
Naphthalene	Lin1		2.305		50.2	50.0	0.4	20.0
1,2,3-Trichlorobenzene	Ave	0.5157	0.5321		51.6	50.0	3.2	20.0
Dibromofluoromethane (Surr)	Ave	0.2281	0.2298		50.4	50.0	0.7	20.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.2922	0.2720		46.5	50.0	-6.9	20.0
Toluene-d8 (Surr)	Ave	4.388	4.293		48.9	50.0	-2.2	20.0
4-Bromofluorobenzene (Surr)	Ave	1.117	1.082		48.4	50.0	-3.2	20.0

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6850.D
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 03-Aug-2019 20:11:30 ALS Bottle#: 10 Worklist Smp#: 20
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: ICV
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist:

Method: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 05-Aug-2019 11:34:39 Calib Date: 03-Aug-2019 19:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0310

First Level Reviewer: seifertj Date: 05-Aug-2019 08:40:15

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.268	3.272	-0.004	0	4912822	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.068	0.000	99	5349445	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	86	1166168	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.825	-0.004	96	1609009	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.565	-0.004	93	1229438	50.0	50.4	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.828	4.828	0.000	0	1455059	50.0	46.5	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	93	5006345	50.0	48.9	
$ 8 4-Bromofluorobenzene (Surr	95	8.696	8.696	0.000	86	1740370	50.0	48.4	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	99	969623	50.0	46.1	
26 Chloromethane	50	1.855	1.855	0.000	99	869810	50.0	49.4	
27 Vinyl chloride	62	1.934	1.937	-0.003	98	822435	50.0	49.8	
29 Bromomethane	94	2.192	2.192	0.000	91	191232	50.0	59.1	
30 Chloroethane	64	2.286	2.282	0.004	100	656791	50.0	59.9	
31 Dichlorofluoromethane	67	2.473	2.473	0.000	96	1688749	50.0	51.3	
32 Trichlorofluoromethane	101	2.503	2.500	0.003	98	1301225	50.0	52.7	
35 Ethyl ether	59	2.721	2.725	-0.004	92	860196	50.0	49.1	
39 Acrolein	56	2.833	2.833	0.000	100	2281608	493.8	527.1	
40 1,1,2-Trichloro-1,2,2-trif	151	2.908	2.908	0.000	95	567094	50.0	50.7	
43 1,1-Dichloroethene	96	2.912	2.912	0.000	97	793225	50.0	51.2	
41 Acetone	43	2.935	2.938	-0.003	100	2277972	200.0	194.5	
44 Iodomethane	142	3.036	3.036	0.000	98	1317810	50.0	55.4	
48 Carbon disulfide	76	3.099	3.099	0.000	99	2386791	50.0	48.2	
45 Methyl acetate	43	3.163	3.163	0.000	98	2682203	100.0	93.2	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	93	1510303	50.0	55.6	
50 Methylene Chloride	84	3.279	3.279	0.000	94	971062	50.0	47.7	
49 2-Methyl-2-propanol	59	3.324	3.332	-0.008	95	2125308	500.0	504.2	
52 Acrylonitrile	53	3.444	3.444	0.000	99	6547798	500.0	492.7	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	96	2790629	50.0	53.1	
53 trans-1,2-Dichloroethene	96	3.478	3.478	0.000	99	944467	50.0	52.5	
54 Hexane	57	3.669	3.669	0.000	93	1102320	50.0	46.7	
55 Vinyl acetate	43	3.774	3.774	0.000	97	4747071	100.0	98.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.797	3.797	0.000	96	1765594	50.0	50.7	
61 2-Butanone (MEK)	43	4.183	4.183	0.000	100	3894511	200.0	202.1	
63 cis-1,2-Dichloroethene	96	4.209	4.209	0.000	82	1046131	50.0	51.1	
64 2,2-Dichloropropane	77	4.220	4.220	0.000	90	1118920	50.0	51.3	
62 sec-Butyl Alcohol	45	4.295	4.299	-0.004	99	6371261	1500.0	1544.8	
67 Chlorobromomethane	128	4.385	4.389	-0.004	98	475949	50.0	56.0	
69 Tetrahydrofuran	42	4.393	4.397	-0.004	90	1281980	100.0	93.6	
68 Chloroform	83	4.445	4.445	0.000	93	1660443	50.0	50.8	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	98	1262986	50.0	48.0	
72 Cyclohexane	56	4.648	4.648	0.000	91	1508542	50.0	48.5	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	98	1334564	50.0	52.7	
74 Carbon tetrachloride	117	4.708	4.708	0.000	96	887692	50.0	50.2	
70 Isobutyl alcohol	41	4.715	4.719	-0.004	96	1880977	1250.0	1137.6	
77 Benzene	78	4.854	4.854	0.000	96	4101924	50.0	51.0	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	97	1360542	50.0	45.6	
14 n-Heptane	43	5.041	5.038	0.003	93	887070	50.0	47.5	
79 Trichloroethene	95	5.341	5.345	-0.004	99	1007364	50.0	49.2	
80 2-Pentanone	43	5.446	5.446	0.000	99	6089423	200.0	191.0	
82 Methylcyclohexane	55	5.536	5.540	-0.004	93	1026380	50.0	48.0	
83 1,2-Dichloropropane	63	5.551	5.551	0.000	94	1065485	50.0	48.5	
84 1,4-Dioxane	88	5.592	5.600	-0.008	95	569677	1000.0	1040.8	
85 Dibromomethane	93	5.622	5.622	0.000	93	621420	50.0	49.9	
86 Dichlorobromomethane	83	5.746	5.746	0.000	99	1055494	50.0	45.9	
87 2-Chloroethyl vinyl ether	63	5.948	5.948	0.000	92	882049	50.0	50.5	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	96	1452397	50.0	48.7	
90 4-Methyl-2-pentanone (MIBK	43	6.196	6.196	0.000	96	6667597	200.0	211.7	
91 Toluene	91	6.383	6.383	0.000	98	4130614	50.0	51.3	
93 trans-1,3-Dichloropropene	75	6.559	6.559	0.000	92	1280262	50.0	50.3	
92 Ethyl methacrylate	69	6.578	6.582	-0.004	90	1523602	50.0	49.5	
94 1,1,2-Trichloroethane	97	6.736	6.736	0.000	91	881082	50.0	52.6	
97 Tetrachloroethene	164	6.826	6.826	0.000	95	672806	50.0	49.6	
96 1,3-Dichloropropane	76	6.882	6.882	0.000	94	1643941	50.0	48.5	
95 2-Hexanone	43	6.897	6.901	-0.004	97	5183028	200.0	190.0	
98 Chlorodibromomethane	129	7.077	7.077	0.000	90	672295	50.0	48.0	
100 Ethylene Dibromide	107	7.193	7.193	0.000	98	963541	50.0	50.2	
101 1-Chlorohexane	91	7.583	7.583	0.000	98	1200958	50.0	51.7	
102 Chlorobenzene	112	7.624	7.624	0.000	94	2535619	50.0	50.2	
104 1,1,1,2-Tetrachloroethane	131	7.695	7.699	-0.004	92	734684	50.0	51.1	
103 Ethylbenzene	106	7.703	7.703	0.000	98	1390825	50.0	51.4	
105 m-Xylene & p-Xylene	106	7.819	7.819	0.000	0	1697874	50.0	49.2	
107 o-Xylene	106	8.179	8.179	0.000	97	1628773	50.0	52.9	
106 Styrene	104	8.194	8.198	-0.004	95	2808134	50.0	53.8	
108 Bromoform	173	8.381	8.381	0.000	95	384152	50.0	52.7	
109 Isopropylbenzene	105	8.520	8.520	0.000	96	4058716	50.0	52.6	
111 Cyclohexanone	55	8.617	8.621	-0.004	92	3666043	2000.0	1965.5	
112 1,1,2,2-Tetrachloroethane	83	8.805	8.809	-0.004	94	1324247	50.0	52.0	
116 Bromobenzene	156	8.839	8.839	0.000	98	990943	50.0	51.6	
113 trans-1,4-Dichloro-2-buten	53	8.842	8.846	-0.004	75	393187	50.0	46.7	
114 1,2,3-Trichloropropane	110	8.872	8.872	0.000	85	461855	50.0	49.1	
115 N-Propylbenzene	120	8.917	8.921	-0.004	99	1098023	50.0	54.2	
118 2-Chlorotoluene	126	9.015	9.019	-0.004	96	968250	50.0	49.2	
117 1,3,5-Trimethylbenzene	105	9.090	9.090	0.000	95	3301926	50.0	52.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.135	9.135	0.000	98	1006695	50.0	50.6	
120 tert-Butylbenzene	119	9.401	9.401	0.000	93	2630230	50.0	49.4	
121 1,2,4-Trimethylbenzene	105	9.457	9.461	-0.004	98	3330063	50.0	52.1	
122 sec-Butylbenzene	134	9.618	9.622	-0.004	94	755469	50.0	50.3	
124 1,3-Dichlorobenzene	146	9.746	9.750	-0.004	97	1779176	50.0	51.9	
123 4-Isopropyltoluene	119	9.768	9.768	0.000	97	3191037	50.0	53.8	
126 1,4-Dichlorobenzene	146	9.847	9.847	0.000	94	1828887	50.0	50.6	
127 n-Butylbenzene	91	10.169	10.173	-0.004	98	2797609	50.0	48.2	
128 1,2-Dichlorobenzene	146	10.199	10.203	-0.004	97	1731481	50.0	51.5	
129 1,2-Dibromo-3-Chloropropan	157	10.983	10.983	0.000	82	281632	50.0	45.6	
130 1,2,4-Trichlorobenzene	180	11.804	11.804	0.000	94	913721	50.0	53.6	
131 Hexachlorobutadiene	225	11.943	11.943	0.000	98	286859	50.0	49.0	
132 Naphthalene	128	12.070	12.074	-0.004	97	3708734	50.0	50.2	
133 1,2,3-Trichlorobenzene	180	12.291	12.295	-0.004	95	856192	50.0	51.6	
S 140 1,2-Dichloroethene, Total	96				0		100.0	103.6	
S 138 1,2-Dichloroethene, Total	1				0		100.0	103.6	
S 134 Trihalomethanes, Total	1				0		200.0	197.5	
S 137 1,3-Dichloropropene, Total	1				0		100.0	99.1	
S 139 Xylenes, Total	106				0		100.0	102.0	
S 135 Xylenes, Total (URS)	1				0		100.0	102.0	

Reagents:

MV-MegaMainA_00018	Amount Added: 50.00	Units: uL	
MV-Gas A_00033	Amount Added: 50.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent

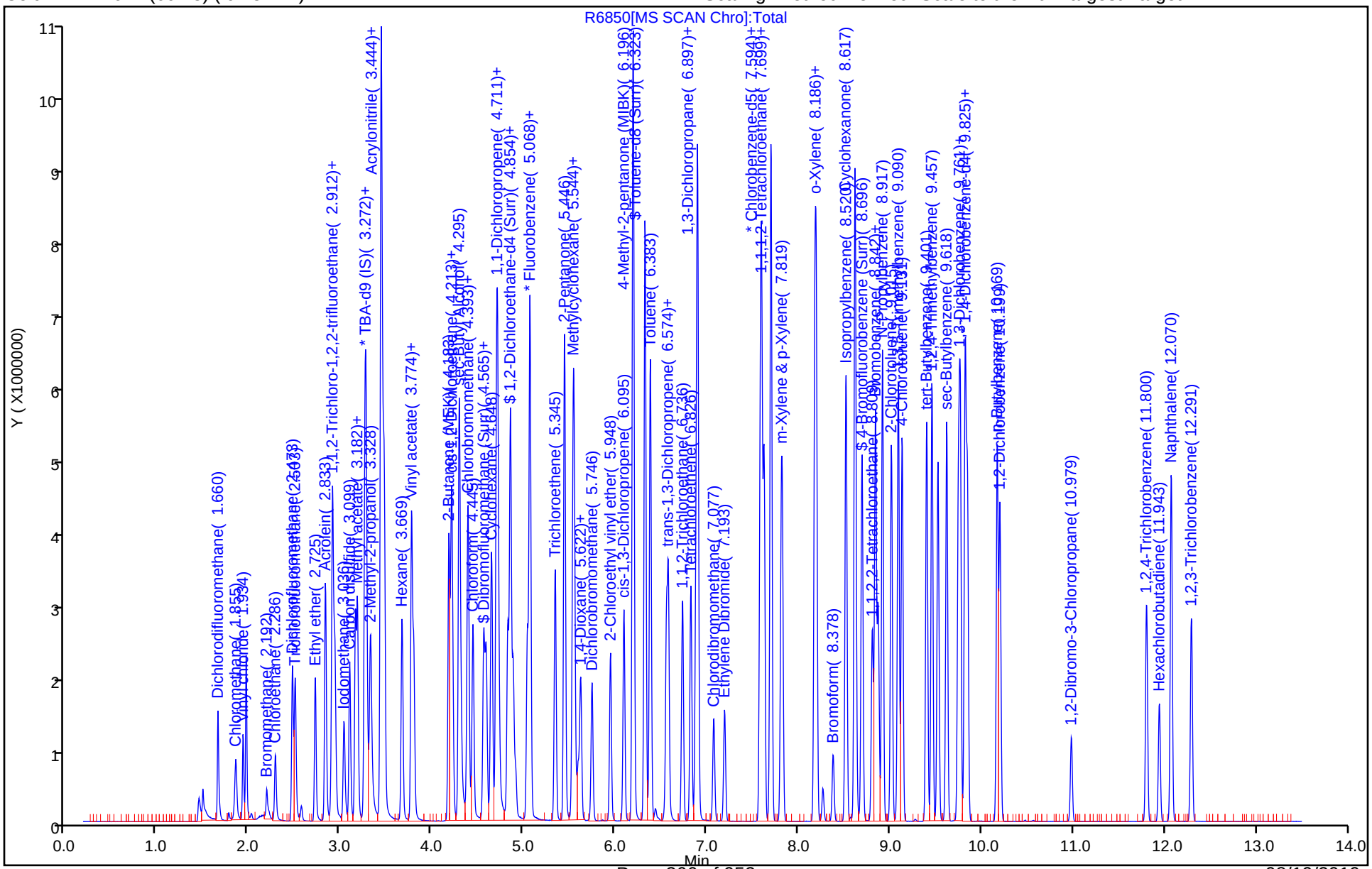
Report Date: 05-Aug-2019 11:34:51 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6850.D

Injection Date:	03-Aug-2019 20:11:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	ICV			Worklist Smp#:	20
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	10
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467213/2 Calibration Date: 08/09/2019 20:40

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R7080.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Lin2		0.1962		49.8	50.0	-0.3	20.0
Chloromethane	Ave	0.1645	0.1562	0.1000	47.5	50.0	-5.0	20.0
Vinyl chloride	Ave	0.1544	0.1357		44.0	50.0	-12.1	20.0
Bromomethane	Lin2		0.0348		57.4	50.0	14.9	20.0
Chloroethane	Lin2		0.1135		55.4	50.0	10.8	20.0
Dichlorofluoromethane	Ave	0.3080	0.3398		55.2	50.0	10.3	20.0
Trichlorofluoromethane	Ave	0.2309	0.2683		58.1	50.0	16.2	20.0
Ethyl ether	Ave	0.1637	0.1689		51.6	50.0	3.1	20.0
Acrolein	Ave	0.0405	0.0456		557	494	12.8	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Lin2		0.1040		49.8	50.0	-0.4	20.0
1,1-Dichloroethene	Ave	0.1448	0.1474		50.9	50.0	1.8	20.0
Acetone	Lin2		0.1166		213	200	6.7	20.0
Iodomethane	Ave	0.2224	0.2226		50.0	50.0	0.0	20.0
Carbon disulfide	Lin1		0.4449		48.1	50.0	-3.9	20.0
Methyl acetate	Ave	0.2691	0.2660		98.9	100	-1.1	20.0
3-Chloro-1-propene	Ave	0.2540	0.2946		58.0	50.0	16.0	20.0
Methylene Chloride	Ave	0.1902	0.1873		49.2	50.0	-1.5	20.0
t-Butyl alcohol	Lin1		0.0428		543	500	8.6	20.0
Acrylonitrile	Ave	0.1242	0.1264		509	500	1.8	20.0
Methyl tert-butyl ether	Ave	0.4909	0.5613		57.2	50.0	14.3	20.0
trans-1,2-Dichloroethene	Ave	0.1683	0.1774		52.7	50.0	5.5	20.0
Hexane	Lin2		0.9813		48.5	50.0	-3.0	20.0
Vinyl acetate	Lin1		0.4836		107	100	6.7	20.0
1,1-Dichloroethane	Ave	0.3252	0.3519	0.1000	54.1	50.0	8.2	20.0
2-Butanone (MEK)	Ave	0.1801	0.1939		215	200	7.7	20.0
cis-1,2-Dichloroethene	Ave	0.1912	0.2022		52.9	50.0	5.7	20.0
2,2-Dichloropropane	Lin1		0.2341		57.2	50.0	14.5	20.0
sec-Butyl Alcohol	Lin1		0.8896		1590	1500	5.9	20.0
Bromochloromethane	Ave	0.0795	0.0891		56.1	50.0	12.1	20.0
Tetrahydrofuran	Ave	0.1280	0.1265		98.8	100	-1.2	20.0
Chloroform	Ave	0.3055	0.3419		56.0	50.0	11.9	20.0
1,1,1-Trichloroethane	Lin1		0.2634		53.5	50.0	7.1	20.0
Cyclohexane	Lin2		0.2901		49.9	50.0	-0.3	20.0
1,1-Dichloropropene	Ave	0.2369	0.2695		56.9	50.0	13.8	20.0
Carbon tetrachloride	Lin1		0.1792		54.1	50.0	8.2	20.0
Isobutyl alcohol	Lin1		0.3632		1350	1250	7.7	20.0
Benzene	Ave	0.7520	0.7952		52.9	50.0	5.7	20.0
1,2-Dichloroethane	Ave	0.2788	0.2875		51.6	50.0	3.1	20.0
Trichloroethene	Lin2		0.2001		52.3	50.0	4.5	20.0
2-Pentanone	Qua		0.3058		206	200	3.2	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467213/2 Calibration Date: 08/09/2019 20:40

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R7080.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Lin2		0.2060		51.5	50.0	3.1	20.0
1,2-Dichloropropane	Lin2		0.2093		51.0	50.0	2.1	20.0
1,4-Dioxane	Ave	0.0051	0.0054		1050	1000	4.9	20.0
Dibromomethane	Ave	0.1163	0.1218		52.4	50.0	4.7	20.0
Bromodichloromethane	Lin1		0.2208		51.3	50.0	2.6	20.0
2-Chloroethyl vinyl ether	Lin2		0.1731		53.0	50.0	6.0	20.0
cis-1,3-Dichloropropene	Lin1		1.328		51.9	50.0	3.7	20.0
4-Methyl-2-pentanone (MIBK)	Ave	0.2944	0.3385		230	200	15.0	20.0
Toluene	Ave	0.7525	0.8085		53.7	50.0	7.4	20.0
trans-1,3-Dichloropropene	Lin1		0.2598		54.5	50.0	9.1	20.0
Ethyl methacrylate	Lin1		1.384		52.4	50.0	4.9	20.0
1,1,2-Trichloroethane	Ave	0.1567	0.1762		56.2	50.0	12.5	20.0
Tetrachloroethene	Lin1		0.5887		50.6	50.0	1.2	20.0
1,3-Dichloropropane	Lin2		1.527		52.5	50.0	5.1	20.0
2-Hexanone	Qua		1.201		207	200	3.3	20.0
Dibromochloromethane	Lin1		0.6443		53.5	50.0	7.1	20.0
Ethylene Dibromide	Lin1		0.8696		52.8	50.0	5.7	20.0
1-Chlorohexane	Ave	0.996	1.085		54.4	50.0	8.9	20.0
Chlorobenzene	Ave	2.167	2.249	0.3000	51.9	50.0	3.8	20.0
1,1,1,2-Tetrachloroethane	Lin1		0.6689		54.1	50.0	8.3	20.0
Ethylbenzene	Ave	1.160	1.245		53.6	50.0	7.3	20.0
m-Xylene & p-Xylene	Lin2		1.505		50.8	50.0	1.7	20.0
o-Xylene	Ave	1.321	1.452		54.9	50.0	9.9	20.0
Styrene	Ave	2.236	2.475		55.3	50.0	10.7	20.0
Bromoform	Qua		0.3675	0.1000	56.8	50.0	13.7	20.0
Isopropylbenzene	Ave	2.396	2.669		55.7	50.0	11.4	20.0
Cyclohexanone	Lin1		0.0798		2000	2000	-0.2	20.0
1,1,2,2-Tetrachloroethane	Ave	0.7914	0.8605	0.3000	54.4	50.0	8.7	20.0
Bromobenzene	Ave	0.5965	0.6244		52.3	50.0	4.7	20.0
trans-1,4-Dichloro-2-butene	Lin1		0.2707		51.7	50.0	3.4	20.0
1,2,3-Trichloropropane	Lin2		0.3026		51.8	50.0	3.6	20.0
N-Propylbenzene	Ave	0.6294	0.6981		55.5	50.0	10.9	20.0
2-Chlorotoluene	Lin2		0.6183		50.5	50.0	1.1	20.0
1,3,5-Trimethylbenzene	Ave	1.960	2.168		55.3	50.0	10.6	20.0
4-Chlorotoluene	Lin1		0.6528		52.8	50.0	5.5	20.0
tert-Butylbenzene	Lin2		1.717		51.9	50.0	3.8	20.0
1,2,4-Trimethylbenzene	Ave	1.985	2.225		56.0	50.0	12.1	20.0
sec-Butylbenzene	Lin2		0.4885		52.4	50.0	4.7	20.0
1,3-Dichlorobenzene	Ave	1.066	1.155		54.2	50.0	8.3	20.0
4-Isopropyltoluene	Ave	1.845	2.114		57.3	50.0	14.6	20.0
1,4-Dichlorobenzene	Ave	1.123	1.182		52.6	50.0	5.3	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467213/2 Calibration Date: 08/09/2019 20:40

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R7080.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
n-Butylbenzene	Lin2		1.929		53.4	50.0	6.9	20.0
1,2-Dichlorobenzene	Lin1		1.116		53.4	50.0	6.8	20.0
1,2-Dibromo-3-Chloropropane	Lin1		0.1799		46.8	50.0	-6.4	20.0
1,2,4-Trichlorobenzene	Ave	0.5293	0.6013		56.8	50.0	13.6	20.0
Hexachlorobutadiene	Ave	0.1818	0.1998		54.9	50.0	9.9	20.0
Naphthalene	Lin1		2.437		53.1	50.0	6.2	20.0
1,2,3-Trichlorobenzene	Ave	0.5157	0.5455		52.9	50.0	5.8	20.0
Dibromofluoromethane (Surr)	Ave	0.2281	0.2336		51.2	50.0	2.4	20.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.2922	0.2982		51.0	50.0	2.0	20.0
Toluene-d8 (Surr)	Ave	4.388	4.321		49.2	50.0	-1.5	20.0
4-Bromofluorobenzene (Surr)	Ave	1.117	1.111		49.8	50.0	-0.5	20.0

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7080.D
Lims ID: CCV
Client ID:
Sample Type: CCV
Inject. Date: 09-Aug-2019 20:40:30 ALS Bottle#: 1 Worklist Smp#: 2
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: CCV
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:32 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.268	3.268	0.000	0	4409906	1000.0	1000.0	
* 1 Fluorobenzene	96	5.064	5.064	0.000	99	4838297	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.598	7.598	0.000	88	1058272	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.821	0.000	97	1472816	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.561	0.000	92	1130017	50.0	51.2	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.824	0.000	0	1442602	50.0	51.0	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	4573168	50.0	49.2	
$ 8 4-Bromofluorobenzene (Surr	95	8.692	8.692	0.000	92	1636735	50.0	49.8	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	100	949411	50.0	49.8	
26 Chloromethane	50	1.855	1.855	0.000	99	755957	50.0	47.5	
27 Vinyl chloride	62	1.934	1.934	0.000	98	656652	50.0	44.0	
29 Bromomethane	94	2.192	2.192	0.000	91	168256	50.0	57.4	
30 Chloroethane	64	2.279	2.279	0.000	100	549039	50.0	55.4	
31 Dichlorofluoromethane	67	2.470	2.470	0.000	96	1643831	50.0	55.2	
32 Trichlorofluoromethane	101	2.500	2.500	0.000	98	1297901	50.0	58.1	
35 Ethyl ether	59	2.721	2.721	0.000	94	816934	50.0	51.6	
39 Acrolein	56	2.833	2.833	0.000	99	2180134	493.8	556.8	
40 1,1,2-Trichloro-1,2,2-trif	151	2.905	2.905	0.000	95	503373	50.0	49.8	
43 1,1-Dichloroethene	96	2.908	2.908	0.000	96	713178	50.0	50.9	
41 Acetone	43	2.935	2.935	0.000	100	2257218	200.0	213.3	
44 Iodomethane	142	3.036	3.036	0.000	99	1076871	50.0	50.0	
48 Carbon disulfide	76	3.096	3.096	0.000	99	2152565	50.0	48.1	
45 Methyl acetate	43	3.159	3.159	0.000	98	2574155	100.0	98.9	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	91	1425182	50.0	58.0	
50 Methylene Chloride	84	3.276	3.276	0.000	95	905960	50.0	49.2	
49 2-Methyl-2-propanol	59	3.328	3.328	0.000	94	2070932	500.0	542.9	
52 Acrylonitrile	53	3.441	3.441	0.000	98	6116672	500.0	508.8	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	96	2715617	50.0	57.2	
53 trans-1,2-Dichloroethene	96	3.474	3.474	0.000	97	858442	50.0	52.7	
54 Hexane	57	3.669	3.669	0.000	94	1038455	50.0	48.5	
55 Vinyl acetate	43	3.770	3.770	0.000	97	4679087	100.0	106.7	
57 1,1-Dichloroethane	63	3.797	3.797	0.000	96	1702575	50.0	54.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
61 2-Butanone (MEK)	43	4.179	4.179	0.000	100	3752494	200.0	215.3	
63 cis-1,2-Dichloroethene	96	4.205	4.205	0.000	84	978114	50.0	52.9	
64 2,2-Dichloropropane	77	4.217	4.217	0.000	90	1132417	50.0	57.2	
62 sec-Butyl Alcohol	45	4.295	4.295	0.000	99	5884410	1500.0	1589.0	
67 Chlorobromomethane	128	4.385	4.385	0.000	97	431110	50.0	56.1	
69 Tetrahydrofuran	42	4.393	4.393	0.000	89	1223618	100.0	98.8	
68 Chloroform	83	4.445	4.445	0.000	94	1654295	50.0	56.0	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	98	1274569	50.0	53.5	
72 Cyclohexane	56	4.644	4.644	0.000	92	1403711	50.0	49.9	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	96	1303948	50.0	56.9	
74 Carbon tetrachloride	117	4.704	4.704	0.000	91	867029	50.0	54.1	
70 Isobutyl alcohol	41	4.715	4.715	0.000	93	2001958	1250.0	1346.5	
77 Benzene	78	4.854	4.854	0.000	96	3847249	50.0	52.9	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	98	1390837	50.0	51.6	
14 n-Heptane	43	5.038	5.038	0.000	95	908324	50.0	53.8	
79 Trichloroethene	95	5.341	5.341	0.000	97	967931	50.0	52.3	
80 2-Pentanone	43	5.442	5.442	0.000	99	5917246	200.0	206.4	
82 Methylcyclohexane	55	5.536	5.536	0.000	93	996455	50.0	51.5	
83 1,2-Dichloropropane	63	5.547	5.547	0.000	91	1012551	50.0	51.0	
84 1,4-Dioxane	88	5.596	5.596	0.000	96	519361	1000.0	1049.1	
85 Dibromomethane	93	5.622	5.622	0.000	92	589308	50.0	52.4	
86 Dichlorobromomethane	83	5.746	5.746	0.000	99	1068453	50.0	51.3	
87 2-Chloroethyl vinyl ether	63	5.945	5.945	0.000	92	837324	50.0	53.0	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	95	1405012	50.0	51.9	
90 4-Methyl-2-pentanone (MIBK	43	6.192	6.192	0.000	99	6550432	200.0	229.9	
91 Toluene	91	6.380	6.380	0.000	98	3911805	50.0	53.7	
93 trans-1,3-Dichloropropene	75	6.556	6.556	0.000	96	1256942	50.0	54.5	
92 Ethyl methacrylate	69	6.578	6.578	0.000	90	1464541	50.0	52.4	
94 1,1,2-Trichloroethane	97	6.732	6.732	0.000	92	852480	50.0	56.2	
97 Tetrachloroethene	164	6.826	6.826	0.000	93	622962	50.0	50.6	
96 1,3-Dichloropropane	76	6.878	6.878	0.000	99	1615684	50.0	52.5	
95 2-Hexanone	43	6.897	6.897	0.000	98	5085111	200.0	206.7	
98 Chlorodibromomethane	129	7.073	7.073	0.000	91	681845	50.0	53.5	
100 Ethylene Dibromide	107	7.193	7.193	0.000	98	920309	50.0	52.8	
101 1-Chlorohexane	91	7.579	7.579	0.000	98	1148402	50.0	54.4	
102 Chlorobenzene	112	7.624	7.624	0.000	92	2380083	50.0	51.9	
104 1,1,1,2-Tetrachloroethane	131	7.695	7.695	0.000	90	707864	50.0	54.1	
103 Ethylbenzene	106	7.699	7.699	0.000	99	1317016	50.0	53.6	
105 m-Xylene & p-Xylene	106	7.815	7.815	0.000	0	1592895	50.0	50.8	
107 o-Xylene	106	8.179	8.179	0.000	97	1536511	50.0	54.9	
106 Styrene	104	8.194	8.194	0.000	95	2619097	50.0	55.3	
108 Bromoform	173	8.378	8.378	0.000	94	388869	50.0	56.8	
109 Isopropylbenzene	105	8.520	8.520	0.000	96	3930784	50.0	55.7	
111 Cyclohexanone	55	8.617	8.617	0.000	93	3379587	2000.0	1996.4	
112 1,1,2,2-Tetrachloroethane	83	8.805	8.805	0.000	95	1267391	50.0	54.4	
116 Bromobenzene	156	8.839	8.839	0.000	98	919614	50.0	52.3	
113 trans-1,4-Dichloro-2-buten	53	8.842	8.842	0.000	69	398634	50.0	51.7	
114 1,2,3-Trichloropropane	110	8.869	8.869	0.000	85	445738	50.0	51.8	
115 N-Propylbenzene	120	8.917	8.917	0.000	99	1028111	50.0	55.5	
118 2-Chlorotoluene	126	9.015	9.015	0.000	95	910679	50.0	50.5	
117 1,3,5-Trimethylbenzene	105	9.090	9.090	0.000	94	3193030	50.0	55.3	
119 4-Chlorotoluene	126	9.131	9.131	0.000	98	961483	50.0	52.8	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
120 tert-Butylbenzene	119	9.397	9.397	0.000	93	2528627	50.0	51.9	
121 1,2,4-Trimethylbenzene	105	9.457	9.457	0.000	98	3277111	50.0	56.0	
122 sec-Butylbenzene	134	9.618	9.618	0.000	95	719490	50.0	52.4	
124 1,3-Dichlorobenzene	146	9.746	9.746	0.000	97	1700944	50.0	54.2	
123 4-Isopropyltoluene	119	9.765	9.765	0.000	97	3113264	50.0	57.3	
126 1,4-Dichlorobenzene	146	9.843	9.843	0.000	93	1740437	50.0	52.6	
127 n-Butylbenzene	91	10.169	10.169	0.000	98	2841586	50.0	53.4	
128 1,2-Dichlorobenzene	146	10.199	10.199	0.000	96	1644125	50.0	53.4	
129 1,2-Dibromo-3-Chloropropan	157	10.979	10.979	0.000	78	265004	50.0	46.8	
130 1,2,4-Trichlorobenzene	180	11.804	11.804	0.000	93	885596	50.0	56.8	
131 Hexachlorobutadiene	225	11.939	11.939	0.000	96	294257	50.0	54.9	
132 Naphthalene	128	12.070	12.070	0.000	97	3589554	50.0	53.1	
133 1,2,3-Trichlorobenzene	180	12.291	12.291	0.000	94	803380	50.0	52.9	
S 140 1,2-Dichloroethene, Total	96				0		100.0	105.6	
S 138 1,2-Dichloroethene, Total	1				0		100.0	105.6	
S 134 Trihalomethanes, Total	1				0		200.0	217.6	
S 137 1,3-Dichloropropene, Total	1				0		100.0	106.4	
S 139 Xylenes, Total	106				0		100.0	105.8	
S 135 Xylenes, Total (URS)	1				0		100.0	105.8	

Reagents:

MV-MegaMainA_00018	Amount Added: 50.00	Units: uL	
MV-Gas A_00034	Amount Added: 50.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent

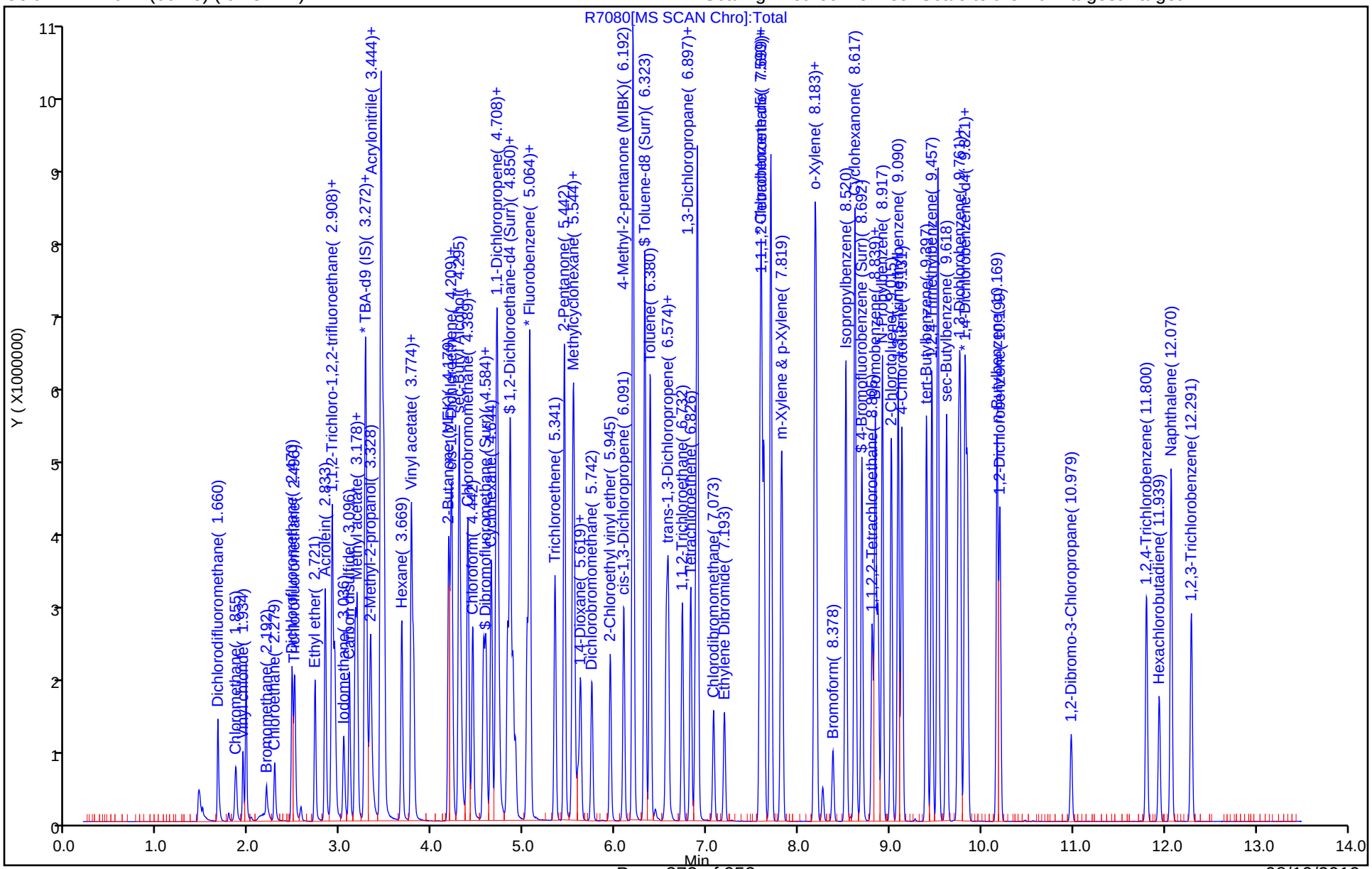
Report Date: 10-Aug-2019 15:46:35 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7080.D

Injection Date:	09-Aug-2019 20:40:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	CCV			Worklist Smp#:	2
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	1
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCVC 280-467213/34 Calibration Date: 08/10/2019 06:54

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R7108.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Lin2		0.1944		49.4	50.0	-1.3	50.0
Chloromethane	Ave	0.1645	0.1571	0.1000	47.8	50.0	-4.5	50.0
Vinyl chloride	Ave	0.1544	0.1351		43.8	50.0	-12.5	50.0
Bromomethane	Lin2		0.0332		54.8	50.0	9.6	50.0
Chloroethane	Lin2		0.1075		52.5	50.0	5.0	50.0
Dichlorofluoromethane	Ave	0.3080	0.3383		54.9	50.0	9.8	50.0
Trichlorofluoromethane	Ave	0.2309	0.2620		56.7	50.0	13.5	50.0
Ethyl ether	Ave	0.1637	0.1640		50.1	50.0	0.1	50.0
Acrolein	Ave	0.0405	0.0480		586	494	18.7	50.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Lin2		0.0997		47.7	50.0	-4.6	50.0
1,1-Dichloroethene	Ave	0.1448	0.1442		49.8	50.0	-0.4	50.0
Acetone	Lin2		0.1226		224	200	12.2	50.0
Iodomethane	Ave	0.2224	0.2160		48.6	50.0	-2.9	50.0
Carbon disulfide	Lin1		0.4148		44.8	50.0	-10.3	50.0
Methyl acetate	Ave	0.2691	0.2692		100	100	0.0	50.0
3-Chloro-1-propene	Ave	0.2540	0.2787		54.9	50.0	9.7	50.0
Methylene Chloride	Ave	0.1902	0.1840		48.4	50.0	-3.2	50.0
t-Butyl alcohol	Lin1		0.0430		545	500	9.1	50.0
Acrylonitrile	Ave	0.1242	0.1292		520	500	4.0	50.0
Methyl tert-butyl ether	Ave	0.4909	0.5401		55.0	50.0	10.0	50.0
trans-1,2-Dichloroethene	Ave	0.1683	0.1736		51.6	50.0	3.2	50.0
Hexane	Lin2		0.8770		43.3	50.0	-13.3	50.0
Vinyl acetate	Lin1		0.4590		101	100	1.4	50.0
1,1-Dichloroethane	Ave	0.3252	0.3462	0.1000	53.2	50.0	6.5	50.0
2-Butanone (MEK)	Ave	0.1801	0.1995		222	200	10.8	50.0
cis-1,2-Dichloroethene	Ave	0.1912	0.1981		51.8	50.0	3.6	50.0
2,2-Dichloropropane	Lin1		0.1830		45.0	50.0	-10.1	50.0
sec-Butyl Alcohol	Lin1		0.8673		1550	1500	3.3	50.0
Bromochloromethane	Ave	0.0795	0.0854		53.7	50.0	7.4	50.0
Tetrahydrofuran	Ave	0.1280	0.1297		101	100	1.3	50.0
Chloroform	Ave	0.3055	0.3305		54.1	50.0	8.2	50.0
1,1,1-Trichloroethane	Lin1		0.2487		50.6	50.0	1.1	50.0
Cyclohexane	Lin2		0.2875		49.4	50.0	-1.2	50.0
1,1-Dichloropropene	Ave	0.2369	0.2619		55.3	50.0	10.5	50.0
Carbon tetrachloride	Lin1		0.1698		51.3	50.0	2.7	50.0
Isobutyl alcohol	Lin1		0.3558		1320	1250	5.6	50.0
Benzene	Ave	0.7520	0.7822		52.0	50.0	4.0	50.0
1,2-Dichloroethane	Ave	0.2788	0.2807		50.3	50.0	0.7	50.0
Trichloroethene	Lin2		0.1951		51.0	50.0	1.9	50.0
2-Pentanone	Qua		0.3109		210	200	5.1	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCVC 280-467213/34 Calibration Date: 08/10/2019 06:54

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R7108.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Lin2		0.1972		49.4	50.0	-1.3	50.0
1,2-Dichloropropane	Lin2		0.2070		50.5	50.0	1.0	50.0
1,4-Dioxane	Ave	0.0051	0.0056		1100	1000	10.2	50.0
Dibromomethane	Ave	0.1163	0.1189		51.1	50.0	2.2	50.0
Bromodichloromethane	Lin1		0.2046		47.6	50.0	-4.8	50.0
2-Chloroethyl vinyl ether	Lin2		0.1538		47.1	50.0	-5.7	50.0
cis-1,3-Dichloropropene	Lin1		1.215		47.5	50.0	-4.9	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.2944	0.3387		230	200	15.0	50.0
Toluene	Ave	0.7525	0.7950		52.8	50.0	5.7	50.0
trans-1,3-Dichloropropene	Lin1		0.2385		50.2	50.0	0.3	50.0
Ethyl methacrylate	Lin1		1.353		51.3	50.0	2.5	50.0
1,1,2-Trichloroethane	Ave	0.1567	0.1696		54.1	50.0	8.2	50.0
Tetrachloroethene	Lin1		0.5557		47.8	50.0	-4.5	50.0
1,3-Dichloropropane	Lin2		1.484		51.1	50.0	2.1	50.0
2-Hexanone	Qua		1.197		206	200	2.9	50.0
Dibromochloromethane	Lin1		0.5733		47.7	50.0	-4.5	50.0
Ethylene Dibromide	Lin1		0.8339		50.7	50.0	1.3	50.0
1-Chlorohexane	Ave	0.996	1.038		52.1	50.0	4.2	50.0
Chlorobenzene	Ave	2.167	2.196	0.3000	50.7	50.0	1.3	50.0
1,1,1,2-Tetrachloroethane	Lin1		0.6279		50.9	50.0	1.8	50.0
Ethylbenzene	Ave	1.160	1.204		51.9	50.0	3.8	50.0
m-Xylene & p-Xylene	Lin2		1.474		49.8	50.0	-0.4	50.0
o-Xylene	Ave	1.321	1.429		54.1	50.0	8.2	50.0
Styrene	Ave	2.236	2.417		54.0	50.0	8.1	50.0
Bromoform	Qua		0.3217	0.1000	51.9	50.0	3.8	50.0
Isopropylbenzene	Ave	2.396	2.573		53.7	50.0	7.4	50.0
Cyclohexanone	Lin1		0.0740		1850	2000	-7.5	50.0
1,1,2,2-Tetrachloroethane	Ave	0.7914	0.8434	0.3000	53.3	50.0	6.6	50.0
Bromobenzene	Ave	0.5965	0.6035		50.6	50.0	1.2	50.0
trans-1,4-Dichloro-2-butene	Lin1		0.2374		45.4	50.0	-9.2	50.0
1,2,3-Trichloropropane	Lin2		0.2998		51.3	50.0	2.6	50.0
N-Propylbenzene	Ave	0.6294	0.6798		54.0	50.0	8.0	50.0
2-Chlorotoluene	Lin2		0.6009		49.1	50.0	-1.8	50.0
1,3,5-Trimethylbenzene	Ave	1.960	2.110		53.8	50.0	7.6	50.0
4-Chlorotoluene	Lin1		0.6312		51.0	50.0	2.0	50.0
tert-Butylbenzene	Lin2		1.671		50.5	50.0	1.0	50.0
1,2,4-Trimethylbenzene	Ave	1.985	2.147		54.1	50.0	8.1	50.0
sec-Butylbenzene	Lin2		0.4617		49.5	50.0	-1.0	50.0
1,3-Dichlorobenzene	Ave	1.066	1.099		51.6	50.0	3.1	50.0
4-Isopropyltoluene	Ave	1.845	1.988		53.9	50.0	7.8	50.0
1,4-Dichlorobenzene	Ave	1.123	1.127		50.2	50.0	0.4	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCVC 280-467213/34 Calibration Date: 08/10/2019 06:54

Instrument ID: VMS_R1 Calib Start Date: 08/03/2019 16:56

GC Column: DB-624 (60.25) ID: 0.25(mm) Calib End Date: 08/03/2019 19:27

Lab File ID: R7108.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
n-Butylbenzene	Lin2		1.788		49.5	50.0	-0.9	50.0
1,2-Dichlorobenzene	Lin1		1.068		51.1	50.0	2.1	50.0
1,2-Dibromo-3-Chloropropane	Lin1		0.1698		44.3	50.0	-11.4	50.0
1,2,4-Trichlorobenzene	Ave	0.5293	0.5551		52.4	50.0	4.9	50.0
Hexachlorobutadiene	Ave	0.1818	0.1740		47.9	50.0	-4.3	50.0
Naphthalene	Lin1		2.370		51.6	50.0	3.3	50.0
1,2,3-Trichlorobenzene	Ave	0.5157	0.5213		50.5	50.0	1.1	50.0
Dibromofluoromethane (Surr)	Ave	0.2281	0.2337		51.2	50.0	2.4	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.2922	0.2975		50.9	50.0	1.8	50.0
Toluene-d8 (Surr)	Ave	4.388	4.318		49.2	50.0	-1.6	50.0
4-Bromofluorobenzene (Surr)	Ave	1.117	1.123		50.3	50.0	0.5	50.0

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7108.D
Lims ID: CCVC
Client ID:
Sample Type: CCVC
Inject. Date: 10-Aug-2019 06:54:30 ALS Bottle#: 29 Worklist Smp#: 34
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: CCVC
Misc. Info.: 280-0084350-034
Operator ID: ZHANGJ Instrument ID: VMS_R1
Sublist: chrom-AQ_VMSR1_8260*sub75

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:21 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.268	3.268	0.000	0	4525448	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.064	0.004	99	4697018	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.594	7.598	-0.004	87	1034903	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.821	0.000	97	1445533	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.562	4.561	0.001	92	1097803	50.0	51.2	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.824	0.000	0	1397209	50.0	50.9	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	4468303	50.0	49.2	
$ 8 4-Bromofluorobenzene (Surr	95	8.693	8.692	0.001	83	1622682	50.0	50.3	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	99	912994	50.0	49.4	
26 Chloromethane	50	1.859	1.855	0.004	99	737918	50.0	47.8	
27 Vinyl chloride	62	1.934	1.934	0.000	98	634579	50.0	43.8	
29 Bromomethane	94	2.189	2.192	-0.003	91	155922	50.0	54.8	
30 Chloroethane	64	2.279	2.279	0.000	100	505135	50.0	52.5	
31 Dichlorofluoromethane	67	2.470	2.470	0.000	96	1588882	50.0	54.9	
32 Trichlorofluoromethane	101	2.496	2.500	-0.004	98	1230632	50.0	56.7	
35 Ethyl ether	59	2.721	2.721	0.000	93	770156	50.0	50.1	
39 Acrolein	56	2.833	2.833	0.000	100	2228167	493.8	586.2	
40 1,1,2-Trichloro-1,2,2-trif	151	2.905	2.905	0.000	95	468107	50.0	47.7	
43 1,1-Dichloroethene	96	2.908	2.908	0.000	95	677311	50.0	49.8	
41 Acetone	43	2.935	2.935	0.000	99	2302875	200.0	224.3	
44 Iodomethane	142	3.032	3.036	-0.004	99	1014704	50.0	48.6	
48 Carbon disulfide	76	3.096	3.096	0.000	99	1948478	50.0	44.8	
45 Methyl acetate	43	3.160	3.159	0.001	98	2529221	100.0	100.1	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	91	1309059	50.0	54.9	
50 Methylene Chloride	84	3.276	3.276	0.000	96	864462	50.0	48.4	
49 2-Methyl-2-propanol	59	3.328	3.328	0.000	94	2019452	500.0	545.3	
52 Acrylonitrile	53	3.441	3.441	0.000	99	6070141	500.0	520.2	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	96	2536779	50.0	55.0	
53 trans-1,2-Dichloroethene	96	3.478	3.474	0.004	96	815482	50.0	51.6	
54 Hexane	57	3.669	3.669	0.000	94	907554	50.0	43.3	
55 Vinyl acetate	43	3.774	3.770	0.004	97	4311600	100.0	101.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
57 1,1-Dichloroethane	63	3.797	3.797	0.000	96	1626284	50.0	53.2	
61 2-Butanone (MEK)	43	4.179	4.179	0.000	100	3748663	200.0	221.6	
63 cis-1,2-Dichloroethene	96	4.205	4.205	0.000	83	930443	50.0	51.8	
64 2,2-Dichloropropane	77	4.217	4.217	0.000	91	859494	50.0	45.0	
62 sec-Butyl Alcohol	45	4.295	4.295	0.000	98	5887679	1500.0	1549.7	
67 Chlorobromomethane	128	4.382	4.385	-0.003	96	400930	50.0	53.7	
69 Tetrahydrofuran	42	4.393	4.393	0.000	89	1218709	100.0	101.3	
68 Chloroform	83	4.442	4.445	-0.003	94	1552390	50.0	54.1	
71 1,1,1-Trichloroethane	97	4.584	4.588	-0.004	98	1168190	50.0	50.6	
72 Cyclohexane	56	4.644	4.644	0.000	92	1350355	50.0	49.4	
73 1,1-Dichloropropene	75	4.697	4.700	-0.003	97	1230029	50.0	55.3	
74 Carbon tetrachloride	117	4.704	4.704	0.000	94	797722	50.0	51.3	
70 Isobutyl alcohol	41	4.715	4.715	0.000	96	2012861	1250.0	1319.5	
77 Benzene	78	4.854	4.854	0.000	97	3673981	50.0	52.0	
76 1,2-Dichloroethane	62	4.880	4.884	-0.004	97	1318266	50.0	50.3	
14 n-Heptane	43	5.038	5.038	0.000	93	724351	50.0	44.2	
79 Trichloroethene	95	5.341	5.341	0.000	96	916145	50.0	51.0	
80 2-Pentanone	43	5.443	5.442	0.000	99	5841468	200.0	210.2	
82 Methylcyclohexane	55	5.536	5.536	0.000	93	926312	50.0	49.4	
83 1,2-Dichloropropane	63	5.547	5.547	0.000	92	972477	50.0	50.5	
84 1,4-Dioxane	88	5.596	5.596	0.000	94	529765	1000.0	1102.3	
85 Dibromomethane	93	5.619	5.622	-0.003	91	558579	50.0	51.1	
86 Dichlorobromomethane	83	5.742	5.746	-0.004	99	961113	50.0	47.6	
87 2-Chloroethyl vinyl ether	63	5.945	5.945	0.000	91	722410	50.0	47.1	
89 cis-1,3-Dichloropropene	75	6.091	6.095	-0.004	95	1257111	50.0	47.5	
90 4-Methyl-2-pentanone (MIBK	43	6.192	6.192	0.000	97	6362946	200.0	230.1	
91 Toluene	91	6.380	6.380	0.000	99	3734051	50.0	52.8	
93 trans-1,3-Dichloropropene	75	6.556	6.556	0.000	96	1120086	50.0	50.2	
92 Ethyl methacrylate	69	6.578	6.578	0.000	90	1399815	50.0	51.3	
94 1,1,2-Trichloroethane	97	6.732	6.732	0.000	92	796486	50.0	54.1	
97 Tetrachloroethene	164	6.826	6.826	0.000	93	575089	50.0	47.8	
96 1,3-Dichloropropane	76	6.878	6.878	0.000	97	1535541	50.0	51.1	
95 2-Hexanone	43	6.897	6.897	0.000	98	4953892	200.0	205.8	
98 Chlorodibromomethane	129	7.073	7.073	0.000	91	593290	50.0	47.7	
100 Ethylene Dibromide	107	7.189	7.193	-0.004	99	863006	50.0	50.7	
101 1-Chlorohexane	91	7.579	7.579	0.000	98	1074507	50.0	52.1	
102 Chlorobenzene	112	7.624	7.624	0.000	92	2272496	50.0	50.7	
104 1,1,1,2-Tetrachloroethane	131	7.695	7.695	0.000	89	649835	50.0	50.9	
103 Ethylbenzene	106	7.699	7.699	0.000	99	1246005	50.0	51.9	
105 m-Xylene & p-Xylene	106	7.815	7.815	0.000	0	1525558	50.0	49.8	
107 o-Xylene	106	8.179	8.179	0.000	97	1479286	50.0	54.1	
106 Styrene	104	8.194	8.194	0.000	95	2501137	50.0	54.0	
108 Bromoform	173	8.378	8.378	0.000	93	332946	50.0	51.9	
109 Isopropylbenzene	105	8.516	8.520	-0.004	96	3719917	50.0	53.7	
111 Cyclohexanone	55	8.618	8.617	0.001	94	3061225	2000.0	1850.1	
112 1,1,2,2-Tetrachloroethane	83	8.805	8.805	0.000	95	1219164	50.0	53.3	
116 Bromobenzene	156	8.839	8.839	0.000	98	872438	50.0	50.6	
113 trans-1,4-Dichloro-2-buten	53	8.843	8.842	0.000	69	343126	50.0	45.4	
114 1,2,3-Trichloropropane	110	8.869	8.869	0.000	85	433419	50.0	51.3	
115 N-Propylbenzene	120	8.917	8.917	0.000	99	982658	50.0	54.0	
118 2-Chlorotoluene	126	9.015	9.015	0.000	95	868653	50.0	49.1	
117 1,3,5-Trimethylbenzene	105	9.086	9.090	-0.004	93	3050439	50.0	53.8	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
119 4-Chlorotoluene	126	9.131	9.131	0.000	98	912458	50.0	51.0	
120 tert-Butylbenzene	119	9.397	9.397	0.000	93	2415420	50.0	50.5	
121 1,2,4-Trimethylbenzene	105	9.457	9.457	0.000	98	3103162	50.0	54.1	
122 sec-Butylbenzene	134	9.615	9.618	-0.003	95	667423	50.0	49.5	
124 1,3-Dichlorobenzene	146	9.746	9.746	0.000	96	1589321	50.0	51.6	
123 4-Isopropyltoluene	119	9.765	9.765	0.000	97	2873604	50.0	53.9	
126 1,4-Dichlorobenzene	146	9.843	9.843	0.000	94	1629654	50.0	50.2	
127 n-Butylbenzene	91	10.170	10.169	0.001	98	2584458	50.0	49.5	
128 1,2-Dichlorobenzene	146	10.200	10.199	0.001	96	1543231	50.0	51.1	
129 1,2-Dibromo-3-Chloropropan	157	10.979	10.979	0.000	76	245420	50.0	44.3	
130 1,2,4-Trichlorobenzene	180	11.800	11.804	-0.004	94	802339	50.0	52.4	
131 Hexachlorobutadiene	225	11.939	11.939	0.000	95	251541	50.0	47.9	
132 Naphthalene	128	12.070	12.070	0.000	98	3425829	50.0	51.6	
133 1,2,3-Trichlorobenzene	180	12.288	12.291	-0.003	94	753531	50.0	50.5	
S 140 1,2-Dichloroethene, Total	96				0		100.0	103.4	
S 138 1,2-Dichloroethene, Total	1				0		100.0	103.4	
S 134 Trihalomethanes, Total	1				0		200.0	201.3	
S 137 1,3-Dichloropropene, Total	1				0		100.0	97.7	
S 136 Total BTEX	1				0			260.6	
S 139 Xylenes, Total	106				0		100.0	103.9	
S 135 Xylenes, Total (URS)	1				0		100.0	103.9	

Reagents:

MV-MegaMainA_00018	Amount Added: 50.00	Units: uL		
MV-Gas A_00034	Amount Added: 50.00	Units: uL		
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent	

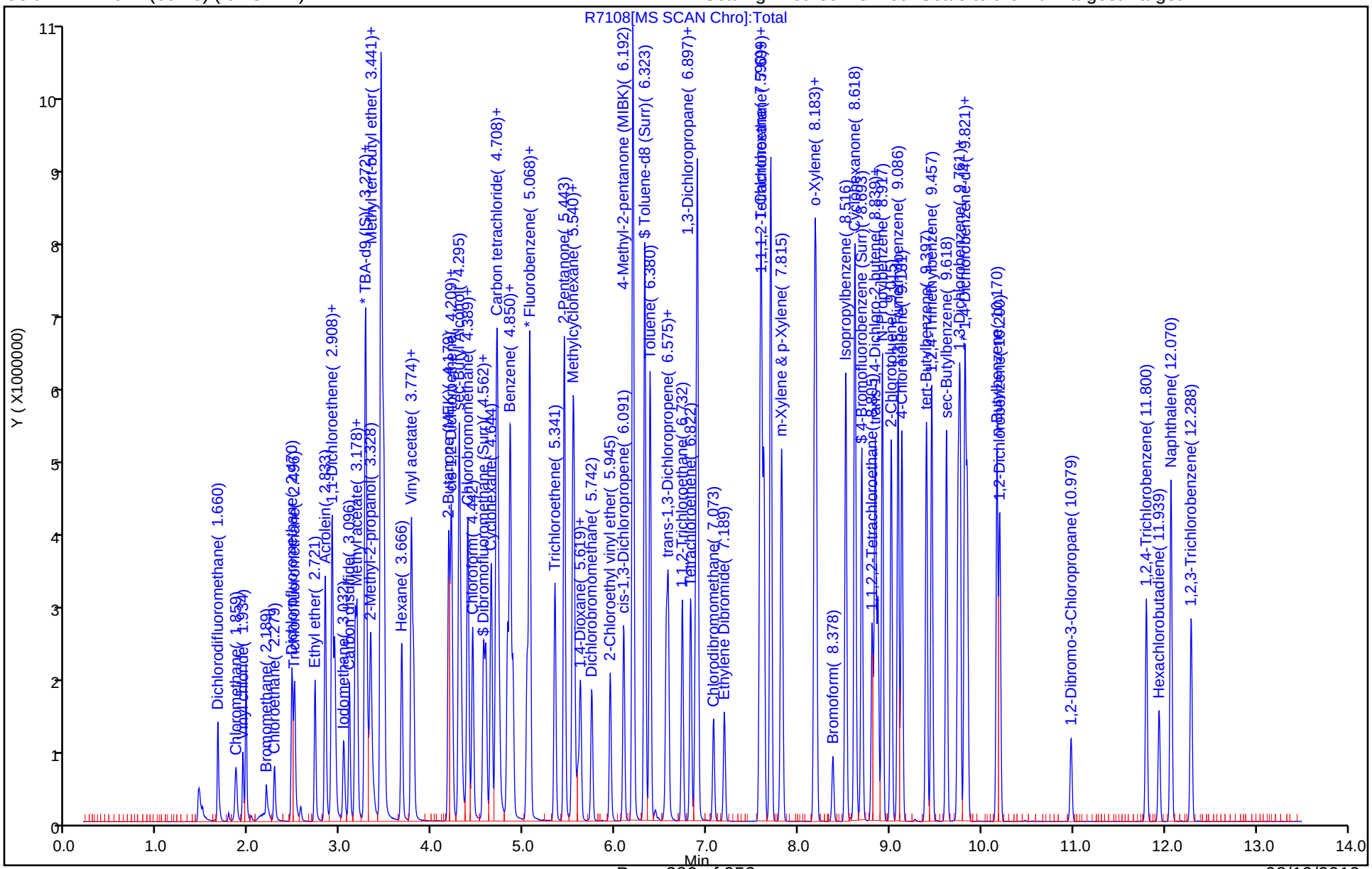
Report Date: 10-Aug-2019 15:46:25 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7108.D

Injection Date:	10-Aug-2019 06:54:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	CCVC			Worklist Smp#:	34
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	29
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6840.D				
Lims ID:	BFB				
Client ID:					
Sample Type:	BFB				
Inject. Date:	03-Aug-2019 16:12:30	ALS Bottle#:	100	Worklist Smp#:	1
Injection Vol:	2.0 uL	Dil. Factor:	1.0000		
Sample Info:	BFB				
Operator ID:	ZHANGJ	Instrument ID:	VMS_R1		
Method:	\\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\AQ_VMSR1_8260.m				
Limit Group:	MSV - 8260B Water and Solid				
Last Update:	05-Aug-2019 11:50:43	Calib Date:	03-Aug-2019 19:27:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6848.D				
Column 1 :	DB-624 (60.25) (0.25 mm)		Det: MS SCAN		
Process Host:	CTX0310				

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 4 BFB	95	3.561	3.561	0.000	81	387489	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

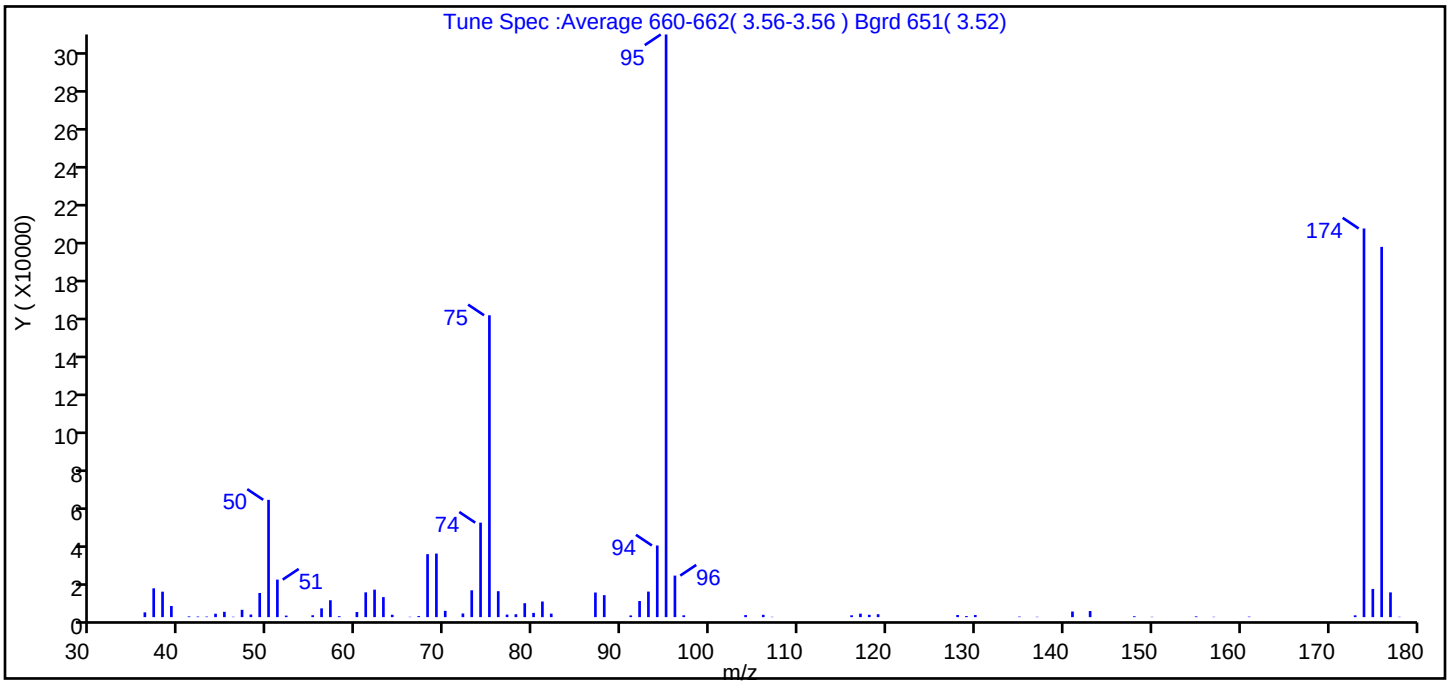
MV-BFB_00028 Amount Added: 2.00 Units: uL

MS Tune Report

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6840.D
Injection Date: 03-Aug-2019 16:12:30 Instrument ID: VMS_R1
Lims ID: BFB
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 100 Worklist Smp#: 1
Injection Vol: 2.0 uL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Tune Method: BFB Method 8260

$ 4 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	20.1
75	30 to 60% of m/z 95	51.8
96	5 to 9% of m/z 95	7.1
173	Less than 2% of m/z 174	0.3 (0.5)
174	50 to 120% of m/z 95	66.7
175	5 to 9% of m/z 174	4.8 (7.3)
176	Greater than 95% but less than 101% of m/z 174	63.5 (95.3)
177	5 to 9% of m/z 176	4.2 (6.7)

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6840.D\AQ_VMSR1_8260.rslt\spectra.d
Injection Date: 03-Aug-2019 16:12:30
Spectrum: Tune Spec :Average 660-662(3.56-3.56) Bgrd 651(3.52)
Base Peak: 95.00
Minimum % Base Peak: 0
Number of Points: 75

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2504	58.00	478	80.00	2212	128.00	1112
37.00	15048	60.00	2686	81.00	8167	129.00	568
38.00	13299	61.00	12957	82.00	1834	130.00	1099
39.00	5831	62.00	14357	87.00	12864	135.00	283
41.00	391	63.00	10469	88.00	11481	137.00	188
42.00	321	64.00	1245	91.00	895	141.00	2943
43.00	298	66.00	176	92.00	8422	143.00	3181
44.00	1791	67.00	543	93.00	13341	148.00	451
45.00	2777	68.00	32888	94.00	37416	150.00	174
46.00	209	69.00	33200	95.00	304256	155.00	396
47.00	3824	70.00	3298	96.00	21696	157.00	182
48.00	1358	72.00	1914	97.00	964	161.00	262
49.00	12629	73.00	14017	104.00	1079	173.00	938
50.00	61264	74.00	49344	106.00	1211	174.00	202944
51.00	19600	75.00	157632	107.00	175	175.00	14735
52.00	810	76.00	13557	116.00	957	176.00	193344
55.00	991	77.00	1338	117.00	1817	177.00	12928
56.00	4580	78.00	1523	118.00	1240	178.00	172
57.00	8828	79.00	7289	119.00	1527		

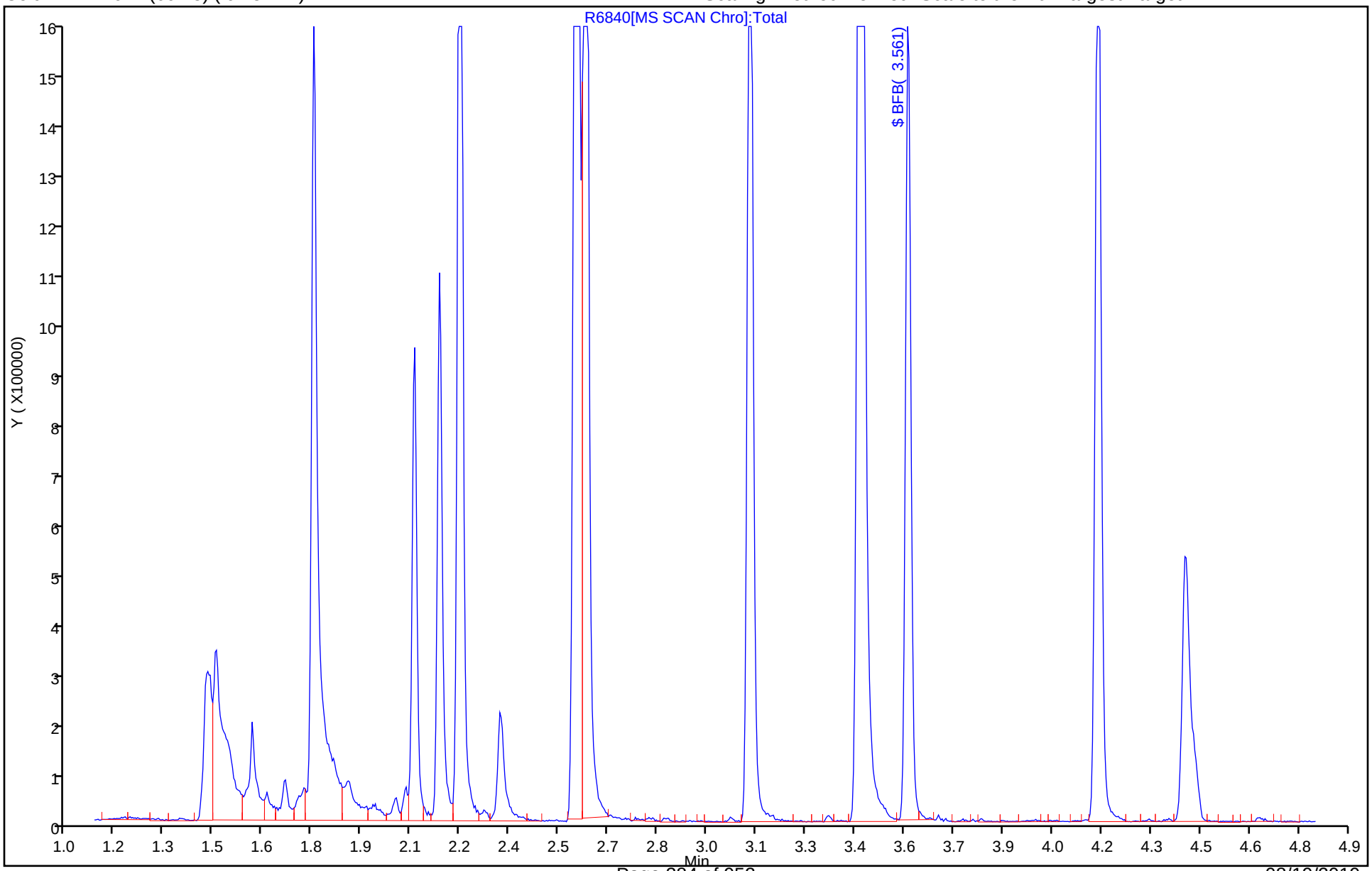
Report Date: 05-Aug-2019 11:50:45 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b\R6840.D

Injection Date:	03-Aug-2019 16:12:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	BFB			Worklist Smp#:	1
Client ID:					
Injection Vol:	2.0 uL	Dil. Factor:	1.0000	ALS Bottle#:	100
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7079.D
Lims ID: BFB
Client ID:
Sample Type: BFB
Inject. Date: 09-Aug-2019 20:13:30 ALS Bottle#: 100 Worklist Smp#: 1
Injection Vol: 2.0 uL Dil. Factor: 1.0000
Sample Info: BFB
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:28 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
$ 4 BFB	95	3.561	3.561	0.000	81	430195	NR	NR	

QC Flag Legend

Processing Flags
NR - Missing Quant Standard

Reagents:

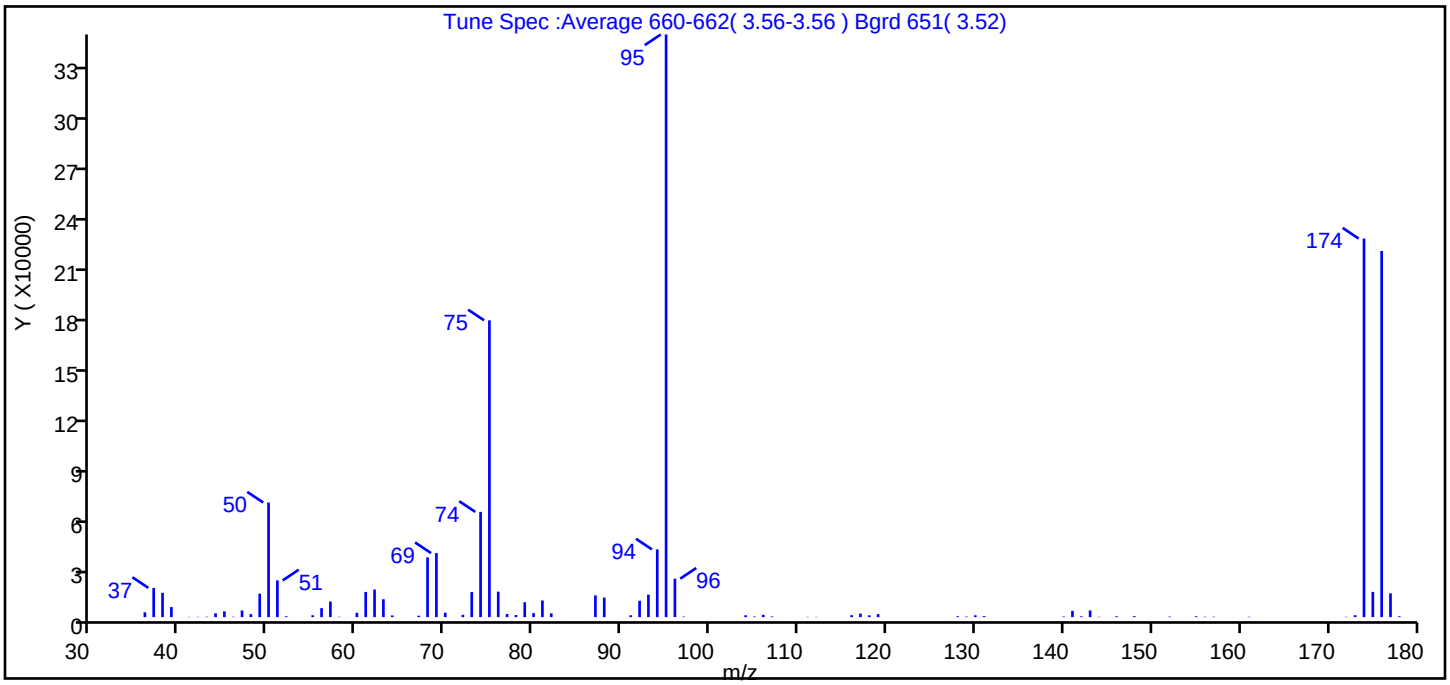
MV-BFB_00029 Amount Added: 2.00 Units: uL

MS Tune Report

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7079.D
Injection Date: 09-Aug-2019 20:13:30 Instrument ID: VMS_R1
Lims ID: BFB
Client ID:
Operator ID: ZHANGJ ALS Bottle#: 100 Worklist Smp#: 1
Injection Vol: 2.0 uL Dil. Factor: 1.0000
Method: AQ_VMSR1_8260 Limit Group: MSV - 8260B Water and Solid
Tune Method: BFB Method 8260

$ 4 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	19.7
75	30 to 60% of m/z 95	50.9
96	5 to 9% of m/z 95	6.6
173	Less than 2% of m/z 174	0.3 (0.5)
174	50 to 120% of m/z 95	65.0
175	5 to 9% of m/z 174	4.3 (6.7)
176	Greater than 95% but less than 101% of m/z 174	62.8 (96.7)
177	5 to 9% of m/z 176	4.1 (6.5)

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7079.D\AQ_VMSR1_8260.rslt\spectra.d
Injection Date: 09-Aug-2019 20:13:30
Spectrum: Tune Spec :Average 660-662(3.56-3.56) Bgrd 651(3.52)
Base Peak: 95.00
Minimum % Base Peak: 0
Number of Points: 82

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2861	61.00	14969	91.00	1127	140.00	366
37.00	17360	62.00	16379	92.00	9706	141.00	3738
38.00	14432	63.00	10631	93.00	13367	142.00	478
39.00	5988	64.00	1014	94.00	40200	143.00	3953
41.00	170	67.00	868	95.00	345856	144.00	207
42.00	182	68.00	35480	96.00	22840	146.00	505
43.00	255	69.00	38016	97.00	316	148.00	581
44.00	2302	70.00	2638	104.00	1101	152.00	331
45.00	3410	72.00	1364	105.00	378	155.00	516
46.00	255	73.00	14871	106.00	1401	156.00	257
47.00	3974	74.00	62480	107.00	424	157.00	264
48.00	1814	75.00	176192	111.00	198	161.00	241
49.00	13931	76.00	15144	112.00	167	172.00	207
50.00	68032	77.00	1828	116.00	1172	173.00	1157
51.00	21816	78.00	1254	117.00	2091	174.00	224704
52.00	527	79.00	8836	118.00	1075	175.00	14996
55.00	1110	80.00	2376	119.00	1795	176.00	217344
56.00	5327	81.00	9888	128.00	531	177.00	14130
57.00	9265	82.00	2229	129.00	341	178.00	501
58.00	221	87.00	12922	130.00	1088		
60.00	2613	88.00	11603	131.00	613		

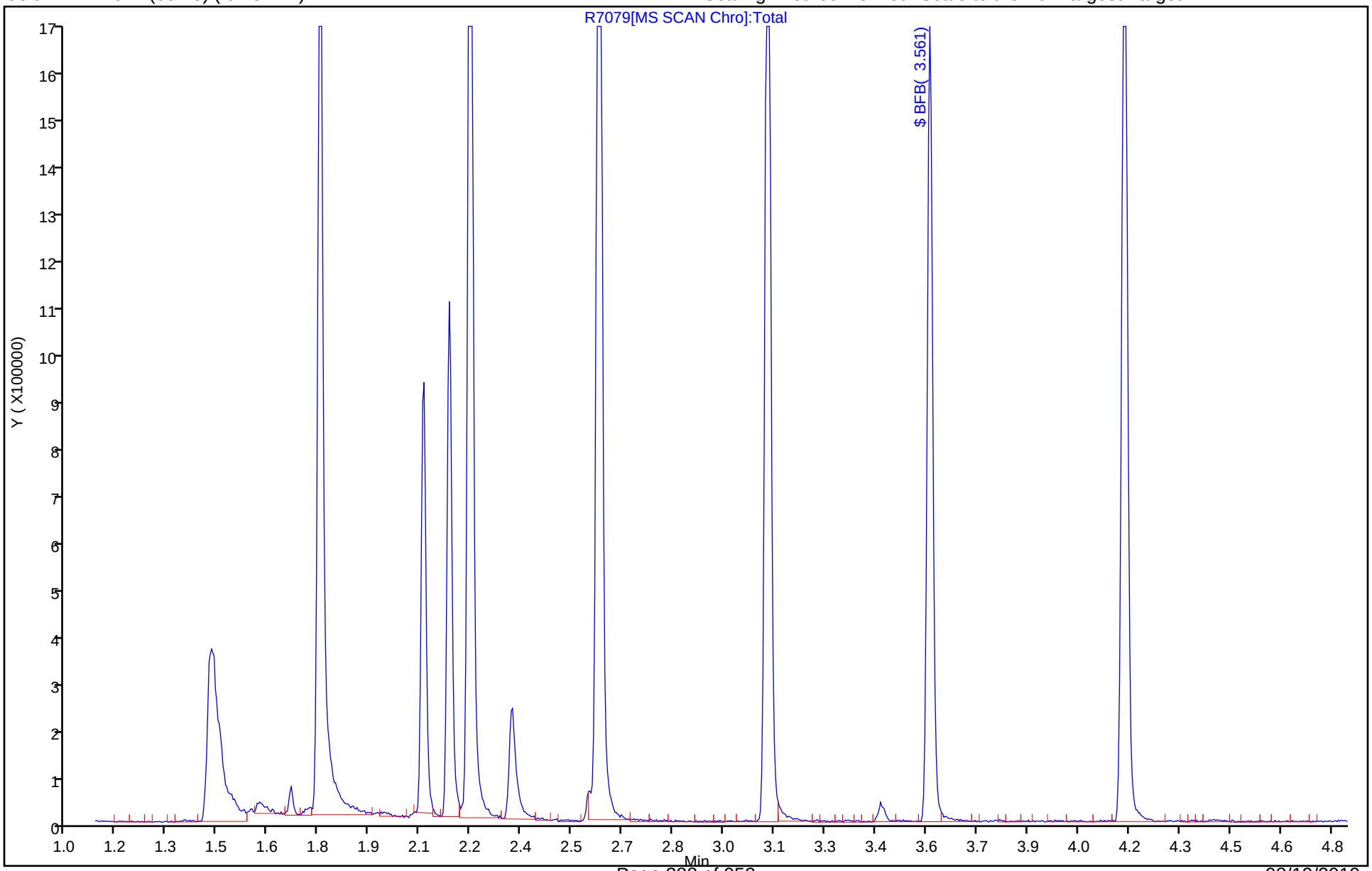
Report Date: 10-Aug-2019 15:46:29 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7079.D

Injection Date:	09-Aug-2019 20:13:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	BFB			Worklist Smp#:	1
Client ID:					
Injection Vol:	2.0 uL	Dil. Factor:	1.0000	ALS Bottle#:	100
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 280-467213/8

Matrix: Water Lab File ID: R7085.D

Analysis Method: 8260B Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 22:28

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
71-55-6	1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16
79-34-5	1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.40	U	3.0	0.40	0.18
79-00-5	1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27
75-34-3	1,1-Dichloroethane	0.80	U	1.0	0.80	0.22
75-35-4	1,1-Dichloroethene	0.80	U	1.0	0.80	0.23
87-61-6	1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21
120-82-1	1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21
96-12-8	1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47
95-50-1	1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15
107-06-2	1,2-Dichloroethane	0.40	U	1.0	0.40	0.13
78-87-5	1,2-Dichloropropane	0.40	U	1.0	0.40	0.18
541-73-1	1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13
106-46-7	1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16
78-93-3	2-Butanone (MEK)	4.0	U	6.0	4.0	2.0
591-78-6	2-Hexanone	4.0	U	5.0	4.0	1.7
108-10-1	4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98
67-64-1	Acetone	6.4	U	10	6.4	1.9
71-43-2	Benzene	0.40	U	1.0	0.40	0.16
74-97-5	Bromochloromethane	0.20	U	1.0	0.20	0.10
75-27-4	Bromodichloromethane	0.40	U	1.0	0.40	0.17
75-25-2	Bromoform	1.0	U	1.0	1.0	0.46
74-83-9	Bromomethane	0.80	U	2.0	0.80	0.21
75-15-0	Carbon disulfide	0.80	U M	2.0	0.80	0.17
56-23-5	Carbon tetrachloride	0.40	U	2.0	0.40	0.19
108-90-7	Chlorobenzene	0.40	U	1.0	0.40	0.17
75-00-3	Chloroethane	1.6	U	2.0	1.6	0.41
67-66-3	Chloroform	0.40	U	1.0	0.40	0.16
74-87-3	Chloromethane	0.80	U	2.0	0.80	0.30
156-59-2	cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-01-5	cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16
110-82-7	Cyclohexane	0.80	U	2.0	0.80	0.28
124-48-1	Dibromochloromethane	0.40	U	1.0	0.40	0.17
75-71-8	Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31
100-41-4	Ethylbenzene	0.40	U	1.0	0.40	0.16

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 280-467213/8

Matrix: Water Lab File ID: R7085.D

Analysis Method: 8260B Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 22:28

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
106-93-4	Ethylene Dibromide	0.40	U	1.0	0.40	0.18
98-82-8	Isopropylbenzene	0.40	U	1.0	0.40	0.19
79-20-9	Methyl acetate	4.0	U	5.0	4.0	1.6
1634-04-4	Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25
108-87-2	Methylcyclohexane	0.40	U	2.0	0.40	0.10
75-09-2	Methylene Chloride	2.0	U	5.0	2.0	0.94
100-42-5	Styrene	0.80	U	1.0	0.80	0.36
127-18-4	Tetrachloroethene	0.40	U	1.0	0.40	0.20
108-88-3	Toluene	0.40	U	1.0	0.40	0.17
156-60-5	trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15
10061-02-6	trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19
79-01-6	Trichloroethene	0.40	U	1.0	0.40	0.16
75-69-4	Trichlorofluoromethane	0.80	U	2.0	0.80	0.29
75-01-4	Vinyl chloride	0.20	U	1.5	0.20	0.10
1330-20-7	Xylenes, Total	0.80	U	1.0	0.80	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		81-118
460-00-4	4-Bromofluorobenzene (Surr)	98		85-114
1868-53-7	Dibromofluoromethane (Surr)	98		80-119
2037-26-5	Toluene-d8 (Surr)	99		89-112

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7085.D
Lims ID: MB
Client ID:
Sample Type: MB
Inject. Date: 09-Aug-2019 22:28:30 ALS Bottle#: 6 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: MB
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:37 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 09-Aug-2019 22:51:09

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.261	3.268	-0.007	0	4490421	1000.0	1000.0	
* 1 Fluorobenzene	96	5.067	5.064	0.003	98	4886890	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.594	7.598	-0.004	87	1060663	50.0	50.0	
* 149 1,4-Dioxane-d8	96		8.063					ND	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.821	0.000	98	1464430	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.565	4.561	0.004	92	1088309	50.0	48.8	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.828	4.824	0.004	0	1432668	50.0	50.2	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	94	4594330	50.0	49.4	
$ 8 4-Bromofluorobenzene (Surr	95	8.692	8.692	0.000	93	1608187	50.0	49.2	
$ 152 Trifluorotoluene (Surr)	1		0.000					ND	
$ 4 BFB	95		3.561					ND	
23 Dichlorodifluoromethane	85		1.660					ND	
26 Chloromethane	50		1.855					ND	
27 Vinyl chloride	62		1.934					ND	
28 Ethylene oxide	43		2.177					ND	
29 Bromomethane	94		2.192					ND	
30 Chloroethane	64		2.279					ND	
31 Dichlorofluoromethane	67		2.470					ND	
32 Trichlorofluoromethane	101		2.500					ND	
33 Ethanol	45		2.635					ND	
35 Ethyl ether	59		2.721					ND	
38 Propene oxide	58		2.762					ND	
39 Acrolein	56	2.837	2.833	0.004	24	1732		0.4380	
40 1,1,2-Trichloro-1,2,2-trif	151		2.905					ND	
43 1,1-Dichloroethene	96		2.908					ND	
41 Acetone	43		2.935					ND	
42 Isopropyl alcohol	45		3.021					ND	U
44 Iodomethane	142		3.036					ND	
48 Carbon disulfide	76		3.096					ND	U
46 Acetonitrile	41		3.144					ND	U
45 Methyl acetate	43		3.159					ND	
47 3-Chloro-1-propene	41		3.182					ND	U

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
50 Methylene Chloride	84		3.276					ND	
49 2-Methyl-2-propanol	59		3.328					ND	
52 Acrylonitrile	53		3.441					ND	
51 Methyl tert-butyl ether	73		3.463					ND	
53 trans-1,2-Dichloroethene	96		3.474					ND	
22 Chlorotrifluoroethene	116		3.531					ND	
54 Hexane	57		3.669					ND	
24 1,2-Dichloro-1,1,2,2-tetra	85		3.727					ND	
55 Vinyl acetate	43		3.770					ND	
56 Isopropyl ether	87		3.797					ND	
57 1,1-Dichloroethane	63		3.797					ND	
58 2-Chloro-1,3-butadiene	53		3.853					ND	
25 2-Chloro-1,1,1-Trifluoroet	118		3.951					ND	
59 Tert-butyl ethyl ether	59		4.059					ND	
61 2-Butanone (MEK)	43		4.179					ND	
60 Ethyl acetate	43		4.194					ND	
63 cis-1,2-Dichloroethene	96		4.205					ND	
64 2,2-Dichloropropane	77		4.217					ND	
65 Propionitrile	54		4.232					ND	
62 sec-Butyl Alcohol	45		4.295					ND	
66 Methacrylonitrile	41		4.344					ND	
67 Chlorobromomethane	128		4.385					ND	
69 Tetrahydrofuran	42	4.396	4.393	0.003	58	3376		0.2698	
68 Chloroform	83		4.445					ND	
71 1,1,1-Trichloroethane	97		4.588					ND	
72 Cyclohexane	56		4.644					ND	
36 1,2-Dichloro-1,1,2-trifluo	117		4.678					ND	
73 1,1-Dichloropropene	75		4.700					ND	
74 Carbon tetrachloride	117		4.704					ND	
37 1,1,1-Trifluoro-2,2-dichlo	83		4.706					ND	
70 Isobutyl alcohol	41		4.715					ND	U
77 Benzene	78		4.854					ND	
76 1,2-Dichloroethane	62		4.884					ND	
75 Tert-amyl methyl ether	73		4.921					ND	
14 n-Heptane	43		5.038					ND	
78 n-Butanol	56		5.206					ND	
79 Trichloroethene	95		5.341					ND	
80 2-Pentanone	43		5.442					ND	
82 Methylcyclohexane	55		5.536					ND	
83 1,2-Dichloropropane	63		5.547					ND	
81 Methyl methacrylate	100		5.551					ND	
84 1,4-Dioxane	88		5.596					ND	
85 Dibromomethane	93		5.622					ND	
86 Dichlorobromomethane	83		5.746					ND	
88 2-Nitropropane	41		5.911					ND	
87 2-Chloroethyl vinyl ether	63		5.945					ND	
89 cis-1,3-Dichloropropene	75		6.095					ND	
90 4-Methyl-2-pentanone (MIBK	43		6.192					ND	
91 Toluene	91		6.380					ND	
93 trans-1,3-Dichloropropene	75		6.556					ND	
92 Ethyl methacrylate	69		6.578					ND	
94 1,1,2-Trichloroethane	97		6.732					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
97 Tetrachloroethene	164		6.826					ND	
96 1,3-Dichloropropane	76		6.878					ND	
95 2-Hexanone	43		6.897					ND	
99 Tetrahydrothiophene	60		7.069					ND	
98 Chlorodibromomethane	129		7.073					ND	
100 Ethylene Dibromide	107		7.193					ND	
101 1-Chlorohexane	91		7.579					ND	
102 Chlorobenzene	112		7.624					ND	
104 1,1,1,2-Tetrachloroethane	131		7.695					ND	
103 Ethylbenzene	106		7.699					ND	
105 m-Xylene & p-Xylene	106		7.815					ND	
107 o-Xylene	106		8.179					ND	
106 Styrene	104		8.194					ND	
108 Bromoform	173		8.378					ND	
109 Isopropylbenzene	105		8.520					ND	
110 cis-1,4-Dichloro-2-butene	53		8.569					ND	
111 Cyclohexanone	55		8.617					ND	U
112 1,1,2,2-Tetrachloroethane	83		8.805					ND	
116 Bromobenzene	156		8.839					ND	
113 trans-1,4-Dichloro-2-buten	53		8.842					ND	
114 1,2,3-Trichloropropane	110		8.869					ND	
115 N-Propylbenzene	120		8.917					ND	
118 2-Chlorotoluene	126		9.015					ND	
117 1,3,5-Trimethylbenzene	105		9.090					ND	
119 4-Chlorotoluene	126		9.131					ND	
120 tert-Butylbenzene	119		9.397					ND	
143 Pentachloroethane	167		9.457					ND	
121 1,2,4-Trimethylbenzene	105		9.457					ND	
122 sec-Butylbenzene	134		9.618					ND	
124 1,3-Dichlorobenzene	146		9.746					ND	
123 4-Isopropyltoluene	119		9.765					ND	
126 1,4-Dichlorobenzene	146		9.843					ND	
125 1,2,3-Trimethylbenzene	105		9.862					ND	
127 n-Butylbenzene	91		10.169					ND	
128 1,2-Dichlorobenzene	146		10.199					ND	
129 1,2-Dibromo-3-Chloropropan	157		10.979					ND	
16 1,3,5-Trichlorobenzene	180		11.167					ND	
130 1,2,4-Trichlorobenzene	180		11.804					ND	
131 Hexachlorobutadiene	225		11.939					ND	
132 Naphthalene	128		12.070					ND	
133 1,2,3-Trichlorobenzene	180		12.291					ND	
15 Dimethyl disulfide	1		0.000					ND	
9 2,4-Dimethylpentane	1		0.000					ND	
10 n-Nonyl Aldehyde	1		0.000					ND	
19 3-Methylhexane	1		0.000					ND	
20 2-Methylhexane	1		0.000					ND	
12 2,2,3-Trimethylbutane	1		0.000					ND	
11 2,3-Dimethylpentane	1		0.000					ND	
13 2,2-Dimethylpentane	1		0.000					ND	
18 3,3-Dimethylpentane	1		0.000					ND	
17 3-Ethylpentane	1		0.000					ND	
34 Propene oxide TIC	58		5.334					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
S 140 1,2-Dichloroethene, Total	96		2.000					ND	
S 138 1,2-Dichloroethene, Total	1		0.000					ND	
S 134 Trihalomethanes, Total	1		0.000					ND	
S 137 1,3-Dichloropropene, Total	1		0.000					ND	
S 136 Total BTEX	1		0.000					ND	
S 156 TAH	1				0				0
S 139 Xylenes, Total	106		0.000					ND	
S 135 Xylenes, Total (URS)	1		0.000					ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

mv-Cent IS/SS_00005 Amount Added: 5.00 Units: uL Run Reagent

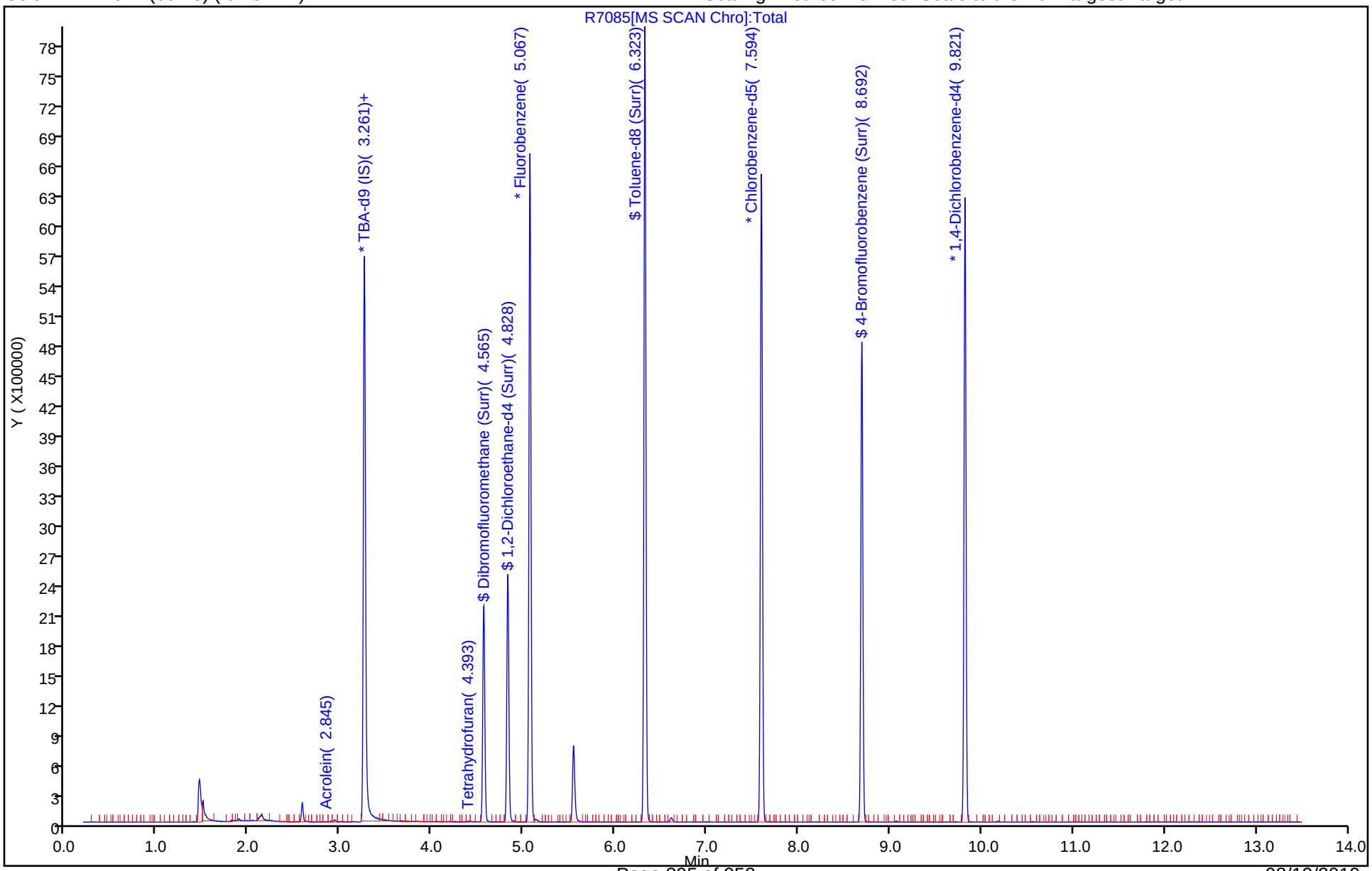
Report Date: 10-Aug-2019 15:46:54 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7085.D

Injection Date:	09-Aug-2019 22:28:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	MB			Worklist Smp#:	8
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	6
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7085.D
Lims ID: MB
Client ID:
Sample Type: MB
Inject. Date: 09-Aug-2019 22:28:30 ALS Bottle#: 6 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: MB
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:37 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 09-Aug-2019 22:51:09

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 Dibromofluoromethane (Surr)	50.0	48.8	97.61
$ 6 1,2-Dichloroethane-d4 (Surr)	50.0	50.2	100.32
$ 7 Toluene-d8 (Surr)	50.0	49.4	98.71
$ 8 4-Bromofluorobenzene (Surr)	50.0	49.2	98.33

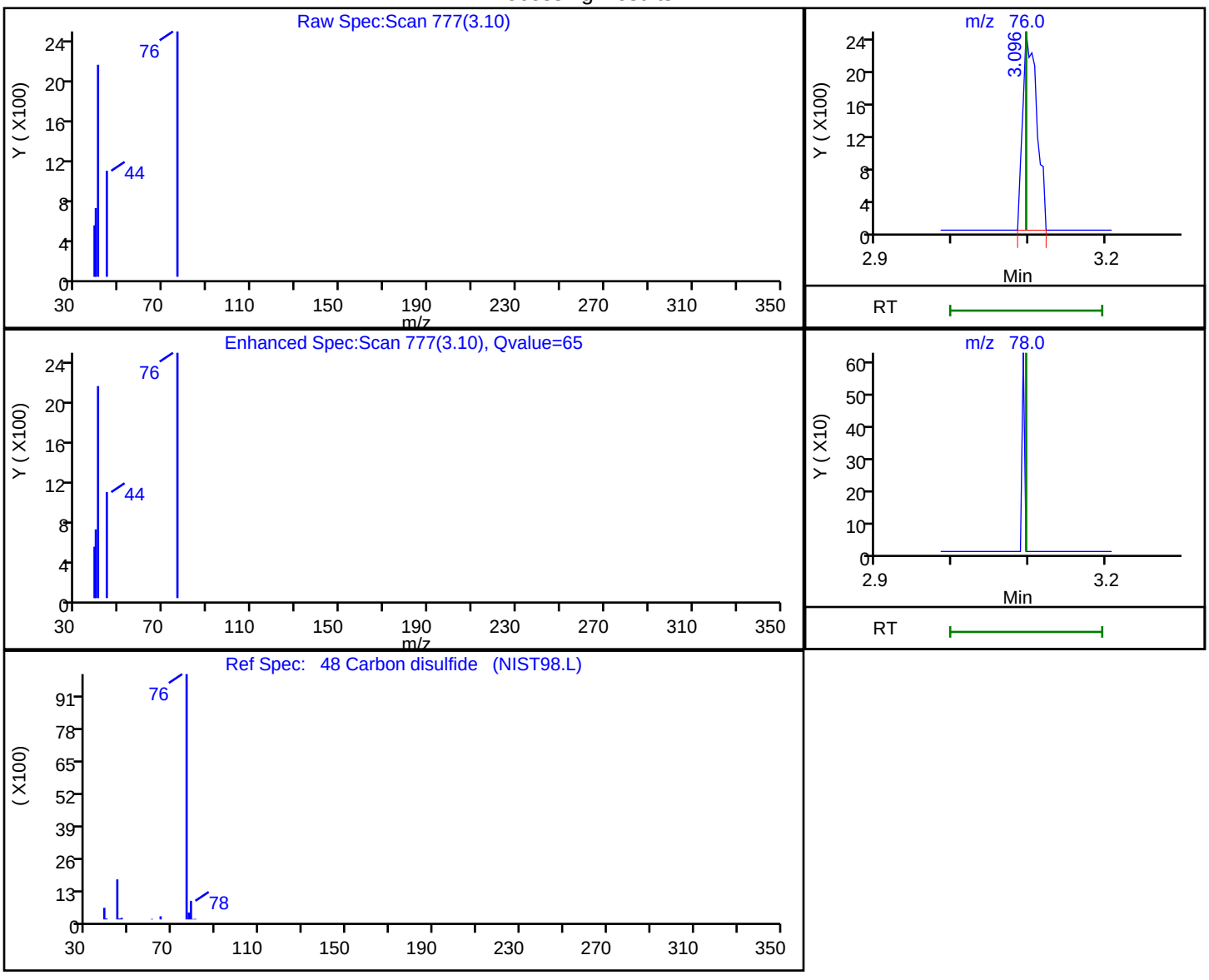
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7085.D				
Injection Date:	09-Aug-2019 22:28:30	Instrument ID:	VMS_R1		
Lims ID:	MB				
Client ID:					
Operator ID:	ZHANGJ	ALS Bottle#:	6	Worklist Smp#:	8
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		
Column:	DB-624 (60.25) (0.25 mm)	Detector	MS SCAN		

48 Carbon disulfide, CAS: 75-15-0

Processing Results



RT	Mass	Response	Amount
3.10	76.00	3159	0.427933
3.10	78.00	0	

Reviewer: zhangji, 09-Aug-2019 22:50:56

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

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 280-467213/4

Matrix: Water Lab File ID: R7082.D

Analysis Method: 8260B Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 21:23

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
71-55-6	1,1,1-Trichloroethane	24.4		1.0	0.40	0.16
79-34-5	1,1,2,2-Tetrachloroethane	26.1		1.0	0.80	0.21
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	21.8		3.0	0.40	0.18
79-00-5	1,1,2-Trichloroethane	26.9		1.0	0.80	0.27
75-34-3	1,1-Dichloroethane	26.0		1.0	0.80	0.22
75-35-4	1,1-Dichloroethene	25.4		1.0	0.80	0.23
87-61-6	1,2,3-Trichlorobenzene	25.7		1.0	0.80	0.21
120-82-1	1,2,4-Trichlorobenzene	26.8		1.0	0.80	0.21
96-12-8	1,2-Dibromo-3-Chloropropane	21.3		5.0	1.6	0.47
95-50-1	1,2-Dichlorobenzene	25.0		1.0	0.40	0.15
107-06-2	1,2-Dichloroethane	24.4		1.0	0.40	0.13
78-87-5	1,2-Dichloropropane	25.4		1.0	0.40	0.18
541-73-1	1,3-Dichlorobenzene	25.7		1.0	0.40	0.13
106-46-7	1,4-Dichlorobenzene	25.1		1.0	0.40	0.16
78-93-3	2-Butanone (MEK)	108		6.0	4.0	2.0
591-78-6	2-Hexanone	98.0		5.0	4.0	1.7
108-10-1	4-Methyl-2-pentanone (MIBK)	113		5.0	3.2	0.98
67-64-1	Acetone	105		10	6.4	1.9
71-43-2	Benzene	25.8		1.0	0.40	0.16
74-97-5	Bromochloromethane	27.0		1.0	0.20	0.10
75-27-4	Bromodichloromethane	23.4		1.0	0.40	0.17
75-25-2	Bromoform	29.3		1.0	1.0	0.46
74-83-9	Bromomethane	31.0		2.0	0.80	0.21
75-15-0	Carbon disulfide	22.4		2.0	0.80	0.17
56-23-5	Carbon tetrachloride	23.2		2.0	0.40	0.19
108-90-7	Chlorobenzene	25.2		1.0	0.40	0.17
75-00-3	Chloroethane	29.0		2.0	1.6	0.41
67-66-3	Chloroform	26.4		1.0	0.40	0.16
74-87-3	Chloromethane	23.7		2.0	0.80	0.30
156-59-2	cis-1,2-Dichloroethene	26.3		1.0	0.40	0.15
10061-01-5	cis-1,3-Dichloropropene	24.2		1.0	0.40	0.16
110-82-7	Cyclohexane	21.8		2.0	0.80	0.28
124-48-1	Dibromochloromethane	22.9		1.0	0.40	0.17
75-71-8	Dichlorodifluoromethane	21.5		2.0	0.80	0.31
100-41-4	Ethylbenzene	25.9		1.0	0.40	0.16

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 280-467213/4

Matrix: Water Lab File ID: R7082.D

Analysis Method: 8260B Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 21:23

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
106-93-4	Ethylene Dibromide	25.2		1.0	0.40	0.18
98-82-8	Isopropylbenzene	26.1		1.0	0.40	0.19
79-20-9	Methyl acetate	49.2		5.0	4.0	1.6
1634-04-4	Methyl tert-butyl ether	27.8		5.0	0.80	0.25
108-87-2	Methylcyclohexane	22.2		2.0	0.40	0.10
75-09-2	Methylene Chloride	24.9		5.0	2.0	0.94
100-42-5	Styrene	27.3		1.0	0.80	0.36
127-18-4	Tetrachloroethene	24.0		1.0	0.40	0.20
108-88-3	Toluene	26.1		1.0	0.40	0.17
156-60-5	trans-1,2-Dichloroethene	26.8		1.0	0.40	0.15
10061-02-6	trans-1,3-Dichloropropene	24.1		1.0	0.40	0.19
79-01-6	Trichloroethene	25.0		1.0	0.40	0.16
75-69-4	Trichlorofluoromethane	25.1		2.0	0.80	0.29
75-01-4	Vinyl chloride	21.7		1.5	0.20	0.10
1330-20-7	Xylenes, Total	51.2		1.0	0.80	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		81-118
460-00-4	4-Bromofluorobenzene (Surr)	98		85-114
1868-53-7	Dibromofluoromethane (Surr)	102		80-119
2037-26-5	Toluene-d8 (Surr)	98		89-112

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7082.D
Lims ID: LCS
Client ID:
Sample Type: LCS
Inject. Date: 09-Aug-2019 21:23:30 ALS Bottle#: 3 Worklist Smp#: 4
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: LCS
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:37 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 09-Aug-2019 22:02:23

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.264	3.268	-0.004	0	5232378	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.064	0.004	99	5137497	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.594	7.598	-0.004	88	1129729	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.821	0.000	97	1596631	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.561	0.000	94	1195151	50.0	51.0	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.824	0.000	0	1503243	50.0	50.1	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	93	4855509	50.0	49.0	
$ 8 4-Bromofluorobenzene (Surr	95	8.692	8.692	0.000	84	1742208	50.0	48.9	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	99	432491	25.0	21.5	
26 Chloromethane	50	1.855	1.855	0.000	99	401312	25.0	23.7	
27 Vinyl chloride	62	1.934	1.934	0.000	98	344343	25.0	21.7	
29 Bromomethane	94	2.189	2.192	-0.003	92	96895	25.0	31.0	
30 Chloroethane	64	2.282	2.279	0.003	100	305073	25.0	29.0	
31 Dichlorofluoromethane	67	2.473	2.470	0.003	96	856430	25.0	27.1	
32 Trichlorofluoromethane	101	2.503	2.500	0.003	98	596254	25.0	25.1	
35 Ethyl ether	59	2.721	2.721	0.000	93	444261	25.0	26.4	
39 Acrolein	56	2.833	2.833	0.000	100	1223606	246.9	294.3	
40 1,1,2-Trichloro-1,2,2-trif	151	2.908	2.905	0.003	95	231661	25.0	21.8	
43 1,1-Dichloroethene	96	2.912	2.908	0.004	96	377346	25.0	25.4	
41 Acetone	43	2.935	2.935	0.000	100	1192619	100.0	104.8	
44 Iodomethane	142	3.036	3.036	0.000	99	563950	25.0	24.7	
48 Carbon disulfide	76	3.096	3.096	0.000	99	1057484	25.0	22.4	
45 Methyl acetate	43	3.159	3.159	0.000	98	1359663	50.0	49.2	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	92	753263	25.0	28.9	
50 Methylene Chloride	84	3.279	3.276	0.003	94	486423	25.0	24.9	
49 2-Methyl-2-propanol	59	3.324	3.328	-0.004	95	1131325	250.0	281.0	
52 Acrylonitrile	53	3.441	3.441	0.000	99	3417554	250.0	267.7	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	96	1402395	25.0	27.8	
53 trans-1,2-Dichloroethene	96	3.478	3.474	0.004	98	463947	25.0	26.8	
54 Hexane	57	3.669	3.669	0.000	93	496856	25.0	21.9	
55 Vinyl acetate	43	3.774	3.770	0.004	97	2568432	50.0	55.8	
57 1,1-Dichloroethane	63	3.793	3.797	-0.004	96	869681	25.0	26.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
61 2-Butanone (MEK)	43	4.179	4.179	0.000	100	2001708	100.0	108.2	
63 cis-1,2-Dichloroethene	96	4.205	4.205	0.000	83	516074	25.0	26.3	
64 2,2-Dichloropropane	77	4.217	4.217	0.000	90	559928	25.0	27.1	
62 sec-Butyl Alcohol	45	4.295	4.295	0.000	98	2970632	750.0	684.9	
67 Chlorobromomethane	128	4.385	4.385	0.000	97	220480	25.0	27.0	
69 Tetrahydrofuran	42	4.393	4.393	0.000	89	658397	50.0	50.0	
68 Chloroform	83	4.445	4.445	0.000	93	829577	25.0	26.4	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	98	610676	25.0	24.4	
72 Cyclohexane	56	4.644	4.644	0.000	91	648022	25.0	21.8	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	95	616895	25.0	25.3	
74 Carbon tetrachloride	117	4.704	4.704	0.000	96	385742	25.0	23.2	
70 Isobutyl alcohol	41	4.711	4.715	-0.004	96	1067201	625.0	611.9	
77 Benzene	78	4.854	4.854	0.000	96	1992232	25.0	25.8	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	97	698827	25.0	24.4	
14 n-Heptane	43	5.038	5.038	0.000	93	424879	25.0	23.7	
79 Trichloroethene	95	5.341	5.341	0.000	97	487987	25.0	25.0	
80 2-Pentanone	43	5.442	5.442	0.000	99	3075053	100.0	97.4	
82 Methylcyclohexane	55	5.536	5.536	0.000	93	453071	25.0	22.2	
83 1,2-Dichloropropane	63	5.547	5.547	0.000	89	543118	25.0	25.4	
84 1,4-Dioxane	88	5.592	5.596	-0.004	96	290974	500.0	553.5	
85 Dibromomethane	93	5.619	5.622	-0.003	93	301749	25.0	25.2	
86 Dichlorobromomethane	83	5.742	5.746	-0.004	99	507423	25.0	23.4	
87 2-Chloroethyl vinyl ether	63	5.945	5.945	0.000	92	443988	25.0	26.6	
89 cis-1,3-Dichloropropene	75	6.095	6.095	0.000	95	686058	25.0	24.2	
90 4-Methyl-2-pentanone (MIBK	43	6.192	6.192	0.000	97	3432493	100.0	113.5	
91 Toluene	91	6.380	6.380	0.000	98	2019754	25.0	26.1	
93 trans-1,3-Dichloropropene	75	6.556	6.556	0.000	94	572091	25.0	24.1	
92 Ethyl methacrylate	69	6.578	6.578	0.000	89	756518	25.0	25.6	
94 1,1,2-Trichloroethane	97	6.732	6.732	0.000	92	433753	25.0	26.9	
97 Tetrachloroethene	164	6.826	6.826	0.000	93	314274	25.0	24.0	
96 1,3-Dichloropropane	76	6.878	6.878	0.000	96	825957	25.0	25.3	
95 2-Hexanone	43	6.897	6.897	0.000	98	2673362	100.0	98.0	
98 Chlorodibromomethane	129	7.073	7.073	0.000	90	304060	25.0	22.9	
100 Ethylene Dibromide	107	7.189	7.193	-0.004	99	464817	25.0	25.2	
101 1-Chlorohexane	91	7.579	7.579	0.000	99	541315	25.0	24.0	
102 Chlorobenzene	112	7.624	7.624	0.000	93	1232605	25.0	25.2	
104 1,1,1,2-Tetrachloroethane	131	7.695	7.695	0.000	89	327387	25.0	24.0	
103 Ethylbenzene	106	7.699	7.699	0.000	99	677899	25.0	25.9	
105 m-Xylene & p-Xylene	106	7.815	7.815	0.000	0	814449	25.0	24.5	
107 o-Xylene	106	8.179	8.179	0.000	98	796399	25.0	26.7	
106 Styrene	104	8.194	8.194	0.000	95	1376692	25.0	27.3	
108 Bromoform	173	8.378	8.378	0.000	94	164884	25.0	29.3	
109 Isopropylbenzene	105	8.516	8.520	-0.004	96	1996464	25.0	26.1	
111 Cyclohexanone	55	8.614	8.617	-0.003	93	2054703	1000.0	1142.2	
112 1,1,2,2-Tetrachloroethane	83	8.805	8.805	0.000	95	660810	25.0	26.1	
116 Bromobenzene	156	8.839	8.839	0.000	97	474951	25.0	24.9	
113 trans-1,4-Dichloro-2-buten	53	8.842	8.842	0.000	69	202075	25.0	24.4	
114 1,2,3-Trichloropropane	110	8.869	8.869	0.000	85	243290	25.0	26.2	
115 N-Propylbenzene	120	8.917	8.917	0.000	99	523717	25.0	26.1	
118 2-Chlorotoluene	126	9.011	9.015	-0.004	96	472546	25.0	24.3	
117 1,3,5-Trimethylbenzene	105	9.090	9.090	0.000	95	1627690	25.0	26.0	
119 4-Chlorotoluene	126	9.131	9.131	0.000	98	494145	25.0	25.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
120 tert-Butylbenzene	119	9.397	9.397	0.000	93	1277335	25.0	24.3	
121 1,2,4-Trimethylbenzene	105	9.457	9.457	0.000	98	1680329	25.0	26.5	
122 sec-Butylbenzene	134	9.618	9.618	0.000	94	362265	25.0	24.4	
124 1,3-Dichlorobenzene	146	9.746	9.746	0.000	97	874218	25.0	25.7	
123 4-Isopropyltoluene	119	9.765	9.765	0.000	97	1549007	25.0	26.3	
126 1,4-Dichlorobenzene	146	9.843	9.843	0.000	95	900082	25.0	25.1	
127 n-Butylbenzene	91	10.169	10.169	0.000	98	1382369	25.0	24.1	
128 1,2-Dichlorobenzene	146	10.199	10.199	0.000	96	826554	25.0	25.0	
129 1,2-Dibromo-3-Chloropropan	157	10.979	10.979	0.000	77	122294	25.0	21.3	
130 1,2,4-Trichlorobenzene	180	11.800	11.804	-0.004	94	453165	25.0	26.8	
131 Hexachlorobutadiene	225	11.939	11.939	0.000	96	145879	25.0	25.1	
132 Naphthalene	128	12.070	12.070	0.000	97	1861697	25.0	25.5	
133 1,2,3-Trichlorobenzene	180	12.291	12.291	0.000	94	423871	25.0	25.7	
S 140 1,2-Dichloroethene, Total	96				0		50.0	53.1	
S 138 1,2-Dichloroethene, Total	1				0		50.0	53.1	
S 134 Trihalomethanes, Total	1				0		100.0	102.1	
S 137 1,3-Dichloropropene, Total	1				0		50.0	48.3	
S 139 Xylenes, Total	106				0		50.0	51.1	
S 135 Xylenes, Total (URS)	1				0		50.0	51.1	

Reagents:

MV-MegaMain B_00015	Amount Added: 25.00	Units: uL	
MV-Gas B_00037	Amount Added: 25.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent

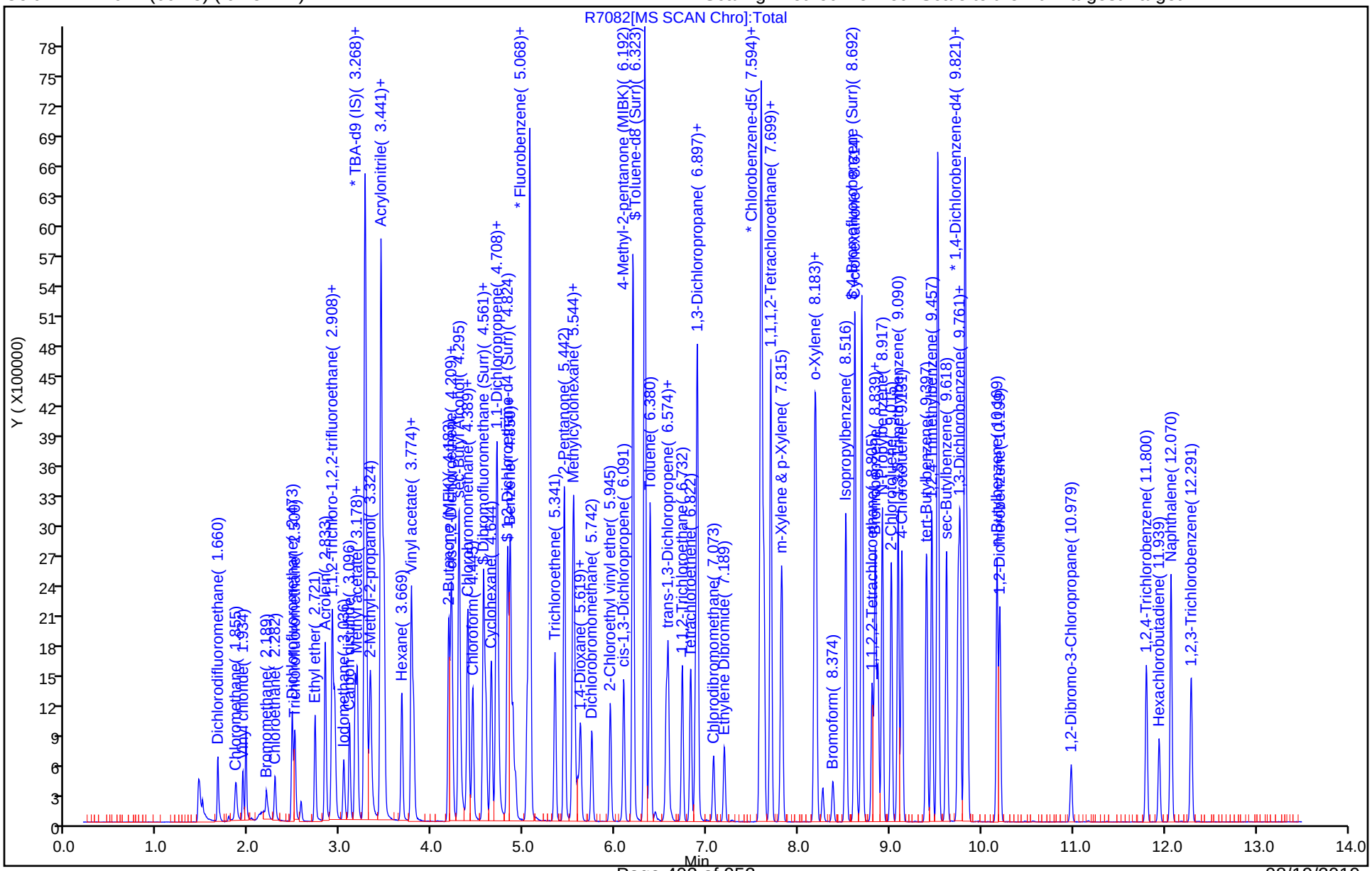
Report Date: 10-Aug-2019 15:46:43 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7082.D

Injection Date:	09-Aug-2019 21:23:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	LCS			Worklist Smp#:	4
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	3
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7082.D
Lims ID: LCS
Client ID:
Sample Type: LCS
Inject. Date: 09-Aug-2019 21:23:30 ALS Bottle#: 3 Worklist Smp#: 4
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: LCS
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:37 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 09-Aug-2019 22:02:23

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 Dibromofluoromethane (Surr)	50.0	51.0	101.97
$ 6 1,2-Dichloroethane-d4 (Surr)	50.0	50.1	100.13
$ 7 Toluene-d8 (Surr)	50.0	49.0	97.95
$ 8 4-Bromofluorobenzene (Surr)	50.0	48.9	97.70

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: LCSD 280-467213/5

Matrix: Water Lab File ID: R7083.D

Analysis Method: 8260B Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 21:45

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
71-55-6	1,1,1-Trichloroethane	22.2		1.0	0.40	0.16
79-34-5	1,1,2,2-Tetrachloroethane	26.2		1.0	0.80	0.21
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	22.6		3.0	0.40	0.18
79-00-5	1,1,2-Trichloroethane	26.2		1.0	0.80	0.27
75-34-3	1,1-Dichloroethane	23.9		1.0	0.80	0.22
75-35-4	1,1-Dichloroethene	23.8		1.0	0.80	0.23
87-61-6	1,2,3-Trichlorobenzene	25.9		1.0	0.80	0.21
120-82-1	1,2,4-Trichlorobenzene	26.2		1.0	0.80	0.21
96-12-8	1,2-Dibromo-3-Chloropropane	21.7		5.0	1.6	0.47
95-50-1	1,2-Dichlorobenzene	24.2		1.0	0.40	0.15
107-06-2	1,2-Dichloroethane	23.4		1.0	0.40	0.13
78-87-5	1,2-Dichloropropane	23.7		1.0	0.40	0.18
541-73-1	1,3-Dichlorobenzene	24.5		1.0	0.40	0.13
106-46-7	1,4-Dichlorobenzene	24.3		1.0	0.40	0.16
78-93-3	2-Butanone (MEK)	107		6.0	4.0	2.0
591-78-6	2-Hexanone	95.7		5.0	4.0	1.7
108-10-1	4-Methyl-2-pentanone (MIBK)	111		5.0	3.2	0.98
67-64-1	Acetone	102		10	6.4	1.9
71-43-2	Benzene	23.5		1.0	0.40	0.16
74-97-5	Bromochloromethane	26.3		1.0	0.20	0.10
75-27-4	Bromodichloromethane	22.1		1.0	0.40	0.17
75-25-2	Bromoform	27.9		1.0	1.0	0.46
74-83-9	Bromomethane	28.6		2.0	0.80	0.21
75-15-0	Carbon disulfide	20.2		2.0	0.80	0.17
56-23-5	Carbon tetrachloride	21.4		2.0	0.40	0.19
108-90-7	Chlorobenzene	23.5		1.0	0.40	0.17
75-00-3	Chloroethane	29.8		2.0	1.6	0.41
67-66-3	Chloroform	24.5		1.0	0.40	0.16
74-87-3	Chloromethane	23.6		2.0	0.80	0.30
156-59-2	cis-1,2-Dichloroethene	24.6		1.0	0.40	0.15
10061-01-5	cis-1,3-Dichloropropene	22.7		1.0	0.40	0.16
110-82-7	Cyclohexane	22.3		2.0	0.80	0.28
124-48-1	Dibromochloromethane	21.7		1.0	0.40	0.17
75-71-8	Dichlorodifluoromethane	25.8		2.0	0.80	0.31
100-41-4	Ethylbenzene	24.2		1.0	0.40	0.16

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: LCSD 280-467213/5

Matrix: Water Lab File ID: R7083.D

Analysis Method: 8260B Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 08/09/2019 21:45

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 (60.25) ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 467213 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
106-93-4	Ethylene Dibromide	24.5		1.0	0.40	0.18
98-82-8	Isopropylbenzene	24.4		1.0	0.40	0.19
79-20-9	Methyl acetate	47.7		5.0	4.0	1.6
1634-04-4	Methyl tert-butyl ether	26.7		5.0	0.80	0.25
108-87-2	Methylcyclohexane	22.2		2.0	0.40	0.10
75-09-2	Methylene Chloride	23.3		5.0	2.0	0.94
100-42-5	Styrene	25.6		1.0	0.80	0.36
127-18-4	Tetrachloroethene	22.0		1.0	0.40	0.20
108-88-3	Toluene	23.9		1.0	0.40	0.17
156-60-5	trans-1,2-Dichloroethene	23.7		1.0	0.40	0.15
10061-02-6	trans-1,3-Dichloropropene	22.6		1.0	0.40	0.19
79-01-6	Trichloroethene	22.7		1.0	0.40	0.16
75-69-4	Trichlorofluoromethane	28.6		2.0	0.80	0.29
75-01-4	Vinyl chloride	22.3		1.5	0.20	0.10
1330-20-7	Xylenes, Total	47.8		1.0	0.80	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	97		81-118
460-00-4	4-Bromofluorobenzene (Surr)	98		85-114
1868-53-7	Dibromofluoromethane (Surr)	101		80-119
2037-26-5	Toluene-d8 (Surr)	97		89-112

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7083.D
Lims ID: LCSD
Client ID:
Sample Type: LCSD
Inject. Date: 09-Aug-2019 21:45:30 ALS Bottle#: 4 Worklist Smp#: 5
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: LCSD
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:37 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 09-Aug-2019 22:50:44

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 150 TBA-d9 (IS)	65	3.264	3.268	-0.004	0	5120662	1000.0	1000.0	
* 1 Fluorobenzene	96	5.068	5.064	0.004	99	5325387	50.0	50.0	
* 2 Chlorobenzene-d5	119	7.594	7.598	-0.004	87	1168254	50.0	50.0	
* 3 1,4-Dichlorobenzene-d4	152	9.821	9.821	0.000	97	1624238	50.0	50.0	
$ 5 Dibromofluoromethane (Surr	111	4.561	4.561	0.000	92	1227397	50.0	50.5	
$ 6 1,2-Dichloroethane-d4 (Sur	65	4.824	4.824	0.000	0	1506815	50.0	48.4	
$ 7 Toluene-d8 (Surr)	98	6.323	6.323	0.000	93	4984260	50.0	48.6	
$ 8 4-Bromofluorobenzene (Surr	95	8.692	8.692	0.000	84	1782901	50.0	49.1	
23 Dichlorodifluoromethane	85	1.660	1.660	0.000	99	538625	25.0	25.8	
26 Chloromethane	50	1.855	1.855	0.000	99	412771	25.0	23.6	
27 Vinyl chloride	62	1.934	1.934	0.000	98	365893	25.0	22.3	
29 Bromomethane	94	2.192	2.192	0.000	91	92793	25.0	28.6	
30 Chloroethane	64	2.282	2.279	0.003	100	324754	25.0	29.8	
31 Dichlorofluoromethane	67	2.473	2.470	0.003	97	871677	25.0	26.6	
32 Trichlorofluoromethane	101	2.503	2.500	0.003	97	702615	25.0	28.6	
35 Ethyl ether	59	2.721	2.721	0.000	92	441490	25.0	25.3	
39 Acrolein	56	2.833	2.833	0.000	99	1245141	246.9	288.9	
40 1,1,2-Trichloro-1,2,2-trif	151	2.908	2.905	0.003	97	249190	25.0	22.6	
43 1,1-Dichloroethene	96	2.912	2.908	0.004	97	367500	25.0	23.8	
41 Acetone	43	2.935	2.935	0.000	100	1200958	100.0	101.8	
44 Iodomethane	142	3.036	3.036	0.000	99	552638	25.0	23.3	
48 Carbon disulfide	76	3.099	3.096	0.003	99	985733	25.0	20.2	
45 Methyl acetate	43	3.159	3.159	0.000	98	1366941	50.0	47.7	
47 3-Chloro-1-propene	41	3.182	3.182	0.000	91	693150	25.0	25.6	
50 Methylene Chloride	84	3.276	3.276	0.000	94	472279	25.0	23.3	
49 2-Methyl-2-propanol	59	3.324	3.328	-0.004	94	1158609	250.0	277.7	
52 Acrylonitrile	53	3.441	3.441	0.000	99	3449601	250.0	260.7	
51 Methyl tert-butyl ether	73	3.463	3.463	0.000	96	1395574	25.0	26.7	
53 trans-1,2-Dichloroethene	96	3.478	3.474	0.004	97	425457	25.0	23.7	
54 Hexane	57	3.669	3.669	0.000	94	527169	25.0	22.4	
55 Vinyl acetate	43	3.774	3.770	0.004	97	2563028	50.0	53.8	
57 1,1-Dichloroethane	63	3.797	3.797	0.000	96	829542	25.0	23.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
61 2-Butanone (MEK)	43	4.179	4.179	0.000	100	2043207	100.0	106.5	
63 cis-1,2-Dichloroethene	96	4.209	4.205	0.004	83	500856	25.0	24.6	
64 2,2-Dichloropropane	77	4.220	4.217	0.003	91	523573	25.0	24.6	
62 sec-Butyl Alcohol	45	4.292	4.295	-0.003	98	3175049	750.0	746.6	
67 Chlorobromomethane	128	4.385	4.385	0.000	98	222928	25.0	26.3	
69 Tetrahydrofuran	42	4.393	4.393	0.000	89	664961	50.0	48.8	
68 Chloroform	83	4.445	4.445	0.000	93	797302	25.0	24.5	
71 1,1,1-Trichloroethane	97	4.588	4.588	0.000	98	575602	25.0	22.2	
72 Cyclohexane	56	4.644	4.644	0.000	91	686394	25.0	22.3	
73 1,1-Dichloropropene	75	4.700	4.700	0.000	97	600388	25.0	23.8	
74 Carbon tetrachloride	117	4.704	4.704	0.000	95	367454	25.0	21.4	
70 Isobutyl alcohol	41	4.715	4.715	0.000	96	1035290	625.0	606.6	
77 Benzene	78	4.854	4.854	0.000	96	1881294	25.0	23.5	
76 1,2-Dichloroethane	62	4.884	4.884	0.000	98	693415	25.0	23.4	
14 n-Heptane	43	5.034	5.038	-0.004	95	447583	25.0	24.1	
79 Trichloroethene	95	5.341	5.341	0.000	98	458951	25.0	22.7	
80 2-Pentanone	43	5.442	5.442	0.000	99	3112424	100.0	95.1	
82 Methylcyclohexane	55	5.536	5.536	0.000	93	468525	25.0	22.2	
83 1,2-Dichloropropane	63	5.547	5.547	0.000	88	526411	25.0	23.7	
84 1,4-Dioxane	88	5.596	5.596	0.000	94	300640	500.0	551.7	
85 Dibromomethane	93	5.619	5.622	-0.003	93	301452	25.0	24.3	
86 Dichlorobromomethane	83	5.742	5.746	-0.004	99	494137	25.0	22.1	
87 2-Chloroethyl vinyl ether	63	5.948	5.945	0.003	91	443951	25.0	25.7	
89 cis-1,3-Dichloropropene	75	6.091	6.095	-0.004	95	661753	25.0	22.7	
90 4-Methyl-2-pentanone (MIBK	43	6.192	6.192	0.000	97	3483963	100.0	111.1	
91 Toluene	91	6.380	6.380	0.000	98	1917889	25.0	23.9	
93 trans-1,3-Dichloropropene	75	6.559	6.556	0.003	96	556055	25.0	22.6	
92 Ethyl methacrylate	69	6.578	6.578	0.000	90	757082	25.0	24.8	
94 1,1,2-Trichloroethane	97	6.732	6.732	0.000	91	437669	25.0	26.2	
97 Tetrachloroethene	164	6.822	6.826	-0.004	95	297585	25.0	22.0	
96 1,3-Dichloropropane	76	6.878	6.878	0.000	97	811588	25.0	24.0	
95 2-Hexanone	43	6.897	6.897	0.000	97	2703150	100.0	95.7	
98 Chlorodibromomethane	129	7.073	7.073	0.000	90	296855	25.0	21.7	
100 Ethylene Dibromide	107	7.193	7.193	0.000	100	467121	25.0	24.5	
101 1-Chlorohexane	91	7.579	7.579	0.000	98	518161	25.0	22.3	
102 Chlorobenzene	112	7.620	7.624	-0.004	93	1191487	25.0	23.5	
104 1,1,1,2-Tetrachloroethane	131	7.695	7.695	0.000	90	315527	25.0	22.4	
103 Ethylbenzene	106	7.703	7.699	0.004	98	656128	25.0	24.2	
105 m-Xylene & p-Xylene	106	7.815	7.815	0.000	0	782043	25.0	22.7	
107 o-Xylene	106	8.179	8.179	0.000	97	774585	25.0	25.1	
106 Styrene	104	8.194	8.194	0.000	95	1338225	25.0	25.6	
108 Bromoform	173	8.378	8.378	0.000	94	159330	25.0	27.9	
109 Isopropylbenzene	105	8.516	8.520	-0.004	96	1897288	25.0	24.4	
111 Cyclohexanone	55	8.617	8.617	0.000	93	2105553	1000.0	1132.0	
112 1,1,2,2-Tetrachloroethane	83	8.805	8.805	0.000	95	672606	25.0	26.2	
116 Bromobenzene	156	8.839	8.839	0.000	97	466497	25.0	24.1	
113 trans-1,4-Dichloro-2-buten	53	8.842	8.842	0.000	69	203583	25.0	24.1	
114 1,2,3-Trichloropropane	110	8.869	8.869	0.000	85	237254	25.0	25.1	
115 N-Propylbenzene	120	8.917	8.917	0.000	99	492167	25.0	24.1	
118 2-Chlorotoluene	126	9.015	9.015	0.000	95	450383	25.0	22.8	
117 1,3,5-Trimethylbenzene	105	9.090	9.090	0.000	95	1559078	25.0	24.5	
119 4-Chlorotoluene	126	9.131	9.131	0.000	98	480257	25.0	24.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
120 tert-Butylbenzene	119	9.397	9.397	0.000	93	1229459	25.0	23.0	
121 1,2,4-Trimethylbenzene	105	9.457	9.457	0.000	98	1609972	25.0	25.0	
122 sec-Butylbenzene	134	9.618	9.618	0.000	94	344607	25.0	22.9	
124 1,3-Dichlorobenzene	146	9.746	9.746	0.000	97	849032	25.0	24.5	
123 4-Isopropyltoluene	119	9.765	9.765	0.000	97	1499610	25.0	25.0	
126 1,4-Dichlorobenzene	146	9.843	9.843	0.000	95	887228	25.0	24.3	
127 n-Butylbenzene	91	10.169	10.169	0.000	98	1340437	25.0	23.0	
128 1,2-Dichlorobenzene	146	10.199	10.199	0.000	96	815807	25.0	24.2	
129 1,2-Dibromo-3-Chloropropan	157	10.979	10.979	0.000	78	127355	25.0	21.7	
130 1,2,4-Trichlorobenzene	180	11.800	11.804	-0.004	94	449653	25.0	26.2	
131 Hexachlorobutadiene	225	11.943	11.939	0.003	96	145379	25.0	24.6	
132 Naphthalene	128	12.070	12.070	0.000	97	1913657	25.0	25.8	
133 1,2,3-Trichlorobenzene	180	12.287	12.291	-0.004	94	433252	25.0	25.9	
S 140 1,2-Dichloroethene, Total	96				0		50.0	48.3	
S 138 1,2-Dichloroethene, Total	1				0		50.0	48.3	
S 134 Trihalomethanes, Total	1				0		100.0	96.1	
S 137 1,3-Dichloropropene, Total	1				0		50.0	45.3	
S 139 Xylenes, Total	106				0		50.0	47.8	
S 135 Xylenes, Total (URS)	1				0		50.0	47.8	

Reagents:

MV-MegaMain B_00015	Amount Added: 25.00	Units: uL	
MV-Gas B_00037	Amount Added: 25.00	Units: uL	
mv-Cent IS/SS_00005	Amount Added: 5.00	Units: uL	Run Reagent

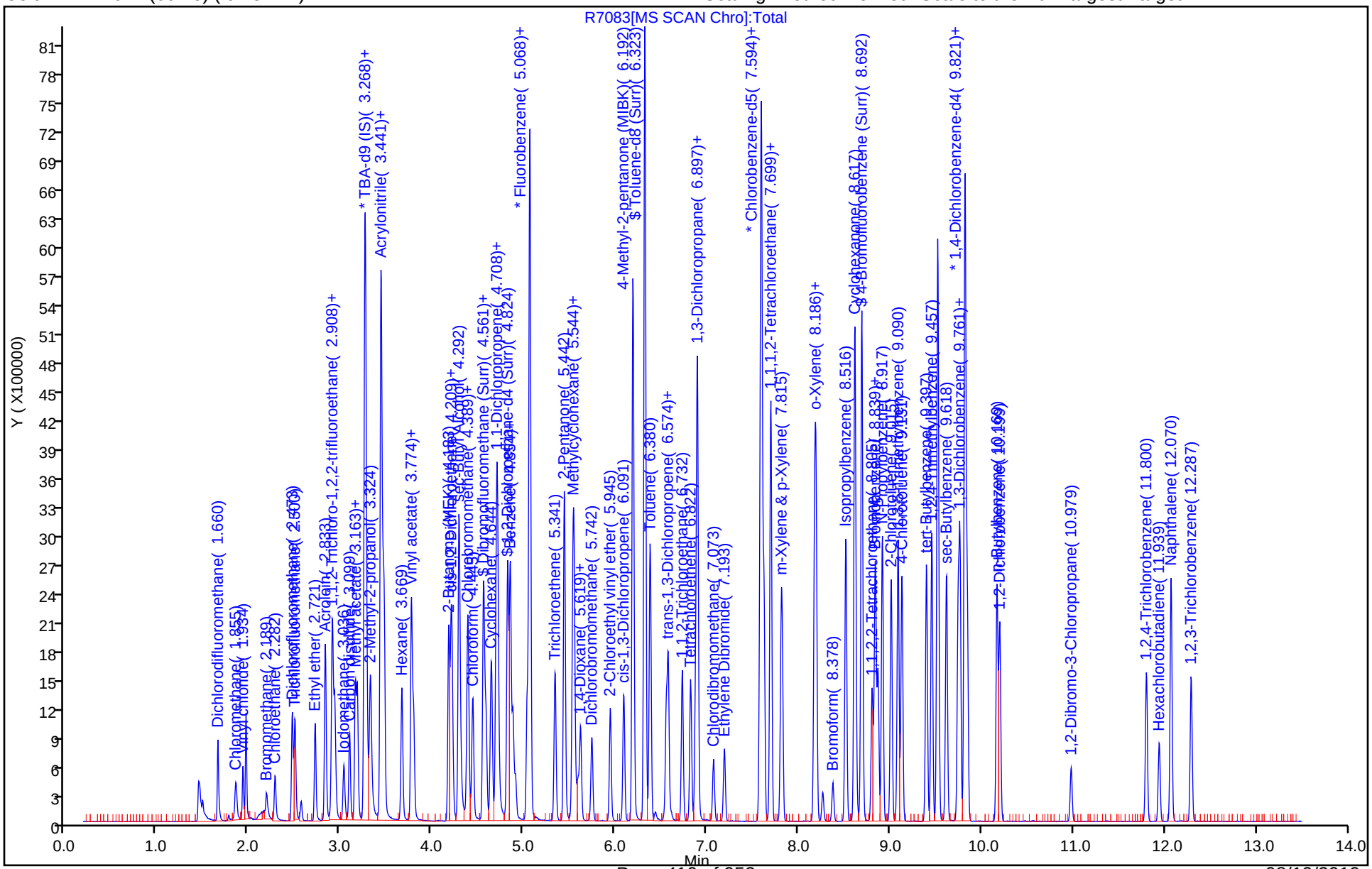
Report Date: 10-Aug-2019 15:46:50 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7083.D

Injection Date:	09-Aug-2019 21:45:30	Instrument ID:	VMS_R1	Operator ID:	ZHANGJ
Lims ID:	LCSD			Worklist Smp#:	5
Client ID:					
Purge Vol:	5.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	4
Method:	AQ_VMSR1_8260	Limit Group:	MSV - 8260B Water and Solid		

Column: DB-624 (60.25) (0.25 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\R7083.D
Lims ID: LCSD
Client ID:
Sample Type: LCSD
Inject. Date: 09-Aug-2019 21:45:30 ALS Bottle#: 4 Worklist Smp#: 5
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: LCSD
Operator ID: ZHANGJ Instrument ID: VMS_R1

Method: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b\AQ_VMSR1_8260.m
Limit Group: MSV - 8260B Water and Solid
Last Update: 10-Aug-2019 15:46:37 Calib Date: 06-Aug-2019 11:27:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\VMS_R1\20190806-84245.b\R6896.D

Column 1 : DB-624 (60.25) (0.25 mm) Det: MS SCAN
Process Host: CTX0325

First Level Reviewer: zhangji Date: 09-Aug-2019 22:50:44

Compound	Amount Added	Amount Recovered	% Rec.
$ 5 Dibromofluoromethane (Surr)	50.0	50.5	101.02
$ 6 1,2-Dichloroethane-d4 (Surr)	50.0	48.4	96.83
$ 7 Toluene-d8 (Surr)	50.0	48.6	97.23
$ 8 4-Bromofluorobenzene (Surr)	50.0	49.1	98.28

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: VMS_R1 Start Date: 08/03/2019 16:12

Analysis Batch Number: 466573 End Date: 08/03/2019 20:11

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 280-466573/1		08/03/2019 16:12	1	R6840.D	DB-624 (60.25) 0.25(mm)
STD 280-466573/12 IC		08/03/2019 16:56	1	R6841.D	DB-624 (60.25) 0.25(mm)
STD 280-466573/13 IC		08/03/2019 17:17	1	R6842.D	DB-624 (60.25) 0.25(mm)
STD 280-466573/14 IC		08/03/2019 17:39	1	R6843.D	DB-624 (60.25) 0.25(mm)
STD 280-466573/15 IC		08/03/2019 18:01	1	R6844.D	DB-624 (60.25) 0.25(mm)
ICIS 280-466573/16		08/03/2019 18:22	1	R6845.D	DB-624 (60.25) 0.25(mm)
STD 280-466573/17 IC		08/03/2019 18:44	1	R6846.D	DB-624 (60.25) 0.25(mm)
STD 280-466573/18 IC		08/03/2019 19:06	1	R6847.D	DB-624 (60.25) 0.25(mm)
STD 280-466573/19 IC		08/03/2019 19:27	1	R6848.D	DB-624 (60.25) 0.25(mm)
ICV 280-466573/20		08/03/2019 20:11	1	R6850.D	DB-624 (60.25) 0.25(mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: VMS_R1 Start Date: 08/06/2019 08:09

Analysis Batch Number: 466748 End Date: 08/06/2019 18:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 280-466748/1		08/06/2019 08:09	1		DB-624 (60.25) 0.25(mm)
CCV 280-466748/2		08/06/2019 08:33	1		DB-624 (60.25) 0.25(mm)
STD50 280-466748/16 IC		08/06/2019 08:54	1		DB-624 (60.25) 0.25(mm)
STD005 280-466748/12 IC		08/06/2019 09:16	1		DB-624 (60.25) 0.25(mm)
STD01 280-466748/13 IC		08/06/2019 09:38	1		DB-624 (60.25) 0.25(mm)
STD02 280-466748/14 IC		08/06/2019 10:00	1		DB-624 (60.25) 0.25(mm)
STD10 280-466748/15 IC		08/06/2019 10:21	1		DB-624 (60.25) 0.25(mm)
STD75 280-466748/17 IC		08/06/2019 10:43	1		DB-624 (60.25) 0.25(mm)
STD100 280-466748/18 IC		08/06/2019 11:05	1		DB-624 (60.25) 0.25(mm)
STD200 280-466748/19 IC		08/06/2019 11:27	1		DB-624 (60.25) 0.25(mm)
ICV 280-466748/20		08/06/2019 12:11	1	R6898.D	DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 12:32	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 12:54	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 13:37	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 13:59	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 14:21	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 14:43	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 15:04	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 15:26	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 15:48	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 16:10	200		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 16:33	10		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 16:54	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 17:16	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 17:38	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 17:59	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 18:22	10		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/06/2019 18:44	20		DB-624 (60.25) 0.25(mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: VMS_R1 Start Date: 08/09/2019 20:13

Analysis Batch Number: 467213 End Date: 08/10/2019 06:54

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 280-467213/1		08/09/2019 20:13	1	R7079.D	DB-624 (60.25) 0.25(mm)
CCV 280-467213/2		08/09/2019 20:40	1	R7080.D	DB-624 (60.25) 0.25(mm)
CCV 280-467213/3		08/09/2019 21:01	1	R7081.D	DB-624 (60.25) 0.25(mm)
LCS 280-467213/4		08/09/2019 21:23	1	R7082.D	DB-624 (60.25) 0.25(mm)
LCSD 280-467213/5		08/09/2019 21:45	1	R7083.D	DB-624 (60.25) 0.25(mm)
MB 280-467213/8		08/09/2019 22:28	1	R7085.D	DB-624 (60.25) 0.25(mm)
ZZZZZ		08/09/2019 22:50	1		DB-624 (60.25) 0.25(mm)
280-126873-1		08/09/2019 23:12	1	R7087.D	DB-624 (60.25) 0.25(mm)
280-126873-2		08/09/2019 23:33	1	R7088.D	DB-624 (60.25) 0.25(mm)
280-126873-4		08/09/2019 23:55	1	R7089.D	DB-624 (60.25) 0.25(mm)
280-126873-5		08/10/2019 00:17	1	R7090.D	DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 00:39	5		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 01:01	4		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 01:23	4		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 01:44	4		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 02:06	4		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 02:29	10		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 02:51	4		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 03:14	40		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 03:36	100		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 03:59	400		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 04:21	50		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 04:43	50		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 05:05	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 05:26	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 05:48	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 06:10	1		DB-624 (60.25) 0.25(mm)
ZZZZZ		08/10/2019 06:32	1		DB-624 (60.25) 0.25(mm)
CCVC 280-467213/34		08/10/2019 06:54	1	R7108.D	DB-624 (60.25) 0.25(mm)

Sequence Name: C:¥msdchem¥1¥sequence¥080919pm.s
Comment:
Operator: ZHANGJ
Data Path: C:¥MSDCHEM¥1¥DATA¥080919pm¥
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Test America Denver
Instrument: 2 1
DV-MS-0010 (8260B/624) (Circle)
Purge Volume: (20mL/5mL/5g) (Circle)
Tune Time: 20:13 — 06:54
Lims Batch: 467213

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
( ) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
(X) Barcode Disabled

Line					
1)	Sample	100	R7078	BFB	BFB
2)	Sample	100	R7079	BFB	BFB
3)	Sample	1	R7080	8260	CCV
4)	Sample	2	R7081	8260	CCV
5)	Sample	3	R7082	8260	LCS
6)	Sample	4	R7083	8260	LCSD
7)	Sample	5	R7084	8260	RINSE
8)	Sample	6	R7085	8260	MB
9)	Sample	7	R7086	8260	280-126758-A-16 pH<2
10)	Sample	8	R7087	8260	280-126873-D-1 HS pH=7!
11)	Sample	9	R7088	8260	280-126873-E-2 pH<2
12)	Sample	10	R7089	8260	280-126873-D-4 HS pH<2
13)	Sample	11	R7090	8260	280-126873-A-5 pH<2
14)	Sample	12	R7091	8260	280-126879-B-1 5x pH<2
15)	Sample	13	R7092	8260	280-126879-B-2 4x pH<2
16)	Sample	14	R7093	8260	280-126879-A-2 MS 4x pH<2
17)	Sample	15	R7094	8260	280-126879-A-2 MSD 4x pH<2
18)	Sample	16	R7095	8260	280-126879-B-6 4x pH<2
19)	Sample	17	R7096	8260	280-126879-B-7 10x pH<2
20)	Sample	18	R7097	8260	280-126879-C-11 4x pH<2
21)	Sample	19	R7098	8260	280-126879-B-15 40x pH<2
22)	Sample	20	R7099	8260	280-126879-B-19 100x pH<2
23)	Sample	21	R7100	8260	280-126879-B-20 400x pH<2
24)	Sample	22	R7101	8260	280-126879-B-21 50x pH<2
25)	Sample	23	R7102	8260	280-126879-B-25 50x pH<2
26)	Sample	24	R7103	8260	280-126927-B-1 pH<2
27)	Sample	25	R7104	8260	280-126927-B-1 MS pH<2
28)	Sample	26	R7105	8260	280-126927-B-1 MSD pH<2
29)	Sample	27	R7106	8260	280-126927-A-2 pH<2
30)	Sample	28	R7107	8260	280-126927-B-3 pH<2
31)	Sample	29	R7108	8260	CCVC

Last Modified: Sat Aug 10 11:23:47 2019 Page: 1

Preliminary Report

TestAmerica Laboratories
Qc Batch Report

Data Path: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b

Worklist Name:	080919pm	Worklist Num:	84350
Instrument:	VMS_R1	Method:	AQ_VMSR1_8260
Analysis Type:	VOA	Creator:	Zhang, Jian
Inj Volume:	5	Inj Vol Units:	mL

QC Batching: Disabled Limit Group Batching: Disabled

QC Batch: 1	MSV - 8260B Water and Solid Raw Batch: 467213
# 1 BFB	# 1 BFB
# 2 CCV	# 2 CCV
# 3 CCV	# 3 CCV
# 4 LCS	# 4 LCS
# 5 LCSD	# 5 LCSD
# 6 LCS	# 6 LCS
# 7 LCSD	# 7 LCSD
# 8 MB	# 8 MB
# 9 280-121232-A-1	# 9 280-121232-A-1
# 10 280-121232-A-2	# 10 280-121232-A-2
# 11 280-121232-A-3	# 11 280-121232-A-3
# 12 280-126758-A-16	# 12 280-126758-A-16
# 13 280-126873-D-1	# 13 280-126873-D-1
# 14 280-126873-E-2	# 14 280-126873-E-2
# 15 280-126873-D-4	# 15 280-126873-D-4
# 16 280-126873-A-5	# 16 280-126873-A-5
# 17 280-126879-B-1	# 17 280-126879-B-1
# 18 280-126879-B-2	# 18 280-126879-B-2
# 19 280-126879-A-2 MS	# 19 280-126879-A-2 MS
# 20 280-126879-A-2 MSD	# 20 280-126879-A-2 MSD
# 21 280-126879-B-6	# 21 280-126879-B-6
# 22 280-126879-B-7	# 22 280-126879-B-7
# 23 280-126879-C-11	# 23 280-126879-C-11
# 24 280-126879-B-15	# 24 280-126879-B-15
# 25 280-126879-B-19	# 25 280-126879-B-19
# 26 280-126879-B-20	# 26 280-126879-B-20
# 27 280-126879-B-21	# 27 280-126879-B-21
# 28 280-126879-B-25	# 28 280-126879-B-25
# 29 280-126927-B-1	# 29 280-126927-B-1
# 30 280-126927-B-1 MS	# 30 280-126927-B-1 MS
# 31 280-126927-B-1 MSD	# 31 280-126927-B-1 MSD
# 32 280-126927-A-2	# 32 280-126927-A-2
# 33 280-126927-B-3	# 33 280-126927-B-3
# 34 CCVC	# 34 CCVC

TestAmerica Laboratories
Worklist Report

Worklist Name: 080919pm
Worklist Number: 84350
Instrument Name: VMS_R1
Chrom Method: AQ_VMSR1_8260
Purge Volume: 5.000
Units: mL
Analysis Type: VOA
Batch Directory: \\chromna\Denver\ChromData\VMS_R1\20190809-84350.b
Upload Directory: \\CorpTALSAPP16\280-DN-RawData\Organics\MS\VMS_R1
Run Reagent: mv-Cent IS/SS_00005
Amount Added: 5.000, Units: uL
Batch #s: 467213

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
280-0084350-001	# 1 BFB	MV-BFB_00029	BFB	voaWater	2.000	uL	1.000
280-0084350-002	# 2 CCV	MV-MegaMainA_00018 MV-Gas A_00033	CCV	voaWater	5.000	mL	1.000
280-0084350-003	# 3 CCV	MV-Supp A_00037 mv-Cent IS_00003	CCV	voaWater	5.000	mL	1.000
280-0084350-004	# 4 LCS	MV-MegaMain B_00015 MV-Gas B_00035	LCS	voaWater	5.000	mL	1.000
280-0084350-005	# 5 LCSD	MV-MegaMain B_00015 MV-Gas B_00035	LCSD	voaWater	5.000	mL	1.000
280-0084350-006	# 6 LCS	MV-Supp B_00025	LCS	voaWater	5.000	mL	1.000
280-0084350-007	# 7 LCSD	MV-Supp B_00025	LCSD	voaWater	5.000	mL	1.000
280-0084350-008	# 8 MB		MB	voaWater	5.000	mL	1.000
280-0084350-009	# 9 280-121232-A-1		Client	voaWater	5.000	mL	1.000
280-0084350-010	#10 280-121232-A-2		Client	voaWater	5.000	mL	1.000
280-0084350-011	#11 280-121232-A-3		Client	voaWater	5.000	mL	1.000
280-0084350-012	#12 280-126758-A-16		Client	voaWater	5.000	mL	1.000
280-0084350-013	#13 280-126873-D-1		Client	voaWater	5.000	mL	1.000

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
280-0084350-014	#14 280-126873-E-2		Client	voaWater	5.000	mL	1.000
280-0084350-015	#15 280-126873-D-4		Client	voaWater	5.000	mL	1.000
280-0084350-016	#16 280-126873-A-5		Client	voaWater	5.000	mL	1.000
280-0084350-017	#17 280-126879-B-1		Client	voaWater	5.000	mL	5.000
280-0084350-018	#18 280-126879-B-2		Client	voaWater	5.000	mL	4.000
280-0084350-019	#19 280-126879-A-2 MS	MV-MegaMain B_00015 MV-Gas B_00035	MS	voaWater	5.000	mL	4.000
280-0084350-020	#20 280-126879-A-2 MSD	MV-Gas B_00035 MV-MegaMain B_00015	MSD	voaWater	5.000	mL	4.000
280-0084350-021	#21 280-126879-B-6		Client	voaWater	5.000	mL	4.000
280-0084350-022	#22 280-126879-B-7		Client	voaWater	5.000	mL	10.00
280-0084350-023	#23 280-126879-C-11		Client	voaWater	5.000	mL	4.000
280-0084350-024	#24 280-126879-B-15		Client	voaWater	5.000	mL	40.00
280-0084350-025	#25 280-126879-B-19		Client	voaWater	5.000	mL	100.0
280-0084350-026	#26 280-126879-B-20		Client	voaWater	5.000	mL	400.0
280-0084350-027	#27 280-126879-B-21		Client	voaWater	5.000	mL	50.00
280-0084350-028	#28 280-126879-B-25		Client	voaWater	5.000	mL	50.00
280-0084350-029	#29 280-126927-B-1		Client	voaWater	5.000	mL	1.000
280-0084350-030	#30 280-126927-B-1 MS	MV-Gas B_00035 MV-MegaMain B_00015	MS	voaWater	5.000	mL	1.000
280-0084350-031	#31 280-126927-B-1 MSD	MV-Gas B_00035 MV-MegaMain B_00015	MSD	voaWater	5.000	mL	1.000

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
280-0084350-032	#32 280-126927-A-2		Client	voaWater	5.000	mL	1.000
280-0084350-033	#33 280-126927-B-3		Client	voaWater	5.000	mL	1.000
280-0084350-034	#34 CCVC	MV-MegaMainA_00018 MV-Gas A_00033	CCVC	voaWater	5.000	mL	1.000

Sample Request Form: 57730

den_msvoa_totalbacklog 8/9/2019 10:03:55 PM Assigned to:Zhang, Jian

Sample	Client Sample ID	Container	Method	Analytical Method	Hold Time	Due	PM	State Code	Storage	Hazard Level
280-126758-16	DDMW05		8260B_DOD5	8260B_DOD5	08/13 23:59	08/16/19	DRR	CO	VS-5	Unconfirmed
M Q5.1/DIL3										
280-126873-1 HS	SP-S2		8260B_DOD5	8260B_DOD5	08/14 23:59	08/17/19	PJM	NE	VS-6 & 201	Unconfirmed
M Q5Rev3.1-12212015_Std Var App_60day disposal_DIL3										
280-126873-2	SP-E1		8260B_DOD5	8260B_DOD5	08/14 23:59	08/17/19	PJM	NE	VS-6 & 201 & Mtls-Strge	Unconfirmed
M Q5Rev3.1-12212015_Std Var App_60day disposal_DIL3										
280-126873-4 HS	SP-S22		8260B_DOD5	8260B_DOD5	08/14 23:59	08/17/19	PJM	NE	201 & VS-6	Unconfirmed
M Q5Rev3.1-12212015_Std Var App_60day disposal_DIL3										
280-126873-5	TB-1062		8260B_DOD5	8260B_DOD5	08/14 23:59	08/17/19	PJM	NE	VS-6	Unconfirmed
M Q5Rev3.1-12212015_Std Var App_60day disposal_DIL3										
280-126879-1	19-GW1288	5x	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-2	19-GW1290	4x	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-2MS	19-GW1290	4x	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-2MSD	19-GW1290	4x	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-6	19-GW1294	4x	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										

Sample Request Form: 57730

den_msvoa_totalbacklog 8/9/2019 10:03:55 PM Assigned to:Zhang, Jian

Sample	Client Sample ID	Container	Method	Analytical Method	Hold Time	Due	PM	State Code	Storage	Hazard Level
280-126879-7	19-GW1295	10X	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-11	19-GW1299	4X	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-15	19-GW1303	40X	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-19	19-GW1310	100X	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-20	19-GW1311	400X	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-21	19-GW1360	50X	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126879-25	19-GW1419	50X	8260B_DOD5	8260B_DOD5	08/14 23:59	08/18/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126927-1	19-GW1215		8260B_DOD5	8260B_DOD5	08/15 23:59	08/22/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126927-1MS	19-GW1215		8260B_DOD5	8260B_DOD5	08/15 23:59	08/22/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										
280-126927-1MSD	19-GW1215		8260B_DOD5	8260B_DOD5	08/15 23:59	08/22/19	PJM	OH	VS-6	Level 1 radioactive
M Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.										

Sample Request Form: 57730

den_msvoa_totalbacklog 8/9/2019 10:03:55 PM Assigned to:Zhang, Jian

Sample	Client Sample ID	Container	Method	Analytical Method	Hold Time	Due	PM	State Code	Storage	Hazard Level
280-126927-2	19-GW1216		8260B_DOD5	8260B_DOD5	08/15 23:59	08/22/19	PJM	OH	VS-6	Level 1 radioactive
M	Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.									
280-126927-3	19-GW1551		8260B_DOD5	8260B_DOD5	08/15 23:59	08/22/19	PJM	OH	VS-6	Level 1 radioactive
M	Q5.1_SeeFluorB&W QAS_LCSD_DIL3_RunBatchQC on Smpl from this job for ALL analytical batches.									

Sequence Name: C:¥msdchem¥1¥sequence¥080319.s
Comment:
Operator: ZHANGJ
Data Path: C:¥MSDCHEM¥1¥DATA¥080319¥
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Main / GAS / SS

Test America Denver
Instrument: 5
DV-MS-0010 (8260B/624) (Circle)
Purge Volume: (20mL/5mL/5g)

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
( ) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
(X) Barcode Disabled

(Circle)
Tune Time: 16:12 - 20:11
Lims Batch: 466573

WL 84210

Line						
1)	Sample	100	R6840	BFB	BFB	16:12
2)	Sample	1	R6841	8260	STD 005	
3)	Sample	2	R6842	8260	STD 010	
4)	Sample	3	R6843	8260	STD 020	
5)	Sample	4	R6844	8260	STD 10	
6)	Sample	5	R6845	8260	STD 50	
7)	Sample	6	R6846	8260	STD 75	
8)	Sample	7	R6847	8260	STD 100	
9)	Sample	8	R6848	8260	STD 200	
10)	Sample	9	R6849	8260	RINSE	
11)	Sample	10	R6850	8260	ICV	20:11
12)	Sample	11	R6851	8260	primer	

Calib: 37619
ICIS: 16 ICV: 20

BromoForm Quad fit

1st QC 8/5/19

TestAmerica Laboratories
Worklist Report

Worklist Name: 080319i Worklist Number: 84210
Instrument Name: VMS_R1 Chrom Method: AQ_VMSR1_8260
Purge Volume: 5.000 Units: mL
Analysis Type: VOA
Batch Directory: \\chromna\Denver\ChromData\VMS_R1\20190803-84210.b
Upload Directory: \\CorpTALSAPP16\280-DN-RawData\Organics\MS\VMS_R1
Run Reagent: mv-Cent IS/SS_00005 Amount Added: 5.000, Units: uL
Batch #s: 466573

Worklist ID	Lims ID	Sample Reagents	Smp Type	Cal Lvl	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
280-0084210-001	# 1 BFB	MV-BFB_00028	BFB		voaWater	2.000	uL	1.000
280-0084210-002	# 2 CCV	MV-MegaMainA_00018 MV-Gas A_00033	CCV		voaWater	5.000	mL	1.000
280-0084210-003	# 3 CCV	MV-Supp A_00037 mv-Cent IS_00003	CCV		voaWater	5.000	mL	1.000
280-0084210-004	# 4 LCS	MV-MegaMain B_00015 MV-Gas B_00035	LCS		voaWater	5.000	mL	1.000
280-0084210-005	# 5 LCSD	MV-MegaMain B_00015 MV-Gas B_00035	LCSD		voaWater	5.000	mL	1.000
280-0084210-006	# 6 LCS	MV-Supp A_00037	LCS		voaWater	5.000	mL	1.000
280-0084210-007	# 7 LCSD	MV-Supp A_00037	LCSD		voaWater	5.000	mL	1.000
280-0084210-008	# 8 MB		MB		voaWater	5.000	mL	1.000
280-0084210-009	# 9 280-121232-A-1		Client		voaWater	5.000	mL	1.000
280-0084210-010	#10 280-121232-A-2		Client		voaWater	5.000	mL	1.000
280-0084210-011	#11 280-121232-A-3		Client		voaWater	5.000	mL	1.000
280-0084210-012	#12 STD	MV-MegaMain B_00015 MV-Gas B_00035	IC	1	voaWater	5.000	mL	1.000
280-0084210-013	#13 STD	MV-Gas B_00035 MV-MegaMain B_00015	IC	2	voaWater	5.000	mL	1.000

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08/19/2019

Worklist ID	Lims ID	Sample Reagents	Smp Type	Cal Lvl	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
280-0084210-014	#14 STD	MV-Gas B_00035 MV-MegaMain B_00015	IC	3	voaWater	5.000	mL	1.000
280-0084210-015	#15 STD	MV-Gas B_00035 MV-MegaMain B_00015	IC	4	voaWater	5.000	mL	1.000
280-0084210-016	#16 ICIS	MV-Gas B_00035 MV-MegaMain B_00015	ICIS	5	voaWater	5.000	mL	1.000
280-0084210-017	#17 STD	MV-Gas B_00035 MV-MegaMain B_00015	IC	6	voaWater	5.000	mL	1.000
280-0084210-018	#18 STD	MV-Gas B_00035 MV-MegaMain B_00015	IC	7	voaWater	5.000	mL	1.000
280-0084210-019	#19 STD	MV-Gas B_00035 MV-MegaMain B_00015	IC	8	voaWater	5.000	mL	1.000
280-0084210-020	#20 ICV	MV-MegaMainA_00018 MV-Gas A_00033	ICV		voaWater	5.000	mL	1.000

Sequence Name: C:¥msdchem¥1¥sequence¥080619.s
Comment:
Operator: SEIFERTJ
Data Path: C:¥MSDCHEM¥1¥DATA¥080619¥
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Test America Denver
Instrument: R1
DV-MS-0010 (624/8260B/624) (Circle)
Purge Volume: (20mL/5mL/5g) (Circle)
Tune Time: 8:09 – 18:44
Lims Batch: 466748

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
( ) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
(X) Barcode Disabled

Line					
1)	Sample	100	R6887	BFB	BFB
2)	Sample	1	R6888	8260	CCV
3)	Sample	2	R6889	8260	CCV
4)	Sample	3	R6890	8260	STD005
5)	Sample	4	R6891	8260	STD01
6)	Sample	5	R6892	8260	STD02
7)	Sample	6	R6893	8260	STD10
8)	Sample	7	R6894	8260	STD75
9)	Sample	8	R6895	8260	STD100
10)	Sample	9	R6896	8260	STD200
11)	Sample	10	R6897	8260	BLK
12)	Sample	11	R6898	8260	ICV
13)	Sample	12	R6899	8260	LCS
14)	Sample	13	R6900	8260	LCSD
15)	Sample	14	R6901	8260	RINSE
16)	Sample	15	R6902	8260	MB
17)	Sample	16	R6903	8260	LCS S
18)	Sample	17	R6904	8260	LCSD S
19)	Sample	18	R6905	8260	280-126636-c-11 pH=11!
20)	Sample	19	R6906	8260	280-126636-b-12 PH<2
21)	Sample	20	R6907	8260	280-126636-f-13 pH<2
22)	Sample	21	R6908	8260	280-126636-c-14 pH<2
23)	Sample	22	R6909	8260	280-126636-a-15 200X pH<2
24)	Sample	23	R6910	8260	280-126636-b-16 10X pH=10!
25)	Sample	24	R6911	8260	280-126661-e-1 pH<2
26)	Sample	25	R6912	8260	280-126661-g-2 pH<2
27)	Sample	26	R6913	8260	280-126661-i-3 pH<2
28)	Sample	27	R6914	8260	280-126661-e-4 pH<2
29)	Sample	28	R6915	8260	280-126661-f-5 10X pH<2
30)	Sample	29	R6916	8260	280-126661-i-6 20X HS pH<2

Supp
ICV L20
CalibID: 37628

not calibrated for
Ethylene oxide

2-Nitropropane @ -22.2%

1st JK 8/7/19

2nd JZ 8/6/19

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 466573 Batch Start Date: 08/03/19 16:12 Batch Analyst: Zhang, Jian

Batch Method: 8260B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MV-BFB 00028	mv-Cent IS/SS 00005	MV-Gas A 00033	MV-Gas B 00035
BFB 280-466573/1		8260B		2 uL	2 uL	2 uL			
STD 280-466573/12 IC		8260B		5 mL	5 mL		5 uL		0.5 uL
STD 280-466573/13 IC		8260B		5 mL	5 mL		5 uL		1 uL
STD 280-466573/14 IC		8260B		5 mL	5 mL		5 uL		2 uL
STD 280-466573/15 IC		8260B		5 mL	5 mL		5 uL		10 uL
ICIS 280-466573/16		8260B		5 mL	5 mL		5 uL		50 uL
STD 280-466573/17 IC		8260B		5 mL	5 mL		5 uL		75 uL
STD 280-466573/18 IC		8260B		5 mL	5 mL		5 uL		100 uL
STD 280-466573/19 IC		8260B		5 mL	5 mL		5 uL		200 uL
ICV 280-466573/20		8260B		5 mL	5 mL		5 uL	50 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	MV-MegaMain B 00015	MV-MegaMainA 00018				
BFB 280-466573/1		8260B							
STD 280-466573/12 IC		8260B		0.5 uL					
STD 280-466573/13 IC		8260B		1 uL					
STD 280-466573/14 IC		8260B		2 uL					

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.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 466573 Batch Start Date: 08/03/19 16:12 Batch Analyst: Zhang, Jian

Batch Method: 8260B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	MV-MegaMain B 00015	MV-MegaMainA 00018				
STD 280-466573/15 IC		8260B		10 uL					
ICIS 280-466573/16		8260B		50 uL					
STD 280-466573/17 IC		8260B		75 uL					
STD 280-466573/18 IC		8260B		100 uL					
STD 280-466573/19 IC		8260B		200 uL					
ICV 280-466573/20		8260B			50 uL				

Batch Notes	

Basis	Basis Description

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.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 466748 Batch Start Date: 08/06/19 08:09 Batch Analyst: Seifert, Judy L

Batch Method: 8260B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	mv-Cent IS 00003	MV-Supp B 00025		
ICV 280-466748/20		8260B		5 mL	5 mL	5 uL	50 uL		

Batch Notes	

Basis	Basis Description

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.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 467213 Batch Start Date: 08/09/19 20:13 Batch Analyst: Zhang, Jian

Batch Method: 8260B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MV-BFB 00029	mv-Cent IS 00003	mv-Cent IS/SS 00005	MV-Gas A 00034
BFB 280-467213/1		8260B		2 uL	2 uL	2 uL			
CCV 280-467213/2		8260B		5 mL	5 mL			5 uL	50 uL
CCV 280-467213/3		8260B		5 mL	5 mL		5 uL		
LCS 280-467213/4		8260B		5 mL	5 mL			5 uL	
LCSD 280-467213/5		8260B		5 mL	5 mL			5 uL	
MB 280-467213/8		8260B		5 mL	5 mL			5 uL	
280-126873-D-1	SP-S2	8260B	T	5 mL	5 mL			5 uL	
280-126873-E-2	SP-E1	8260B	T	5 mL	5 mL			5 uL	
280-126873-D-4	SP-S22	8260B	T	5 mL	5 mL			5 uL	
280-126873-A-5	TB-1062	8260B	T	5 mL	5 mL			5 uL	
CCVC 280-467213/34		8260B		5 mL	5 mL			5 uL	50 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	MV-Gas B 00037	MV-MegaMain B 00015	MV-MegaMainA 00018	MV-Supp A 00037		
BFB 280-467213/1		8260B							
CCV 280-467213/2		8260B				50 uL			
CCV 280-467213/3		8260B					50 uL		
LCS 280-467213/4		8260B		25 uL	25 uL				
LCSD 280-467213/5		8260B		25 uL	25 uL				
MB 280-467213/8		8260B							
280-126873-D-1	SP-S2	8260B	T						
280-126873-E-2	SP-E1	8260B	T						
280-126873-D-4	SP-S22	8260B	T						
280-126873-A-5	TB-1062	8260B	T						
CCVC 280-467213/34		8260B				50 uL			

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.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 467213 Batch Start Date: 08/09/19 20:13 Batch Analyst: Zhang, Jian

Batch Method: 8260B Batch End Date:

Batch Notes	

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.

8330A_DOD5

Nitroaromatics and Nitramines (HPLC)

FORM II
HPLC/IC SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): UltraCarb5u ID: 4.6 (mm) GC Column (2): Luna-phenyl 4.6 (mm)

Client Sample ID	Lab Sample ID	12DNB1 #	12DNB2 #
SP-S2	280-126873-1		98
SP-S2	280-126873-1	76 Q	
SP-E1	280-126873-2		89
SP-E1	280-126873-2	89	
SP-S22	280-126873-4		97
SP-S22	280-126873-4	86	
SP-S6	280-126873-6		90
SP-S6	280-126873-6	89	
SP-S8	280-126873-7		91
SP-S8	280-126873-7	86	
	MB 280-466732/1-A	85	
	LCS 280-466732/2-A	84	
	LCS 280-466732/3-A	88	
	LCSD 280-466732/4-A	85	

	QC LIMITS
12DNB = 1,2-Dinitrobenzene	83-119

Column to be used to flag recovery values

FORM II 8330A

FORM III
HPLC/IC LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 08120042.D

Lab ID: LCS 280-466732/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,3,5-Trinitrobenzene	2.00	1.97	98	73-125	
1,3-Dinitrobenzene	2.00	1.76	88	78-120	
2,4,6-Trinitrotoluene	2.00	1.65	82	71-123	
2,4-Dinitrotoluene	2.00	1.68	84	78-120	
2,6-Dinitrotoluene	2.00	1.72	86	77-127	
2-Amino-4,6-dinitrotoluene	2.00	1.60	80	79-120	
2-Nitrotoluene	2.00	1.43	72	70-127	
3-Nitrotoluene	2.00	1.57	79	73-125	
4-Amino-2,6-dinitrotoluene	2.00	1.55	77	76-125	
4-Nitrotoluene	2.00	1.53	76	71-127	
HMX	2.00	1.75	87	65-135	M
Nitrobenzene	2.00	1.61	81	65-134	
RDX	2.00	1.78	89	68-130	
Tetryl	2.00	1.88	94	64-128	

Column to be used to flag recovery and RPD values

FORM III 8330A

FORM III
HPLC/IC LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 08120043.D

Lab ID: LCS 280-466732/3-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
MNX	2.33	2.36	101	57-132	

Column to be used to flag recovery and RPD values

FORM III 8330A

FORM III
HPLC/IC LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 08120044.D

Lab ID: LCSD 280-466732/4-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
MNX	2.33	2.33	100	1	30	57-132	

Column to be used to flag recovery and RPD values

FORM III 8330A

FORM IV
HPLC/IC METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: MB 280-466732/1-A

Matrix: Water Date Extracted: 08/05/2019 17:00

Lab File ID:(1) 08120041.D Lab File ID:(2)

Date Analyzed:(1) 08/13/2019 01:01 Date Analyzed:(2)

Instrument ID:(1) CHHPLC_X3 Instrument ID:(2) CHHPLC_G2_LUNA

GC Column:(1) UltraCarb5uO ID: 4.6(mm) GC Column:(2) Luna-phenylh ID: 4.6(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
	LCS 280-466732/2-A	08/13/2019 01:24	
	LCS 280-466732/3-A	08/13/2019 01:47	
	LCSD 280-466732/4-A	08/13/2019 02:10	
SP-S2	280-126873-1	08/13/2019 06:00	08/15/2019 13:04
SP-E1	280-126873-2	08/13/2019 06:23	08/15/2019 13:39
SP-S22	280-126873-4	08/13/2019 06:46	08/15/2019 14:14
SP-S6	280-126873-6	08/13/2019 07:09	08/15/2019 14:49
SP-S8	280-126873-7	08/13/2019 07:32	08/15/2019 15:24

FORM X
IDENTIFICATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S2 Lab Sample ID: 280-126873-1

Instrument ID (1): CHHPLC_X3 Instrument ID (2): CHHPLC_G2_LUNA

Date Analyzed (1): 08/13/2019 06:00 Date Analyzed (2): 08/15/2019 13:04

GC Column (1): UltraCarb5uOD ID: 4.6(mm) GC Column (2): Luna-phenylhe ID: 4.6(mm)

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENTRATION		RPD
				FROM	TO	PEAK	MEAN	
RDX	1		7.75	7.61	7.91	3.5		154.9
	2		9.06	8.91	9.21	0.45		
1,3,5-Trinitrobenzene	1		8.89	8.73	9.03	18		5.9
	2		18.92	18.77	19.07	19		
2,4,6-Trinitrotoluene	1		11.23	11.09	11.29	5.7		10.2
	2		24.64	24.50	24.80	6.4		
4-Amino-2,6-dinitrotoluene	1		11.42	11.27	11.47	1.5		11.2
	2		17.10	16.95	17.25	1.7		
2-Amino-4,6-dinitrotoluene	1		11.71	11.56	11.76	1.7		12.7
	2		18.06	17.90	18.20	2.0		

FORM X
IDENTIFICATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-E1 Lab Sample ID: 280-126873-2

Instrument ID (1): CHHPLC_X3 Instrument ID (2): CHHPLC_G2_LUNA

Date Analyzed (1): 08/13/2019 06:23 Date Analyzed (2): 08/15/2019 13:39

GC Column (1): UltraCarb5uOD ID: 4.6(mm) GC Column (2): Luna-phenylhe ID: 4.6(mm)

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENTRATION		RPD
				FROM	TO	PEAK	MEAN	
1,3,5-Trinitrobenzene	1		8.89	8.73	9.03	0.47		12.5
	2		18.92	18.77	19.07	0.42		

FORM X
IDENTIFICATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S22 Lab Sample ID: 280-126873-4

Instrument ID (1): CHHPLC_X3 Instrument ID (2): CHHPLC_G2_LUNA

Date Analyzed (1): 08/13/2019 06:46 Date Analyzed (2): 08/15/2019 14:14

GC Column (1): UltraCarb5uOD ID: 4.6(mm) GC Column (2): Luna-phenylhe ID: 4.6(mm)

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENTRATION		RPD
				FROM	TO	PEAK	MEAN	
RDX	1		7.76	7.61	7.91	0.32		50.7
	2		9.08	8.91	9.21	0.53		
1,3,5-Trinitrobenzene	1		8.90	8.73	9.03	18		4.0
	2		18.93	18.77	19.07	19		

FORM X
IDENTIFICATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S6 Lab Sample ID: 280-126873-6

Instrument ID (1): CHHPLC_X3 Instrument ID (2): CHHPLC_G2_LUNA

Date Analyzed (1): 08/13/2019 07:09 Date Analyzed (2): 08/15/2019 14:49

GC Column (1): UltraCarb5uOD ID: 4.6(mm) GC Column (2): Luna-phenylhe ID: 4.6(mm)

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENTRATION		RPD
				FROM	TO	PEAK	MEAN	
1,3,5-Trinitrobenzene	1		8.90	8.73	9.03	0.57		9.1
	2		18.93	18.77	19.07	0.52		

FORM X
IDENTIFICATION SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S8 Lab Sample ID: 280-126873-7

Instrument ID (1): CHHPLC_X3 Instrument ID (2): CHHPLC_G2_LUNA

Date Analyzed (1): 08/13/2019 07:32 Date Analyzed (2): 08/15/2019 15:24

GC Column (1): UltraCarb5uOD ID: 4.6(mm) GC Column (2): Luna-phenylhe ID: 4.6(mm)

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENTRATION		RPD
				FROM	TO	PEAK	MEAN	
RDX	1		7.75	7.61	7.91	0.20		41.0
	2		9.08	8.91	9.21	0.30		
1,3,5-Trinitrobenzene	1		8.89	8.73	9.03	4.9		2.3
	2		18.93	18.77	19.07	5.0		

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S2 Lab Sample ID: 280-126873-1

Matrix: Water Lab File ID: 08120054.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:45

Extraction Method: 3535 Date Extracted: 08/05/2019 17:00

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 06:00

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	18	Q	1.0	0.40	0.20
118-96-7	2,4,6-Trinitrotoluene	5.7	Q	0.40	0.40	0.16
121-14-2	2,4-Dinitrotoluene	0.20	U Q	0.40	0.20	0.084
606-20-2	2,6-Dinitrotoluene	0.20	U Q	0.20	0.20	0.065
35572-78-2	2-Amino-4,6-dinitrotoluene	1.7	Q	0.20	0.12	0.051
99-08-1	3-Nitrotoluene	0.40	U Q	0.40	0.40	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	1.5	Q	0.20	0.12	0.058
99-99-0	4-Nitrotoluene	0.21	J Q	1.0	0.40	0.20
2691-41-0	HMX	0.20	U Q	0.40	0.20	0.088
98-95-3	Nitrobenzene	0.20	U Q	0.40	0.20	0.091
121-82-4	RDX	3.5	Q J1	0.40	0.40	0.16
479-45-8	Tetryl	20	Q	0.24	0.20	0.079

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	76	Q	83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120054.D
Lims ID: 280-126873-B-1-A
Client ID: SP-S2
Sample Type: Client
Inject. Date: 13-Aug-2019 06:00:16 ALS Bottle#: 54 Worklist Smp#: 54
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-1-A
Misc. Info.: 280-0084372-054
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:23 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/mL	Flags
	3 HMX	1		6.677			ND	
	6 MNX	1	7.434	7.367	0.067	174362	1.25	
	7 RDX	1	7.754	7.757	-0.003	39113	0.3520	
$	9 1,2-Dinitrobenzene	1	8.721	8.710	0.011	21240	0.1524	
	10 1,3,5-Trinitrobenzene	1	8.894	8.877	0.017	440458	1.80	
	11 1,3-Dinitrobenzene	1	9.574	9.530	0.044	5501	0.0177	
	12 Nitrobenzene	1		9.910			ND	
	14 Tetryl	1	10.187	10.224	-0.037	319916	1.98	
	16 2,4,6-Trinitrotoluene	1	11.227	11.190	0.037	130511	0.5742	
	17 4-Amino-2,6-dinitrotoluene	1	11.421	11.370	0.051	24787	0.1490	
	18 2-Amino-4,6-dinitrotoluene	1	11.714	11.657	0.057	35780	0.1743	
	19 2,6-Dinitrotoluene	1		11.797			ND	
	20 2,4-Dinitrotoluene	1	12.047	11.997	0.050	1938	0.006450	
	21 o-Nitrotoluene	1	12.754	12.830	-0.076	1434	0.0110	
	22 p-Nitrotoluene	1	13.307	13.270	0.037	2284	0.0207	
	23 m-Nitrotoluene	1		13.870			ND	

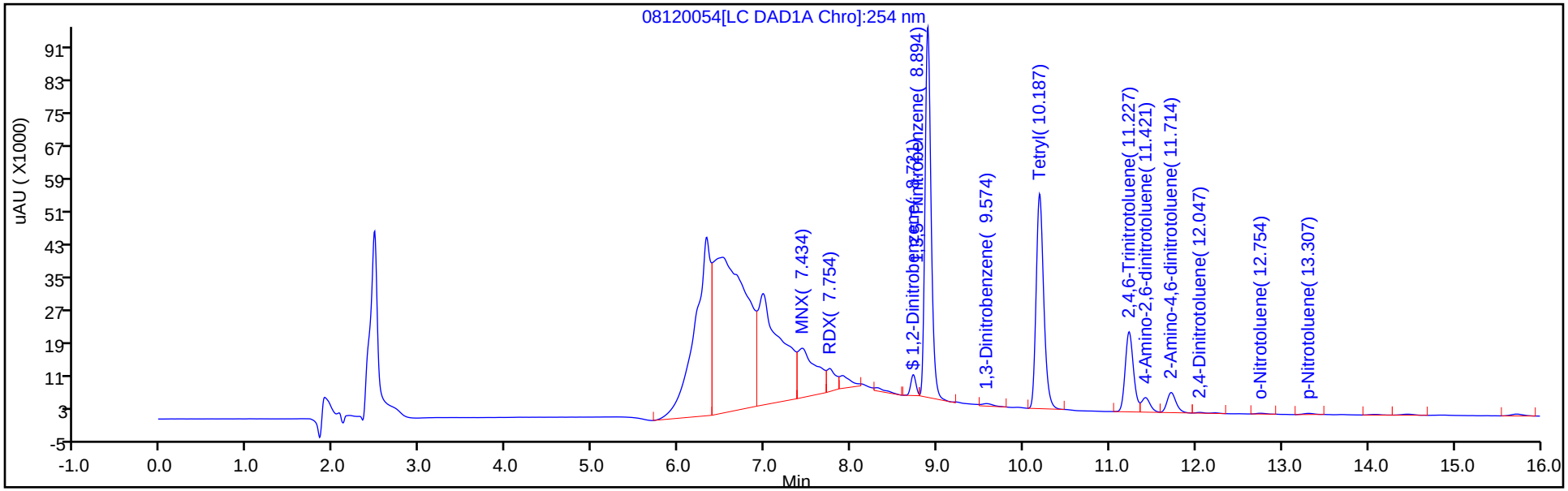
Report Date: 13-Aug-2019 14:09:32 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

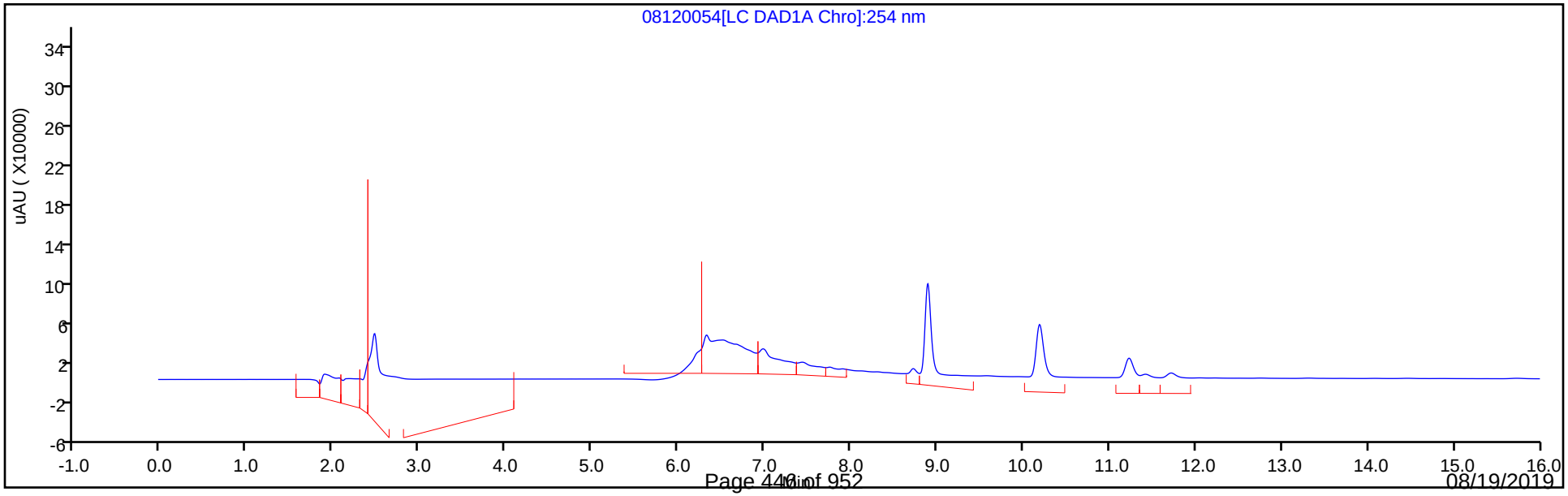
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120054.D

Injection Date:	13-Aug-2019 06:00:16	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	280-126873-B-1-A	Lab Sample ID:	280-126873-1	Worklist Smp#:	54
Client ID:	SP-S2				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	54
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120054.D				
Lims ID:	280-126873-B-1-A				
Client ID:	SP-S2				
Sample Type:	Client				
Inject. Date:	13-Aug-2019 06:00:16	ALS Bottle#:	54	Worklist Smp#:	54
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-1-A				
Misc. Info.:	280-0084372-054				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	13-Aug-2019 14:09:23	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0340				

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1524	76.22

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S2 Lab Sample ID: 280-126873-1

Matrix: Water Lab File ID: 08150009.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:45

Extraction Method: 3535 Date Extracted: 08/05/2019 17:00

Sample wt/vol: 500(mL) Date Analyzed: 08/15/2019 13:04

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: Luna-phenylhex ID: 4.6(mm)

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

Analysis Batch No.: 467721 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-65-0	1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089
88-72-2	2-Nitrotoluene	0.20	U	0.40	0.20	0.086
5755-27-1	MNX	0.40	U Q M	2.0	0.40	0.15
121-82-4	*RDX*	*0.45*	*J1 M*	*0.40*	0.40	*0.16*

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	98		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150009.D
Lims ID: 280-126873-B-1-A
Client ID: SP-S2
Sample Type: Client
Inject. Date: 15-Aug-2019 13:04:17 ALS Bottle#: 9 Worklist Smp#: 9
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-1-A
Misc. Info.: 280-0084482-009
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA

Method: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 16-Aug-2019 13:24:47 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0321

First Level Reviewer: fiedlerh Date: 16-Aug-2019 11:04:09

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/ml	Flags
	6 HMX	1	7.051	7.055	-0.004	6574	0.0384	M
	7 MNX	1		7.693			ND	U
	8 RDX	1	9.057	9.055	0.002	9325	0.0447	M
	9 Nitrobenzene	1		12.135			ND	
$	10 1,2-Dinitrobenzene	1	13.084	13.082	0.002	54039	0.1952	
	12 1,3-Dinitrobenzene	1		15.602			ND	
	14 o-Nitrotoluene	1		16.488			ND	
	15 p-Nitrotoluene	1		16.808			ND	
	16 4-Amino-2,6-dinitrotoluene	1	17.097	17.095	0.002	49575	0.1667	
	17 m-Nitrotoluene	1		17.715			ND	
	18 2-Amino-4,6-dinitrotoluene	1	18.057	18.048	0.009	85150	0.1979	
	19 1,3,5-Trinitrobenzene	1	18.917	18.915	0.002	871993	1.91	
	20 2,6-Dinitrotoluene	1		19.775			ND	
	21 2,4-Dinitrotoluene	1	20.297	20.295	0.002	3453	0.006064	
	22 Tetryl	1		23.555			ND	
	23 2,4,6-Trinitrotoluene	1	24.644	24.649	-0.005	259116	0.6362	

QC Flag Legend

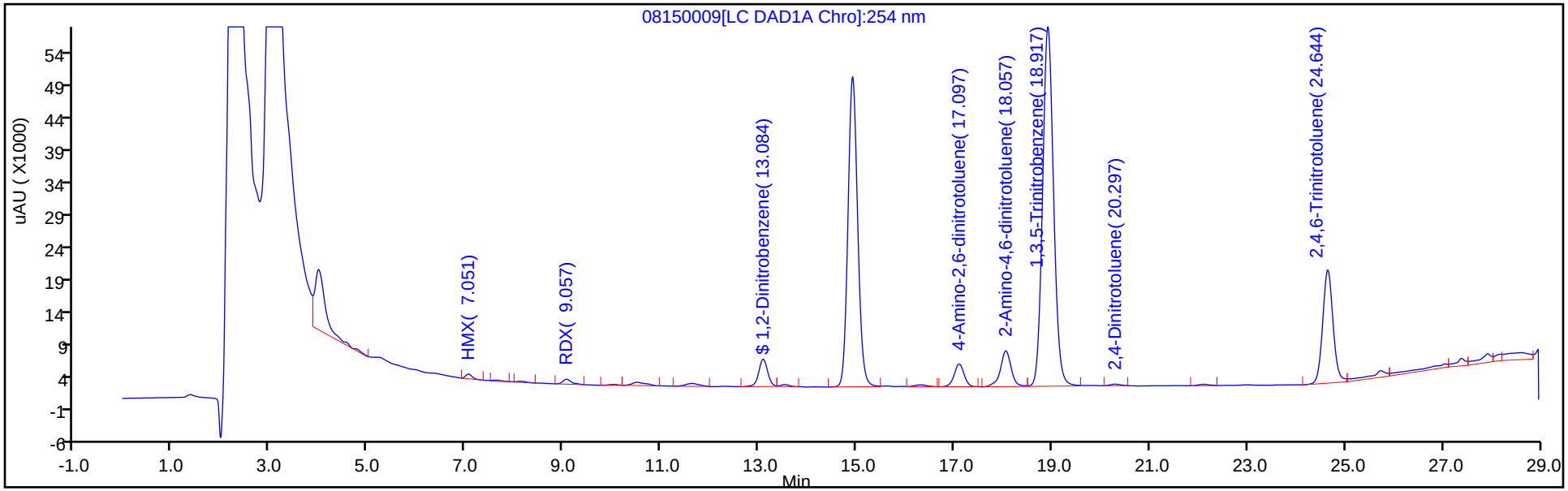
Review Flags
M - Manually Integrated
U - Marked Undetected

Report Date: 16-Aug-2019 13:24:48 Chrom Revision: 2.3 15-Jul-2019 06:58:08

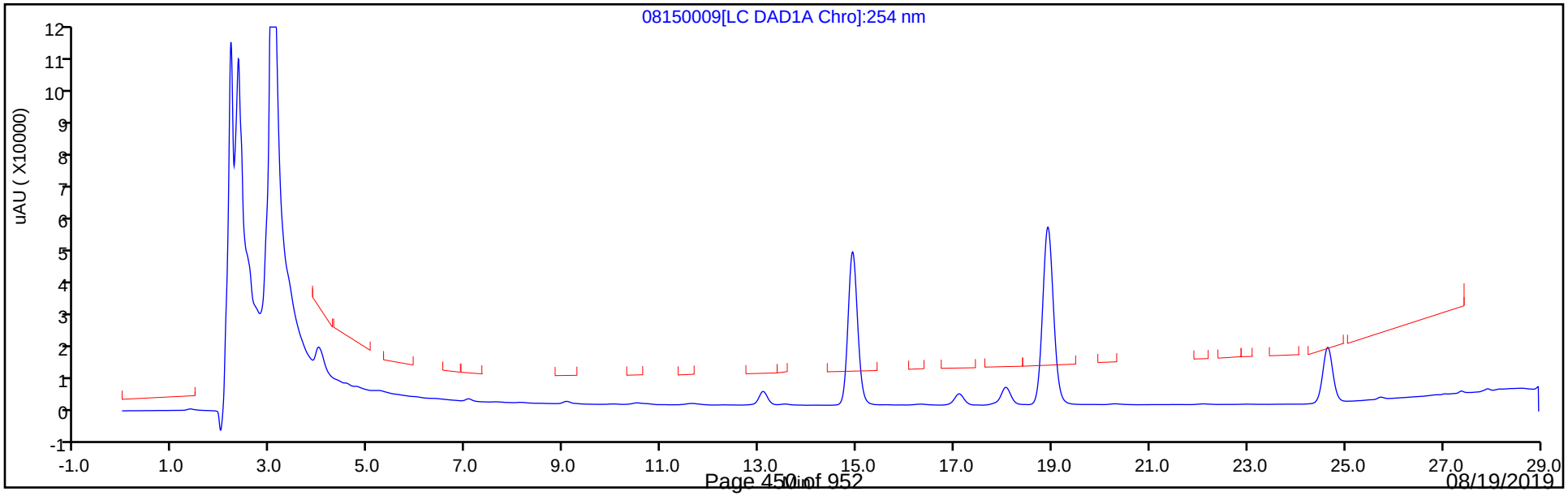
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150009.D				
Injection Date:	15-Aug-2019 13:04:17	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	280-126873-B-1-A	Lab Sample ID:	280-126873-1	Worklist Smp#:	9
Client ID:	SP-S2				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	9
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150009.D				
Lims ID:	280-126873-B-1-A				
Client ID:	SP-S2				
Sample Type:	Client				
Inject. Date:	15-Aug-2019 13:04:17	ALS Bottle#:	9	Worklist Smp#:	9
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-1-A				
Misc. Info.:	280-0084482-009				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	16-Aug-2019 13:24:47	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0321				
First Level Reviewer: fiedlerh		Date:	16-Aug-2019 11:04:09		

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1952	97.59

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

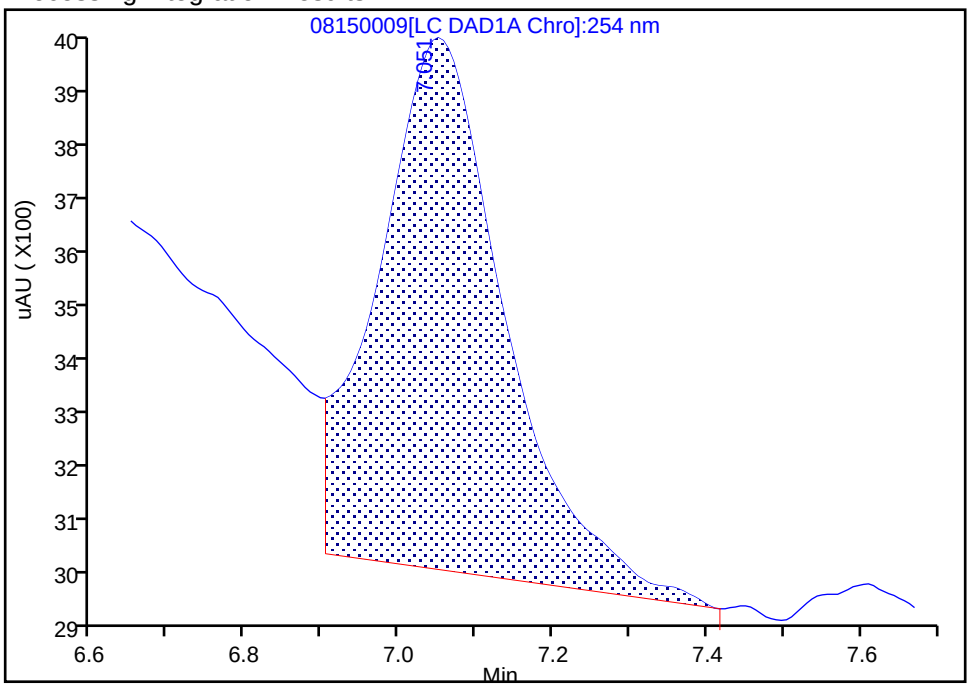
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150009.D				
Injection Date:	15-Aug-2019 13:04:17	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-1-A	Lab Sample ID:	280-126873-1		
Client ID:	SP-S2				
Operator ID:	HKF	ALS Bottle#:	9	Worklist Smp#:	9
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

6 HMX, CAS: 2691-41-0

Signal: 1

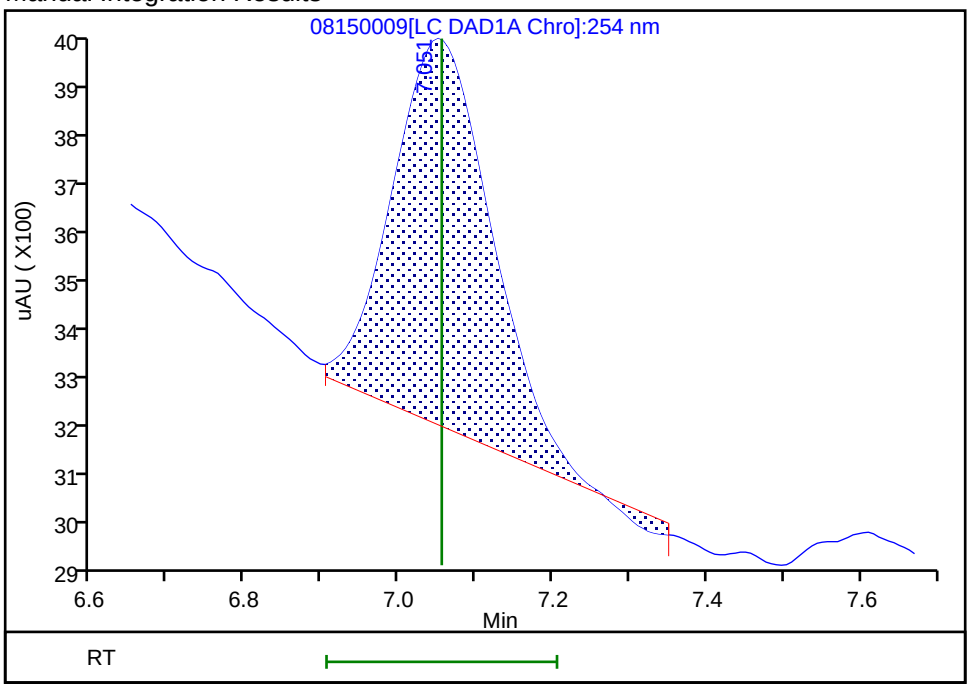
Processing Integration Results

RT: 7.05
Area: 10550
Amount: 0.061624
Amount Units: ug/ml



Manual Integration Results

RT: 7.05
Area: 6574
Amount: 0.038400
Amount Units: ug/ml



Reviewer: fiedlerh, 16-Aug-2019 11:56:31

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

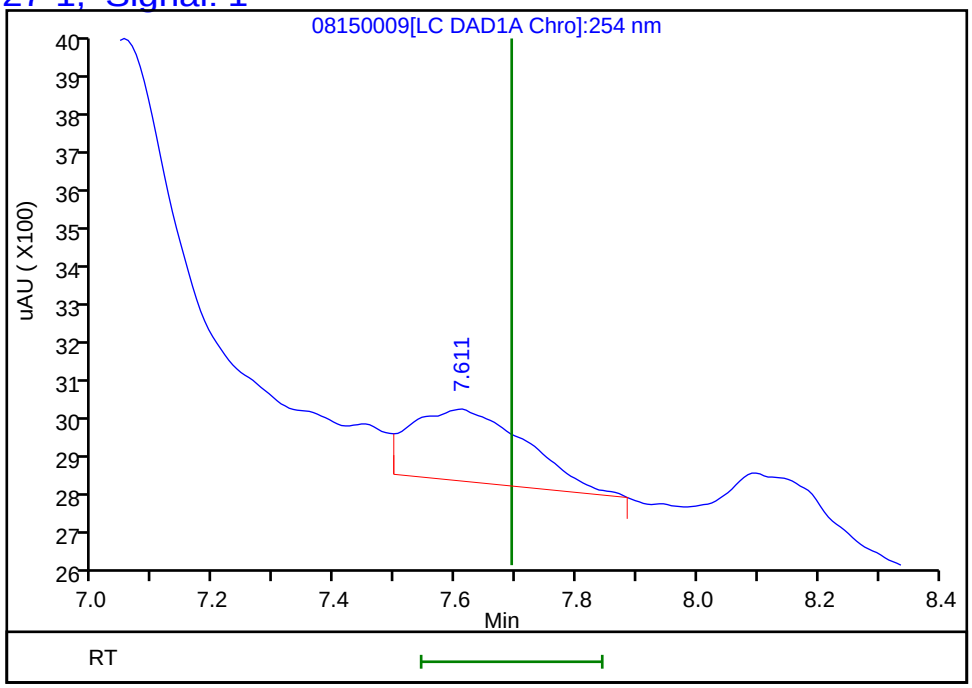
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150009.D				
Injection Date:	15-Aug-2019 13:04:17	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-1-A	Lab Sample ID:	280-126873-1		
Client ID:	SP-S2				
Operator ID:	HKF	ALS Bottle#:	9	Worklist Smp#:	9
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

7 MNX, CAS: 5755-27-1, Signal: 1

RT: 7.61
Response: 2438
Amount: 0.009046



Reviewer: fiedlerh, 16-Aug-2019 11:57:04
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Denver

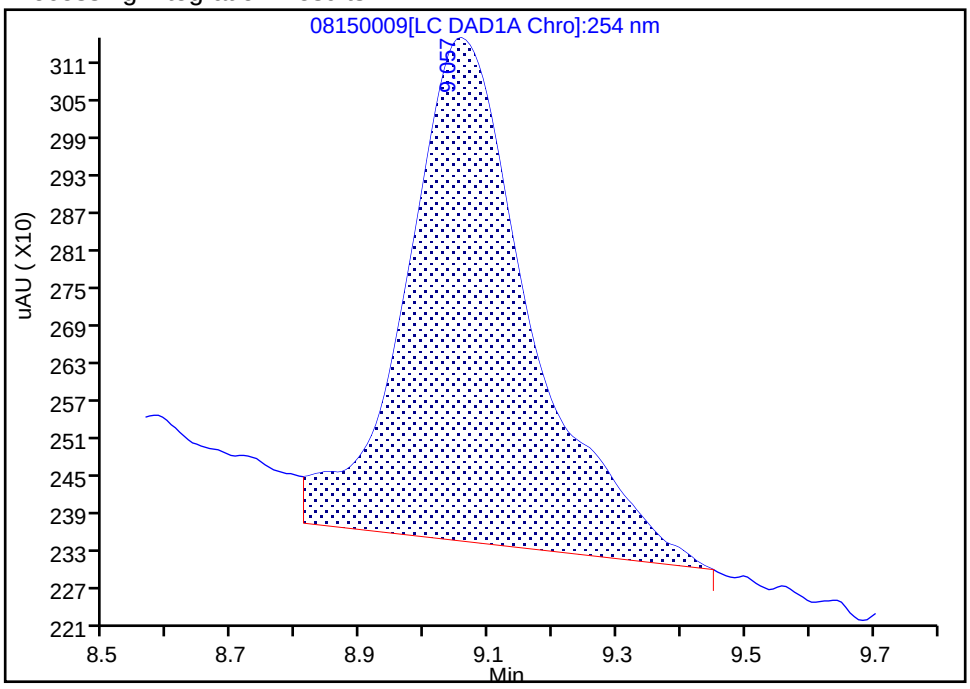
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150009.D				
Injection Date:	15-Aug-2019 13:04:17	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-1-A	Lab Sample ID:	280-126873-1		
Client ID:	SP-S2				
Operator ID:	HKF	ALS Bottle#:	9	Worklist Smp#:	9
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

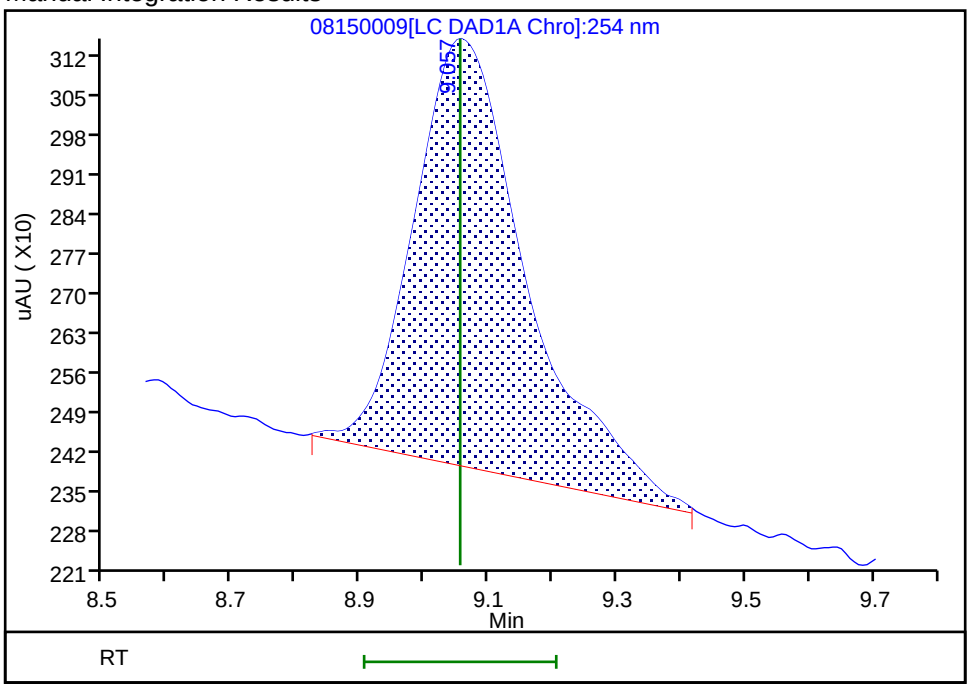
Processing Integration Results

RT: 9.06
Area: 10871
Amount: 0.052153
Amount Units: ug/ml



Manual Integration Results

RT: 9.06
Area: 9325
Amount: 0.044736
Amount Units: ug/ml



Reviewer: fiedlerh, 16-Aug-2019 11:56:40
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-E1 Lab Sample ID: 280-126873-2

Matrix: Water Lab File ID: 08120055.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:56

Extraction Method: 3535 Date Extracted: 08/05/2019 17:00

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 06:23

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	0.47	J	1.0	0.40	0.20
99-65-0	1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089
118-96-7	2,4,6-Trinitrotoluene	0.40	U	0.40	0.40	0.16
121-14-2	2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084
606-20-2	2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065
35572-78-2	2-Amino-4,6-dinitrotoluene	0.12	U	0.20	0.12	0.051
88-72-2	2-Nitrotoluene	0.20	U	0.40	0.20	0.086
99-08-1	3-Nitrotoluene	0.40	U	0.40	0.40	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U	0.20	0.12	0.058
99-99-0	4-Nitrotoluene	0.40	U	1.0	0.40	0.20
2691-41-0	HMX	0.20	U	0.40	0.20	0.088
5755-27-1	MNX	0.40	U	2.0	0.40	0.15
98-95-3	Nitrobenzene	0.20	U	0.40	0.20	0.091
121-82-4	RDX	0.40	U	0.40	0.40	0.16
479-45-8	Tetryl	0.20	U M	0.24	0.20	0.079

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	89		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120055.D
Lims ID: 280-126873-B-2-A
Client ID: SP-E1
Sample Type: Client
Inject. Date: 13-Aug-2019 06:23:13 ALS Bottle#: 55 Worklist Smp#: 55
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-2-A
Misc. Info.: 280-0084372-055
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:23 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:25:50

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/mL	Flags
	3 HMX	1		6.677			ND	
	6 MNX	1		7.367			ND	
	7 RDX	1		7.757			ND	
$	9 1,2-Dinitrobenzene	1	8.726	8.710	0.016	24798	0.1780	
	10 1,3,5-Trinitrobenzene	1	8.892	8.877	0.015	11546	0.0471	
	11 1,3-Dinitrobenzene	1		9.530			ND	
	12 Nitrobenzene	1		9.910			ND	
	14 Tetryl	1		10.224			ND	U
	16 2,4,6-Trinitrotoluene	1		11.190			ND	
	17 4-Amino-2,6-dinitrotoluene	1		11.370			ND	
	18 2-Amino-4,6-dinitrotoluene	1		11.657			ND	
	19 2,6-Dinitrotoluene	1		11.797			ND	
	20 2,4-Dinitrotoluene	1		11.997			ND	
	21 o-Nitrotoluene	1		12.830			ND	
	22 p-Nitrotoluene	1		13.270			ND	
	23 m-Nitrotoluene	1		13.870			ND	

QC Flag Legend

Review Flags
U - Marked Undetected

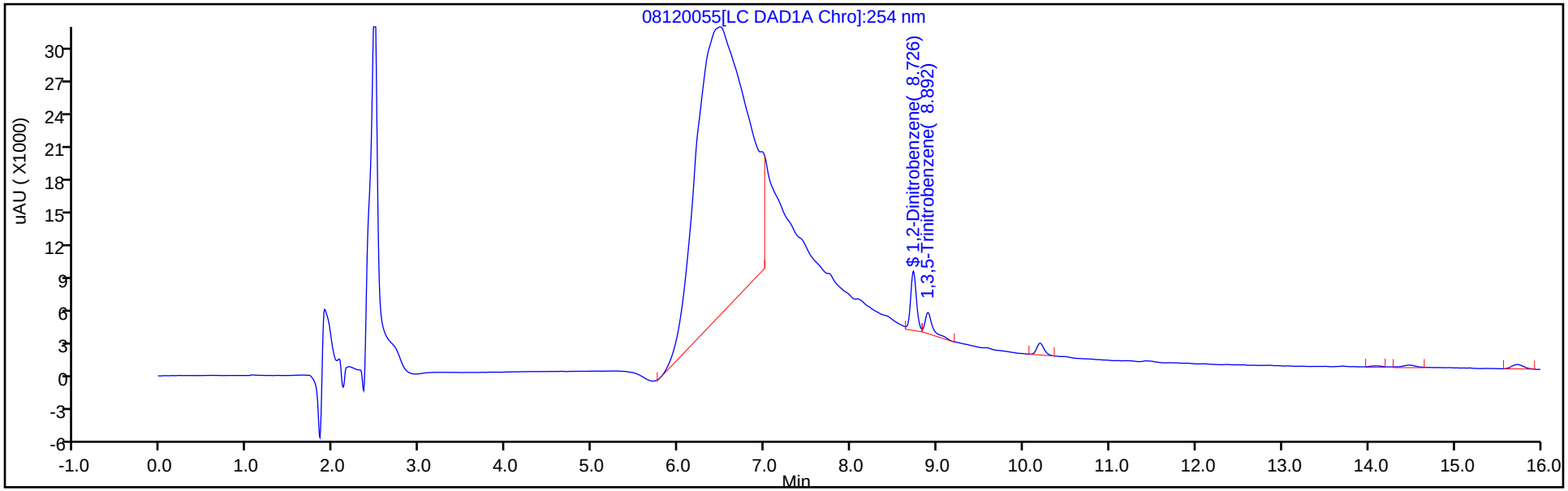
Report Date: 13-Aug-2019 14:09:31 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

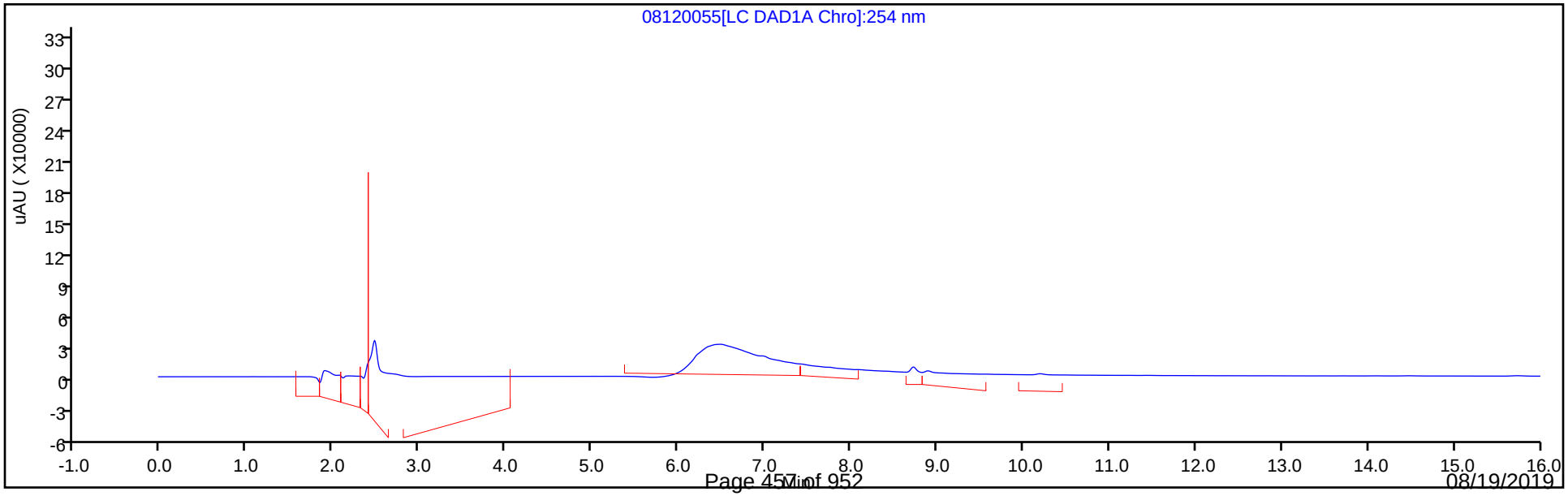
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120055.D

Injection Date:	13-Aug-2019 06:23:13	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	280-126873-B-2-A	Lab Sample ID:	280-126873-2	Worklist Smp#:	55
Client ID:	SP-E1				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	55
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120055.D				
Lims ID:	280-126873-B-2-A				
Client ID:	SP-E1				
Sample Type:	Client				
Inject. Date:	13-Aug-2019 06:23:13	ALS Bottle#:	55	Worklist Smp#:	55
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-2-A				
Misc. Info.:	280-0084372-055				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	13-Aug-2019 14:09:23	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0340				
First Level Reviewer: fiedlerh		Date:	13-Aug-2019 13:25:50		

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1780	88.99

User Disabled Compound Report

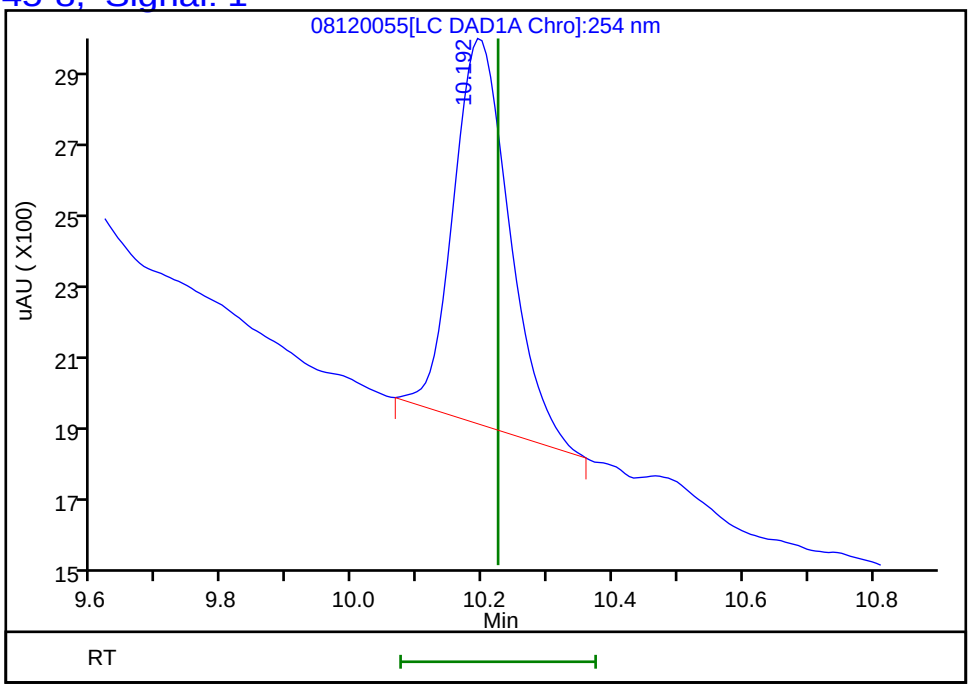
Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120055.D

Injection Date:	13-Aug-2019 06:23:13	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-2-A	Lab Sample ID:	280-126873-2		
Client ID:	SP-E1				
Operator ID:	hkf	ALS Bottle#:	55	Worklist Smp#:	55
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

14 Tetryl, CAS: 479-45-8, Signal: 1

RT: 10.19
Response: 6267
Amount: 0.038695



Reviewer: fiedlerh, 13-Aug-2019 13:25:55
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-E1 Lab Sample ID: 280-126873-2

Matrix: Water Lab File ID: 08150010.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:56

Extraction Method: 3535 Date Extracted: 08/05/2019 17:00

Sample wt/vol: 500(mL) Date Analyzed: 08/15/2019 13:39

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: Luna-phenylhex ID: 4.6(mm)

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

Analysis Batch No.: 467721 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	89		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150010.D
Lims ID: 280-126873-B-2-A
Client ID: SP-E1
Sample Type: Client
Inject. Date: 15-Aug-2019 13:39:18 ALS Bottle#: 10 Worklist Smp#: 10
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-2-A
Misc. Info.: 280-0084482-010
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA

Method: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 16-Aug-2019 13:24:47 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0321

First Level Reviewer: fiedlerh Date: 16-Aug-2019 11:04:28

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/ml	Flags
6 HMX	1		7.055			ND	
7 MNX	1		7.693			ND	
8 RDX	1	9.060	9.055	0.005	2320	0.0111	
9 Nitrobenzene	1		12.135			ND	
$ 10 1,2-Dinitrobenzene	1	13.094	13.082	0.012	49129	0.1775	
12 1,3-Dinitrobenzene	1		15.602			ND	
14 o-Nitrotoluene	1		16.488			ND	U
15 p-Nitrotoluene	1		16.808			ND	
16 4-Amino-2,6-dinitrotoluene	1		17.095			ND	U
17 m-Nitrotoluene	1		17.715			ND	U
18 2-Amino-4,6-dinitrotoluene	1		18.048			ND	
19 1,3,5-Trinitrobenzene	1	18.920	18.915	0.005	19018	0.0416	
20 2,6-Dinitrotoluene	1		19.775			ND	
21 2,4-Dinitrotoluene	1		20.295			ND	
22 Tetryl	1		23.555			ND	
23 2,4,6-Trinitrotoluene	1		24.649			ND	

QC Flag Legend

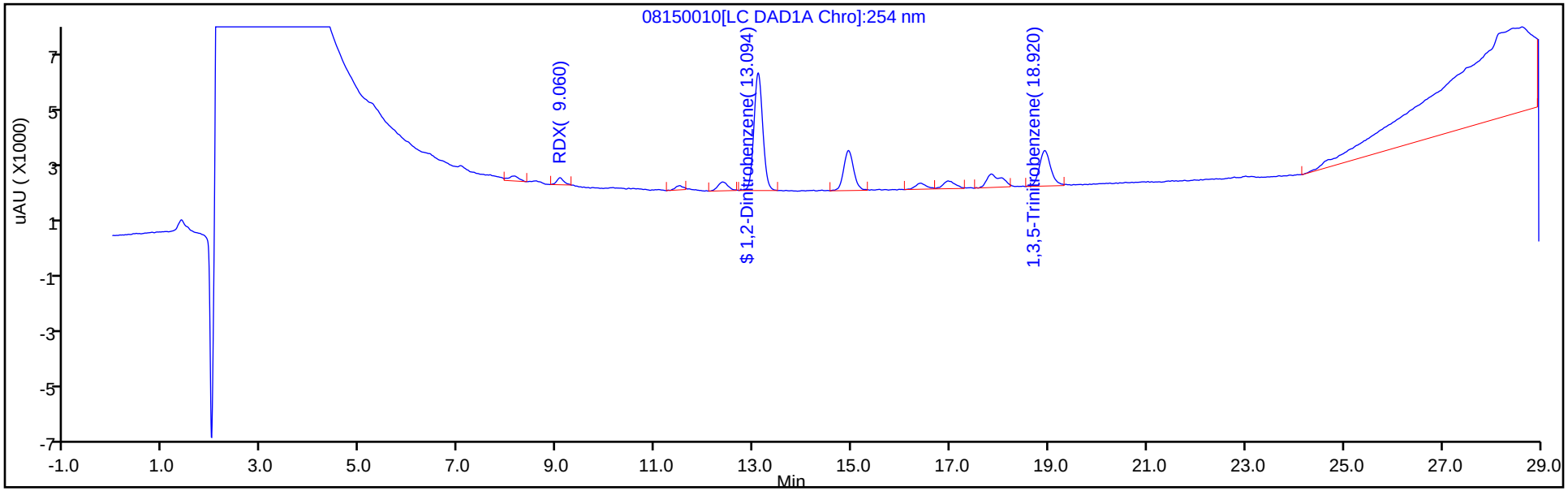
Review Flags
U - Marked Undetected

Report Date: 16-Aug-2019 13:24:50 Chrom Revision: 2.3 15-Jul-2019 06:58:08

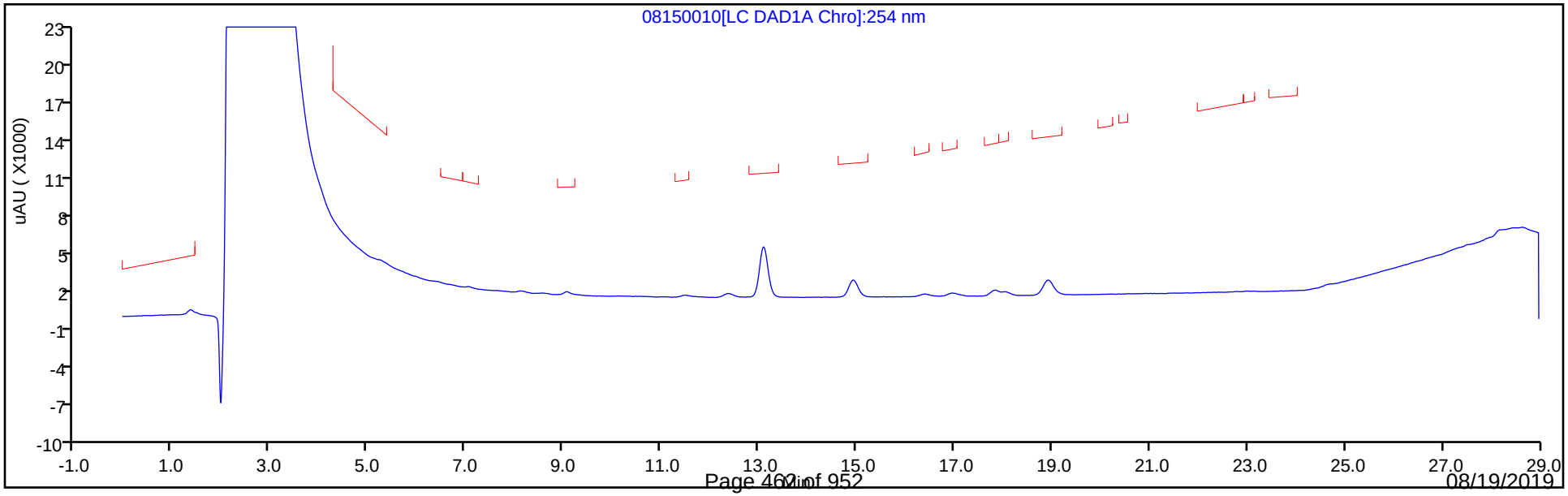
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150010.D				
Injection Date:	15-Aug-2019 13:39:18	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	280-126873-B-2-A	Lab Sample ID:	280-126873-2	Worklist Smp#:	10
Client ID:	SP-E1				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	10
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150010.D				
Lims ID:	280-126873-B-2-A				
Client ID:	SP-E1				
Sample Type:	Client				
Inject. Date:	15-Aug-2019 13:39:18	ALS Bottle#:	10	Worklist Smp#:	10
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-2-A				
Misc. Info.:	280-0084482-010				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	16-Aug-2019 13:24:47	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0321				
First Level Reviewer: fiedlerh		Date:	16-Aug-2019 11:04:28		

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1775	88.73

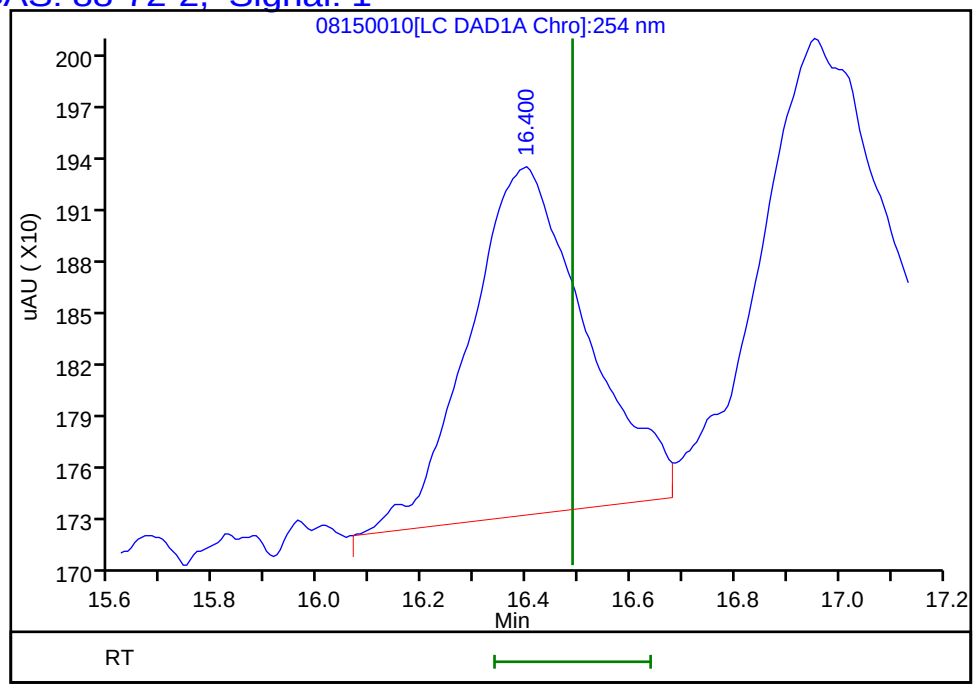
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150010.D				
Injection Date:	15-Aug-2019 13:39:18	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-2-A	Lab Sample ID:	280-126873-2		
Client ID:	SP-E1				
Operator ID:	HKF	ALS Bottle#:	10	Worklist Smp#:	10
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

14 o-Nitrotoluene, CAS: 88-72-2, Signal: 1

RT: 16.40
Response: 3129
Amount: 0.011949



Reviewer: fiedlerh, 16-Aug-2019 12:27:45
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

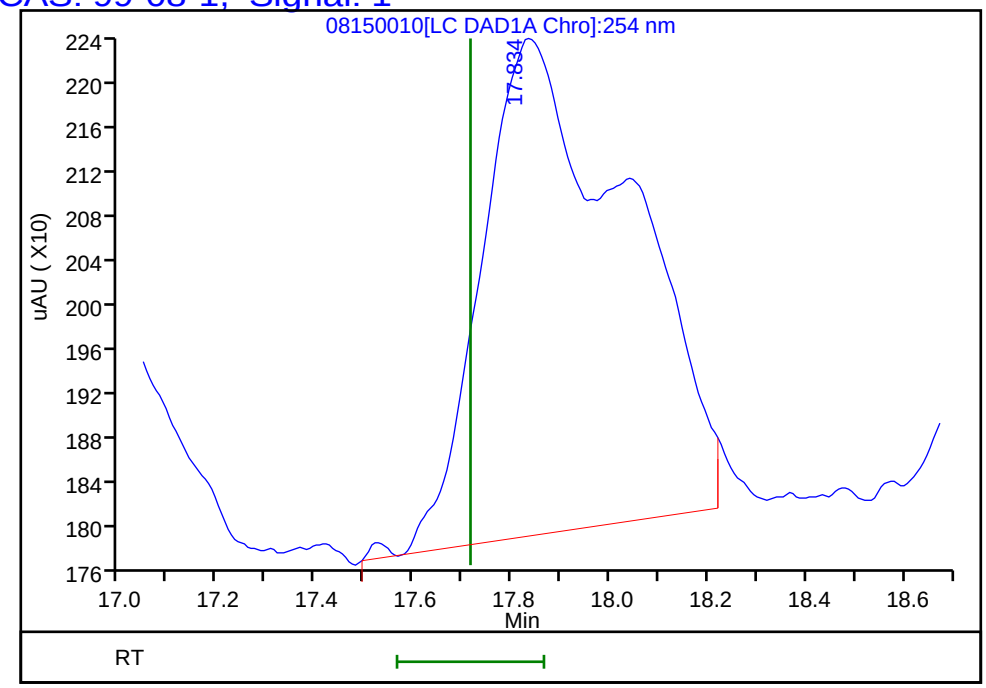
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150010.D				
Injection Date:	15-Aug-2019 13:39:18	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-2-A	Lab Sample ID:	280-126873-2		
Client ID:	SP-E1				
Operator ID:	HKF	ALS Bottle#:	10	Worklist Smp#:	10
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

17 m-Nitrotoluene, CAS: 99-08-1, Signal: 1

RT: 17.83
Response: 9291
Amount: 0.031743



Reviewer: fiedlerh, 16-Aug-2019 12:27:45
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

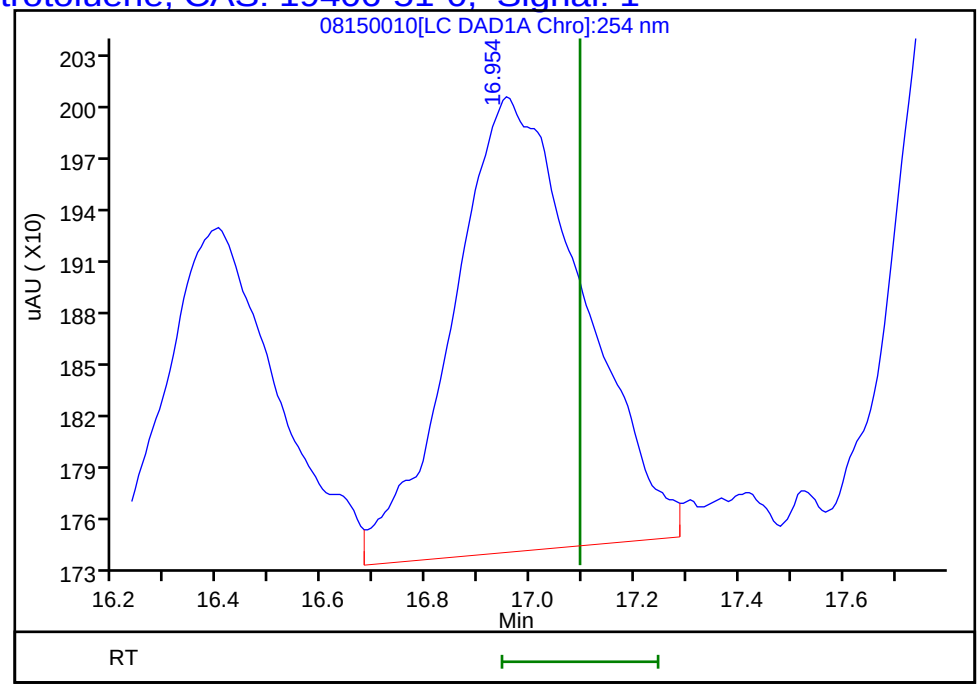
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150010.D				
Injection Date:	15-Aug-2019 13:39:18	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-2-A	Lab Sample ID:	280-126873-2		
Client ID:	SP-E1				
Operator ID:	HKF	ALS Bottle#:	10	Worklist Smp#:	10
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

16 4-Amino-2,6-dinitrotoluene, CAS: 19406-51-0, Signal: 1

RT: 16.95
Response: 4493
Amount: 0.015109



Reviewer: fiedlerh, 16-Aug-2019 12:27:45
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S22 Lab Sample ID: 280-126873-4

Matrix: Water Lab File ID: 08120056.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:48

Extraction Method: 3535 Date Extracted: 08/05/2019 17:01

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 06:46

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	18		1.0	0.40	0.20
118-96-7	2,4,6-Trinitrotoluene	0.40	U M	0.40	0.40	0.16
121-14-2	2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084
606-20-2	2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065
35572-78-2	2-Amino-4,6-dinitrotoluene	0.12	U M	0.20	0.12	0.051
88-72-2	2-Nitrotoluene	0.20	U M	0.40	0.20	0.086
99-08-1	3-Nitrotoluene	0.40	U	0.40	0.40	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U M	0.20	0.12	0.058
2691-41-0	HMX	0.20	U	0.40	0.20	0.088
5755-27-1	MNX	0.40	U	2.0	0.40	0.15
98-95-3	Nitrobenzene	0.20	U	0.40	0.20	0.091
121-82-4	RDX	0.32	J M J1	0.40	0.40	0.16
479-45-8	Tetryl	0.20	U M	0.24	0.20	0.079

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	86		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D
Lims ID: 280-126873-B-4-A
Client ID: SP-S22
Sample Type: Client
Inject. Date: 13-Aug-2019 06:46:08 ALS Bottle#: 56 Worklist Smp#: 56
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-4-A
Misc. Info.: 280-0084372-056
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:23 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:26:45

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/mL	Flags
	3 HMX	1		6.677			ND	
	6 MNX	1		7.367			ND	M
	7 RDX	1	7.757	7.757	0.000	3508	0.0316	M
$	9 1,2-Dinitrobenzene	1	8.723	8.710	0.013	24044	0.1726	
	10 1,3,5-Trinitrobenzene	1	8.897	8.877	0.020	440399	1.80	
	11 1,3-Dinitrobenzene	1	9.576	9.530	0.046	6521	0.0210	
	12 Nitrobenzene	1		9.910			ND	
	14 Tetryl	1		10.224			ND	U
	16 2,4,6-Trinitrotoluene	1		11.190			ND	U
	17 4-Amino-2,6-dinitrotoluene	1		11.370			ND	U
	18 2-Amino-4,6-dinitrotoluene	1		11.657			ND	U
	19 2,6-Dinitrotoluene	1		11.797			ND	
	20 2,4-Dinitrotoluene	1		11.997			ND	
	21 o-Nitrotoluene	1		12.830			ND	U
	22 p-Nitrotoluene	1	13.316	13.270	0.046	2001	0.0181	
	23 m-Nitrotoluene	1		13.870			ND	

QC Flag Legend

Review Flags
M - Manually Integrated
U - Marked Undetected

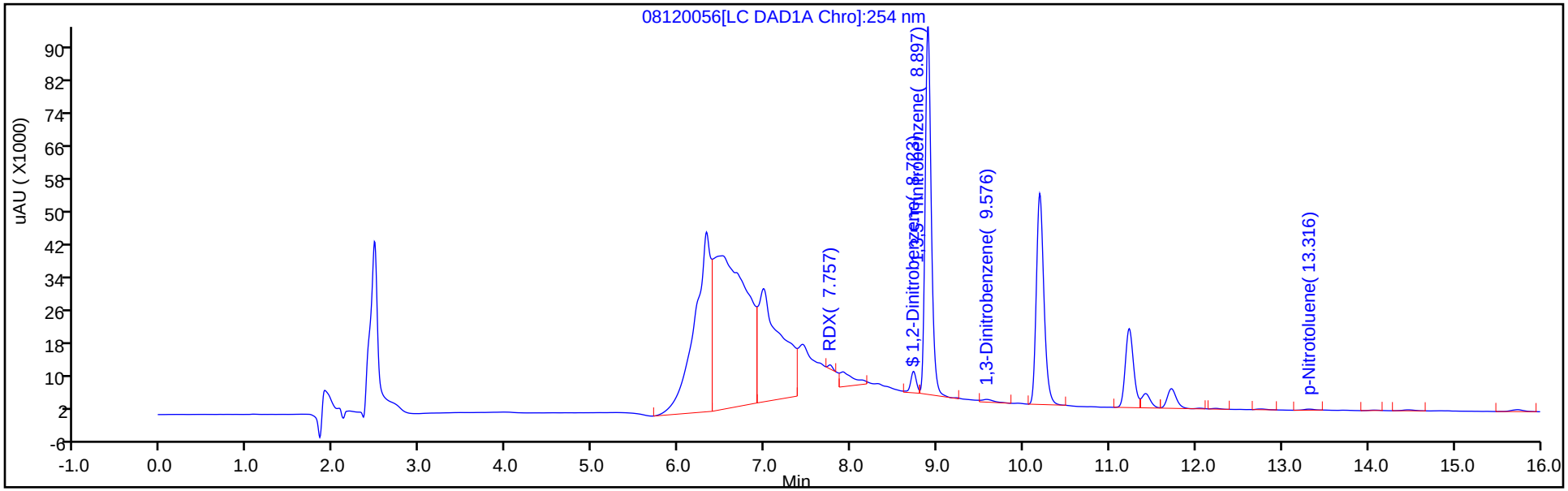
Report Date: 13-Aug-2019 14:09:30 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

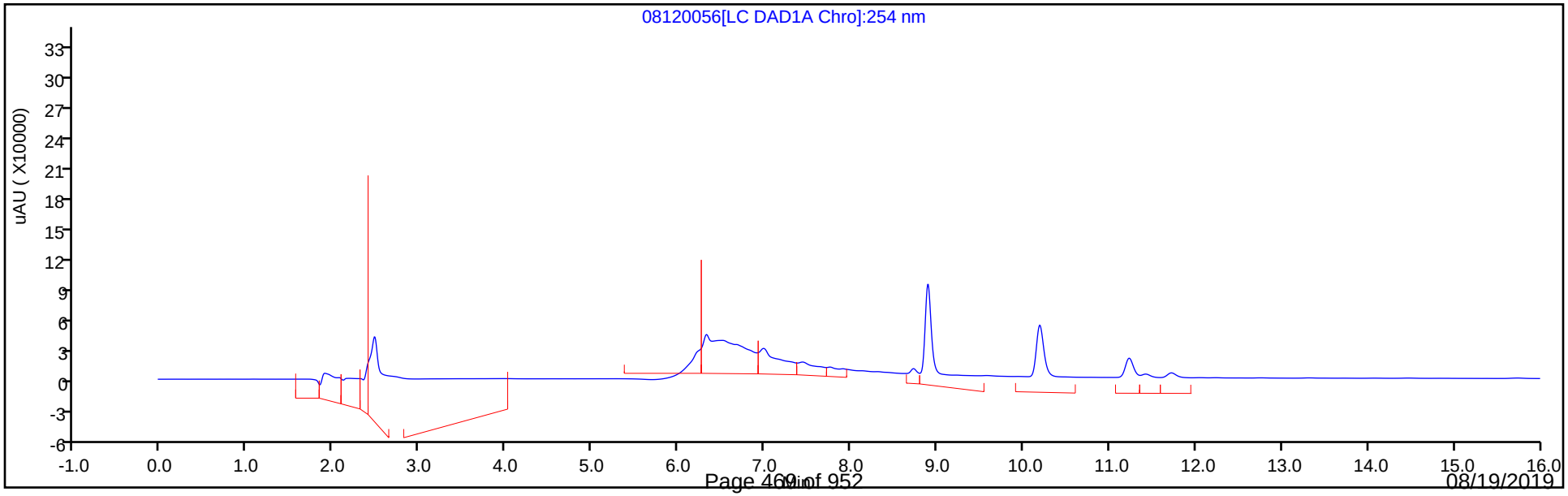
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D

Injection Date:	13-Aug-2019 06:46:08	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4	Worklist Smp#:	56
Client ID:	SP-S22				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	56
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D				
Lims ID:	280-126873-B-4-A				
Client ID:	SP-S22				
Sample Type:	Client				
Inject. Date:	13-Aug-2019 06:46:08	ALS Bottle#:	56	Worklist Smp#:	56
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-4-A				
Misc. Info.:	280-0084372-056				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	13-Aug-2019 14:09:23	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0340				

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:26:45

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1726	86.29

User Disabled Compound Report

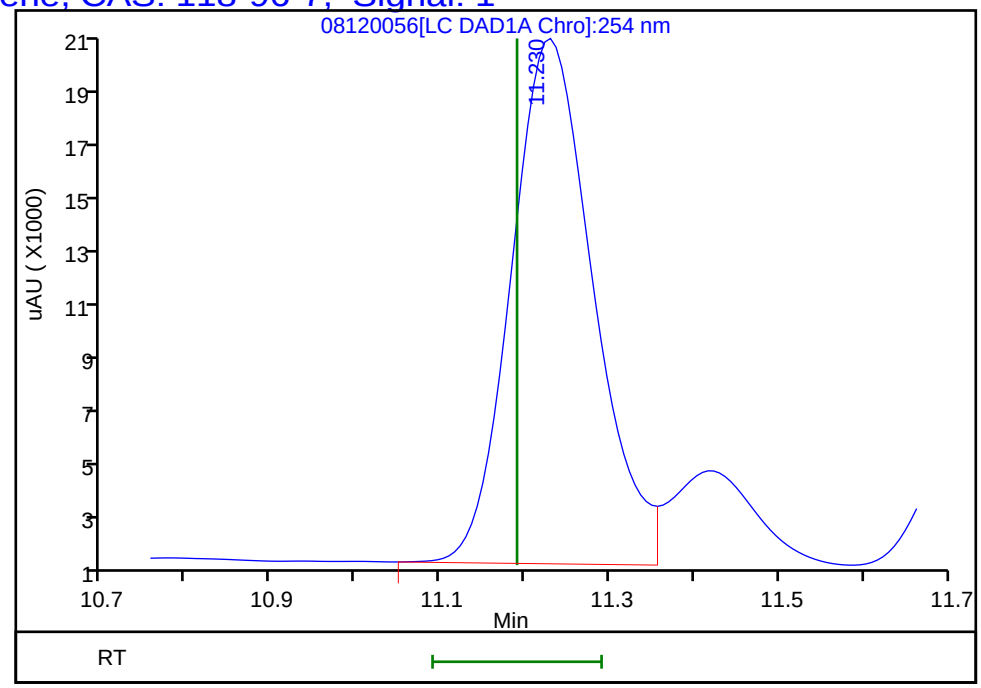
Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D
Injection Date: 13-Aug-2019 06:46:08 Instrument ID: CHHPLC_X3
Lims ID: 280-126873-B-4-A Lab Sample ID: 280-126873-4
Client ID: SP-S22
Operator ID: hkf ALS Bottle#: 56 Worklist Smp#: 56
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330

Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

16 2,4,6-Trinitrotoluene, CAS: 118-96-7, Signal: 1

RT: 11.23
Response: 128984
Amount: 0.567520



Reviewer: fiedlerh, 13-Aug-2019 13:26:45
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

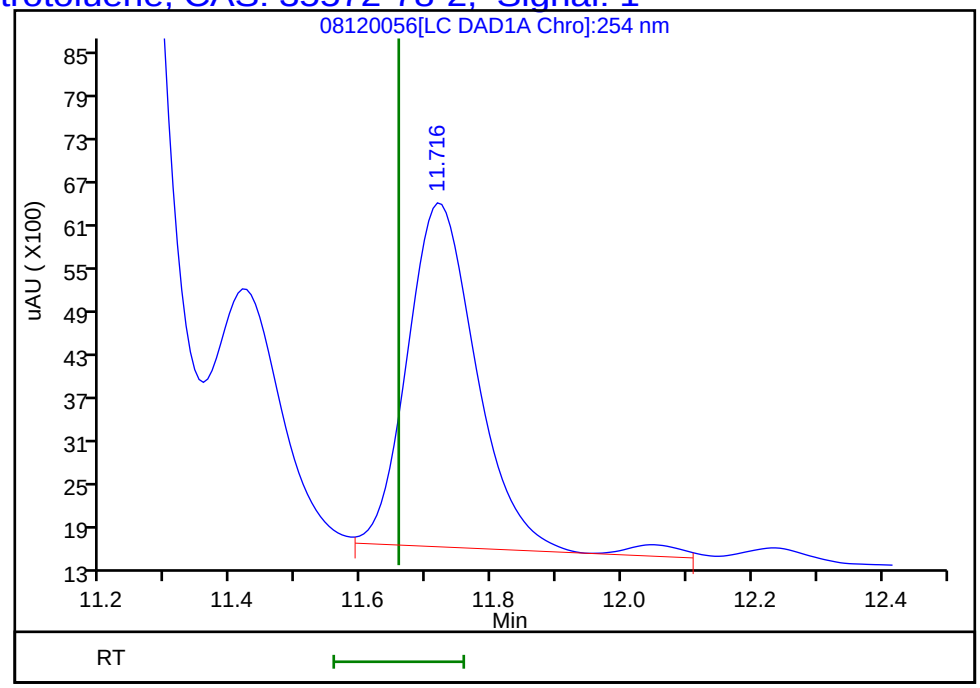
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D				
Injection Date:	13-Aug-2019 06:46:08	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	hkf	ALS Bottle#:	56	Worklist Smp#:	56
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

18 2-Amino-4,6-dinitrotoluene, CAS: 35572-78-2, Signal: 1

RT: 11.72
Response: 35957
Amount: 0.175198



Reviewer: fiedlerh, 13-Aug-2019 13:26:45
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

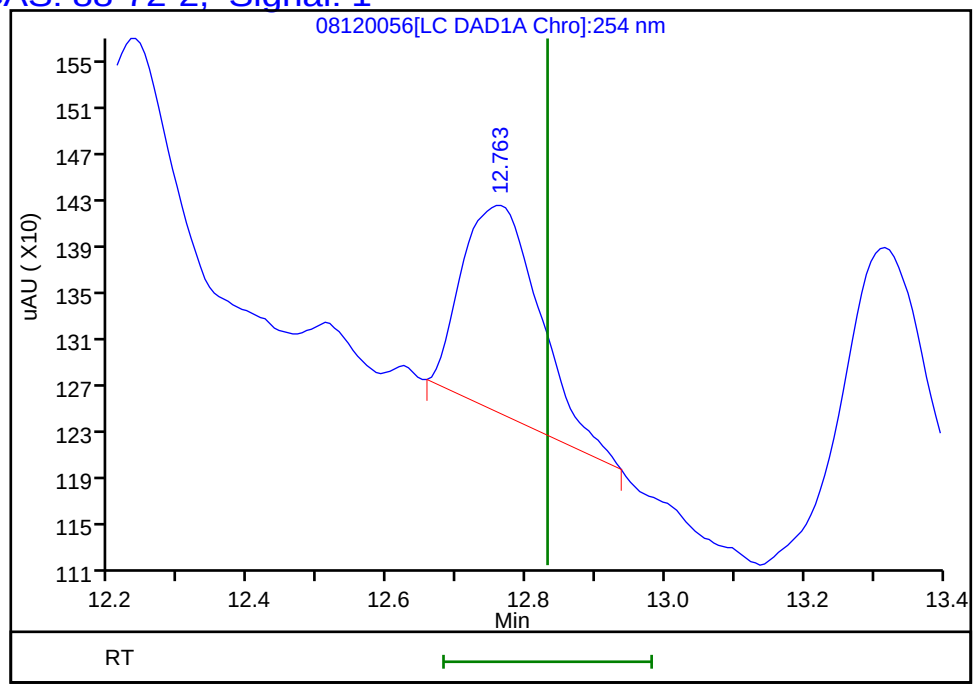
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D				
Injection Date:	13-Aug-2019 06:46:08	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	hkf	ALS Bottle#:	56	Worklist Smp#:	56
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

21 o-Nitrotoluene, CAS: 88-72-2, Signal: 1

RT: 12.76
Response: 1400
Amount: 0.010787



Reviewer: fiedlerh, 13-Aug-2019 13:26:45
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

User Disabled Compound Report

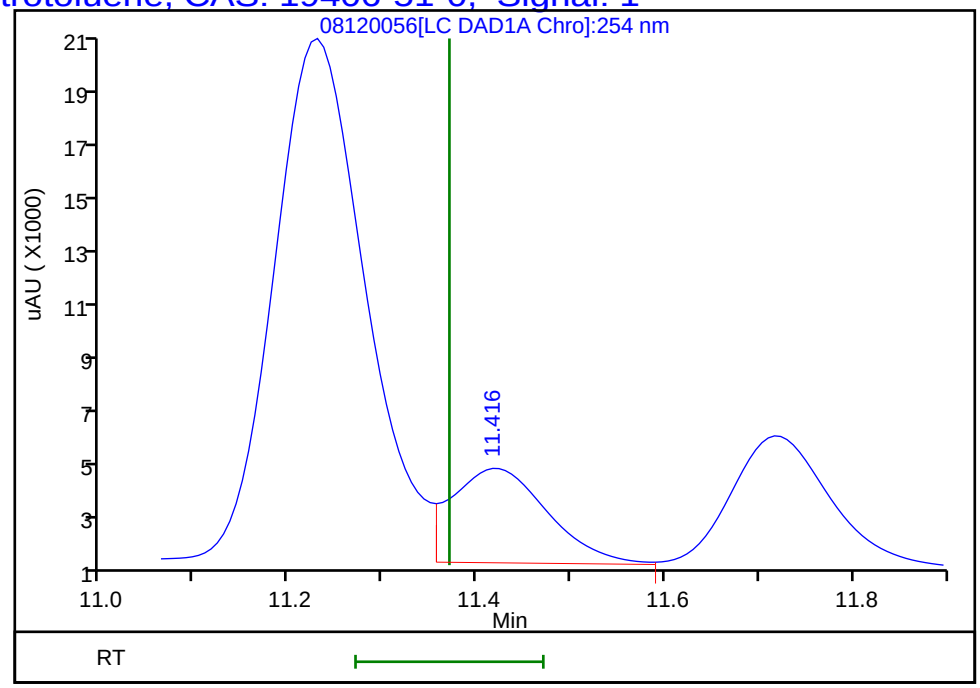
Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D

Injection Date:	13-Aug-2019 06:46:08	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	hkf	ALS Bottle#:	56	Worklist Smp#:	56
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

17 4-Amino-2,6-dinitrotoluene, CAS: 19406-51-0, Signal: 1

RT: 11.42
Response: 24248
Amount: 0.145741



Reviewer: fiedlerh, 13-Aug-2019 13:26:45
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

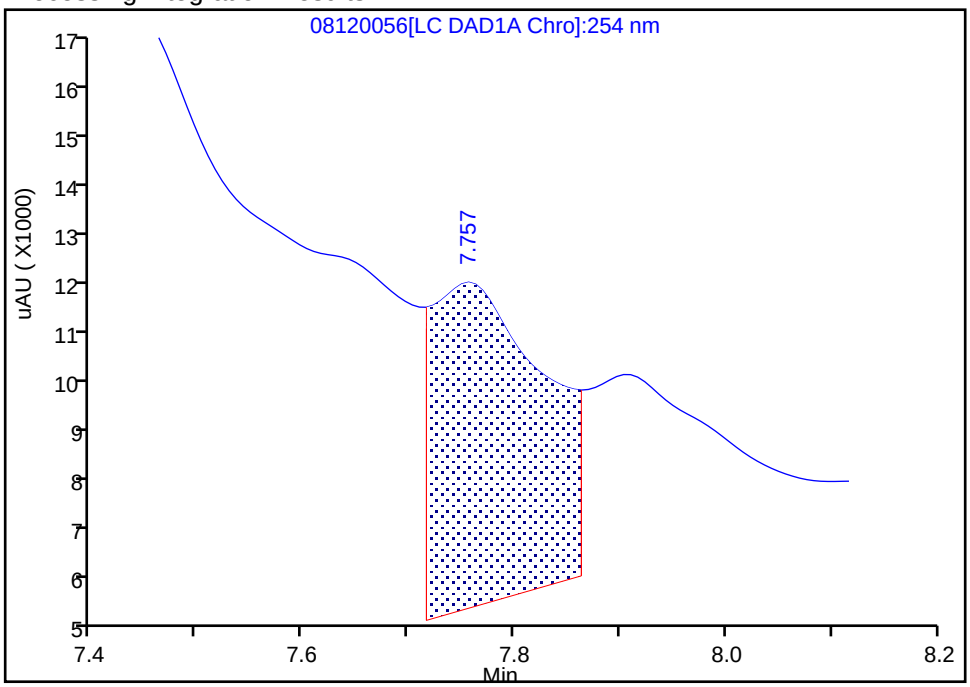
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D				
Injection Date:	13-Aug-2019 06:46:08	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	hkf	ALS Bottle#:	56	Worklist Smp#:	56
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

7 RDX, CAS: 121-82-4

Signal: 1

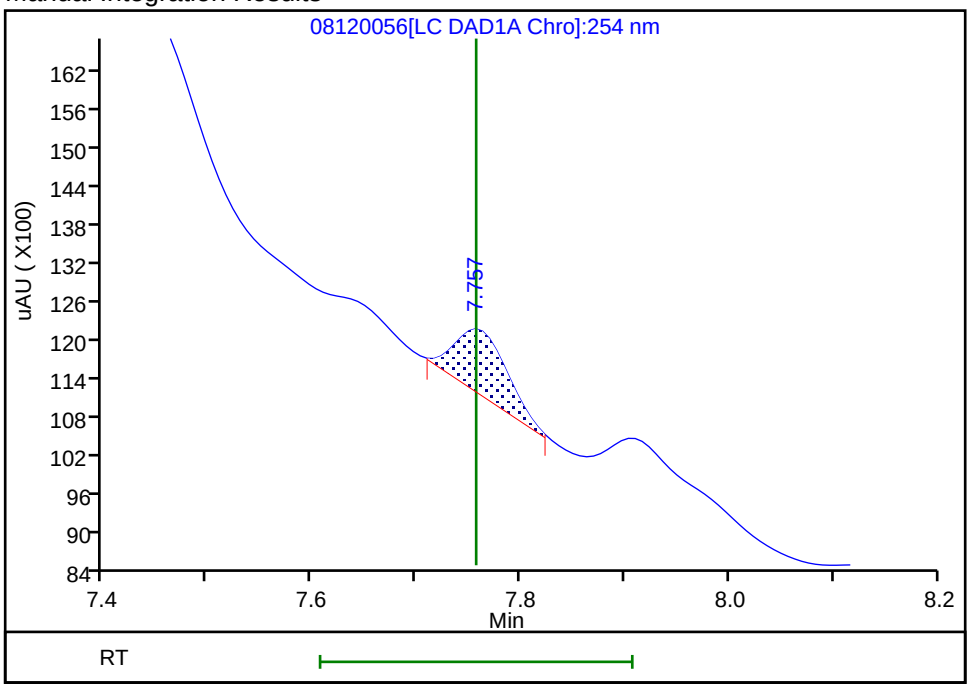
Processing Integration Results

RT: 7.76
Area: 42962
Amount: 0.386626
Amount Units: ug/mL



Manual Integration Results

RT: 7.76
Area: 3508
Amount: 0.031569
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 13:26:11
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

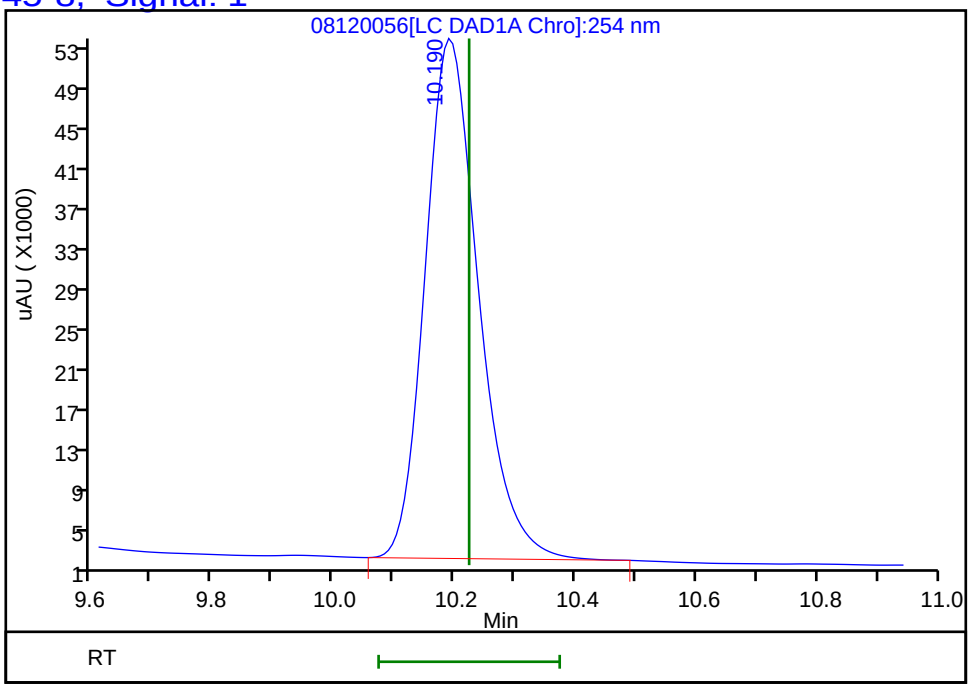
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120056.D				
Injection Date:	13-Aug-2019 06:46:08	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	hkf	ALS Bottle#:	56	Worklist Smp#:	56
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

14 Tetryl, CAS: 479-45-8, Signal: 1

RT: 10.19
Response: 314289
Amount: 1.940568



Reviewer: fiedlerh, 13-Aug-2019 13:26:45
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S22 Lab Sample ID: 280-126873-4

Matrix: Water Lab File ID: 08150011.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:48

Extraction Method: 3535 Date Extracted: 08/05/2019 17:01

Sample wt/vol: 500(mL) Date Analyzed: 08/15/2019 14:14

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: Luna-phenylhex ID: 4.6(mm)

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

Analysis Batch No.: 467721 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-65-0	1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089
99-99-0	4-Nitrotoluene	0.40	U	1.0	0.40	0.20
121-82-4	*RDX*	*0.53*	*J1*	*0.40*	0.40	*0.16*

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	97		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150011.D
Lims ID: 280-126873-B-4-A
Client ID: SP-S22
Sample Type: Client
Inject. Date: 15-Aug-2019 14:14:15 ALS Bottle#: 11 Worklist Smp#: 11
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-4-A
Misc. Info.: 280-0084482-011
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA

Method: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 16-Aug-2019 13:24:47 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0321

First Level Reviewer: fiedlerh Date: 16-Aug-2019 11:05:35

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/ml	Flags
	6 HMX	1	7.066	7.055	0.011	6276	0.0367	M
	7 MNX	1	7.640	7.693	-0.053	1412	0.005239	
	8 RDX	1	9.080	9.055	0.025	11047	0.0530	
	9 Nitrobenzene	1		12.135			ND	
$	10 1,2-Dinitrobenzene	1	13.099	13.082	0.017	53512	0.1933	
	12 1,3-Dinitrobenzene	1		15.602			ND	
	14 o-Nitrotoluene	1		16.488			ND	U
	15 p-Nitrotoluene	1		16.808			ND	
	16 4-Amino-2,6-dinitrotoluene	1	17.119	17.095	0.024	49004	0.1648	
	17 m-Nitrotoluene	1		17.715			ND	
	18 2-Amino-4,6-dinitrotoluene	1	18.079	18.048	0.031	83389	0.1938	
	19 1,3,5-Trinitrobenzene	1	18.933	18.915	0.018	856093	1.87	
	20 2,6-Dinitrotoluene	1		19.775			ND	
	21 2,4-Dinitrotoluene	1	20.326	20.295	0.031	3544	0.006223	
	22 Tetryl	1		23.555			ND	
	23 2,4,6-Trinitrotoluene	1	24.660	24.649	0.011	253591	0.6226	

QC Flag Legend

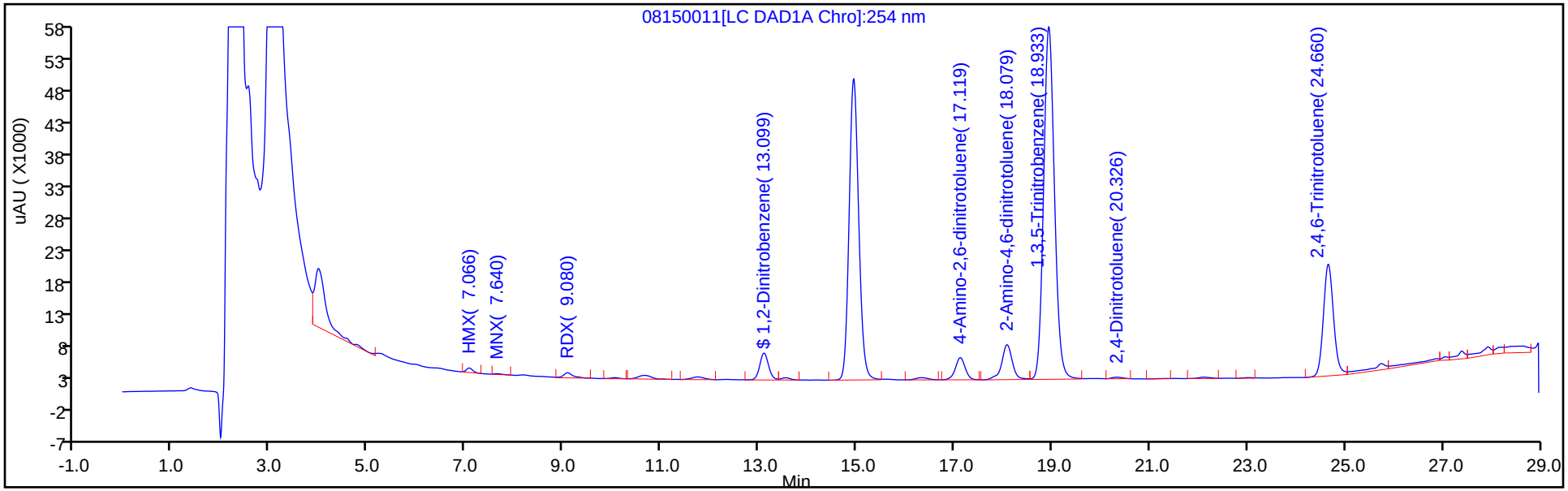
Review Flags
M - Manually Integrated
U - Marked Undetected

Report Date: 16-Aug-2019 13:24:51 Chrom Revision: 2.3 15-Jul-2019 06:58:08

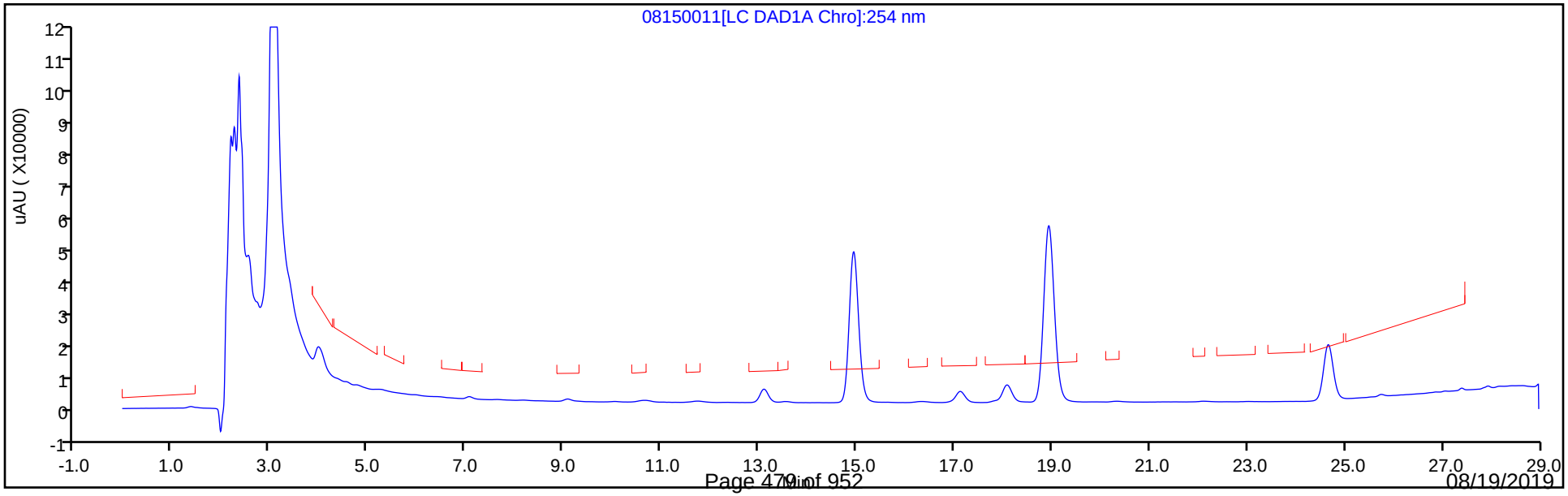
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150011.D				
Injection Date:	15-Aug-2019 14:14:15	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4	Worklist Smp#:	11
Client ID:	SP-S22				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	11
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150011.D				
Lims ID:	280-126873-B-4-A				
Client ID:	SP-S22				
Sample Type:	Client				
Inject. Date:	15-Aug-2019 14:14:15	ALS Bottle#:	11	Worklist Smp#:	11
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-4-A				
Misc. Info.:	280-0084482-011				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	16-Aug-2019 13:24:47	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0321				
First Level Reviewer: fiedlerh		Date:	16-Aug-2019 11:05:35		

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1933	96.64

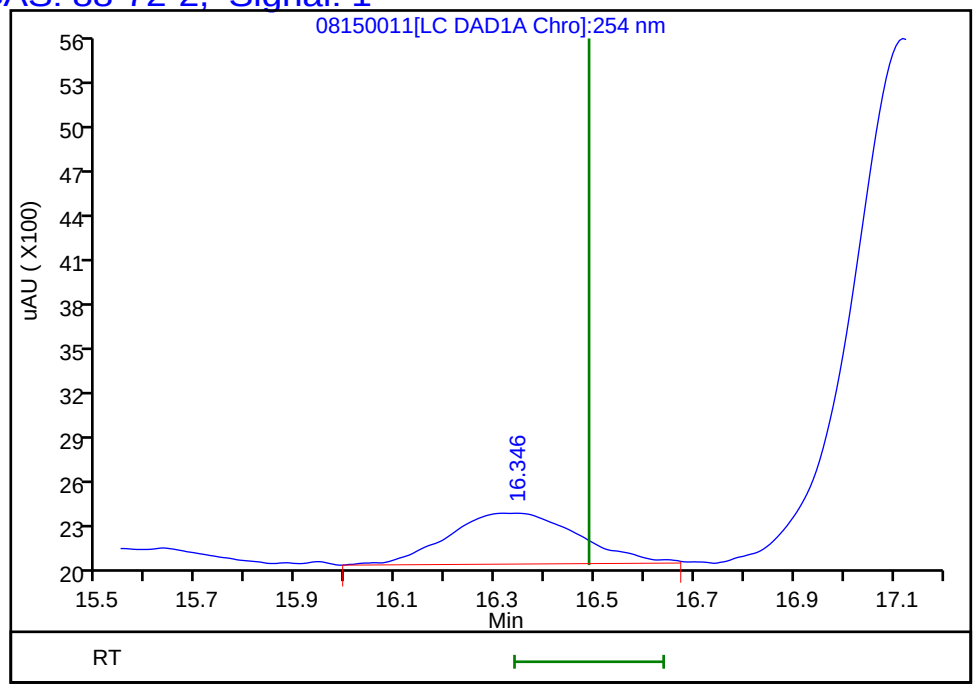
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150011.D				
Injection Date:	15-Aug-2019 14:14:15	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	HKF	ALS Bottle#:	11	Worklist Smp#:	11
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

14 o-Nitrotoluene, CAS: 88-72-2, Signal: 1

RT: 16.35
Response: 6161
Amount: 0.023527



Reviewer: fiedlerh, 16-Aug-2019 12:28:18
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

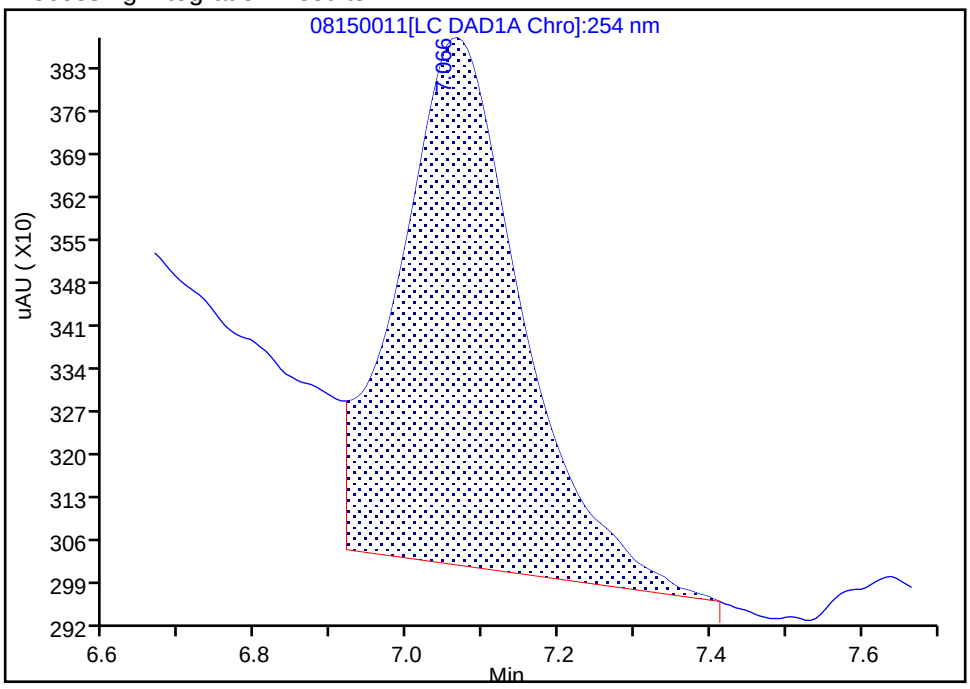
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150011.D				
Injection Date:	15-Aug-2019 14:14:15	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-4-A	Lab Sample ID:	280-126873-4		
Client ID:	SP-S22				
Operator ID:	HKF	ALS Bottle#:	11	Worklist Smp#:	11
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

6 HMX, CAS: 2691-41-0

Signal: 1

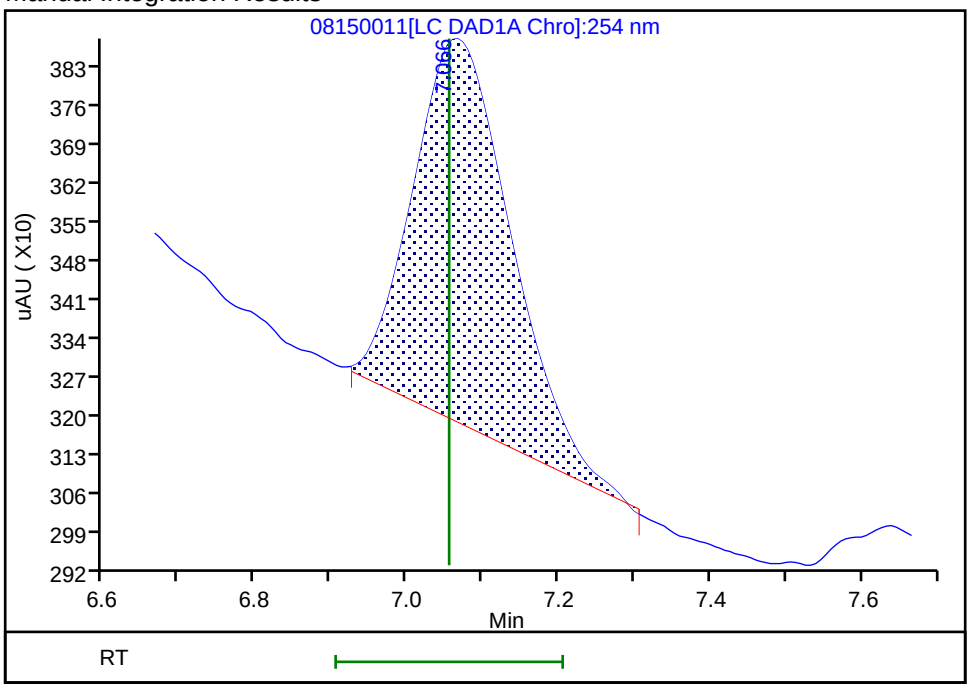
Processing Integration Results

RT: 7.07
Area: 9795
Amount: 0.057214
Amount Units: ug/ml



Manual Integration Results

RT: 7.07
Area: 6276
Amount: 0.036659
Amount Units: ug/ml



Reviewer: fiedlerh, 16-Aug-2019 12:27:58

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S6 Lab Sample ID: 280-126873-6

Matrix: Water Lab File ID: 08120057.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:50

Extraction Method: 3535 Date Extracted: 08/05/2019 17:01

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 07:09

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	0.57	J	1.0	0.40	0.20
99-65-0	1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089
118-96-7	2,4,6-Trinitrotoluene	0.40	U	0.40	0.40	0.16
121-14-2	2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084
606-20-2	2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065
35572-78-2	2-Amino-4,6-dinitrotoluene	0.12	U	0.20	0.12	0.051
88-72-2	2-Nitrotoluene	0.20	U	0.40	0.20	0.086
99-08-1	3-Nitrotoluene	0.40	U	0.40	0.40	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U	0.20	0.12	0.058
99-99-0	4-Nitrotoluene	0.40	U	1.0	0.40	0.20
2691-41-0	HMX	0.20	U	0.40	0.20	0.088
5755-27-1	MNX	0.40	U	2.0	0.40	0.15
98-95-3	Nitrobenzene	0.20	U	0.40	0.20	0.091
121-82-4	RDX	0.40	U	0.40	0.40	0.16
479-45-8	Tetryl	0.20	U M	0.24	0.20	0.079

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	89		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120057.D
Lims ID: 280-126873-B-6-A
Client ID: SP-S6
Sample Type: Client
Inject. Date: 13-Aug-2019 07:09:04 ALS Bottle#: 57 Worklist Smp#: 57
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-6-A
Misc. Info.: 280-0084372-057
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:23 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:27:04

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/mL	Flags
	3 HMX	1		6.677			ND	
	6 MNX	1		7.367			ND	
	7 RDX	1		7.757			ND	
$	9 1,2-Dinitrobenzene	1	8.721	8.710	0.011	24683	0.1772	
	10 1,3,5-Trinitrobenzene	1	8.895	8.877	0.018	13994	0.0571	
	11 1,3-Dinitrobenzene	1		9.530			ND	
	12 Nitrobenzene	1		9.910			ND	
	14 Tetryl	1		10.224			ND	U
	16 2,4,6-Trinitrotoluene	1		11.190			ND	
	17 4-Amino-2,6-dinitrotoluene	1		11.370			ND	
	18 2-Amino-4,6-dinitrotoluene	1		11.657			ND	
	19 2,6-Dinitrotoluene	1		11.797			ND	
	20 2,4-Dinitrotoluene	1		11.997			ND	
	21 o-Nitrotoluene	1		12.830			ND	
	22 p-Nitrotoluene	1		13.270			ND	
	23 m-Nitrotoluene	1		13.870			ND	

QC Flag Legend

Review Flags
U - Marked Undetected

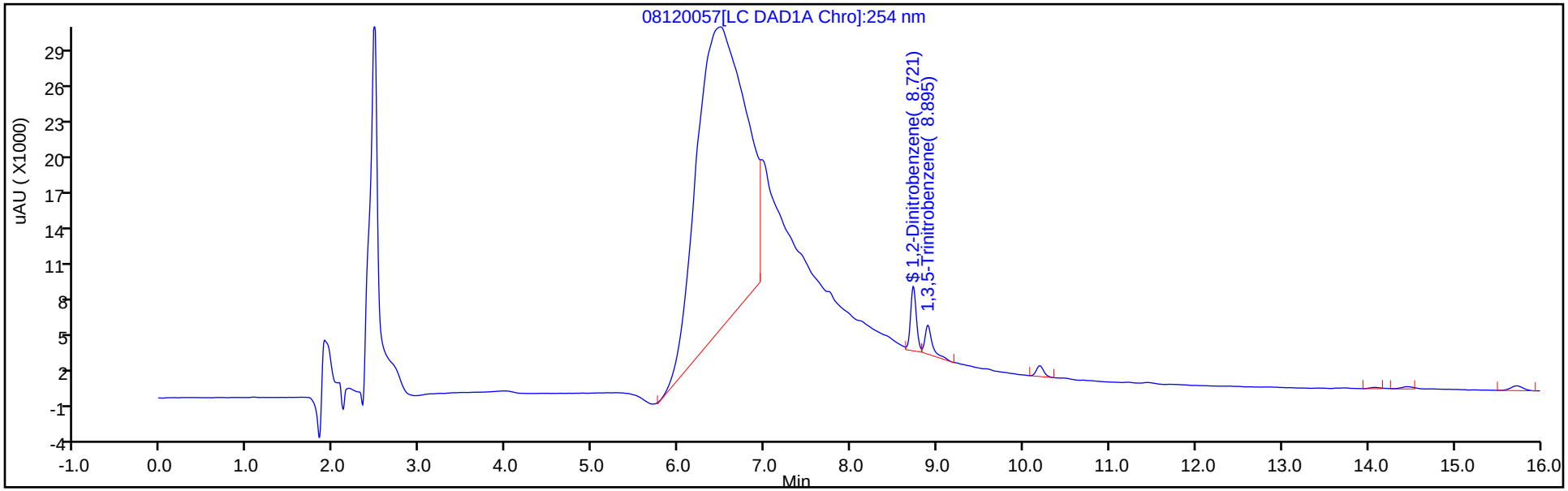
Report Date: 13-Aug-2019 14:09:29 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

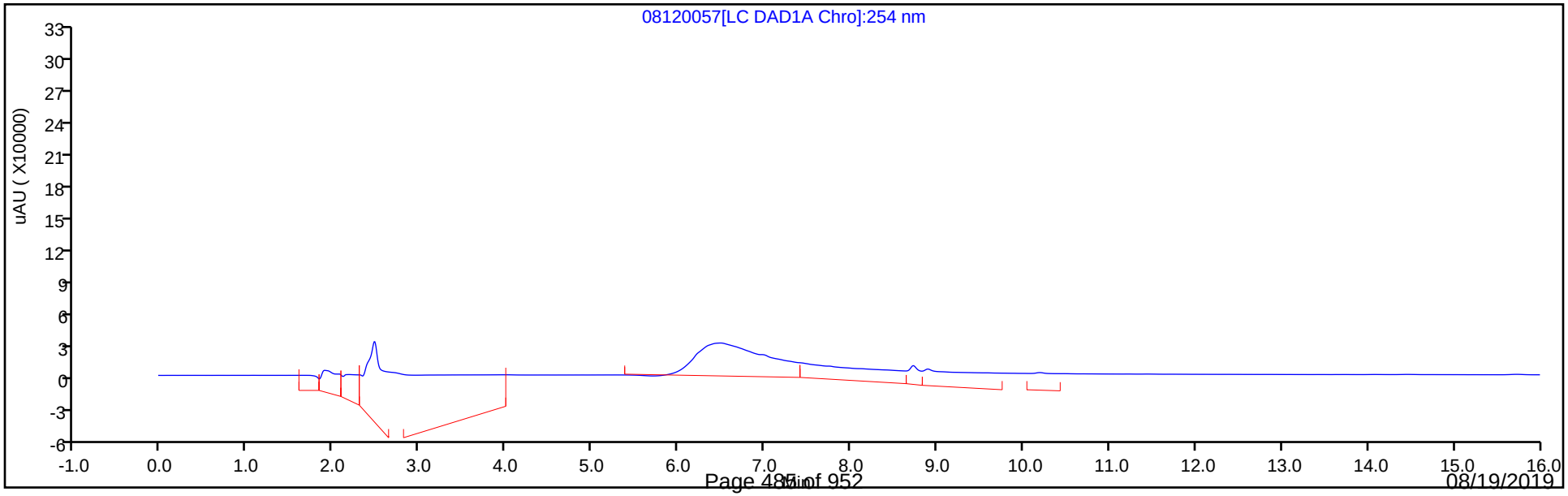
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120057.D

Injection Date:	13-Aug-2019 07:09:04	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	280-126873-B-6-A	Lab Sample ID:	280-126873-6	Worklist Smp#:	57
Client ID:	SP-S6				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	57
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120057.D				
Lims ID:	280-126873-B-6-A				
Client ID:	SP-S6				
Sample Type:	Client				
Inject. Date:	13-Aug-2019 07:09:04	ALS Bottle#:	57	Worklist Smp#:	57
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-6-A				
Misc. Info.:	280-0084372-057				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	13-Aug-2019 14:09:23	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0340				

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:27:04

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1772	88.58

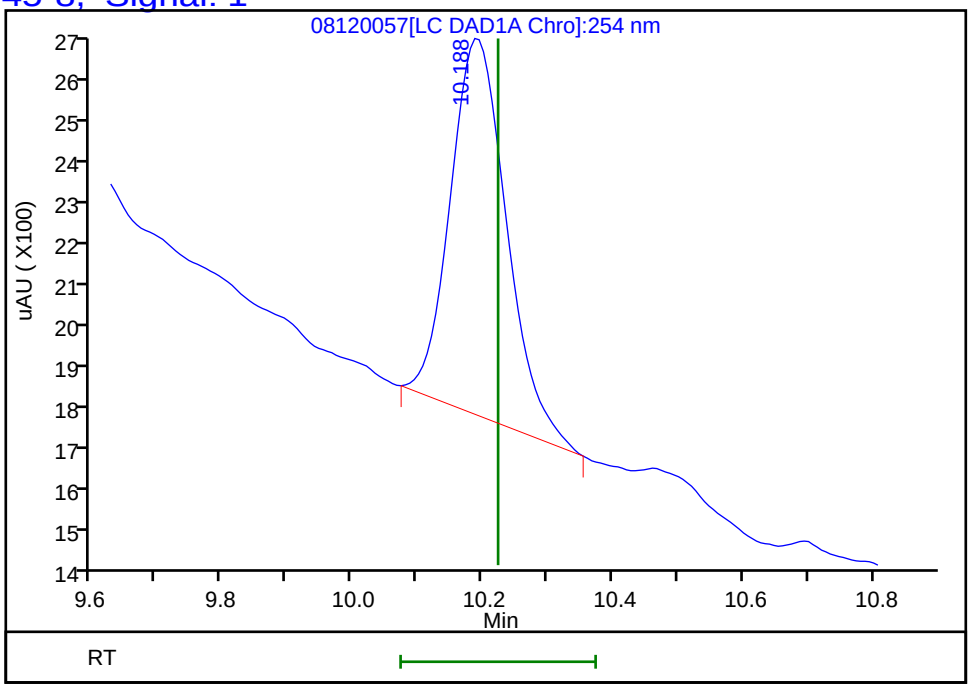
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120057.D				
Injection Date:	13-Aug-2019 07:09:04	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-6-A	Lab Sample ID:	280-126873-6		
Client ID:	SP-S6				
Operator ID:	hkf	ALS Bottle#:	57	Worklist Smp#:	57
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

14 Tetryl, CAS: 479-45-8, Signal: 1

RT: 10.19
Response: 5291
Amount: 0.032669



Reviewer: fiedlerh, 13-Aug-2019 13:27:04
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S6 Lab Sample ID: 280-126873-6

Matrix: Water Lab File ID: 08150012.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:50

Extraction Method: 3535 Date Extracted: 08/05/2019 17:01

Sample wt/vol: 500(mL) Date Analyzed: 08/15/2019 14:49

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: Luna-phenylhex ID: 4.6(mm)

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

Analysis Batch No.: 467721 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	90		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150012.D
Lims ID: 280-126873-B-6-A
Client ID: SP-S6
Sample Type: Client
Inject. Date: 15-Aug-2019 14:49:15 ALS Bottle#: 12 Worklist Smp#: 12
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-6-A
Misc. Info.: 280-0084482-012
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA

Method: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 16-Aug-2019 13:24:47 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0321

First Level Reviewer: fiedlerh Date: 16-Aug-2019 11:05:47

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/ml	Flags
	6 HMX	1		7.055			ND	
	7 MNX	1		7.693			ND	
	8 RDX	1	9.086	9.055	0.031	2762	0.0133	
	9 Nitrobenzene	1		12.135			ND	
$	10 1,2-Dinitrobenzene	1	13.099	13.082	0.017	49894	0.1802	
	12 1,3-Dinitrobenzene	1		15.602			ND	
	14 o-Nitrotoluene	1		16.488			ND	
	15 p-Nitrotoluene	1		16.808			ND	
	16 4-Amino-2,6-dinitrotoluene	1		17.095			ND	U
	17 m-Nitrotoluene	1		17.715			ND	U
	18 2-Amino-4,6-dinitrotoluene	1		18.048			ND	
	19 1,3,5-Trinitrobenzene	1	18.932	18.915	0.017	23850	0.0521	
	20 2,6-Dinitrotoluene	1		19.775			ND	
	21 2,4-Dinitrotoluene	1		20.295			ND	
	22 Tetryl	1		23.555			ND	
	23 2,4,6-Trinitrotoluene	1		24.649			ND	

QC Flag Legend

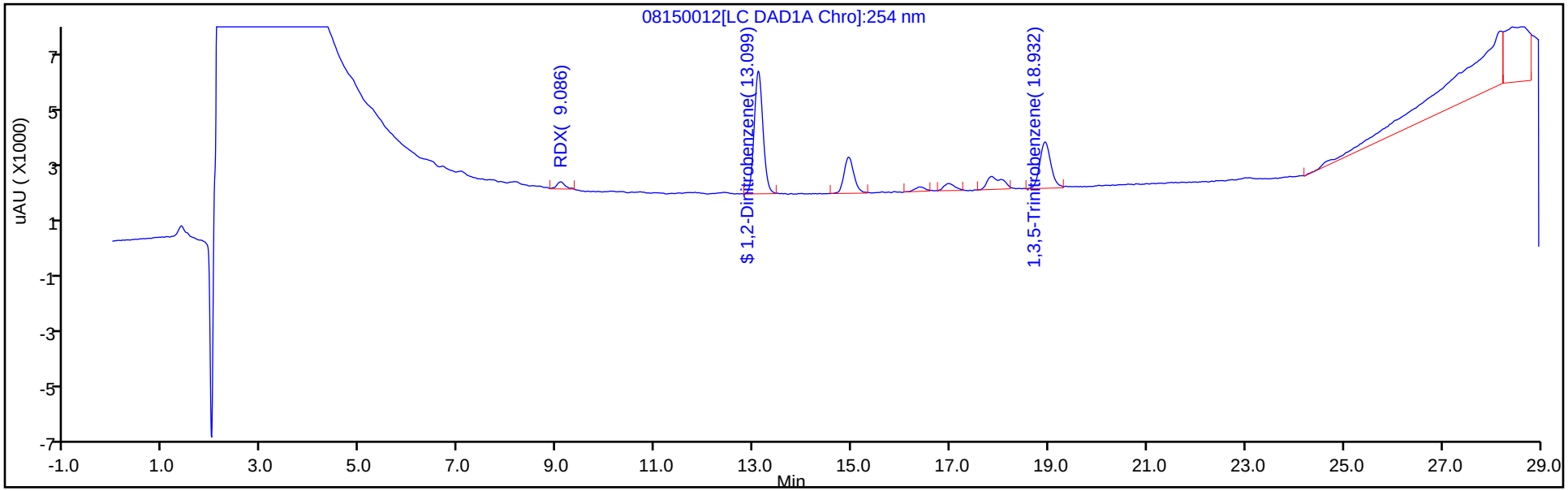
Review Flags
U - Marked Undetected

Report Date: 16-Aug-2019 13:24:52 Chrom Revision: 2.3 15-Jul-2019 06:58:08

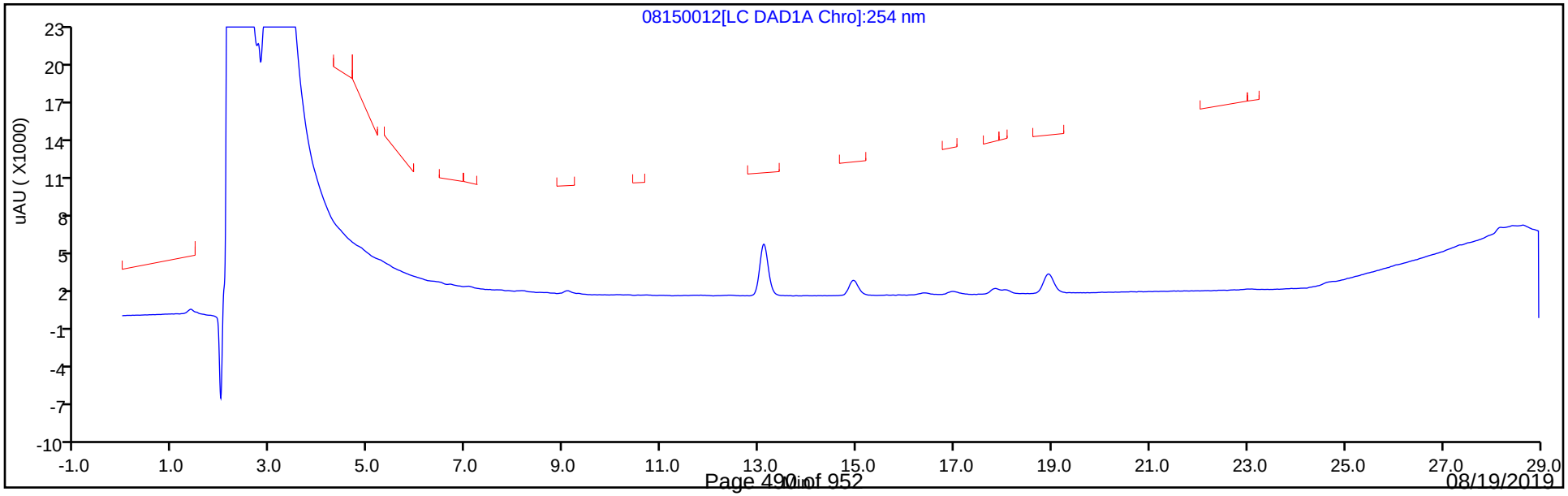
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150012.D				
Injection Date:	15-Aug-2019 14:49:15	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	280-126873-B-6-A	Lab Sample ID:	280-126873-6	Worklist Smp#:	12
Client ID:	SP-S6				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	12
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150012.D				
Lims ID:	280-126873-B-6-A				
Client ID:	SP-S6				
Sample Type:	Client				
Inject. Date:	15-Aug-2019 14:49:15	ALS Bottle#:	12	Worklist Smp#:	12
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-6-A				
Misc. Info.:	280-0084482-012				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	16-Aug-2019 13:24:47	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0321				
First Level Reviewer: fiedlerh		Date:	16-Aug-2019 11:05:47		

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1802	90.11

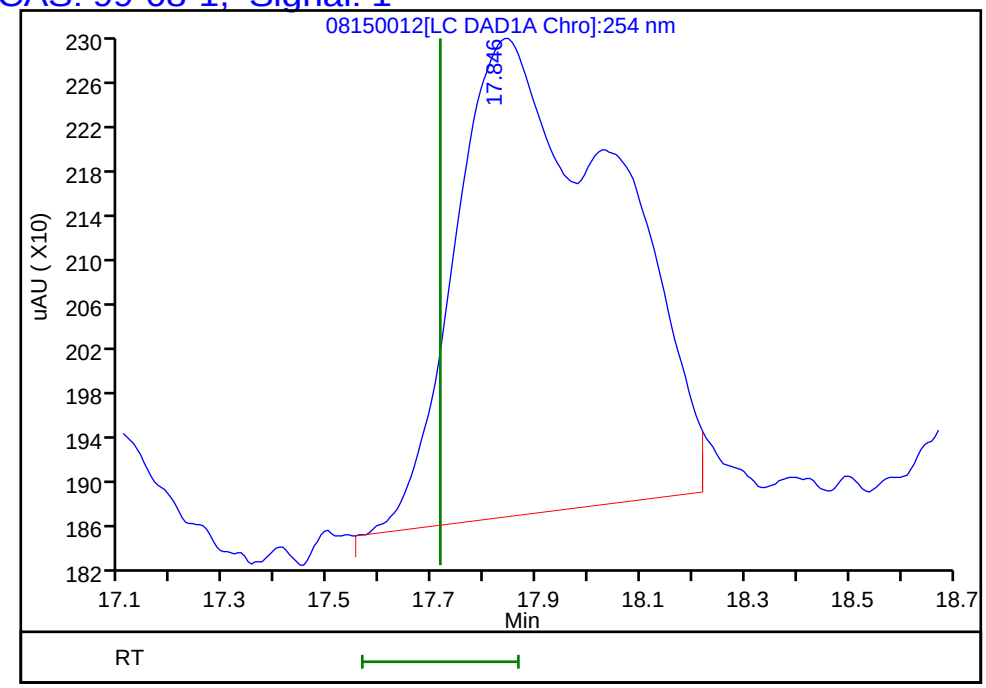
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150012.D				
Injection Date:	15-Aug-2019 14:49:15	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-6-A	Lab Sample ID:	280-126873-6		
Client ID:	SP-S6				
Operator ID:	HKF	ALS Bottle#:	12	Worklist Smp#:	12
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

17 m-Nitrotoluene, CAS: 99-08-1, Signal: 1

RT: 17.85
Response: 9069
Amount: 0.030985



Reviewer: fiedlerh, 16-Aug-2019 12:28:30
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

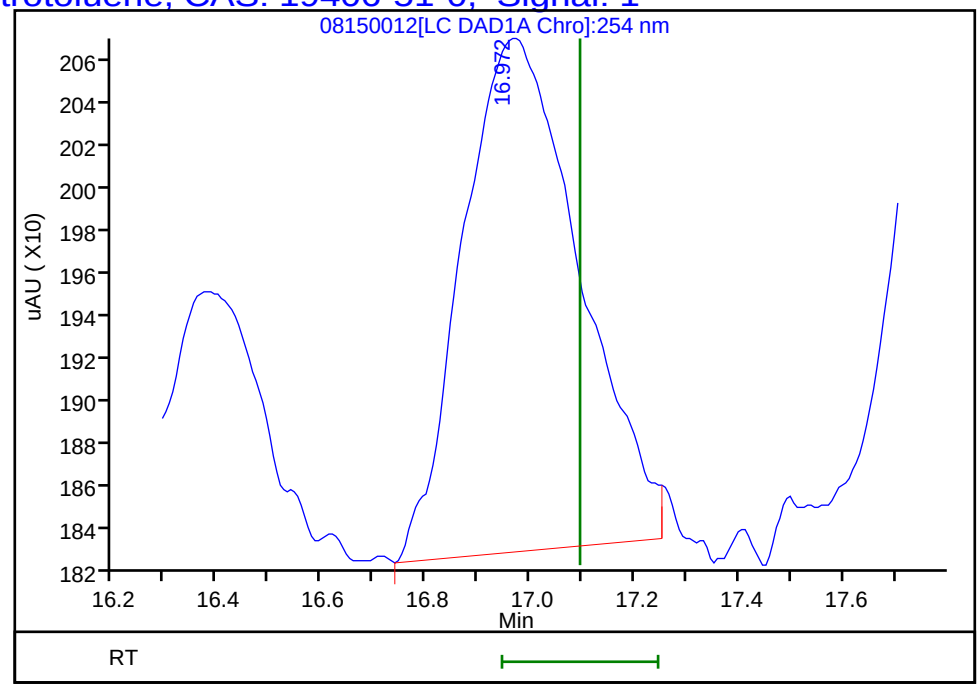
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150012.D				
Injection Date:	15-Aug-2019 14:49:15	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-6-A	Lab Sample ID:	280-126873-6		
Client ID:	SP-S6				
Operator ID:	HKF	ALS Bottle#:	12	Worklist Smp#:	12
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

16 4-Amino-2,6-dinitrotoluene, CAS: 19406-51-0, Signal: 1

RT: 16.97
Response: 3616
Amount: 0.012160



Reviewer: fiedlerh, 16-Aug-2019 12:28:30
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S8 Lab Sample ID: 280-126873-7

Matrix: Water Lab File ID: 08120058.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:53

Extraction Method: 3535 Date Extracted: 08/05/2019 17:01

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 07:32

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	4.9		1.0	0.40	0.20
99-65-0	1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089
118-96-7	2,4,6-Trinitrotoluene	0.40	U M	0.40	0.40	0.16
121-14-2	2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084
606-20-2	2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065
35572-78-2	2-Amino-4,6-dinitrotoluene	0.12	U M	0.20	0.12	0.051
88-72-2	2-Nitrotoluene	0.20	U	0.40	0.20	0.086
99-08-1	3-Nitrotoluene	0.40	U	0.40	0.40	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U M	0.20	0.12	0.058
99-99-0	4-Nitrotoluene	0.40	U	1.0	0.40	0.20
2691-41-0	HMX	0.20	U	0.40	0.20	0.088
5755-27-1	MNX	0.40	U M	2.0	0.40	0.15
98-95-3	Nitrobenzene	0.20	U	0.40	0.20	0.091
121-82-4	RDX	0.20	J M J1	0.40	0.40	0.16
479-45-8	Tetryl	0.20	U M	0.24	0.20	0.079

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	86		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D
Lims ID: 280-126873-B-7-A
Client ID: SP-S8
Sample Type: Client
Inject. Date: 13-Aug-2019 07:32:01 ALS Bottle#: 58 Worklist Smp#: 58
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-7-A
Misc. Info.: 280-0084372-058
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:23 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:27:37

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/mL	Flags
3 HMX	1		6.677			ND	
6 MNX	1		7.367			ND	MU
7 RDX	1	7.754	7.757	-0.003	2189	0.0197	M
$ 9 1,2-Dinitrobenzene	1	8.721	8.710	0.011	23970	0.1720	
10 1,3,5-Trinitrobenzene	1	8.894	8.877	0.017	120113	0.4901	
11 1,3-Dinitrobenzene	1		9.530			ND	
12 Nitrobenzene	1		9.910			ND	
14 Tetryl	1		10.224			ND	U
16 2,4,6-Trinitrotoluene	1		11.190			ND	U
17 4-Amino-2,6-dinitrotoluene	1		11.370			ND	U
18 2-Amino-4,6-dinitrotoluene	1		11.657			ND	U
19 2,6-Dinitrotoluene	1		11.797			ND	
20 2,4-Dinitrotoluene	1		11.997			ND	
21 o-Nitrotoluene	1		12.830			ND	
22 p-Nitrotoluene	1		13.270			ND	
23 m-Nitrotoluene	1		13.870			ND	

QC Flag Legend

Review Flags
M - Manually Integrated
U - Marked Undetected

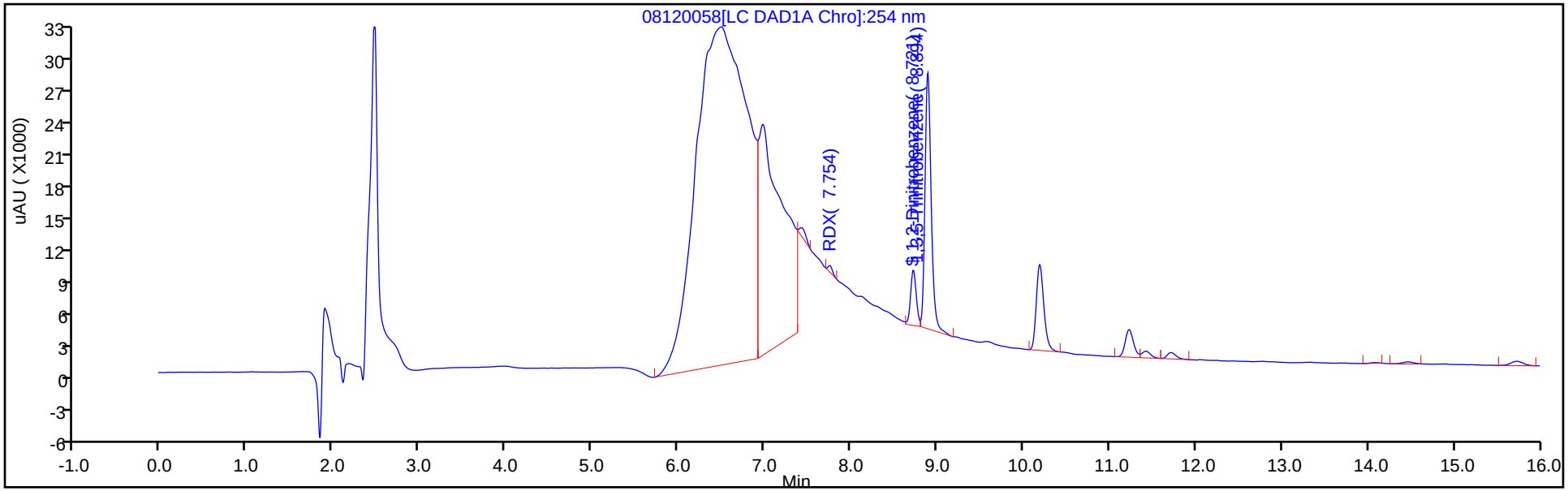
Report Date: 13-Aug-2019 14:09:27 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

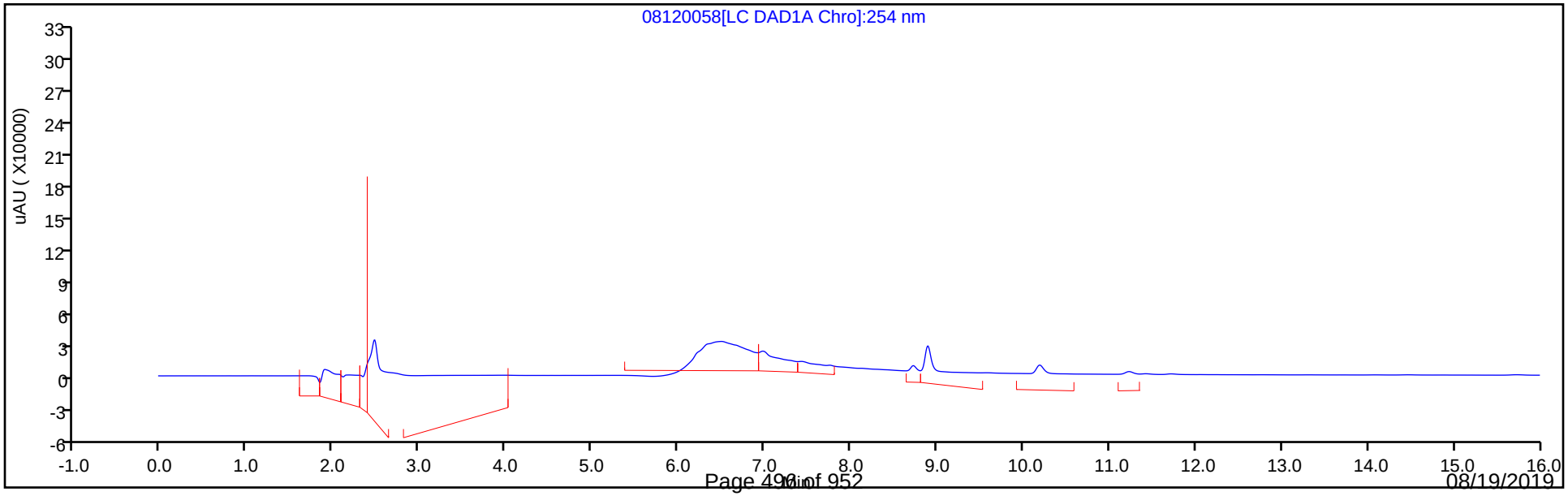
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D

Injection Date:	13-Aug-2019 07:32:01	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7	Worklist Smp#:	58
Client ID:	SP-S8				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	58
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D				
Lims ID:	280-126873-B-7-A				
Client ID:	SP-S8				
Sample Type:	Client				
Inject. Date:	13-Aug-2019 07:32:01	ALS Bottle#:	58	Worklist Smp#:	58
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-7-A				
Misc. Info.:	280-0084372-058				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	13-Aug-2019 14:09:23	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0340				

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:27:37

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1720	86.02

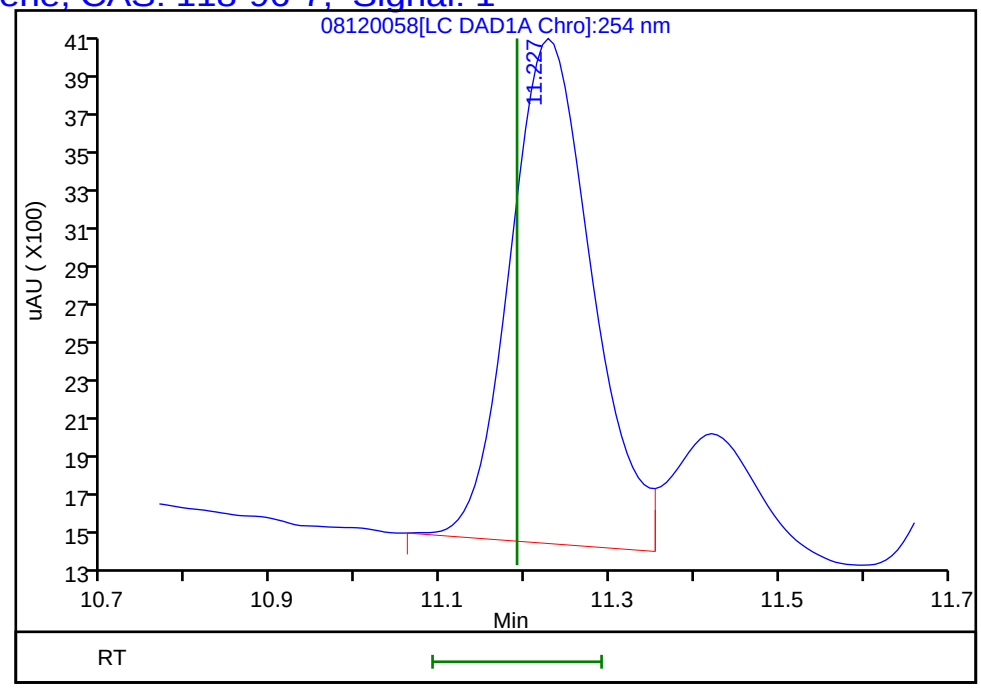
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D				
Injection Date:	13-Aug-2019 07:32:01	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	hkf	ALS Bottle#:	58	Worklist Smp#:	58
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

16 2,4,6-Trinitrotoluene, CAS: 118-96-7, Signal: 1

RT: 11.23
Response: 17509
Amount: 0.077038



Reviewer: fiedlerh, 13-Aug-2019 13:27:37
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

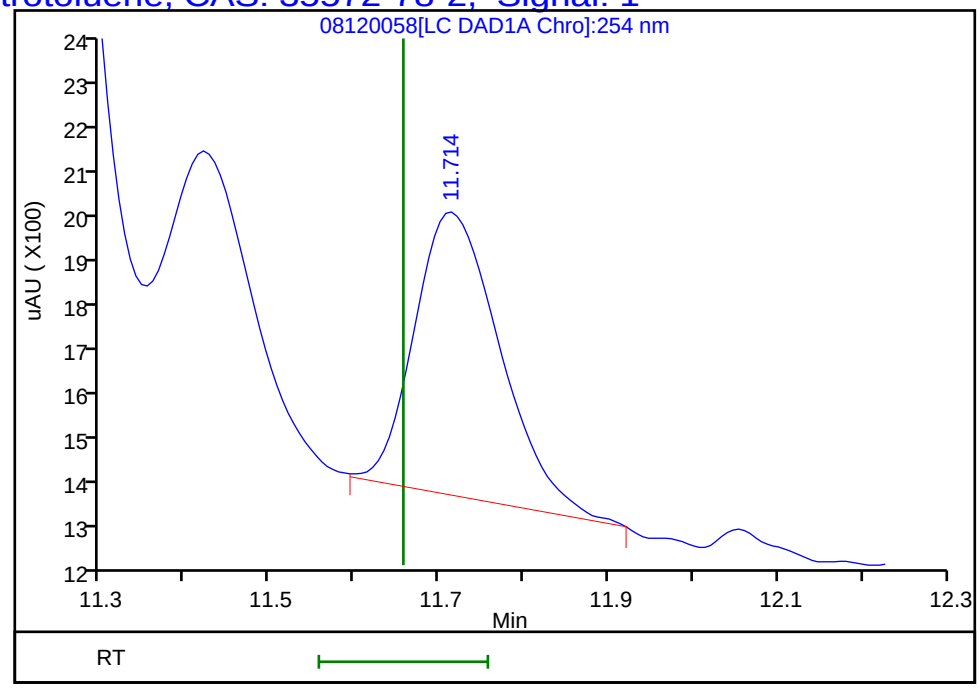
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D				
Injection Date:	13-Aug-2019 07:32:01	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	hkf	ALS Bottle#:	58	Worklist Smp#:	58
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

18 2-Amino-4,6-dinitrotoluene, CAS: 35572-78-2, Signal: 1

RT: 11.71
Response: 4188
Amount: 0.020406



Reviewer: fiedlerh, 13-Aug-2019 13:27:37
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

User Disabled Compound Report

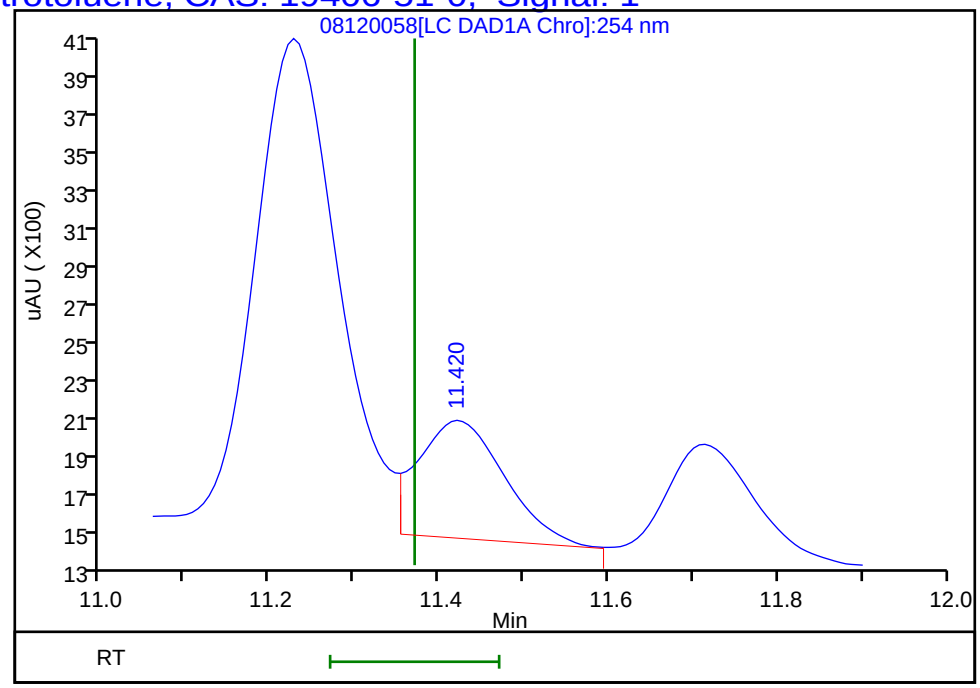
Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D

Injection Date:	13-Aug-2019 07:32:01	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	hkf	ALS Bottle#:	58	Worklist Smp#:	58
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

17 4-Amino-2,6-dinitrotoluene, CAS: 19406-51-0, Signal: 1

RT: 11.42
Response: 4371
Amount: 0.026272



Reviewer: fiedlerh, 13-Aug-2019 13:27:37
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

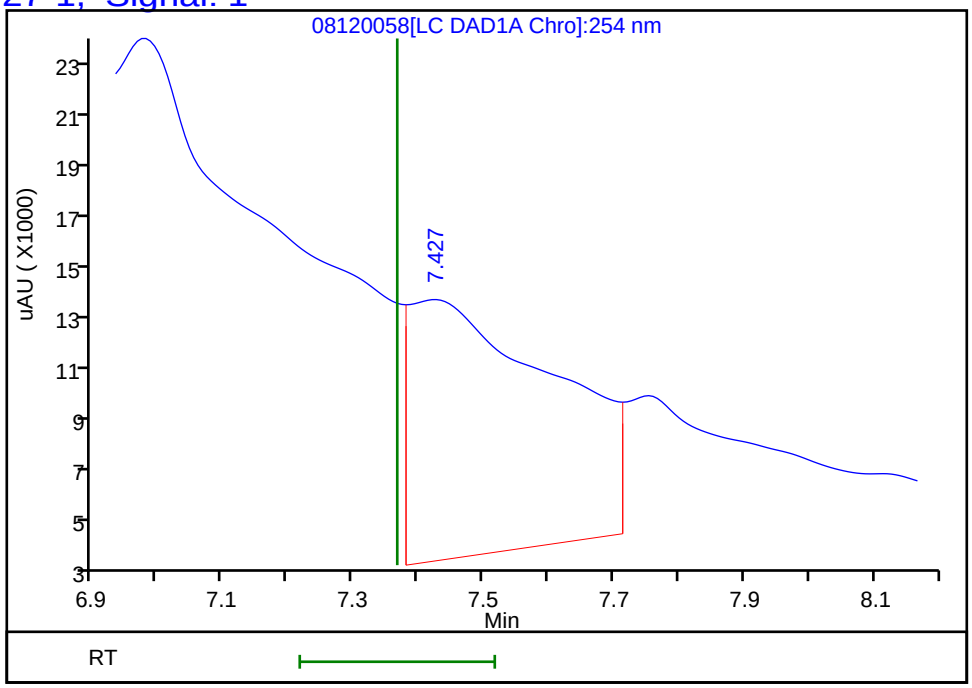
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D				
Injection Date:	13-Aug-2019 07:32:01	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	hkf	ALS Bottle#:	58	Worklist Smp#:	58
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

6 MNX, CAS: 5755-27-1, Signal: 1

RT: 7.43
Response: 146432
Amount: 1.045637



Reviewer: fiedlerh, 13-Aug-2019 13:27:37
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

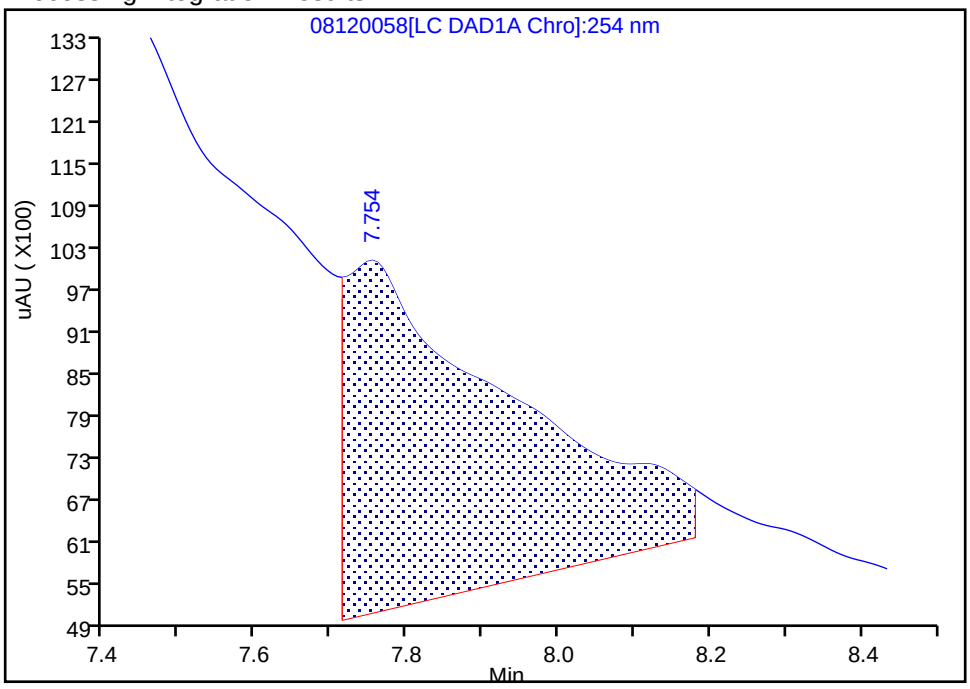
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D				
Injection Date:	13-Aug-2019 07:32:01	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	hkf	ALS Bottle#:	58	Worklist Smp#:	58
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

7 RDX, CAS: 121-82-4

Signal: 1

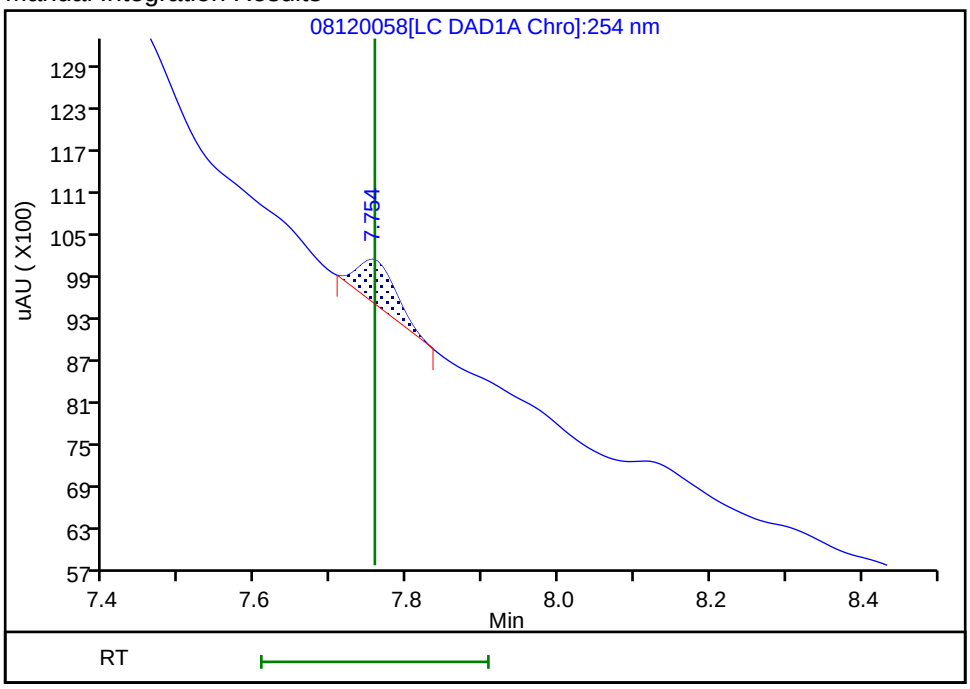
Processing Integration Results

RT: 7.75
Area: 74131
Amount: 0.667123
Amount Units: ug/mL



Manual Integration Results

RT: 7.75
Area: 2189
Amount: 0.019699
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 13:27:21
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

User Disabled Compound Report

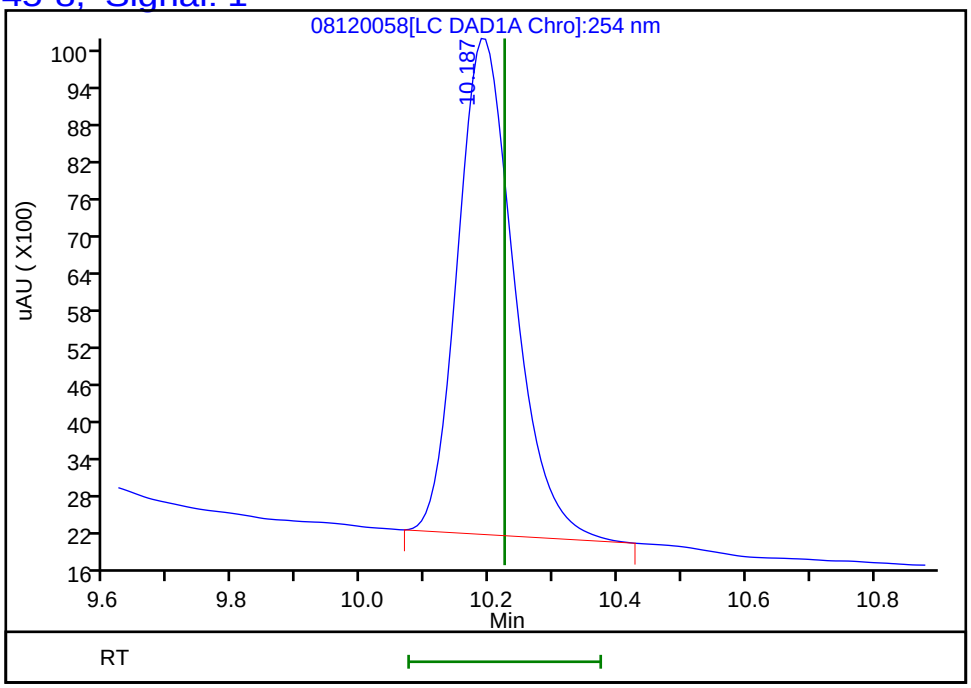
Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120058.D

Injection Date:	13-Aug-2019 07:32:01	Instrument ID:	CHHPLC_X3		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	hkf	ALS Bottle#:	58	Worklist Smp#:	58
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

14 Tetryl, CAS: 479-45-8, Signal: 1

RT: 10.19
Response: 49338
Amount: 0.304636



Reviewer: fiedlerh, 13-Aug-2019 13:27:37
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: SP-S8 Lab Sample ID: 280-126873-7

Matrix: Water Lab File ID: 08150013.D

Analysis Method: 8330A Date Collected: 07/31/2019 08:53

Extraction Method: 3535 Date Extracted: 08/05/2019 17:01

Sample wt/vol: 500(mL) Date Analyzed: 08/15/2019 15:24

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: Luna-phenylhex ID: 4.6(mm)

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

Analysis Batch No.: 467721 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
121-82-4	*RDX*	*0.30*	*J J1 M*	*0.40*	0.40	*0.16*

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	91		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150013.D
Lims ID: 280-126873-B-7-A
Client ID: SP-S8
Sample Type: Client
Inject. Date: 15-Aug-2019 15:24:14 ALS Bottle#: 13 Worklist Smp#: 13
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-126873-B-7-A
Misc. Info.: 280-0084482-013
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA

Method: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 16-Aug-2019 13:24:47 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0321

First Level Reviewer: fiedlerh Date: 16-Aug-2019 11:06:20

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/ml	Flags
	6 HMX	1	7.062	7.055	0.007	2799	0.0163	M
	7 MNX	1		7.693			ND	
	8 RDX	1	9.082	9.055	0.027	6224	0.0299	M
	9 Nitrobenzene	1		12.135			ND	
$	10 1,2-Dinitrobenzene	1	13.102	13.082	0.020	50423	0.1821	
	12 1,3-Dinitrobenzene	1		15.602			ND	
	14 o-Nitrotoluene	1		16.488			ND	U
	15 p-Nitrotoluene	1		16.808			ND	
	16 4-Amino-2,6-dinitrotoluene	1	17.102	17.095	0.007	10967	0.0369	
	17 m-Nitrotoluene	1		17.715			ND	U
	18 2-Amino-4,6-dinitrotoluene	1	18.062	18.048	0.014	13171	0.0306	
	19 1,3,5-Trinitrobenzene	1	18.928	18.915	0.013	229391	0.5014	
	20 2,6-Dinitrotoluene	1		19.775			ND	
	21 2,4-Dinitrotoluene	1		20.295			ND	
	22 Tetryl	1		23.555			ND	
	23 2,4,6-Trinitrotoluene	1	24.662	24.649	0.013	32379	0.0795	M

QC Flag Legend

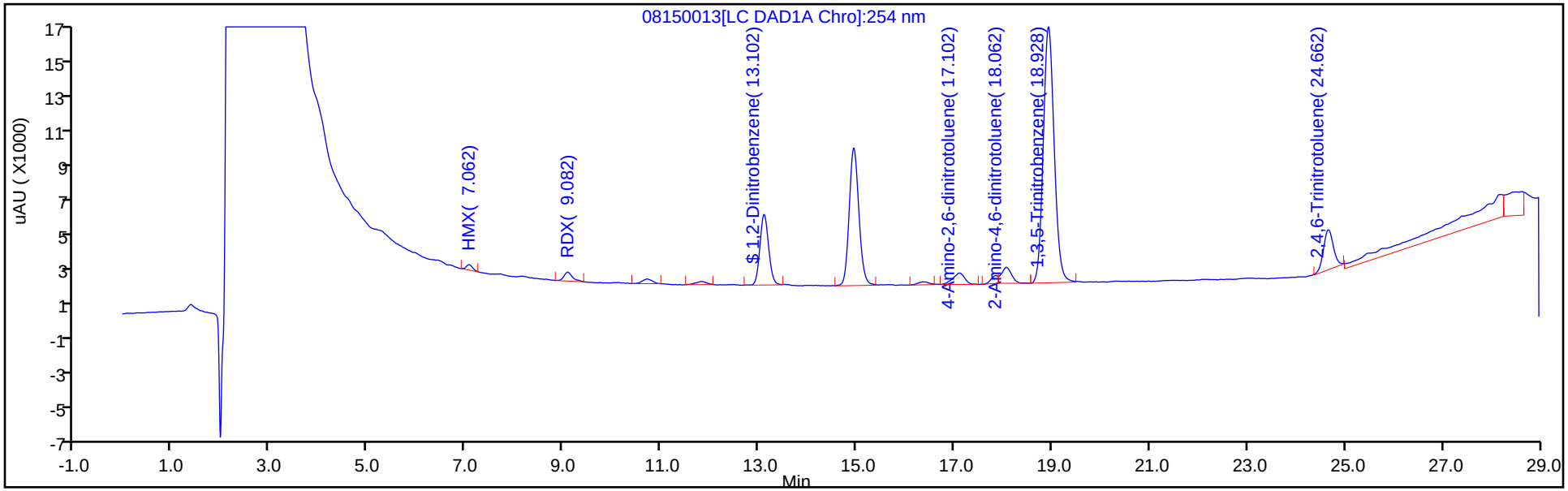
Review Flags
M - Manually Integrated
U - Marked Undetected

Report Date: 16-Aug-2019 13:24:53 Chrom Revision: 2.3 15-Jul-2019 06:58:08

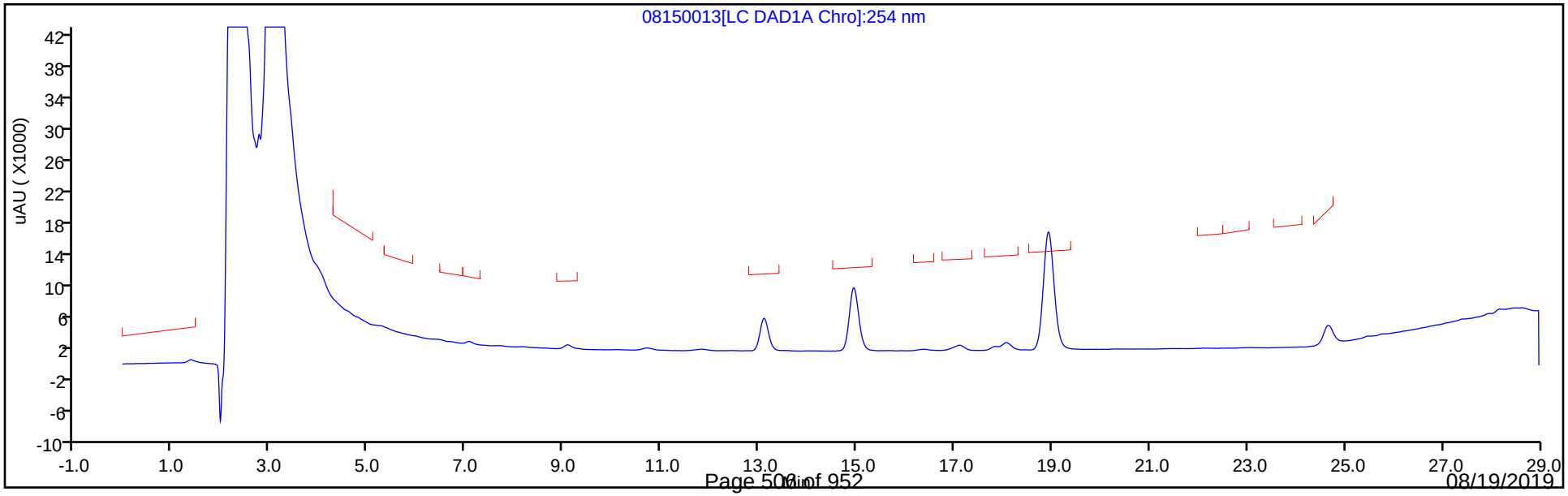
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150013.D				
Injection Date:	15-Aug-2019 15:24:14	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7	Worklist Smp#:	13
Client ID:	SP-S8				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	13
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150013.D				
Lims ID:	280-126873-B-7-A				
Client ID:	SP-S8				
Sample Type:	Client				
Inject. Date:	15-Aug-2019 15:24:14	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-126873-B-7-A				
Misc. Info.:	280-0084482-013				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	16-Aug-2019 13:24:47	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0321				
First Level Reviewer: fiedlerh		Date:	16-Aug-2019 11:06:20		

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1821	91.06

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

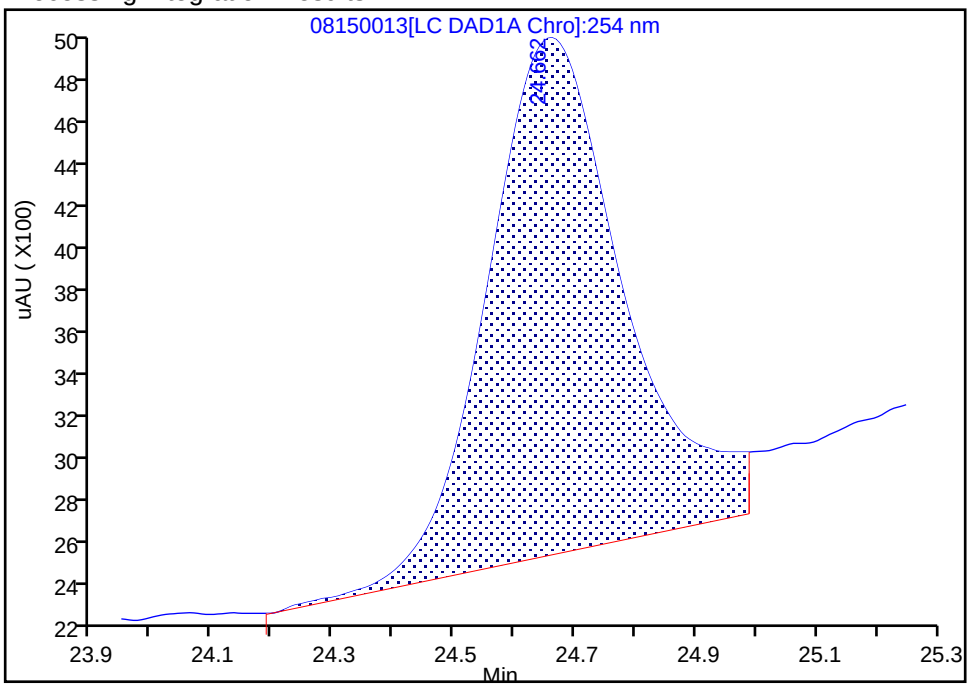
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150013.D				
Injection Date:	15-Aug-2019 15:24:14	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	HKF	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

23 2,4,6-Trinitrotoluene, CAS: 118-96-7

Signal: 1

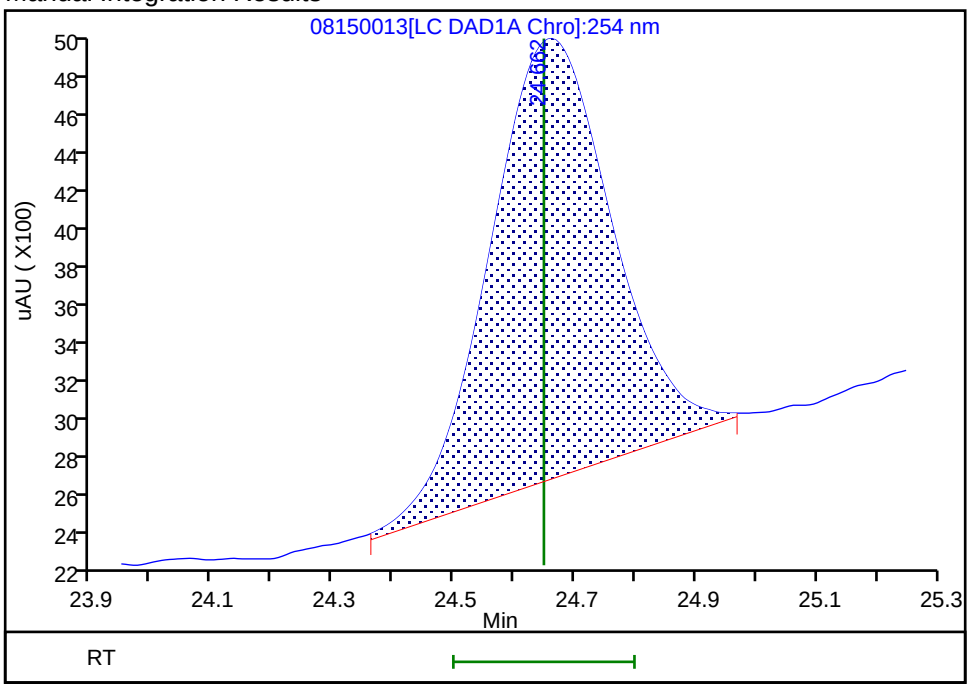
Processing Integration Results

RT: 24.66
Area: 38074
Amount: 0.093483
Amount Units: ug/ml



Manual Integration Results

RT: 24.66
Area: 32379
Amount: 0.079500
Amount Units: ug/ml



Reviewer: fiedlerh, 16-Aug-2019 12:29:00

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

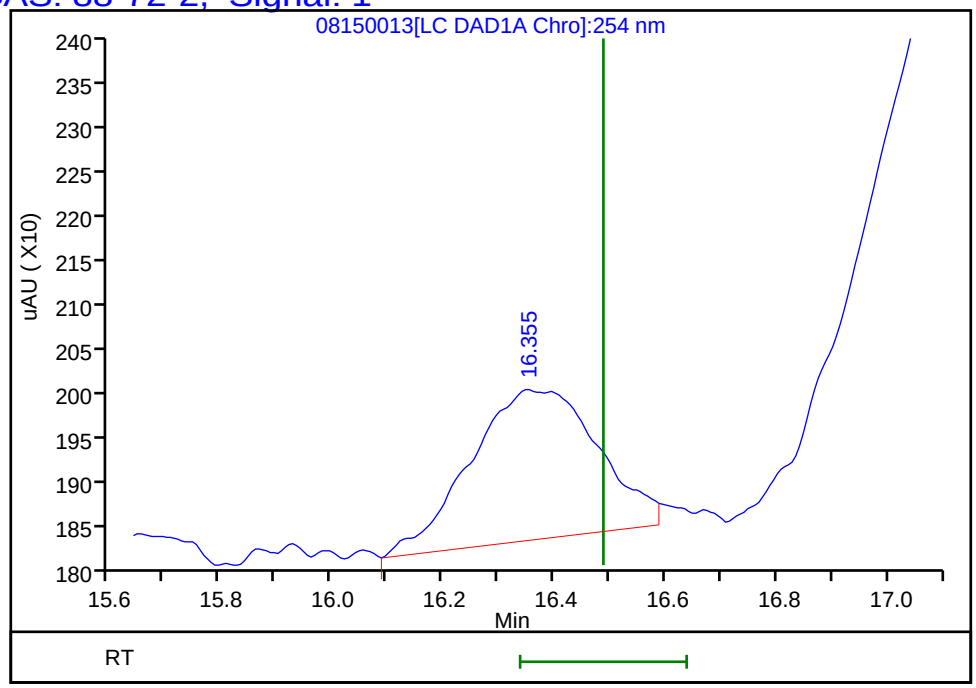
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150013.D				
Injection Date:	15-Aug-2019 15:24:14	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	HKF	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

14 o-Nitrotoluene, CAS: 88-72-2, Signal: 1

RT: 16.36
Response: 2674
Amount: 0.010211



Reviewer: fiedlerh, 16-Aug-2019 12:29:01
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

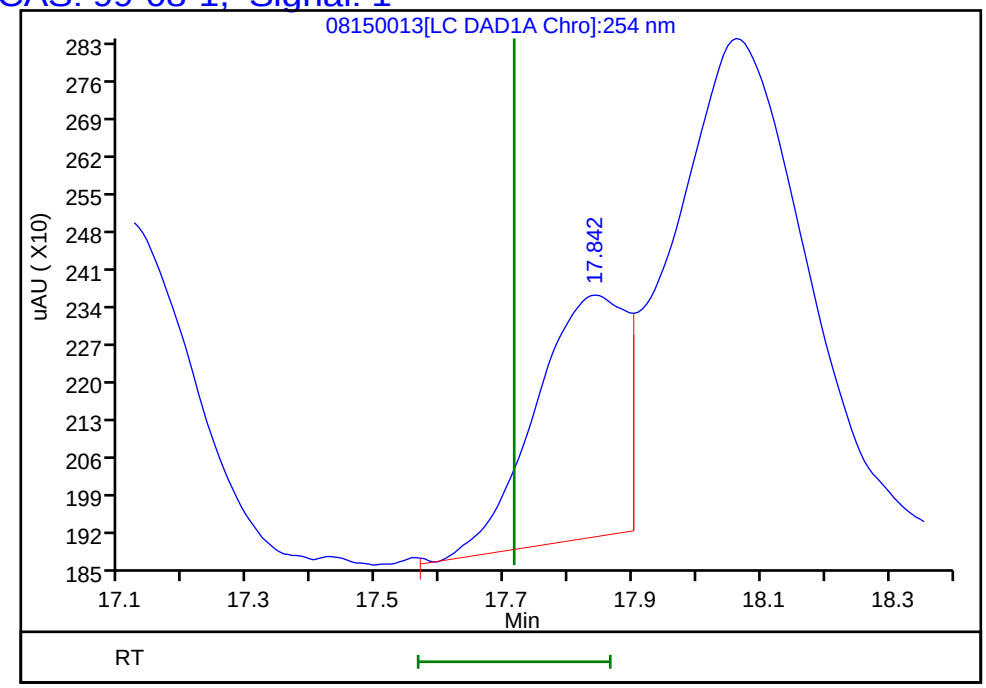
User Disabled Compound Report

Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150013.D				
Injection Date:	15-Aug-2019 15:24:14	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	HKF	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

17 m-Nitrotoluene, CAS: 99-08-1, Signal: 1

RT: 17.84
Response: 4461
Amount: 0.015241



Reviewer: fiedlerh, 16-Aug-2019 12:29:01
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

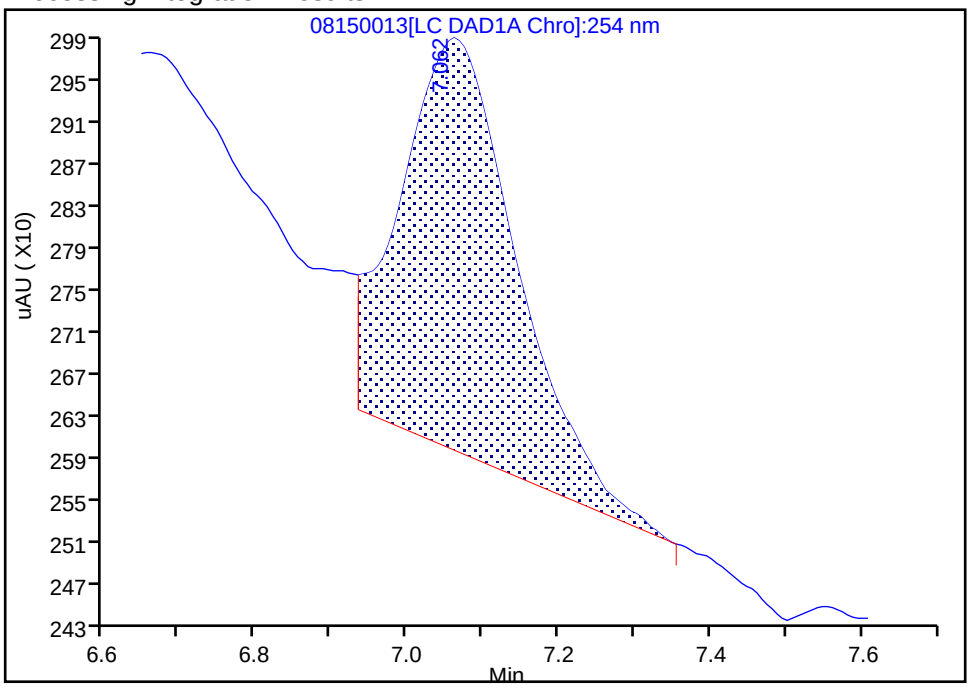
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150013.D				
Injection Date:	15-Aug-2019 15:24:14	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	HKF	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

6 HMX, CAS: 2691-41-0

Signal: 1

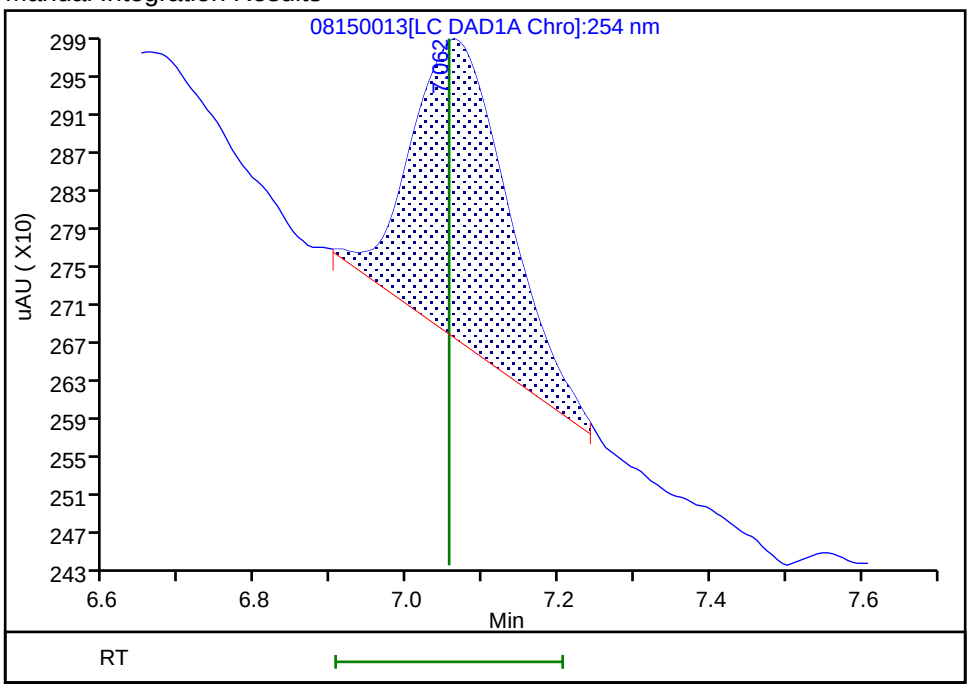
Processing Integration Results

RT: 7.06
Area: 4163
Amount: 0.024317
Amount Units: ug/ml



Manual Integration Results

RT: 7.06
Area: 2799
Amount: 0.016349
Amount Units: ug/ml



Reviewer: fiedlerh, 16-Aug-2019 12:28:41

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

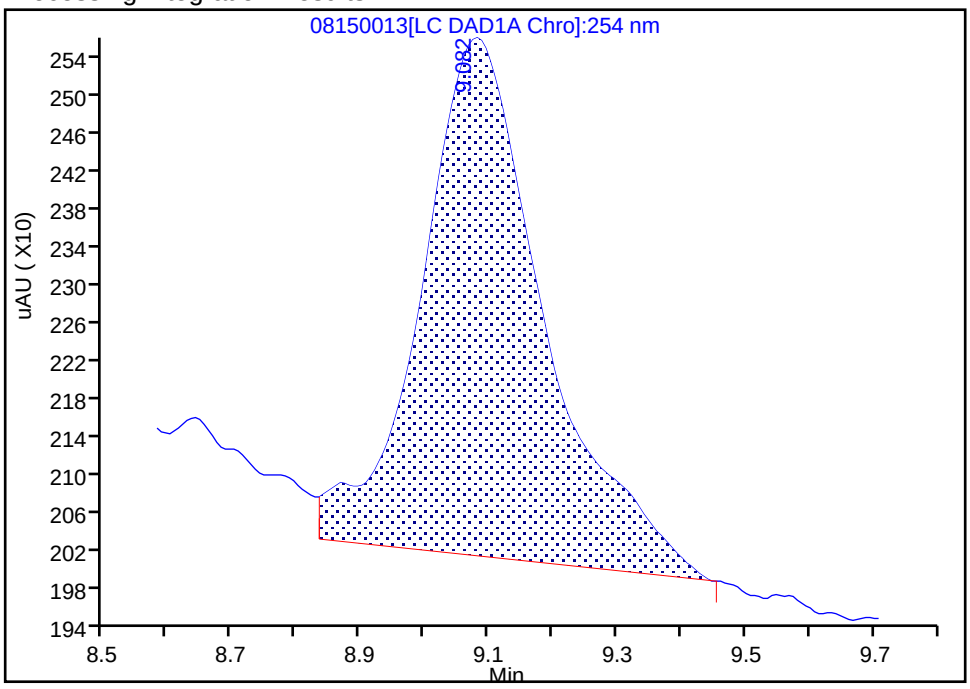
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150013.D				
Injection Date:	15-Aug-2019 15:24:14	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	280-126873-B-7-A	Lab Sample ID:	280-126873-7		
Client ID:	SP-S8				
Operator ID:	HKF	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

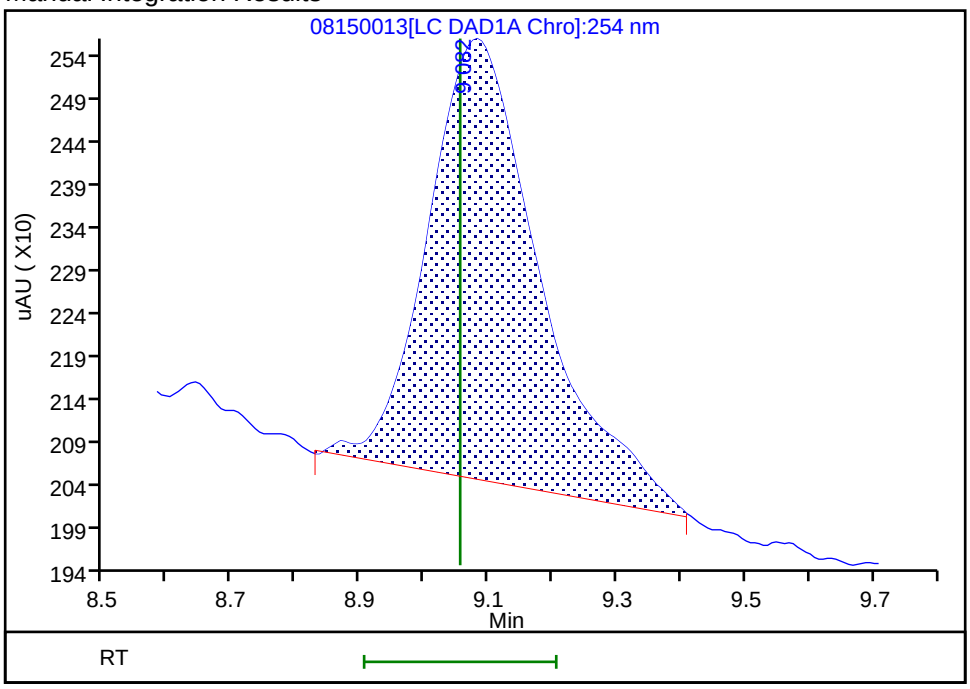
Processing Integration Results

RT: 9.08
Area: 7253
Amount: 0.034796
Amount Units: ug/ml



Manual Integration Results

RT: 9.08
Area: 6224
Amount: 0.029859
Amount Units: ug/ml



Reviewer: fiedlerh, 16-Aug-2019 12:28:44

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 457315

SDG No.:

Instrument ID: CHHPLC_G2_LUNA GC Column: Luna-phenyl ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/07/2019 15:08 Calibration End Date: 05/07/2019 19:13 Calibration ID: 36292

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-457315/14	05070014.D
Level 2	IC 280-457315/13	05070013.D
Level 3	IC 280-457315/12	05070012.D
Level 4	IC 280-457315/11	05070011.D
Level 5	IC 280-457315/10	05070010.D
Level 6	IC 280-457315/9	05070009.D
Level 7	IC 280-457315/8	05070008.D
Level 8	IC 280-457315/7	05070007.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8			RT WINDOW	AVG RT
Picric acid	6.206	6.147	6.091	6.007	5.940	5.877	5.793	5.636			5.790 - 6.090	5.962
HMX	7.232	7.220	7.224	7.207	7.200	7.197	7.186	7.169			7.050 - 7.350	7.204
RDX	9.326	9.314	9.324	9.300	9.300	9.291	9.273	9.242			9.150 - 9.450	9.296
Nitrobenzene	12.332	12.334	12.344	12.320	12.326	12.324	12.293	12.269			12.176 - 12.476	12.318
Nitroglycerin	15.892	15.900	15.904	15.880	15.873	15.877	15.853	15.822			15.723 - 16.023	15.875
1,3-Dinitrobenzene	15.899	15.907	15.911	15.887	15.880	15.884	15.860	15.822			15.730 - 16.030	15.881
2-Nitrotoluene	16.732	16.740	16.751	16.727	16.720	16.731	16.713	16.682			16.570 - 16.870	16.725
4-Nitrotoluene	17.066	17.067	17.078	17.054	17.053	17.057	17.040	17.002			16.903 - 17.203	17.052
4-Amino-2,6-dinitrotoluene	17.459	17.467	17.478	17.447	17.440	17.444	17.420	17.382			17.290 - 17.590	17.442
3-Nitrotoluene	17.979	17.980	17.991	17.967	17.966	17.977	17.960	17.922			17.816 - 18.116	17.968
2-Amino-4,6-dinitrotoluene	18.479	18.480	18.484	18.454	18.446	18.451	18.426	18.382			18.296 - 18.596	18.450
1,3,5-Trinitrobenzene	19.226	19.227	19.238	19.214	19.213	19.217	19.200	19.169			19.063 - 19.363	19.213
2,6-Dinitrotoluene	20.086	20.087	20.091	20.074	20.073	20.084	20.060	20.029			19.923 - 20.223	20.073
2,4-Dinitrotoluene	20.632	20.634	20.638	20.621	20.620	20.624	20.606	20.569			20.470 - 20.770	20.618
Tetryl	23.972	23.974	23.964	23.954	23.966	23.957	23.946	23.916			23.816 - 24.116	23.956
2,4,6-Trinitrotoluene	24.952	24.960	24.951	24.947	24.953	24.951	24.946	24.923			24.803 - 25.103	24.948
PETN	25.366	25.360	25.351	25.347	25.353	25.351	25.346	25.329			25.203 - 25.503	25.350
1,2-Dinitrobenzene	13.359	13.360	13.378	13.347	13.346	13.344	13.313	13.289			13.196 - 13.496	13.342

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 457315

SDG No.:

Instrument ID: CHHPLC_G2_LUNA GC Column: Luna-phenyl ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/07/2019 15:08 Calibration End Date: 05/07/2019 19:13 Calibration ID: 36292

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-457315/14	05070014.D
Level 2	IC 280-457315/13	05070013.D
Level 3	IC 280-457315/12	05070012.D
Level 4	IC 280-457315/11	05070011.D
Level 5	IC 280-457315/10	05070010.D
Level 6	IC 280-457315/9	05070009.D
Level 7	IC 280-457315/8	05070008.D
Level 8	IC 280-457315/7	05070007.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
Picric acid	143200 158295	152000 154761	148660 160018	147288 175135	Ave		154919.654				6.4		20.0			
HMX	186700 170538	170160 166396	163480 167514	162388 182412	Ave		171198.452				5.1		20.0			
RDX	208850 209973	214300 203474	204000 205258	199228 222468	Ave		208443.798				3.5		20.0			
Nitrobenzene	397355 410773	411317 399424	395868 400807	389110 438928	Ave		405447.961				3.8		20.0			
Nitroglycerin	230695 182930	206262 178504	190583 179150	179764 195591	Ave		192934.972				9.4		20.0			
1,3-Dinitrobenzene	675275 635292	633007 617101	624346 620589	607960 670941	Ave		635563.995				3.9		20.0			
2-Nitrotoluene	258724 264803	258624 258557	258684 257667	254022 283836	Ave		261864.701				3.6		20.0			
4-Nitrotoluene	226594 230254	224761 224437	220080 225659	217853 243537	Ave		226646.674				3.5		20.0			
4-Amino-2,6-dinitrotoluene	299153 300965	294955 291538	293200 294109	285815 319270	Ave		297375.493				3.4		20.0			
3-Nitrotoluene	297012 294945	290857 287782	288088 288231	280554 314057	Ave		292690.570				3.4		20.0			
2-Amino-4,6-dinitrotoluene	466899 430032	425503 416844	419412 419959	407159 456077	Ave		430235.716				4.8		20.0			
1,3,5-Trinitrobenzene	509350 452540	454000 437647	455080 441599	432684 477467	Ave		457545.868				5.5		20.0			
2,6-Dinitrotoluene	331406 289240	293280 280508	287368 282894	276275 306747	Ave		293464.768				6.1		20.0			
2,4-Dinitrotoluene	603892 566425	582874 550905	553952 555029	540878 601773	Ave		569466.073				4.2		20.0			

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

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 457315

SDG No.:

Instrument ID: CHHPLC_G2_LUNA GC Column: Luna-phenyl ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/07/2019 15:08 Calibration End Date: 05/07/2019 19:13 Calibration ID: 36292

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
Tetryl	267700 327900	305600 320959	307270 324996	308636 352779	Ave		314479.971				7.7		20.0			
2,4,6-Trinitrotoluene	401444 417263	397052 400117	394731 407163	389534 450941	Ave		407280.633				4.8		20.0			
PETN	118365 133438	144766 129380	134056 128638	128655 141615	Ave		132364.136				6.2		20.0			
1,2-Dinitrobenzene	290800 275953	279400 269164	272150 270248	264504 292628	Ave		276855.798				3.7		20.0			

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

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 457315

SDG No.:

Instrument ID: CHHPLC_G2_LUNA GC Column: Luna-phenyl ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/07/2019 15:08 Calibration End Date: 05/07/2019 19:13 Calibration ID: 36292

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-457315/14	05070014.D
Level 2	IC 280-457315/13	05070013.D
Level 3	IC 280-457315/12	05070012.D
Level 4	IC 280-457315/11	05070011.D
Level 5	IC 280-457315/10	05070010.D
Level 6	IC 280-457315/9	05070009.D
Level 7	IC 280-457315/8	05070008.D
Level 8	IC 280-457315/7	05070007.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Picric acid	Ave	2864 108333	7600 160018	14866 437837	36822	63318	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
HMX	Ave	3734 116477	8508 167514	16348 456031	40597	68215	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
RDX	Ave	4177 142432	10715 205258	20400 556169	49807	83989	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
Nitrobenzene	Ave	7963 280156	20607 401609	39666 1099515	97472	164638	0.0200 0.701	0.0501 1.00	0.100 2.51	0.251	0.401
Nitroglycerin	Ave	46139 1249529	103131 1791502	190583 4889782	449411	731719	0.200 7.00	0.500 10.0	1.00 25.0	2.50	4.00
1,3-Dinitrobenzene	Ave	13519 432403	31682 621210	62497 1679031	152142	254371	0.0200 0.701	0.0501 1.00	0.100 2.50	0.250	0.400
2-Nitrotoluene	Ave	5190 181533	12970 258440	25946 711720	63696	106239	0.0201 0.702	0.0502 1.00	0.100 2.51	0.251	0.401
4-Nitrotoluene	Ave	4550 157734	11283 226562	22096 611277	54681	92470	0.0201 0.703	0.0502 1.00	0.100 2.51	0.251	0.402
4-Amino-2,6-dinitrotoluene	Ave	6001 204689	14792 294991	29408 800569	71668	120747	0.0201 0.702	0.0502 1.00	0.100 2.51	0.251	0.401
3-Nitrotoluene	Ave	5964 202253	14601 289384	28924 788282	70419	118450	0.0201 0.703	0.0502 1.00	0.100 2.51	0.251	0.402
2-Amino-4,6-dinitrotoluene	Ave	9366 292666	21339 421219	42067 1143614	102095	172529	0.0201 0.702	0.0502 1.00	0.100 2.51	0.251	0.401
1,3,5-Trinitrobenzene	Ave	10187 306353	22700 441599	45508 1193667	108171	181016	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
2,6-Dinitrotoluene	Ave	6648 196945	14708 283743	28823 769167	69276	116043	0.0201 0.702	0.0502 1.00	0.100 2.51	0.251	0.401
2,4-Dinitrotoluene	Ave	12102 386405	29202 556139	55506 1507441	135490	227023	0.0200 0.701	0.0501 1.00	0.100 2.51	0.251	0.401
Tetryl	Ave	5354 224671	15280 324996	30727 881948	77159	131160	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 457315

SDG No.:

Instrument ID: CHHPLC_G2_LUNA GC Column: Luna-phenyl ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/07/2019 15:08 Calibration End Date: 05/07/2019 19:13 Calibration ID: 36292

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
2,4,6-Trinitrotoluene	Ave	8061 281202	19932 408792	39631 1131861	97773	167573	0.0201 0.703	0.0502 1.00	0.100 2.51	0.251	0.402
PETN	Ave	23673 905663	72383 1286384	134056 3540364	321638	533750	0.200 7.00	0.500 10.0	1.00 25.0	2.50	4.00
1,2-Dinitrobenzene	Ave	5816 188415	13970 270248	27215 731569	66126	110381	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400

Curve Type Legend:
Ave = Average

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070007.D
Lims ID: IC FULL LV 8
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 07-May-2019 15:08:19 ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC FULL LV 8
Misc. Info.: 280-0081649-007
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 09-May-2019 08:13:33 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0337

First Level Reviewer: fiedlerh Date: 08-May-2019 09:04:24

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.403	4.446	-0.043	676801	2.50	1.72	
2 2,4-diamino-6-nitrotoluene	1	4.996	4.993	0.003	406734	2.50	1.59	
5 2,4,6-Trinitrophenol	1	5.636	5.940	-0.304	437837	2.50	2.83	a
6 HMX	1	7.169	7.200	-0.031	456031	2.50	2.66	
8 RDX	1	9.242	9.300	-0.058	556169	2.50	2.67	
9 Nitrobenzene	1	12.269	12.326	-0.057	1099515	2.51	2.71	
$ 10 1,2-Dinitrobenzene	1	13.289	13.346	-0.057	731569	2.50	2.64	
11 3,5-Dinitroaniline	1	15.196	15.266	-0.070	789313	2.50	1.68	
13 Nitroglycerin	2	15.822	15.873	-0.051	4889782	25.0	25.3	
12 1,3-Dinitrobenzene	1	15.822	15.880	-0.058	1679031	2.50	2.64	
14 o-Nitrotoluene	1	16.682	16.720	-0.038	711720	2.51	2.72	
15 p-Nitrotoluene	1	17.002	17.053	-0.051	611277	2.51	2.70	
16 4-Amino-2,6-dinitrotoluene	1	17.382	17.440	-0.058	800569	2.51	2.69	
17 m-Nitrotoluene	1	17.922	17.966	-0.044	788282	2.51	2.69	
18 2-Amino-4,6-dinitrotoluene	1	18.382	18.446	-0.064	1143614	2.51	2.66	
19 1,3,5-Trinitrobenzene	1	19.169	19.213	-0.044	1193667	2.50	2.61	
20 2,6-Dinitrotoluene	1	20.029	20.073	-0.044	769167	2.51	2.62	
21 2,4-Dinitrotoluene	1	20.569	20.620	-0.051	1507441	2.51	2.65	
22 Tetryl	1	23.916	23.966	-0.050	881948	2.50	2.80	
23 2,4,6-Trinitrotoluene	1	24.923	24.953	-0.030	1131861	2.51	2.78	
24 PETN	2	25.329	25.353	-0.024	3540364	25.0	26.7	

QC Flag Legend

Review Flags
a - User Assigned ID

Reagents:

8330IntermStk_00058	Amount Added: 125.00	Units: uL
8330_ADDs_00021	Amount Added: 125.00	Units: uL

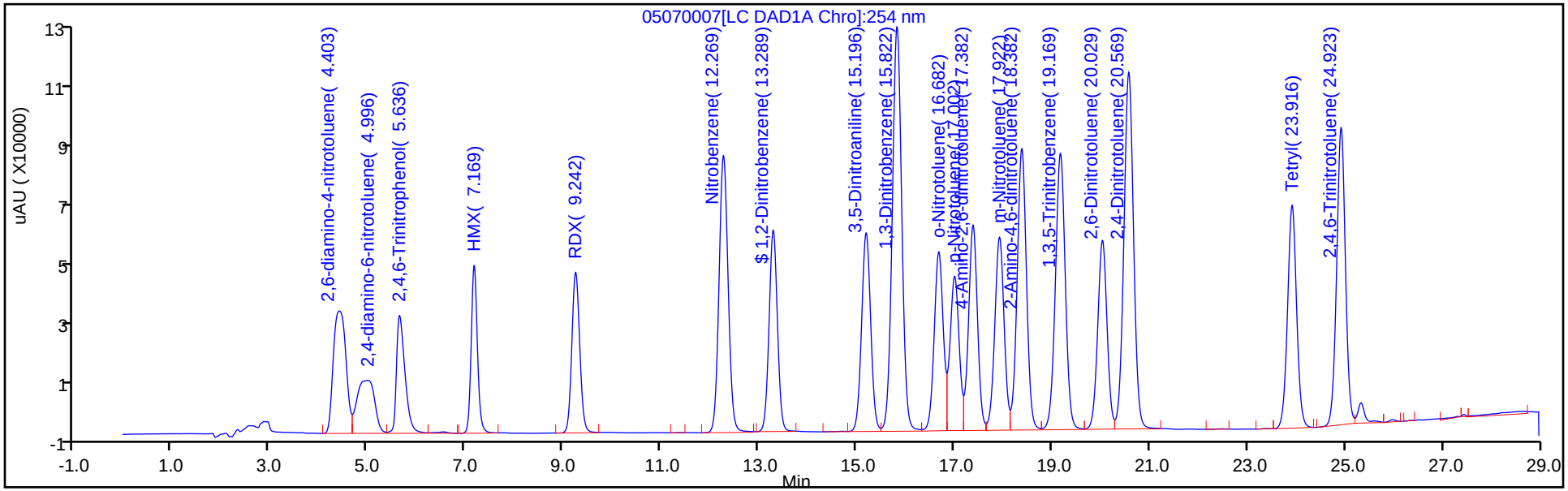
Report Date: 09-May-2019 08:13:33 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

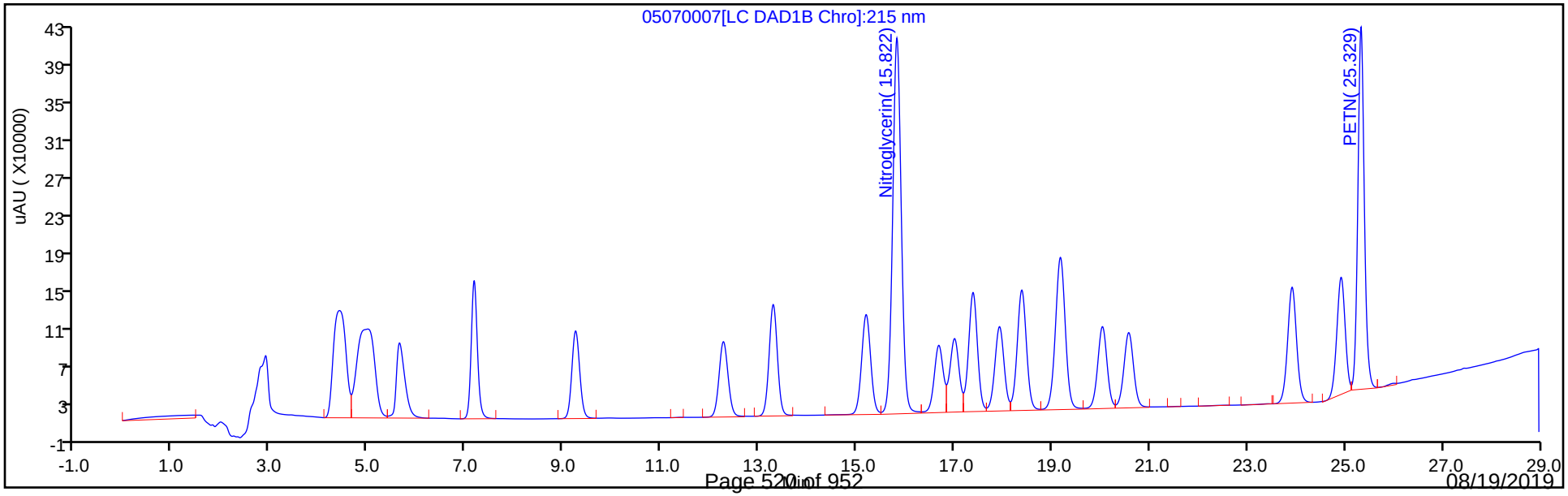
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070007.D

Injection Date:	07-May-2019 15:08:19	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC FULL LV 8			Worklist Smp#:	7
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

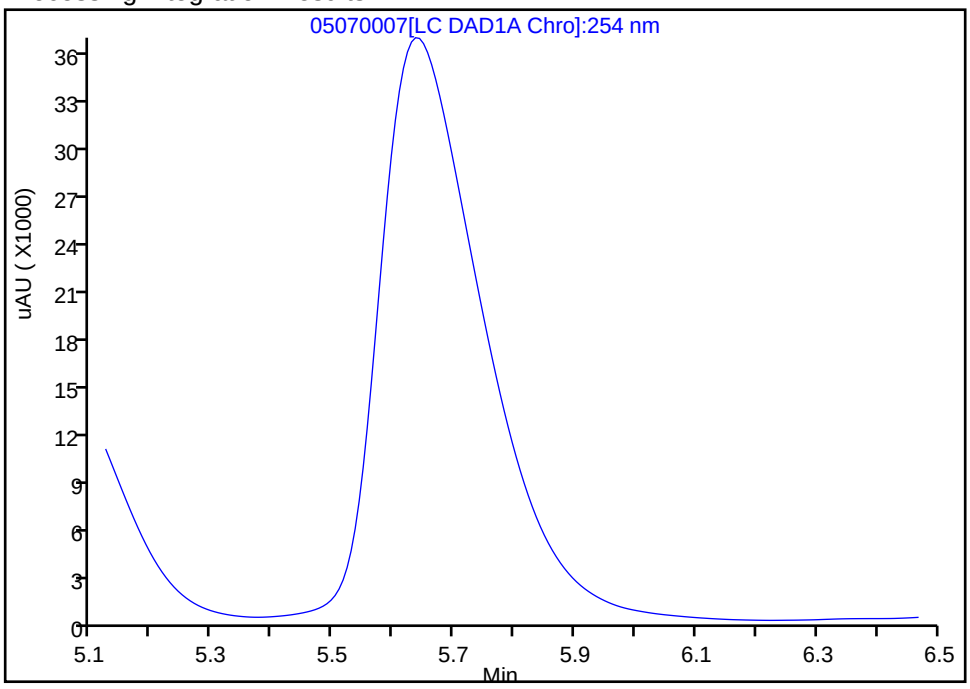
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070007.D				
Injection Date:	07-May-2019 15:08:19	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	IC FULL LV 8				
Client ID:					
Operator ID:	HKF	ALS Bottle#:	7	Worklist Smp#:	7
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

5 2,4,6-Trinitrophenol, CAS: 88-89-1

Signal: 1

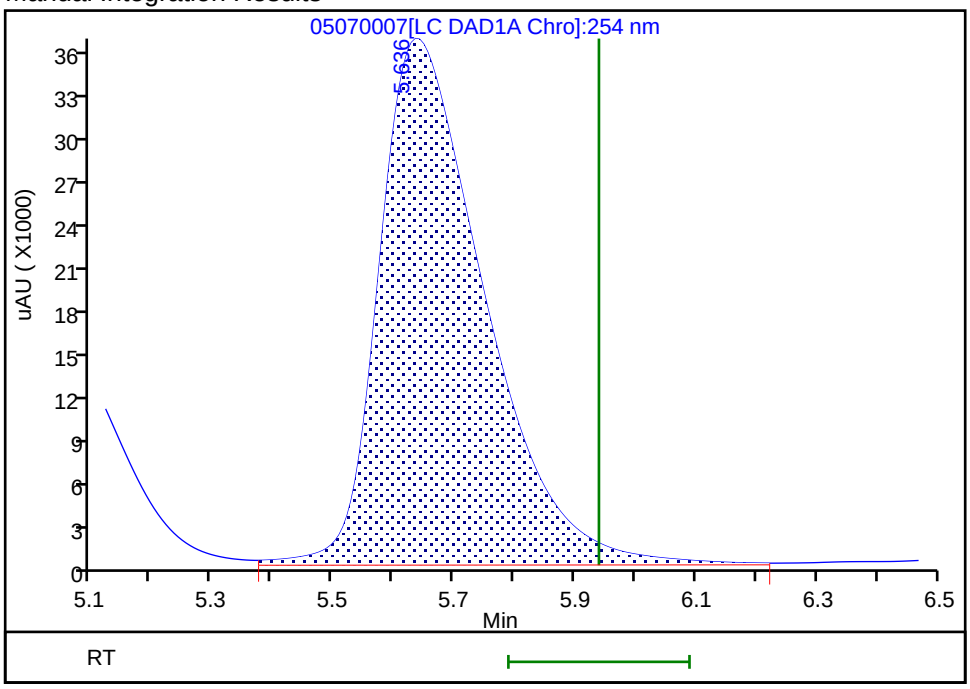
Processing Integration Results

Not Detected
Expected RT: 5.94



Manual Integration Results

RT: 5.64
Area: 437837
Amount: 2.826220
Amount Units: ug/ml



Reviewer: fiedlerh, 08-May-2019 09:04:18
Audit Action: Assigned Compound ID Audit Reason:

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070008.D
Lims ID: IC FULL LV 7
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 07-May-2019 15:43:22 ALS Bottle#: 8 Worklist Smp#: 8
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC FULL LV 7
Misc. Info.: 280-0081649-008
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 09-May-2019 08:13:33 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0337

First Level Reviewer: fiedlerh Date: 08-May-2019 09:01:15

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.426	4.446	-0.020	403610	1.00	1.02	
2 2,4-diamino-6-nitrotoluene	1	4.953	4.993	-0.040	242342	1.00	0.9472	
5 2,4,6-Trinitrophenol	1	5.793	5.940	-0.147	160018	1.00	1.03	
6 HMX	1	7.186	7.200	-0.014	167514	1.00	0.9785	
8 RDX	1	9.273	9.300	-0.027	205258	1.00	0.9847	
9 Nitrobenzene	1	12.293	12.326	-0.033	401609	1.00	0.99	
$ 10 1,2-Dinitrobenzene	1	13.313	13.346	-0.033	270248	1.00	0.9761	
11 3,5-Dinitroaniline	1	15.233	15.266	-0.033	471598	1.00	1.01	
13 Nitroglycerin	2	15.853	15.873	-0.020	1791502	10.0	9.29	
12 1,3-Dinitrobenzene	1	15.860	15.880	-0.020	621210	1.00	0.9774	
14 o-Nitrotoluene	1	16.713	16.720	-0.007	258440	1.00	0.9869	
15 p-Nitrotoluene	1	17.040	17.053	-0.013	226562	1.00	1.00	
16 4-Amino-2,6-dinitrotoluene	1	17.420	17.440	-0.020	294991	1.00	0.99	
17 m-Nitrotoluene	1	17.960	17.966	-0.006	289384	1.00	0.9887	
18 2-Amino-4,6-dinitrotoluene	1	18.426	18.446	-0.020	421219	1.00	0.9790	
19 1,3,5-Trinitrobenzene	1	19.200	19.213	-0.013	441599	1.00	0.9651	
20 2,6-Dinitrotoluene	1	20.060	20.073	-0.013	283743	1.00	0.9669	
21 2,4-Dinitrotoluene	1	20.606	20.620	-0.014	556139	1.00	0.9766	
22 Tetryl	1	23.946	23.966	-0.020	324996	1.00	1.03	
23 2,4,6-Trinitrotoluene	1	24.946	24.953	-0.007	408792	1.00	1.00	
24 PETN	2	25.346	25.353	-0.007	1286384	10.0	9.72	

Reagents:

8330IntermStk_00058 Amount Added: 50.00 Units: uL
8330_ADDs_00021 Amount Added: 50.00 Units: uL

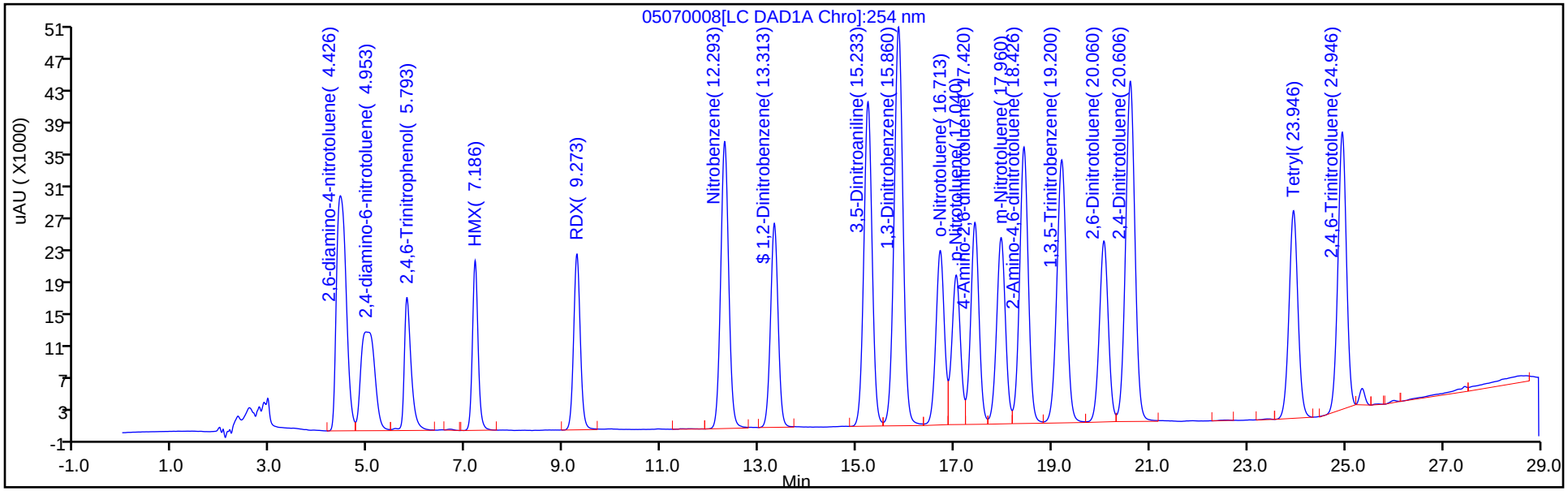
Report Date: 09-May-2019 08:13:33 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

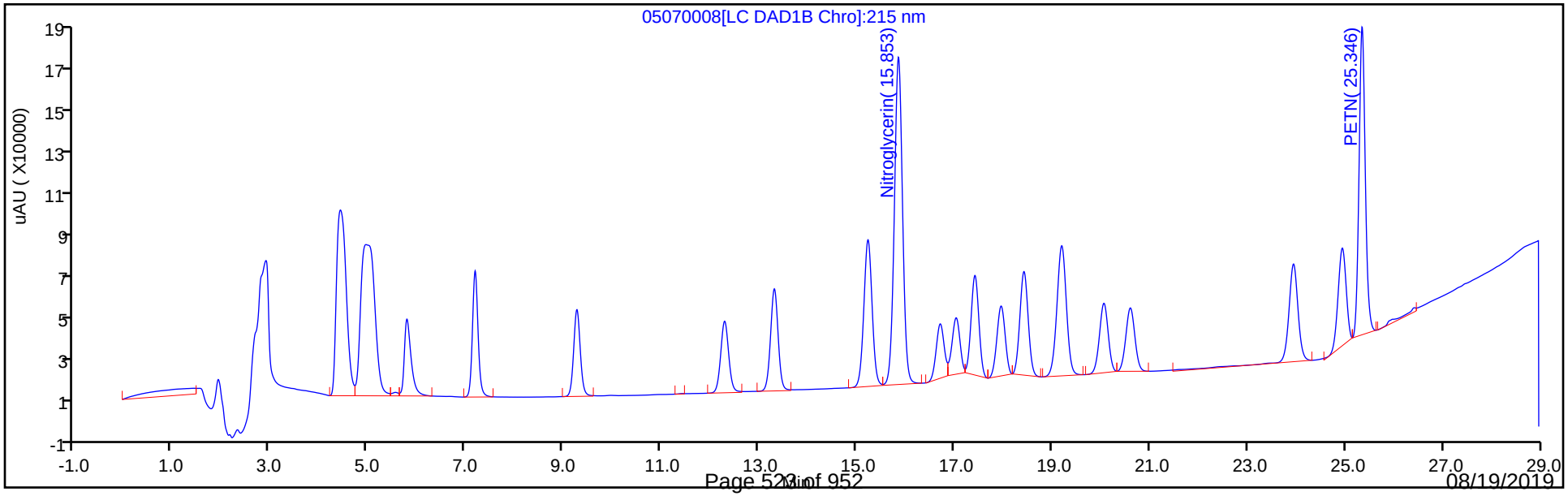
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070008.D

Injection Date:	07-May-2019 15:43:22	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC FULL LV 7			Worklist Smp#:	8
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070009.D
Lims ID: IC FULL LV 6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 07-May-2019 16:18:20 ALS Bottle#: 9 Worklist Smp#: 9
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC FULL LV 6
Misc. Info.: 280-0081649-009
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 09-May-2019 08:13:34 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0337

First Level Reviewer: fiedlerh Date: 08-May-2019 09:00:45

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.437	4.446	-0.009	282422	0.7000	0.7157	
2 2,4-diamino-6-nitrotoluene	1	5.004	4.993	0.011	170308	0.7000	0.6657	
5 2,4,6-Trinitrophenol	1	5.877	5.940	-0.063	108333	0.7000	0.6993	
6 HMX	1	7.197	7.200	-0.003	116477	0.7000	0.6804	
8 RDX	1	9.291	9.300	-0.009	142432	0.7000	0.6833	
9 Nitrobenzene	1	12.324	12.326	-0.002	280156	0.7014	0.6910	
$ 10 1,2-Dinitrobenzene	1	13.344	13.346	-0.002	188415	0.7000	0.6806	
11 3,5-Dinitroaniline	1	15.264	15.266	-0.002	330264	0.7000	0.7039	
13 Nitroglycerin	2	15.877	15.873	0.004	1249529	7.00	6.48	
12 1,3-Dinitrobenzene	1	15.884	15.880	0.004	432403	0.7007	0.6803	
14 o-Nitrotoluene	1	16.731	16.720	0.011	181533	0.7021	0.6932	
15 p-Nitrotoluene	1	17.057	17.053	0.004	157734	0.7028	0.6959	
16 4-Amino-2,6-dinitrotoluene	1	17.444	17.440	0.004	204689	0.7021	0.6883	
17 m-Nitrotoluene	1	17.977	17.966	0.011	202253	0.7028	0.6910	
18 2-Amino-4,6-dinitrotoluene	1	18.451	18.446	0.005	292666	0.7021	0.6802	
19 1,3,5-Trinitrobenzene	1	19.217	19.213	0.004	306353	0.7000	0.6696	
20 2,6-Dinitrotoluene	1	20.084	20.073	0.011	196945	0.7021	0.6711	
21 2,4-Dinitrotoluene	1	20.624	20.620	0.004	386405	0.7014	0.6785	
22 Tetryl	1	23.957	23.966	-0.009	224671	0.7000	0.7144	
23 2,4,6-Trinitrotoluene	1	24.951	24.953	-0.002	281202	0.7028	0.6904	
24 PETN	2	25.351	25.353	-0.002	905663	7.00	6.84	

Reagents:

8330IntermStk_00058 Amount Added: 35.00 Units: uL
8330_ADDs_00021 Amount Added: 35.00 Units: uL

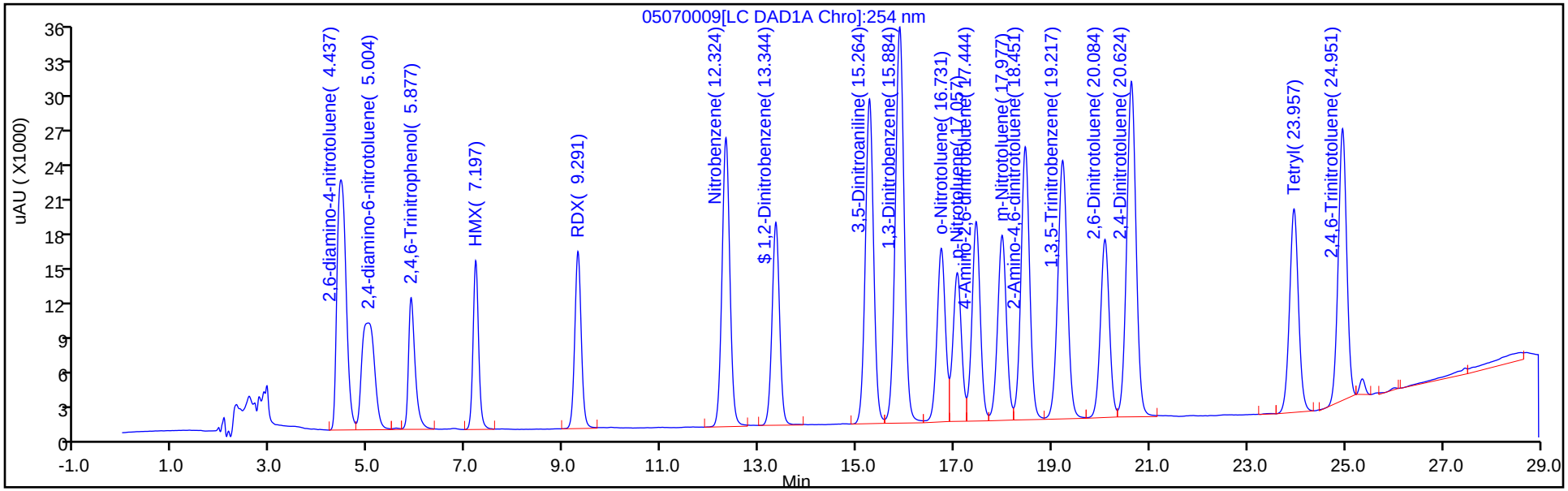
Report Date: 09-May-2019 08:13:34 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

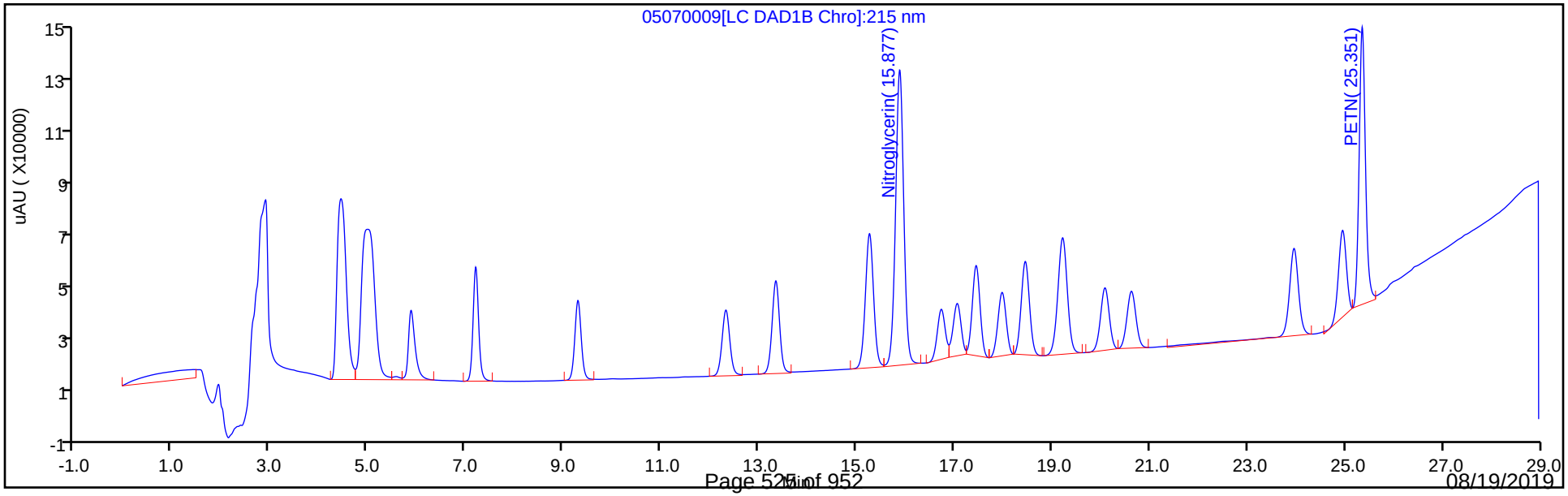
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070009.D

Injection Date:	07-May-2019 16:18:20	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC FULL LV 6			Worklist Smp#:	9
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	9
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070010.D
Lims ID: IC FULL LV 5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 07-May-2019 16:53:23 ALS Bottle#: 10 Worklist Smp#: 10
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC FULL LV 5
Misc. Info.: 280-0081649-010
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 09-May-2019 08:13:35 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0337

First Level Reviewer: fiedlerh Date: 08-May-2019 09:00:38

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.446	4.446	0.000	154442	0.4000	0.3914	
2 2,4-diamino-6-nitrotoluene	1	4.993	4.993	0.000	92869	0.4000	0.3630	
5 2,4,6-Trinitrophenol	1	5.940	5.940	0.000	63318	0.4000	0.4087	
6 HMX	1	7.200	7.200	0.000	68215	0.4000	0.3985	
8 RDX	1	9.300	9.300	0.000	83989	0.4000	0.4029	
9 Nitrobenzene	1	12.326	12.326	0.000	164638	0.4008	0.4061	
$ 10 1,2-Dinitrobenzene	1	13.346	13.346	0.000	110381	0.4000	0.3987	
11 3,5-Dinitroaniline	1	15.266	15.266	0.000	181912	0.4000	0.3873	
13 Nitroglycerin	2	15.873	15.873	0.000	731719	4.00	3.79	
12 1,3-Dinitrobenzene	1	15.880	15.880	0.000	254371	0.4004	0.4002	
14 o-Nitrotoluene	1	16.720	16.720	0.000	106239	0.4012	0.4057	
15 p-Nitrotoluene	1	17.053	17.053	0.000	92470	0.4016	0.4080	
16 4-Amino-2,6-dinitrotoluene	1	17.440	17.440	0.000	120747	0.4012	0.4060	
17 m-Nitrotoluene	1	17.966	17.966	0.000	118450	0.4016	0.4047	
18 2-Amino-4,6-dinitrotoluene	1	18.446	18.446	0.000	172529	0.4012	0.4010	
19 1,3,5-Trinitrobenzene	1	19.213	19.213	0.000	181016	0.4000	0.3956	
20 2,6-Dinitrotoluene	1	20.073	20.073	0.000	116043	0.4012	0.3954	
21 2,4-Dinitrotoluene	1	20.620	20.620	0.000	227023	0.4008	0.3987	
22 Tetryl	1	23.966	23.966	0.000	131160	0.4000	0.4171	
23 2,4,6-Trinitrotoluene	1	24.953	24.953	0.000	167573	0.4016	0.4114	
24 PETN	2	25.353	25.353	0.000	533750	4.00	4.03	

Reagents:

8330IntermStk_00058 Amount Added: 20.00 Units: uL
8330_ADDs_00021 Amount Added: 20.00 Units: uL

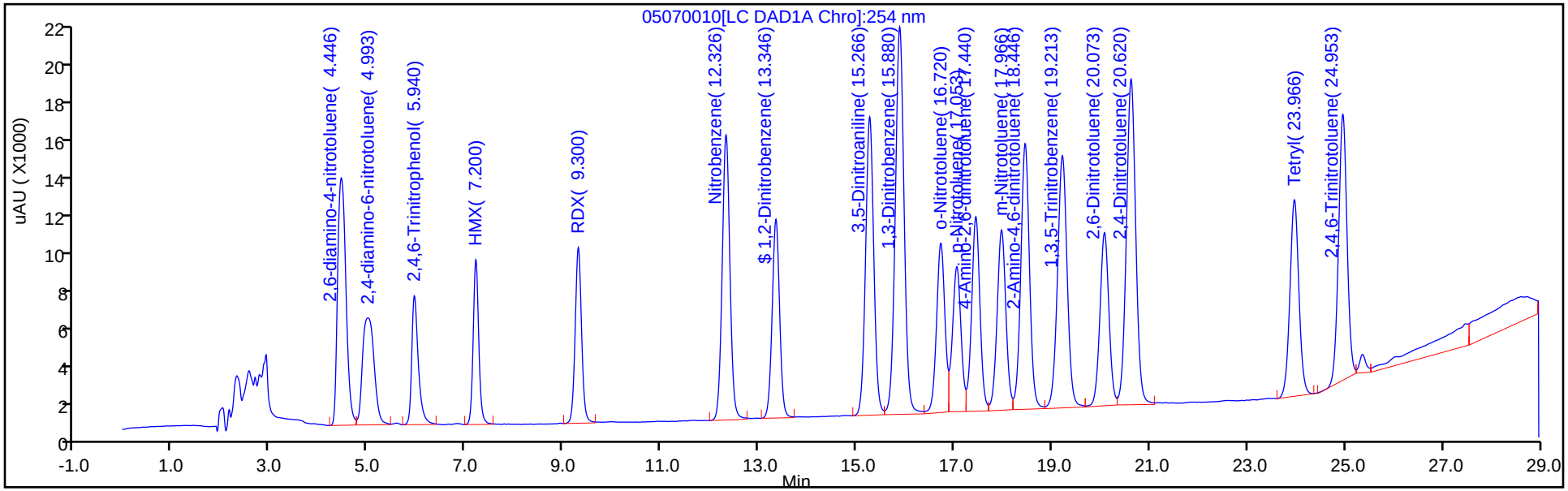
Report Date: 09-May-2019 08:13:35 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

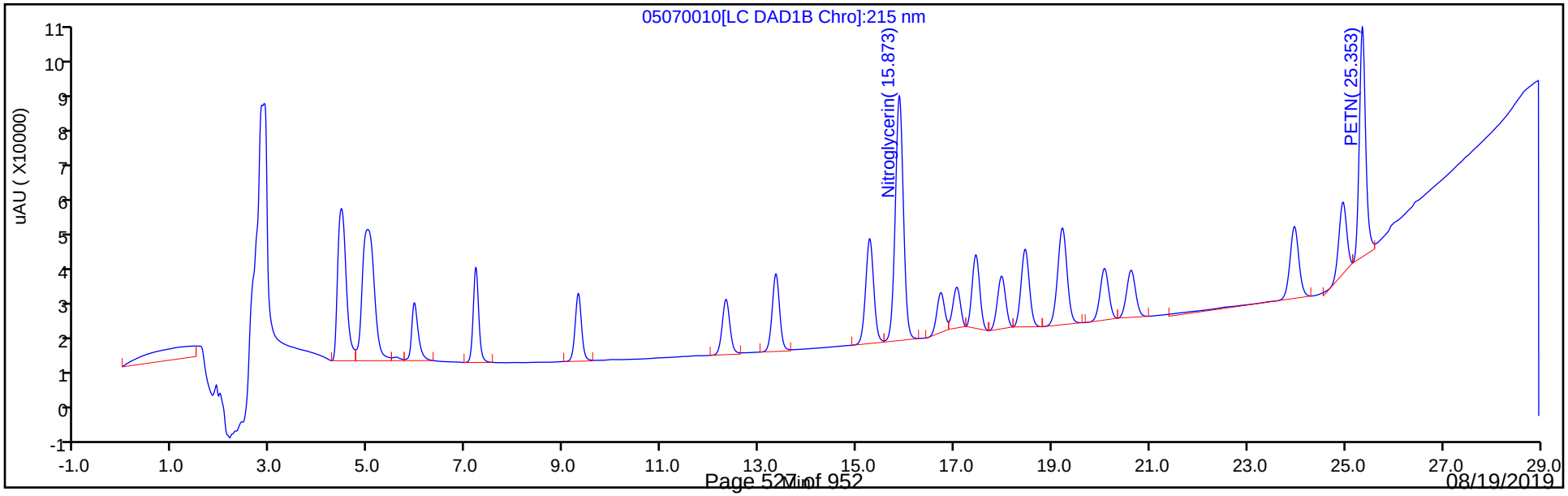
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070010.D

Injection Date:	07-May-2019 16:53:23	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC FULL LV 5			Worklist Smp#:	10
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	10
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070011.D
Lims ID: IC FULL LV 4
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 07-May-2019 17:28:26 ALS Bottle#: 11 Worklist Smp#: 11
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC FULL LV 4
Misc. Info.: 280-0081649-011
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 09-May-2019 08:13:35 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0337

First Level Reviewer: fiedlerh Date: 08-May-2019 09:00:21

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.447	4.446	0.001	100901	0.2500	0.2557	
2 2,4-diamino-6-nitrotoluene	1	5.001	4.993	0.008	60668	0.2500	0.2371	
5 2,4,6-Trinitrophenol	1	6.007	5.940	0.067	36822	0.2500	0.2377	
6 HMX	1	7.207	7.200	0.007	40597	0.2500	0.2371	
8 RDX	1	9.300	9.300	0.000	49807	0.2500	0.2389	
9 Nitrobenzene	1	12.320	12.326	-0.006	97472	0.2505	0.2404	
$ 10 1,2-Dinitrobenzene	1	13.347	13.346	0.001	66126	0.2500	0.2388	
11 3,5-Dinitroaniline	1	15.274	15.266	0.008	119322	0.2500	0.2538	
13 Nitroglycerin	2	15.880	15.873	0.007	449411	2.50	2.33	
12 1,3-Dinitrobenzene	1	15.887	15.880	0.007	152142	0.2503	0.2394	
14 o-Nitrotoluene	1	16.727	16.720	0.007	63696	0.2508	0.2432	
15 p-Nitrotoluene	1	17.054	17.053	0.001	54681	0.2510	0.2413	
16 4-Amino-2,6-dinitrotoluene	1	17.447	17.440	0.007	71668	0.2508	0.2410	
17 m-Nitrotoluene	1	17.967	17.966	0.001	70419	0.2510	0.2406	
18 2-Amino-4,6-dinitrotoluene	1	18.454	18.446	0.008	102095	0.2508	0.2373	
19 1,3,5-Trinitrobenzene	1	19.214	19.213	0.001	108171	0.2500	0.2364	
20 2,6-Dinitrotoluene	1	20.074	20.073	0.001	69276	0.2508	0.2361	
21 2,4-Dinitrotoluene	1	20.621	20.620	0.000	135490	0.2505	0.2379	
22 Tetryl	1	23.954	23.966	-0.012	77159	0.2500	0.2454	
23 2,4,6-Trinitrotoluene	1	24.947	24.953	-0.006	97773	0.2510	0.2401	
24 PETN	2	25.347	25.353	-0.006	321638	2.50	2.43	

Reagents:

8330IntermStk_00058 Amount Added: 12.50 Units: uL
8330_ADDs_00021 Amount Added: 12.50 Units: uL

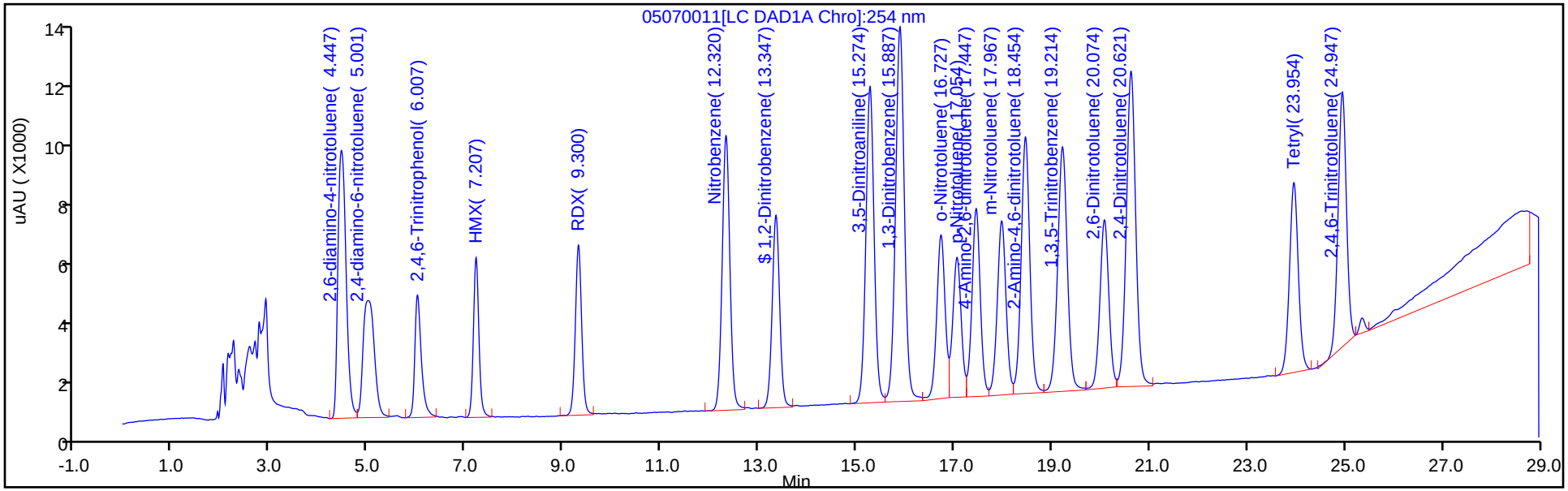
Report Date: 09-May-2019 08:13:36 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

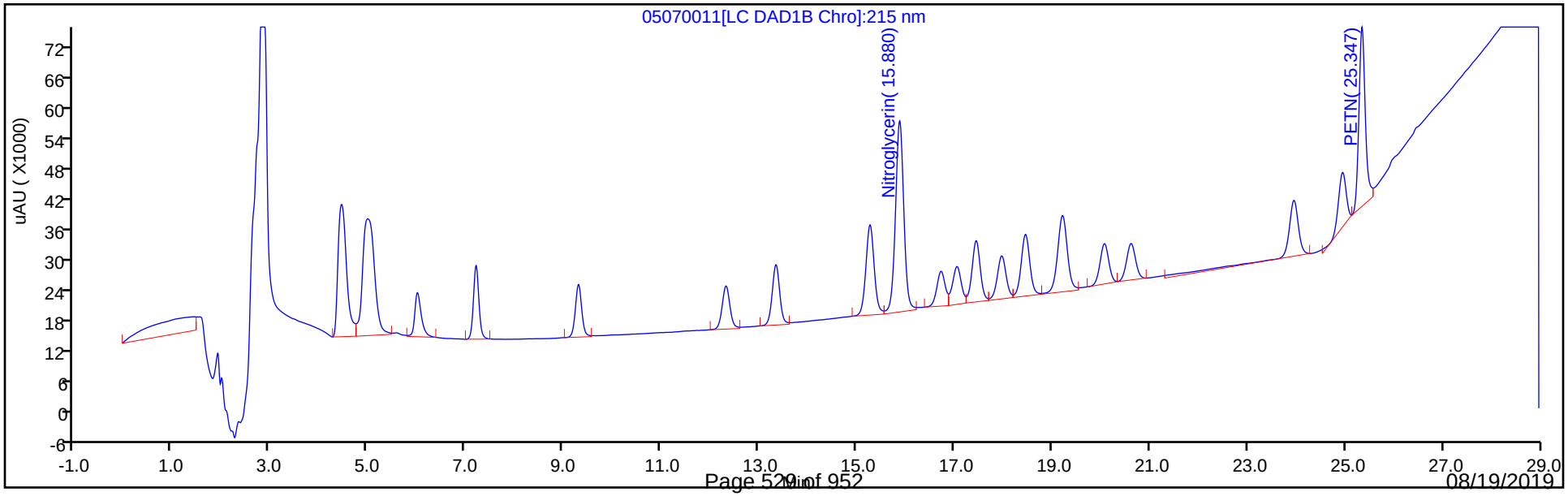
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070011.D

Injection Date:	07-May-2019 17:28:26	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC FULL LV 4			Worklist Smp#:	11
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	11
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070012.D
Lims ID: IC FULL LV 3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 07-May-2019 18:03:28 ALS Bottle#: 12 Worklist Smp#: 12
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC FULL LV 3
Misc. Info.: 280-0081649-012
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 09-May-2019 08:13:36 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0337

First Level Reviewer: fiedlerh Date: 08-May-2019 09:00:31

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.458	4.446	0.012	39527	0.1000	0.1002	
2 2,4-diamino-6-nitrotoluene	1	4.998	4.993	0.005	24748	0.1000	0.0967	
5 2,4,6-Trinitrophenol	1	6.091	5.940	0.151	14866	0.1000	0.0960	
6 HMX	1	7.224	7.200	0.024	16348	0.1000	0.0955	
8 RDX	1	9.324	9.300	0.024	20400	0.1000	0.0979	
9 Nitrobenzene	1	12.344	12.326	0.018	39666	0.1002	0.0978	
$ 10 1,2-Dinitrobenzene	1	13.378	13.346	0.032	27215	0.1000	0.0983	
11 3,5-Dinitroaniline	1	15.304	15.266	0.038	46736	0.1000	0.0989	
13 Nitroglycerin	2	15.904	15.873	0.031	190583	1.00	0.9878	
12 1,3-Dinitrobenzene	1	15.911	15.880	0.031	62497	0.1001	0.0983	
14 o-Nitrotoluene	1	16.751	16.720	0.031	25946	0.1003	0.0991	
15 p-Nitrotoluene	1	17.078	17.053	0.025	22096	0.1004	0.0975	
16 4-Amino-2,6-dinitrotoluene	1	17.478	17.440	0.038	29408	0.1003	0.0989	
17 m-Nitrotoluene	1	17.991	17.966	0.025	28924	0.1004	0.0988	
18 2-Amino-4,6-dinitrotoluene	1	18.484	18.446	0.038	42067	0.1003	0.0978	
19 1,3,5-Trinitrobenzene	1	19.238	19.213	0.025	45508	0.1000	0.0995	
20 2,6-Dinitrotoluene	1	20.091	20.073	0.018	28823	0.1003	0.0982	
21 2,4-Dinitrotoluene	1	20.638	20.620	0.018	55506	0.1002	0.0975	
22 Tetryl	1	23.964	23.966	-0.002	30727	0.1000	0.0977	
23 2,4,6-Trinitrotoluene	1	24.951	24.953	-0.002	39631	0.1004	0.0973	
24 PETN	2	25.351	25.353	-0.002	134056	1.00	1.01	

Reagents:

8330IntermStk_00058 Amount Added: 5.00 Units: uL
8330_ADDs_00021 Amount Added: 5.00 Units: uL

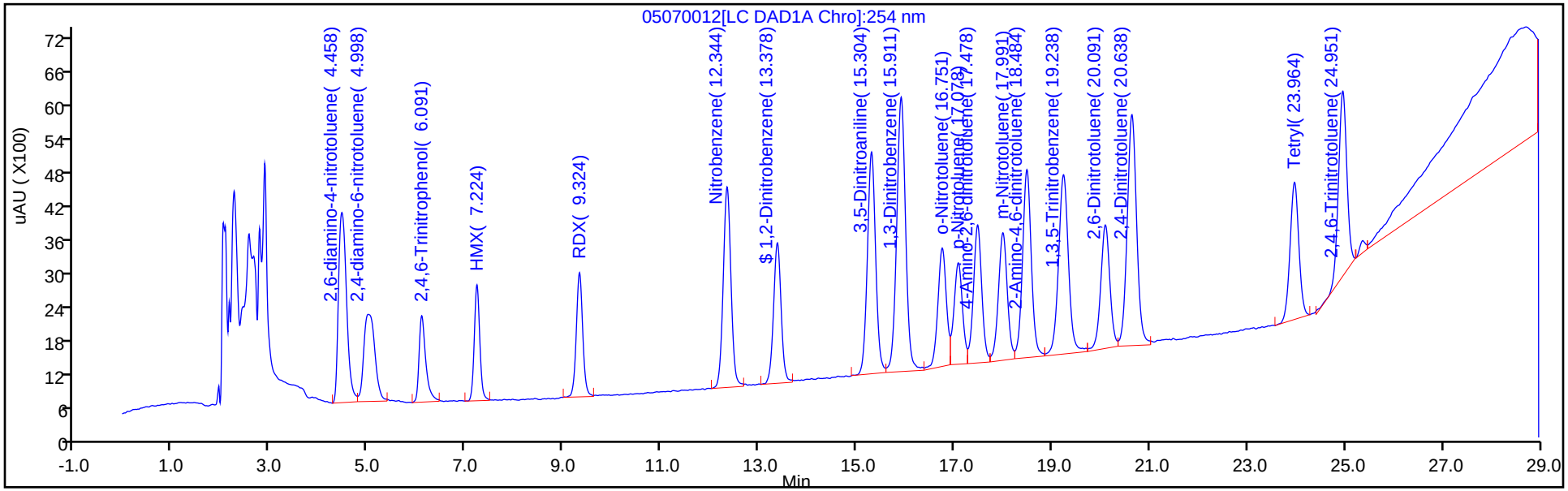
Report Date: 09-May-2019 08:13:36 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

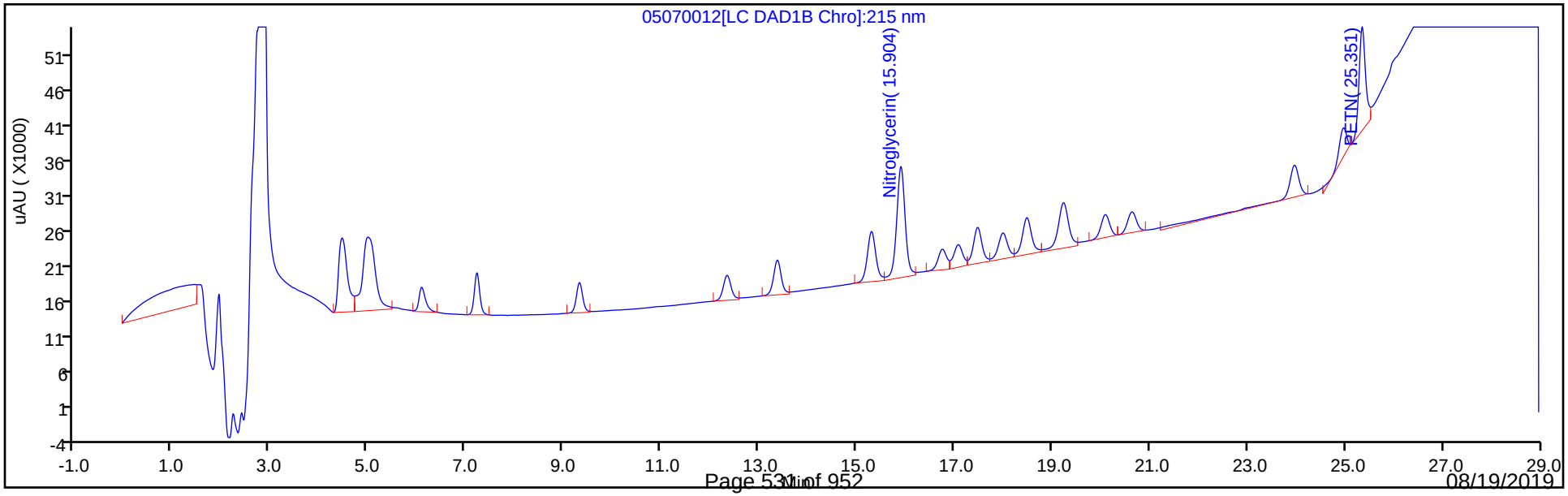
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070012.D

Injection Date:	07-May-2019 18:03:28	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC FULL LV 3			Worklist Smp#:	12
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	12
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070013.D
Lims ID: IC FULL LV 2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 07-May-2019 18:38:27 ALS Bottle#: 13 Worklist Smp#: 13
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC FULL LV 2
Misc. Info.: 280-0081649-013
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 09-May-2019 08:13:37 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0337

First Level Reviewer: fiedlerh Date: 08-May-2019 09:04:39

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.460	4.446	0.014	20307	0.0500	0.0515	
2 2,4-diamino-6-nitrotoluene	1	5.007	4.993	0.014	13871	0.0500	0.0542	
5 2,4,6-Trinitrophenol	1	6.147	5.940	0.207	7600	0.0500	0.0491	a
6 HMX	1	7.220	7.200	0.020	8508	0.0500	0.0497	
8 RDX	1	9.314	9.300	0.014	10715	0.0500	0.0514	
9 Nitrobenzene	1	12.334	12.326	0.008	20607	0.0501	0.0508	
$ 10 1,2-Dinitrobenzene	1	13.360	13.346	0.014	13970	0.0500	0.0505	
11 3,5-Dinitroaniline	1	15.300	15.266	0.034	24136	0.0500	0.0507	
13 Nitroglycerin	2	15.900	15.873	0.027	103131	0.5000	0.5345	
12 1,3-Dinitrobenzene	1	15.907	15.880	0.027	31682	0.0501	0.0498	
14 o-Nitrotoluene	1	16.740	16.720	0.020	12970	0.0502	0.0495	
15 p-Nitrotoluene	1	17.067	17.053	0.014	11283	0.0502	0.0498	
16 4-Amino-2,6-dinitrotoluene	1	17.467	17.440	0.027	14792	0.0502	0.0497	
17 m-Nitrotoluene	1	17.980	17.966	0.014	14601	0.0502	0.0499	
18 2-Amino-4,6-dinitrotoluene	1	18.480	18.446	0.034	21339	0.0502	0.0496	
19 1,3,5-Trinitrobenzene	1	19.227	19.213	0.014	22700	0.0500	0.0496	
20 2,6-Dinitrotoluene	1	20.087	20.073	0.014	14708	0.0502	0.0501	
21 2,4-Dinitrotoluene	1	20.634	20.620	0.014	29202	0.0501	0.0513	
22 Tetryl	1	23.974	23.966	0.008	15280	0.0500	0.0486	
23 2,4,6-Trinitrotoluene	1	24.960	24.953	0.007	19932	0.0502	0.0489	
24 PETN	2	25.360	25.353	0.007	72383	0.5000	0.5468	

QC Flag Legend

Review Flags
a - User Assigned ID

Reagents:

8330IntermStk_00058	Amount Added:	2.50	Units: uL
8330_ADDs_00021	Amount Added:	2.50	Units: uL

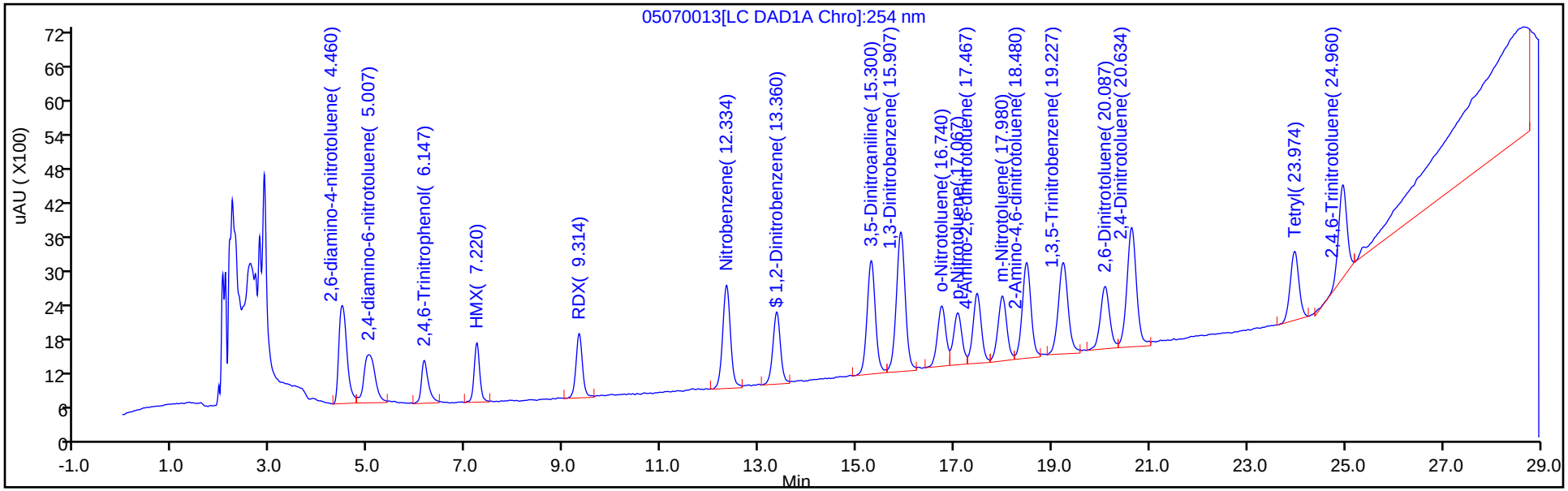
Report Date: 09-May-2019 08:13:37 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

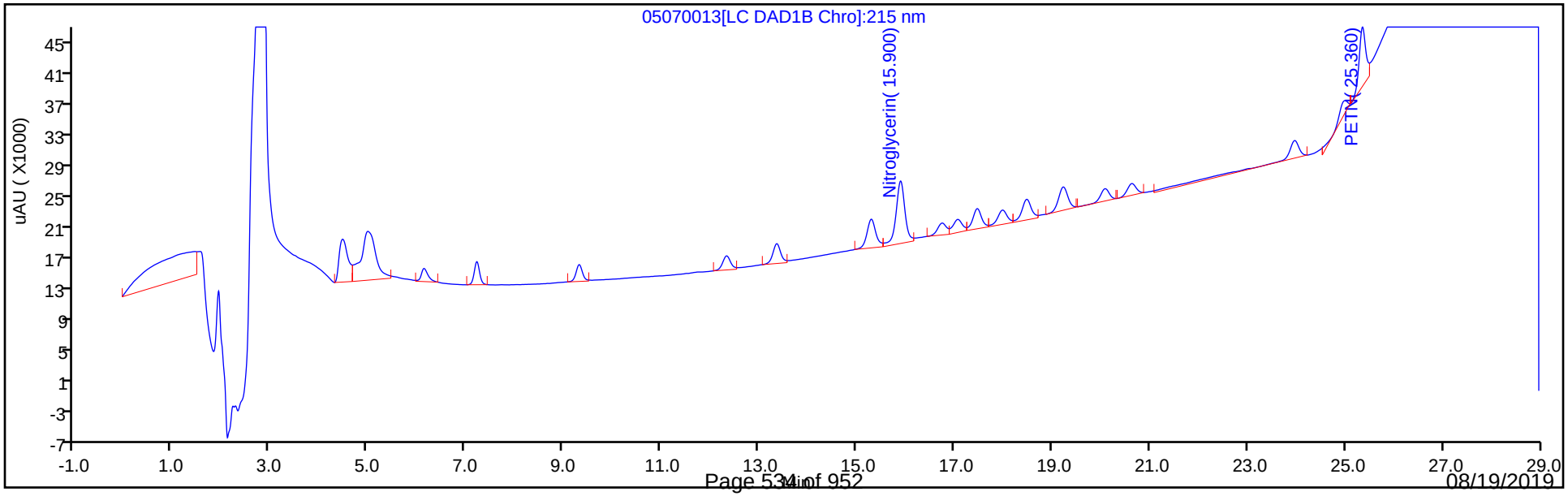
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070013.D

Injection Date:	07-May-2019 18:38:27	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC FULL LV 2			Worklist Smp#:	13
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	13
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

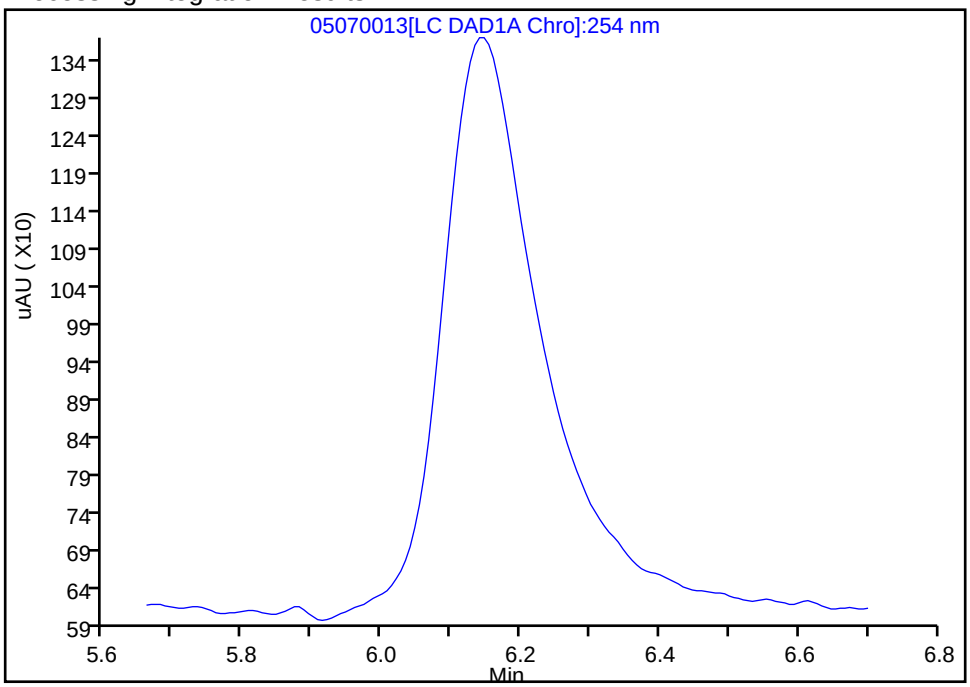
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070013.D				
Injection Date:	07-May-2019 18:38:27	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	IC FULL LV 2				
Client ID:					
Operator ID:	HKF	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

5 2,4,6-Trinitrophenol, CAS: 88-89-1

Signal: 1

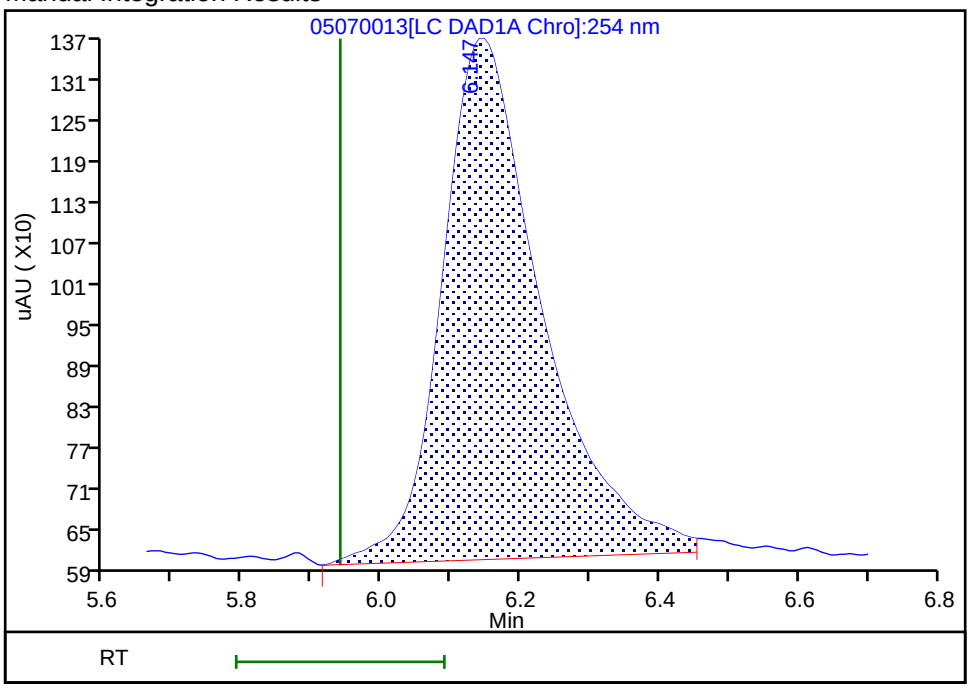
Not Detected
Expected RT: 5.94

Processing Integration Results



Manual Integration Results

RT: 6.15
Area: 7600
Amount: 0.049058
Amount Units: ug/ml



Reviewer: fiedlerh, 08-May-2019 09:04:38
Audit Action: Assigned Compound ID Audit Reason:

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070014.D
Lims ID: IC FULL LV 1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 07-May-2019 19:13:24 ALS Bottle#: 14 Worklist Smp#: 14
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC FULL LV 1
Misc. Info.: 280-0081649-014
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 09-May-2019 08:13:38 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0337

First Level Reviewer: fiedlerh Date: 08-May-2019 09:04:56

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.466	4.446	0.020	9763	0.0200	0.0247	
2 2,4-diamino-6-nitrotoluene	1	5.006	4.993	0.013	6110	0.0200	0.0239	
5 2,4,6-Trinitrophenol	1	6.206	5.940	0.266	2864	0.0200	0.0185	a
6 HMX	1	7.232	7.200	0.032	3734	0.0200	0.0218	
8 RDX	1	9.326	9.300	0.026	4177	0.0200	0.0200	
9 Nitrobenzene	1	12.332	12.326	0.006	7963	0.0200	0.0196	
$ 10 1,2-Dinitrobenzene	1	13.359	13.346	0.013	5816	0.0200	0.0210	
11 3,5-Dinitroaniline	1	15.292	15.266	0.026	9783	0.0200	0.0201	
13 Nitroglycerin	2	15.892	15.873	0.019	46139	0.2000	0.2391	
12 1,3-Dinitrobenzene	1	15.899	15.880	0.019	13519	0.0200	0.0213	
14 o-Nitrotoluene	1	16.732	16.720	0.012	5190	0.0201	0.0198	
15 p-Nitrotoluene	1	17.066	17.053	0.013	4550	0.0201	0.0201	
16 4-Amino-2,6-dinitrotoluene	1	17.459	17.440	0.019	6001	0.0201	0.0202	
17 m-Nitrotoluene	1	17.979	17.966	0.013	5964	0.0201	0.0204	
18 2-Amino-4,6-dinitrotoluene	1	18.479	18.446	0.033	9366	0.0201	0.0218	
19 1,3,5-Trinitrobenzene	1	19.226	19.213	0.013	10187	0.0200	0.0223	
20 2,6-Dinitrotoluene	1	20.086	20.073	0.013	6648	0.0201	0.0227	
21 2,4-Dinitrotoluene	1	20.632	20.620	0.012	12102	0.0200	0.0213	
22 Tetryl	1	23.972	23.966	0.006	5354	0.0200	0.0170	
23 2,4,6-Trinitrotoluene	1	24.952	24.953	-0.001	8061	0.0201	0.0198	
24 PETN	2	25.366	25.353	0.013	23673	0.2000	0.1788	M

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

8330IntermStk_00058	Amount Added:	1.00	Units: uL
8330_ADDs_00021	Amount Added:	1.00	Units: uL

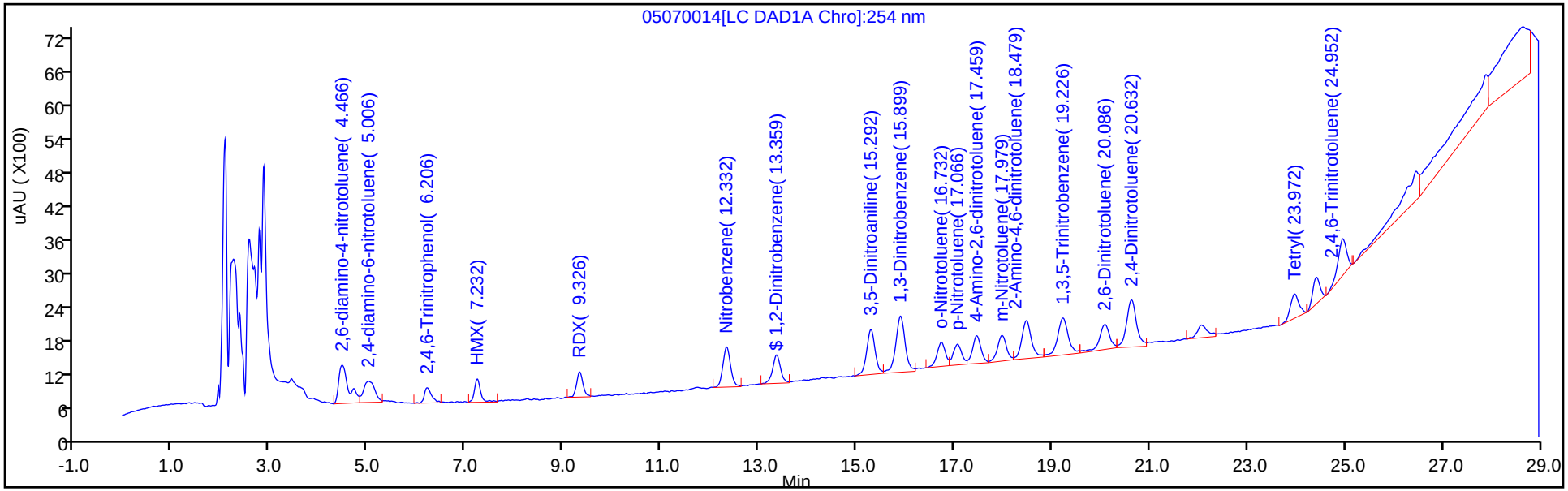
Report Date: 09-May-2019 08:13:38 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

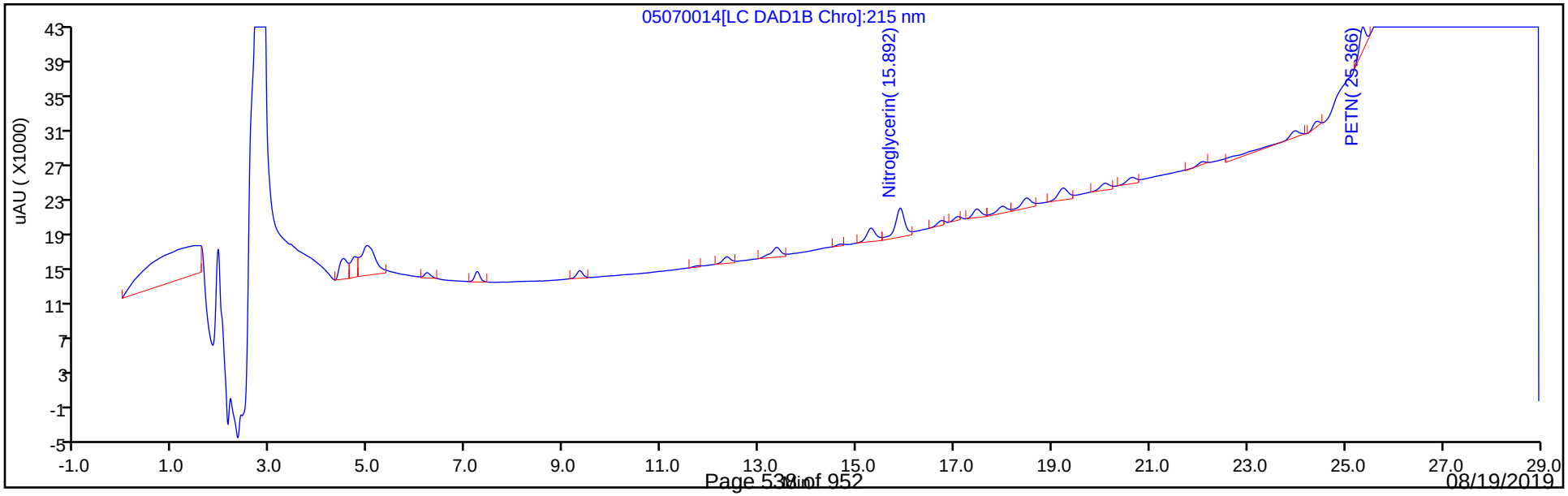
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070014.D

Injection Date:	07-May-2019 19:13:24	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC FULL LV 1			Worklist Smp#:	14
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	14
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver

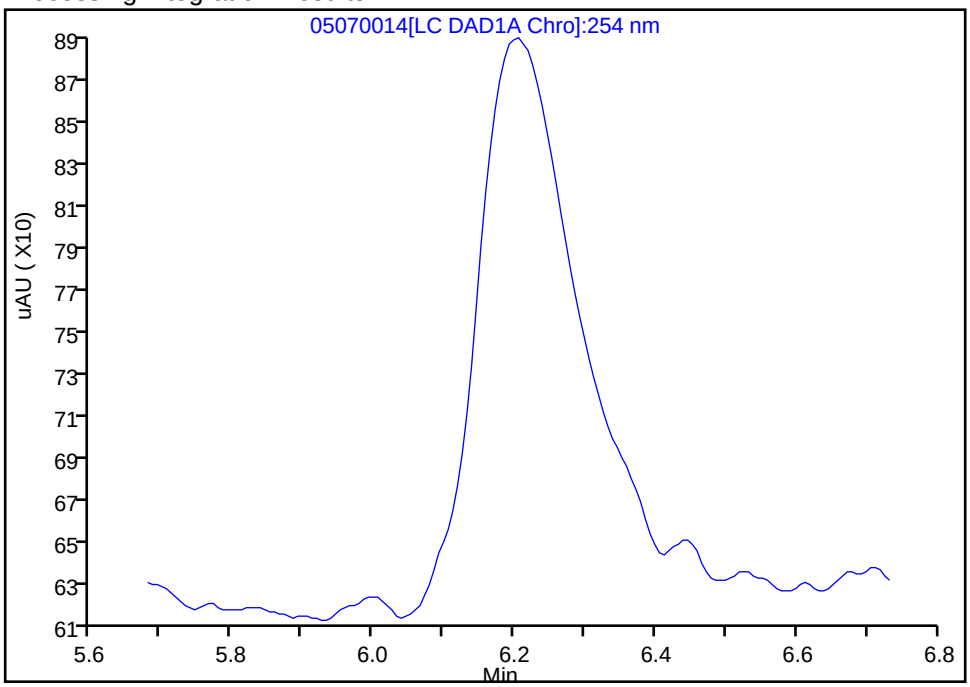
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070014.D				
Injection Date:	07-May-2019 19:13:24	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	IC FULL LV 1				
Client ID:					
Operator ID:	HKF	ALS Bottle#:	14	Worklist Smp#:	14
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

5 2,4,6-Trinitrophenol, CAS: 88-89-1

Signal: 1

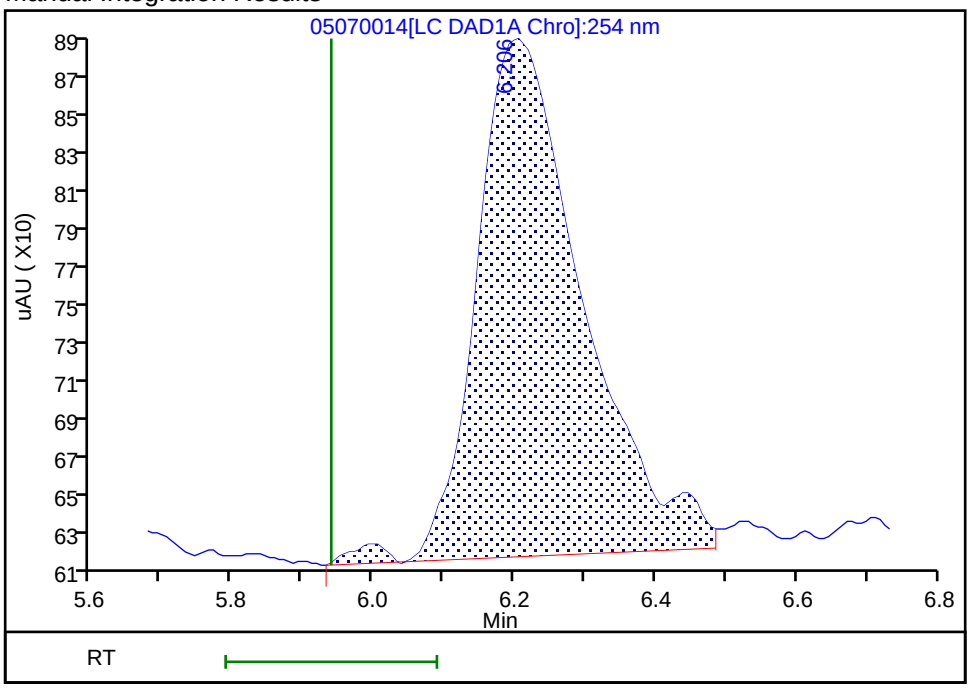
Not Detected
Expected RT: 5.94

Processing Integration Results



Manual Integration Results

RT: 6.21
Area: 2864
Amount: 0.018487
Amount Units: ug/ml



Reviewer: fiedlerh, 08-May-2019 09:04:54
Audit Action: Assigned Compound ID Audit Reason:

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

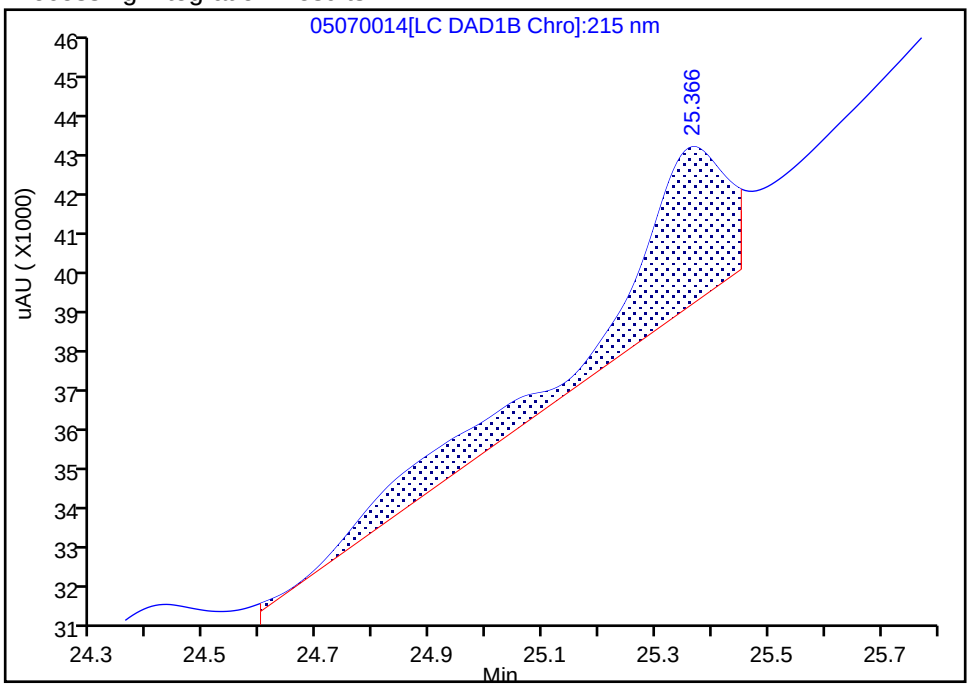
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070014.D				
Injection Date:	07-May-2019 19:13:24	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	IC FULL LV 1				
Client ID:					
Operator ID:	HKF	ALS Bottle#:	14	Worklist Smp#:	14
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:		Detector	LC DAD1B, 215 nm		

24 PETN, CAS: 78-11-5

Signal: 1

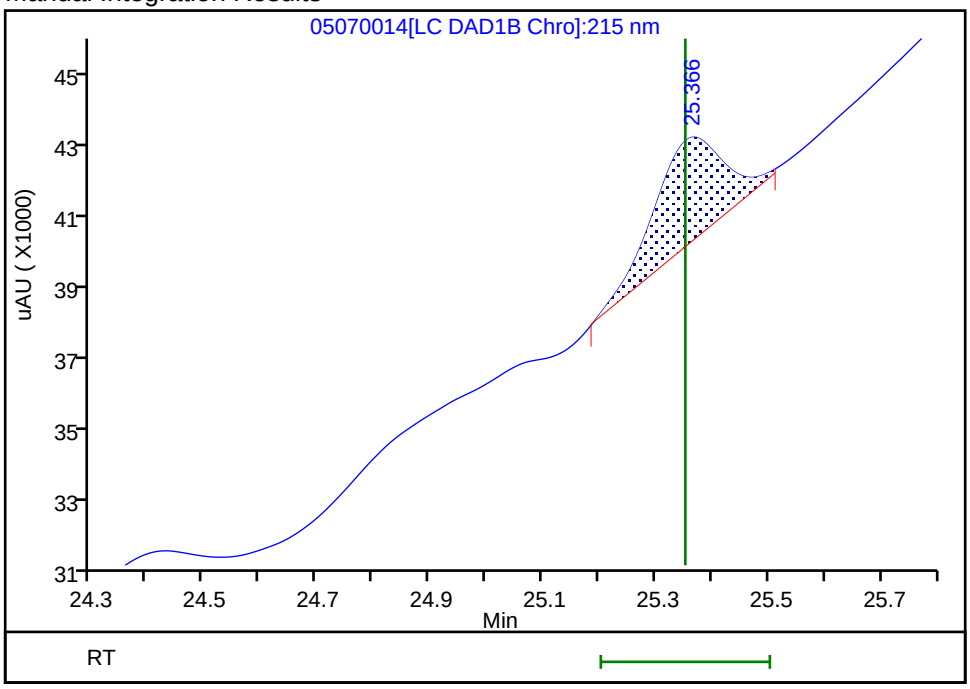
Processing Integration Results

RT: 25.37
Area: 54813
Amount: 0.289335
Amount Units: ug/ml



Manual Integration Results

RT: 25.37
Area: 23673
Amount: 0.178848
Amount Units: ug/ml



Reviewer: fiedlerh, 08-May-2019 09:10:18

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 457315

SDG No.:

Instrument ID: CHHPLC_G2_LUNA GC Column: Luna-phenyl ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/07/2019 20:23 Calibration End Date: 05/08/2019 00:28 Calibration ID: 36293

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-457315/23	05070023.D
Level 2	IC 280-457315/22	05070022.D
Level 3	IC 280-457315/21	05070021.D
Level 4	IC 280-457315/20	05070020.D
Level 5	IC 280-457315/19	05070019.D
Level 6	IC 280-457315/18	05070018.D
Level 7	IC 280-457315/17	05070017.D
Level 8	IC 280-457315/16	05070016.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8			RT WINDOW	AVG RT
TNX	5.515	5.513	5.515	5.509	5.512	5.508	5.504	5.487			5.362 - 5.662	5.508
DNX	6.342	6.340	6.342	6.336	6.338	6.335	6.331	6.307			6.188 - 6.488	6.334
MNX	7.895	7.893	7.895	7.889	7.892	7.888	7.878	7.854			7.742 - 8.042	7.886

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 457315

SDG No.:

Instrument ID: CHHPLC_G2_LUNA GC Column: Luna-phenyl ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/07/2019 20:23 Calibration End Date: 05/08/2019 00:28 Calibration ID: 36293

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-457315/23	05070023.D
Level 2	IC 280-457315/22	05070022.D
Level 3	IC 280-457315/21	05070021.D
Level 4	IC 280-457315/20	05070020.D
Level 5	IC 280-457315/19	05070019.D
Level 6	IC 280-457315/18	05070018.D
Level 7	IC 280-457315/17	05070017.D
Level 8	IC 280-457315/16	05070016.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
TNX	422128 395292	396723 399087	396094 407781	387469 422841	Ave		403426.800				3.2		20.0			
DNX	298701 284323	290450 286481	286064 291186	280803 301043	Ave		289881.274				2.4		20.0			
MNX	284961 262230	268672 264920	268115 269398	261049 276853	Ave		269524.800				2.9		20.0			

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

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 457315

SDG No.:

Instrument ID: CHHPLC_G2_LUNA GC Column: Luna-phenyl ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/07/2019 20:23 Calibration End Date: 05/08/2019 00:28 Calibration ID: 36293

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-457315/23	05070023.D
Level 2	IC 280-457315/22	05070022.D
Level 3	IC 280-457315/21	05070021.D
Level 4	IC 280-457315/20	05070020.D
Level 5	IC 280-457315/19	05070019.D
Level 6	IC 280-457315/18	05070018.D
Level 7	IC 280-457315/17	05070017.D
Level 8	IC 280-457315/16	05070016.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
TNX	Ave	8451 279640	19856 408189	39649 1058159	96964	158275	0.0200 0.701	0.0501 1.00	0.100 2.50	0.250	0.400
DNX	Ave	5980 200737	14537 291477	28635 753359	70271	113843	0.0200 0.701	0.0501 1.00	0.100 2.50	0.250	0.400
MNX	Ave	6651 216413	15677 314388	31289 807719	76161	122409	0.0233 0.817	0.0584 1.17	0.117 2.92	0.292	0.467

Curve Type Legend:
Ave = Average

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070016.D				
Lims ID:	IC DMT L8				
Client ID:					
Sample Type:	IC	Calib Level:	8		
Inject. Date:	07-May-2019 20:23:21	ALS Bottle#:	16	Worklist Smp#:	16
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L8				
Misc. Info.:	280-0081649-016				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Sublist:	chrom-G2_8330_Luna*sub13				
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	08-May-2019 09:13:55	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0325				

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.487	5.512	-0.025	1058159	2.50	2.62	
4 DNX	1	6.307	6.338	-0.031	753359	2.50	2.60	
7 MNX	1	7.854	7.892	-0.038	807719	2.92	3.00	

Reagents:

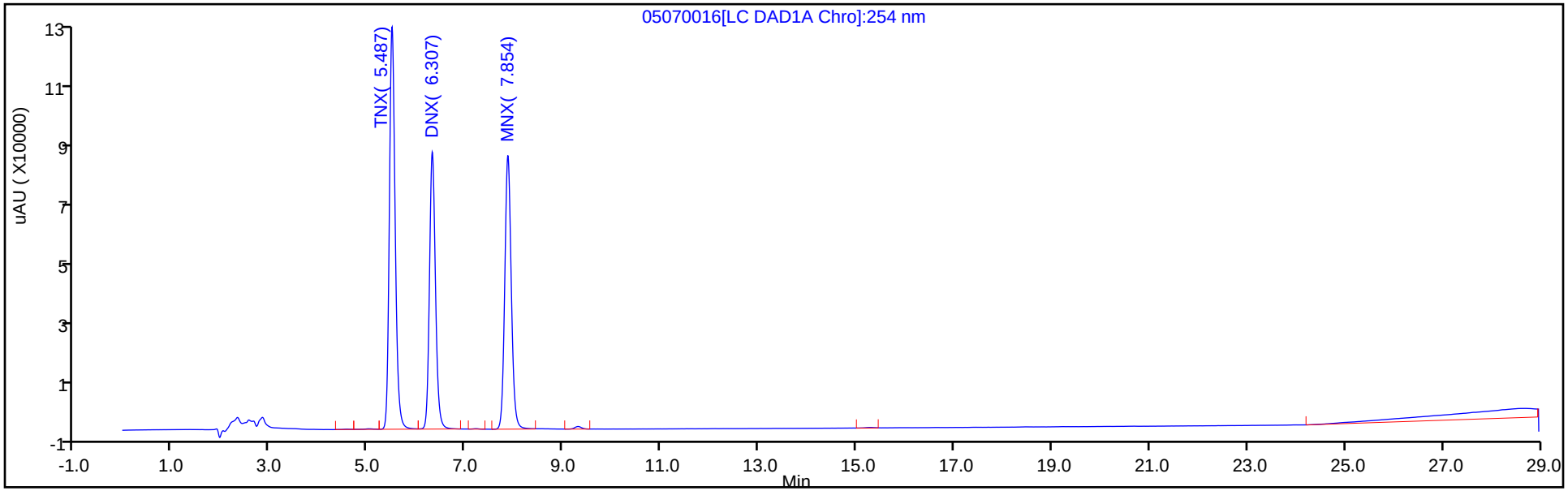
8330 DMT_00002 Amount Added: 125.00 Units: uL

Report Date: 08-May-2019 09:13:56 Chrom Revision: 2.3 03-May-2019 15:52:00

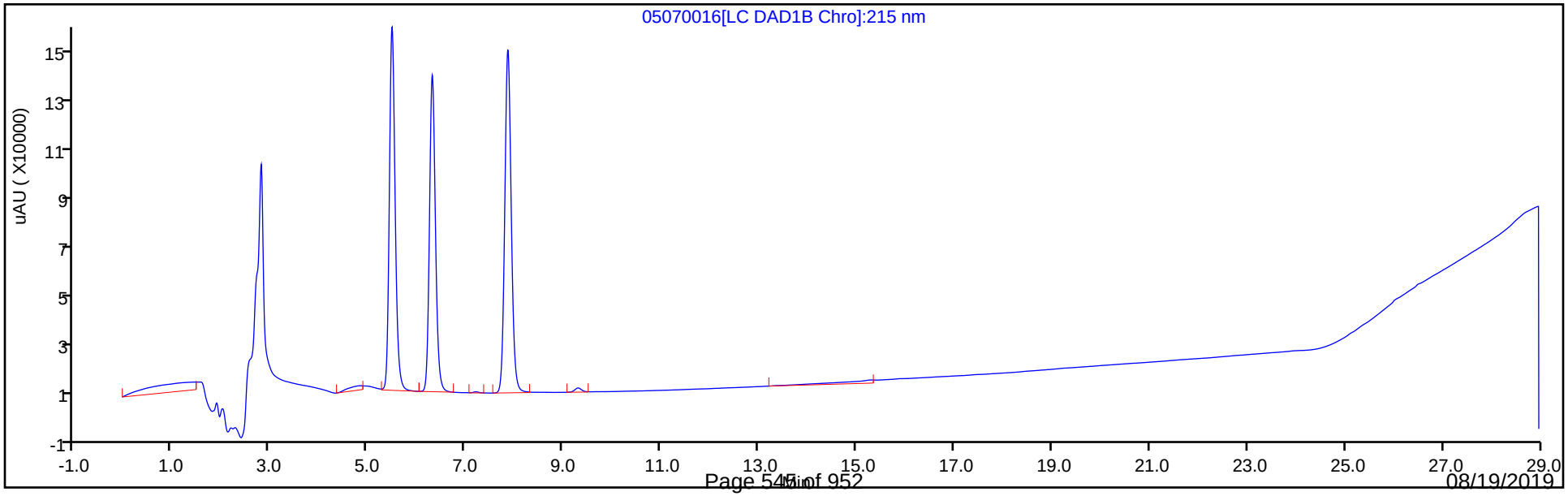
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070016.D				
Injection Date:	07-May-2019 20:23:21	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC DMT L8			Worklist Smp#:	16
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	16
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070017.D				
Lims ID:	IC DMT L7				
Client ID:					
Sample Type:	IC	Calib Level:	7		
Inject. Date:	07-May-2019 20:58:21	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L7				
Misc. Info.:	280-0081649-017				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Sublist:	chrom-G2_8330_Luna*sub13				
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	08-May-2019 09:13:56	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0325				

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.504	5.512	-0.008	408189	1.00	1.01	
4 DNX	1	6.331	6.338	-0.007	291477	1.00	1.01	
7 MNX	1	7.878	7.892	-0.014	314388	1.17	1.17	

Reagents:

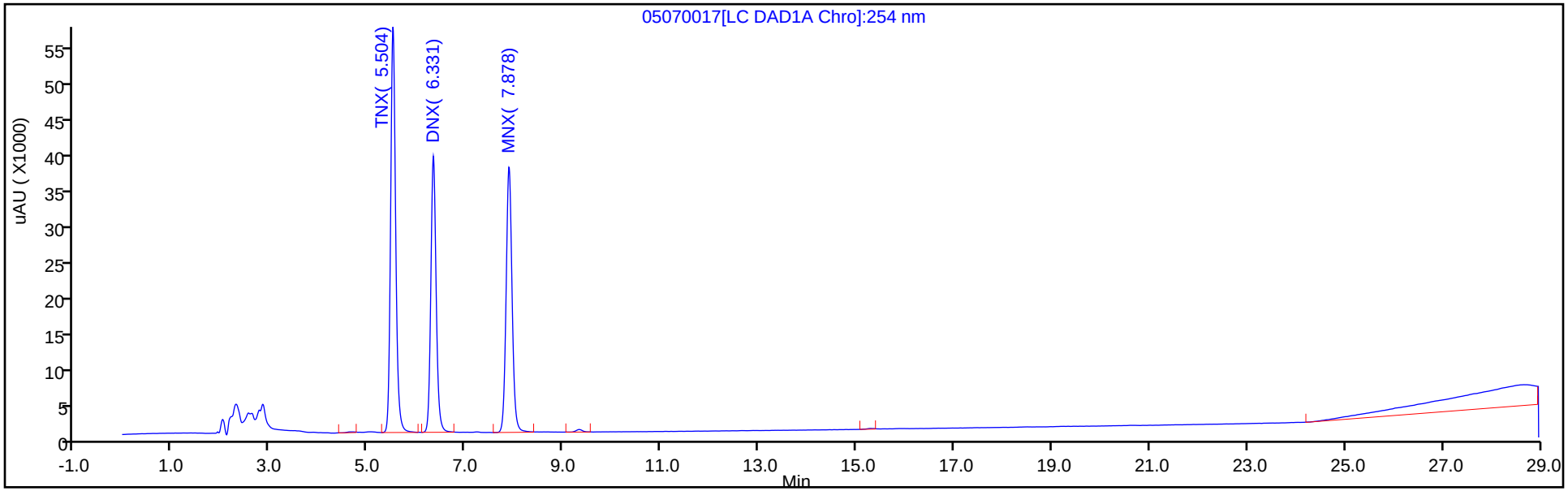
8330 DMT_00002 Amount Added: 50.00 Units: uL

Report Date: 08-May-2019 09:13:57 Chrom Revision: 2.3 03-May-2019 15:52:00

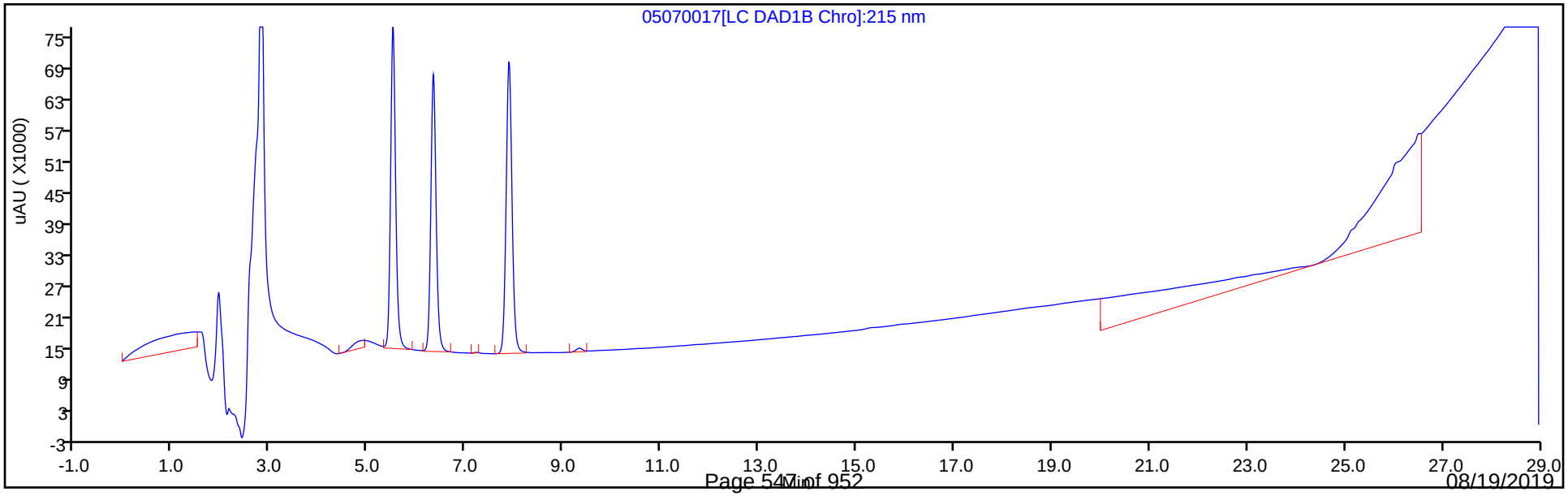
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070017.D				
Injection Date:	07-May-2019 20:58:21	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC DMT L7			Worklist Smp#:	17
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	17
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070018.D				
Lims ID:	IC DMT L6				
Client ID:					
Sample Type:	IC	Calib Level:	6		
Inject. Date:	07-May-2019 21:33:21	ALS Bottle#:	18	Worklist Smp#:	18
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L6				
Misc. Info.:	280-0081649-018				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Sublist:	chrom-G2_8330_Luna*sub13				
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	08-May-2019 09:13:58	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0325				
First Level Reviewer: fiedlerh		Date:	08-May-2019 09:07:18		

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.508	5.512	-0.004	279640	0.7007	0.6932	
4 DNX	1	6.335	6.338	-0.003	200737	0.7007	0.6925	
7 MNX	1	7.888	7.892	-0.004	216413	0.8169	0.8029	

Reagents:

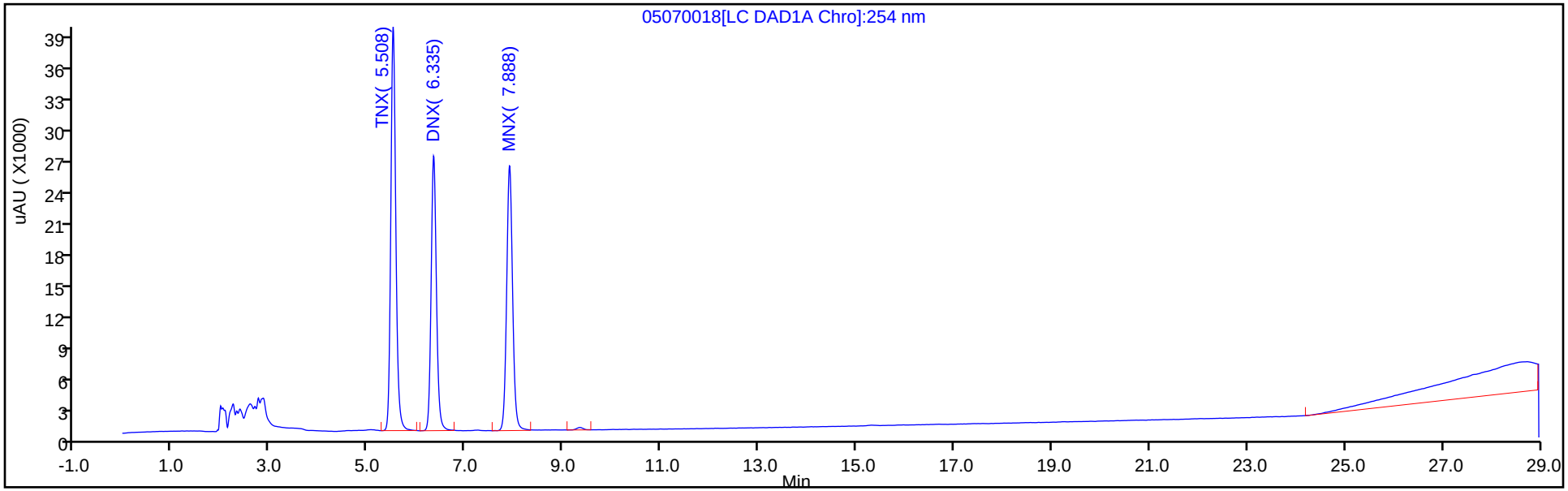
8330 DMT_00002 Amount Added: 35.00 Units: uL

Report Date: 08-May-2019 09:13:58 Chrom Revision: 2.3 03-May-2019 15:52:00

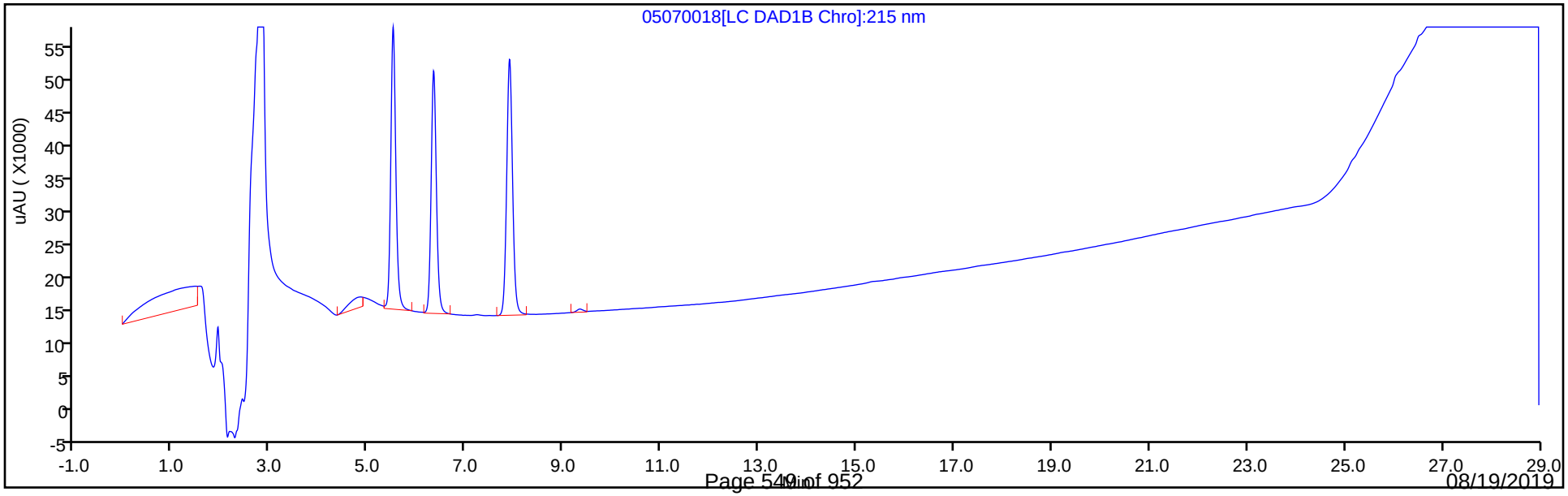
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070018.D				
Injection Date:	07-May-2019 21:33:21	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC DMT L6			Worklist Smp#:	18
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	18
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070019.D
Lims ID: IC DMT L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 07-May-2019 22:08:20 ALS Bottle#: 19 Worklist Smp#: 19
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC DMT L5
Misc. Info.: 280-0081649-019
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub13

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 08-May-2019 09:13:59 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0325

First Level Reviewer: fiedlerh Date: 08-May-2019 09:07:14

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.512	5.512	0.000	158275	0.4004	0.3923	
4 DNX	1	6.338	6.338	0.000	113843	0.4004	0.3927	
7 MNX	1	7.892	7.892	0.000	122409	0.4668	0.4542	

Reagents:

8330 DMT_00002 Amount Added: 20.00 Units: uL

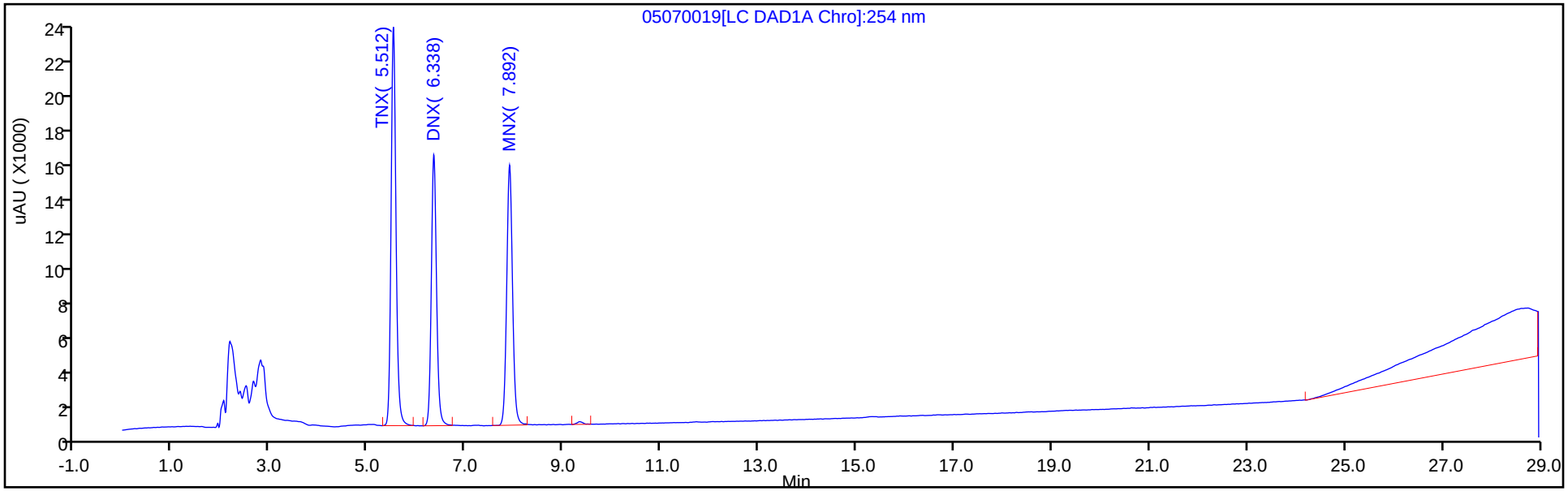
Report Date: 08-May-2019 09:13:59 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

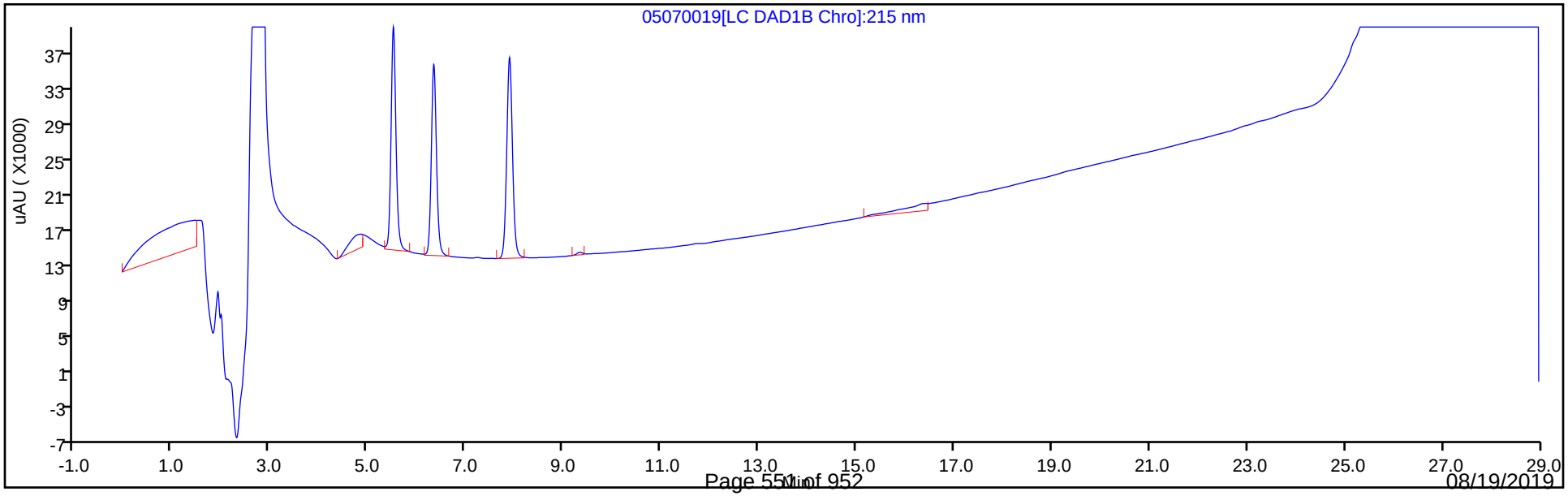
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070019.D

Injection Date:	07-May-2019 22:08:20	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC DMT L5			Worklist Smp#:	19
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	19
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070020.D				
Lims ID:	IC DMT L4				
Client ID:					
Sample Type:	IC	Calib Level:	4		
Inject. Date:	07-May-2019 22:43:18	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L4				
Misc. Info.:	280-0081649-020				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Sublist:	chrom-G2_8330_Luna*sub13				
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	08-May-2019 09:14:00	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0325				
First Level Reviewer: fiedlerh		Date:	08-May-2019 09:07:09		

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.509	5.512	-0.003	96964	0.2503	0.2404	
4 DNX	1	6.336	6.338	-0.002	70271	0.2503	0.2424	
7 MNX	1	7.889	7.892	-0.003	76161	0.2918	0.2826	

Reagents:

8330 DMT_00002 Amount Added: 12.50 Units: uL

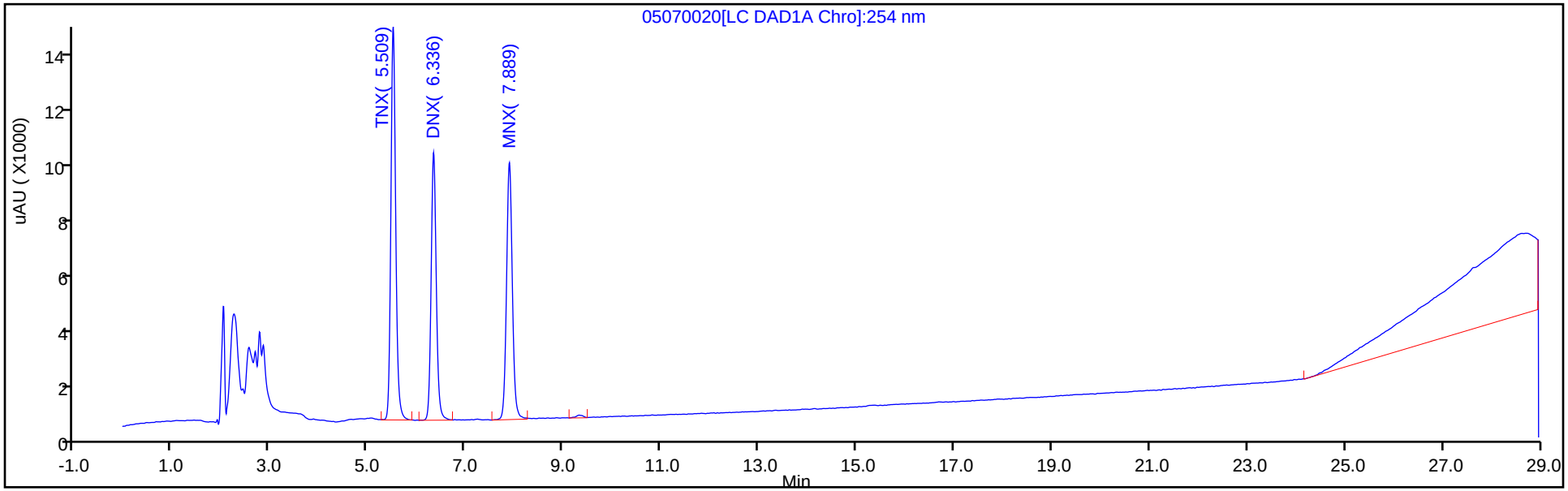
Report Date: 08-May-2019 09:14:00 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

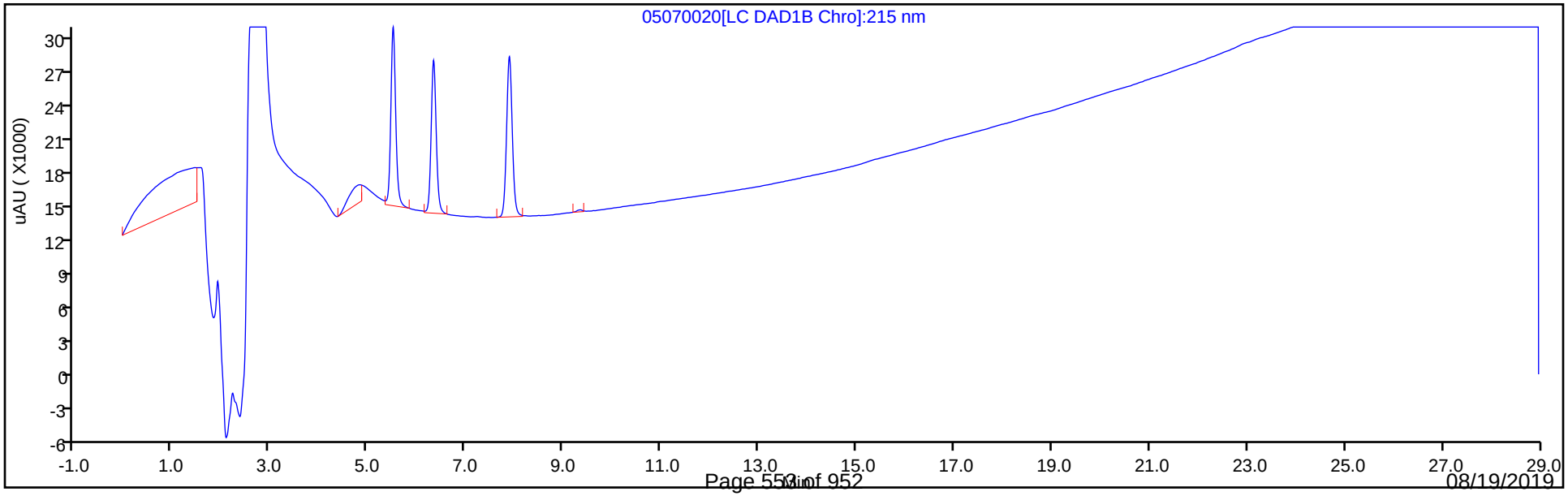
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070020.D

Injection Date:	07-May-2019 22:43:18	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC DMT L4			Worklist Smp#:	20
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	20
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070021.D				
Lims ID:	IC DMT L3				
Client ID:					
Sample Type:	IC	Calib Level:	3		
Inject. Date:	07-May-2019 23:18:20	ALS Bottle#:	21	Worklist Smp#:	21
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L3				
Misc. Info.:	280-0081649-021				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Sublist:	chrom-G2_8330_Luna*sub13				
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	08-May-2019 09:14:01	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0325				

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.515	5.512	0.003	39649	0.1001	0.0983	
4 DNX	1	6.342	6.338	0.004	28635	0.1001	0.0988	
7 MNX	1	7.895	7.892	0.003	31289	0.1167	0.1161	

Reagents:

8330 DMT_00002 Amount Added: 5.00 Units: uL

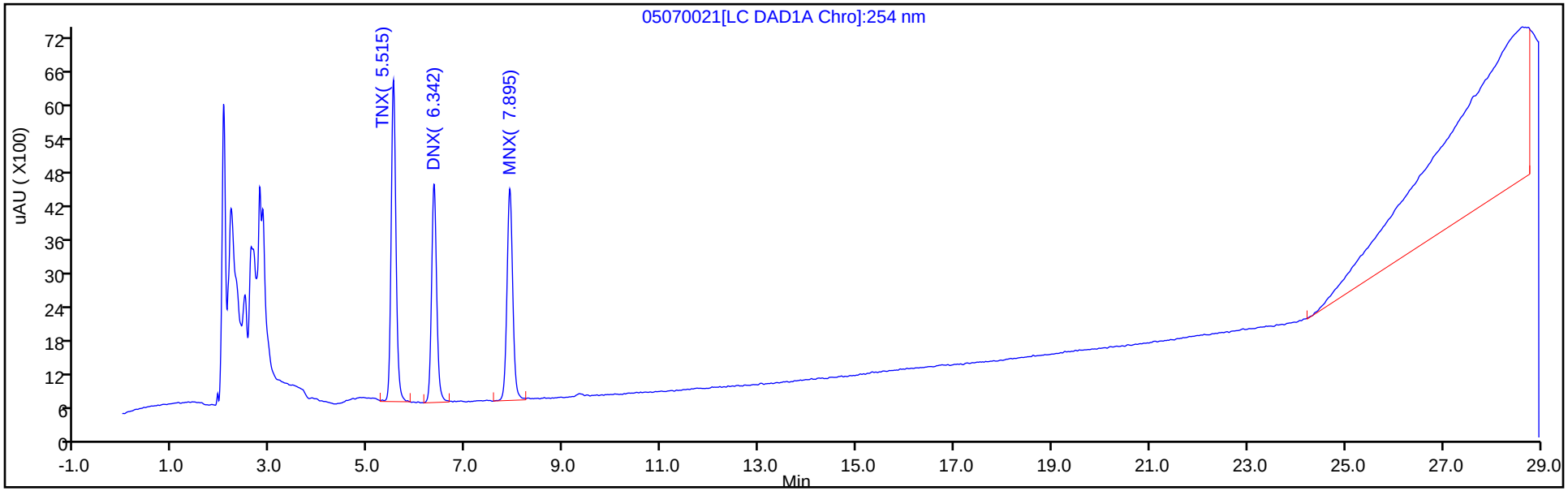
Report Date: 08-May-2019 09:14:02 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

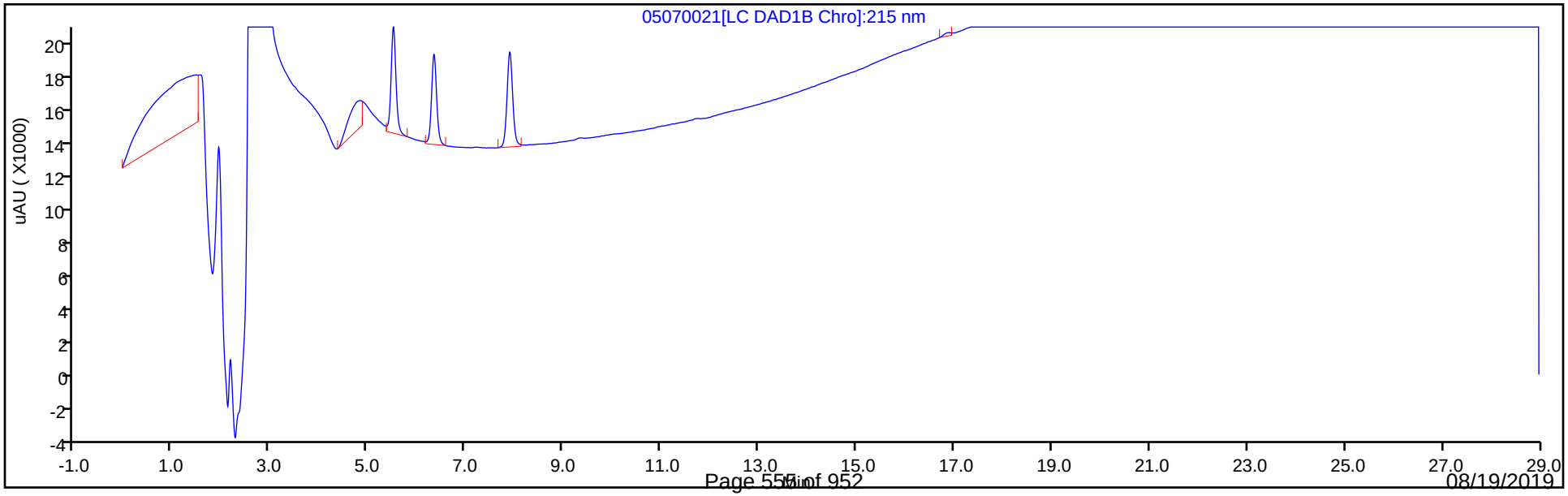
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070021.D

Injection Date:	07-May-2019 23:18:20	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC DMT L3			Worklist Smp#:	21
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	21
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070022.D				
Lims ID:	IC DMT L2				
Client ID:					
Sample Type:	IC	Calib Level:	2		
Inject. Date:	07-May-2019 23:53:26	ALS Bottle#:	22	Worklist Smp#:	22
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L2				
Misc. Info.:	280-0081649-022				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Sublist:	chrom-G2_8330_Luna*sub13				
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	08-May-2019 09:14:03	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0325				

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.513	5.512	0.001	19856	0.0501	0.0492	
4 DNX	1	6.340	6.338	0.002	14537	0.0501	0.0501	
7 MNX	1	7.893	7.892	0.001	15677	0.0584	0.0582	

Reagents:

8330 DMT_00002 Amount Added: 2.50 Units: uL

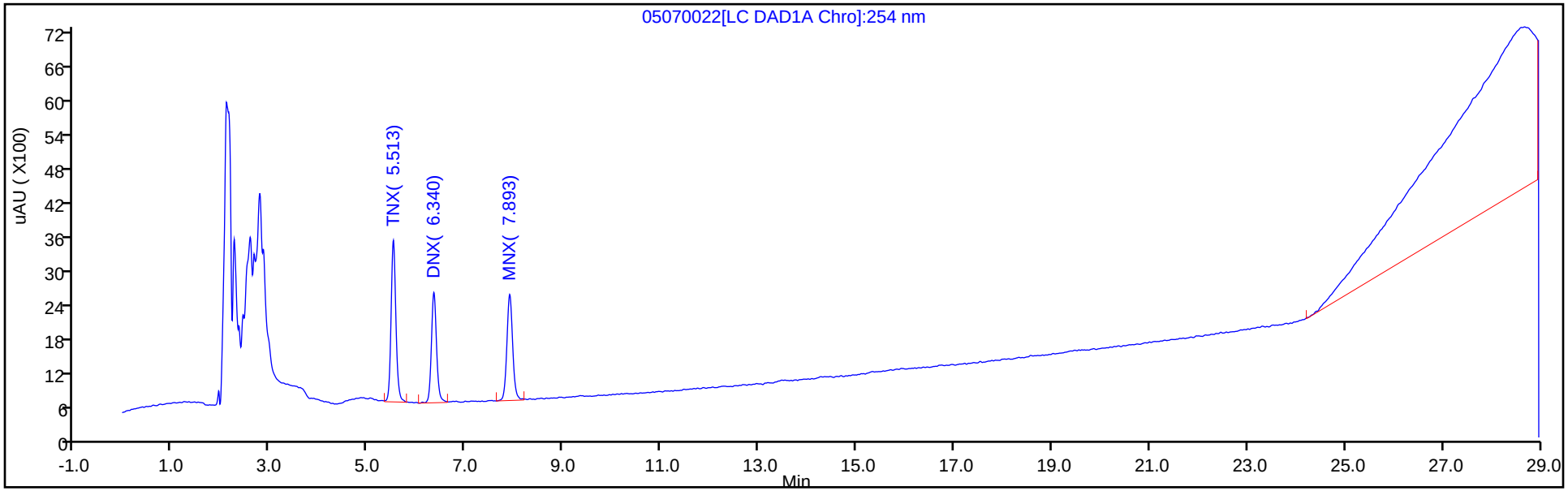
Report Date: 08-May-2019 09:14:03 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

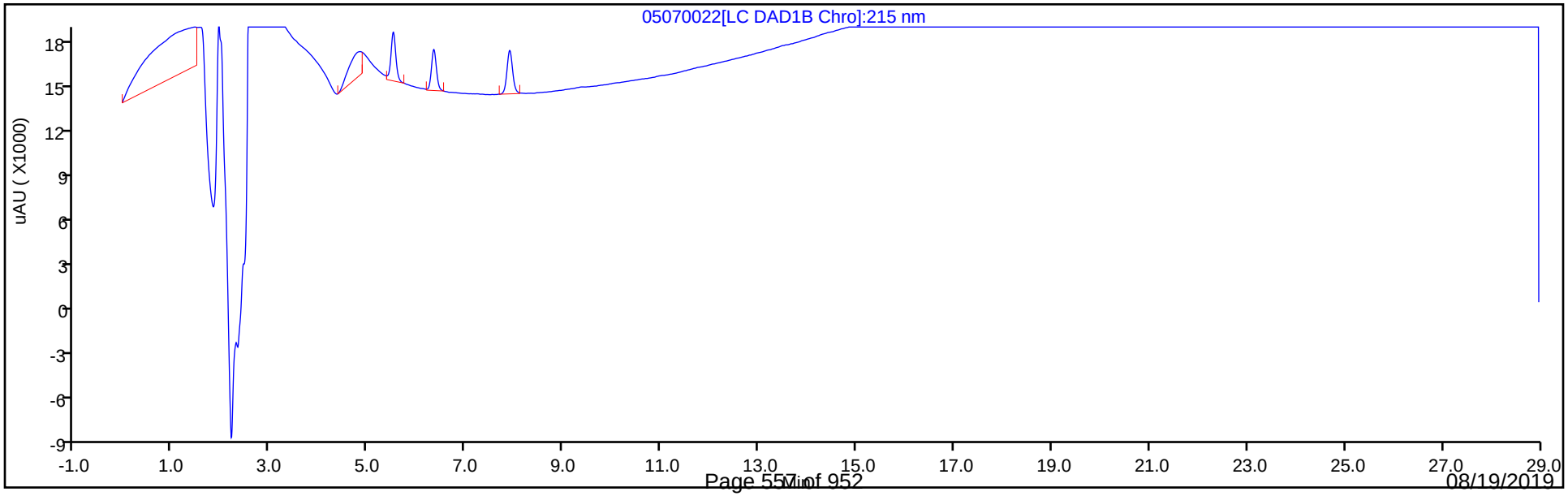
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070022.D

Injection Date:	07-May-2019 23:53:26	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC DMT L2			Worklist Smp#:	22
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	22
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D
Lims ID: IC DMT L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 08-May-2019 00:28:23 ALS Bottle#: 23 Worklist Smp#: 23
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC DMT L1
Misc. Info.: 280-0081649-023
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub13

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 08-May-2019 09:14:04 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0325

First Level Reviewer: fiedlerh Date: 08-May-2019 09:08:14

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.515	5.512	0.003	8451	0.0200	0.0209	
4 DNX	1	6.342	6.338	0.004	5980	0.0200	0.0206	
7 MNX	1	7.895	7.892	0.003	6651	0.0233	0.0247	

Reagents:

8330 DMT_00002 Amount Added: 1.00 Units: uL

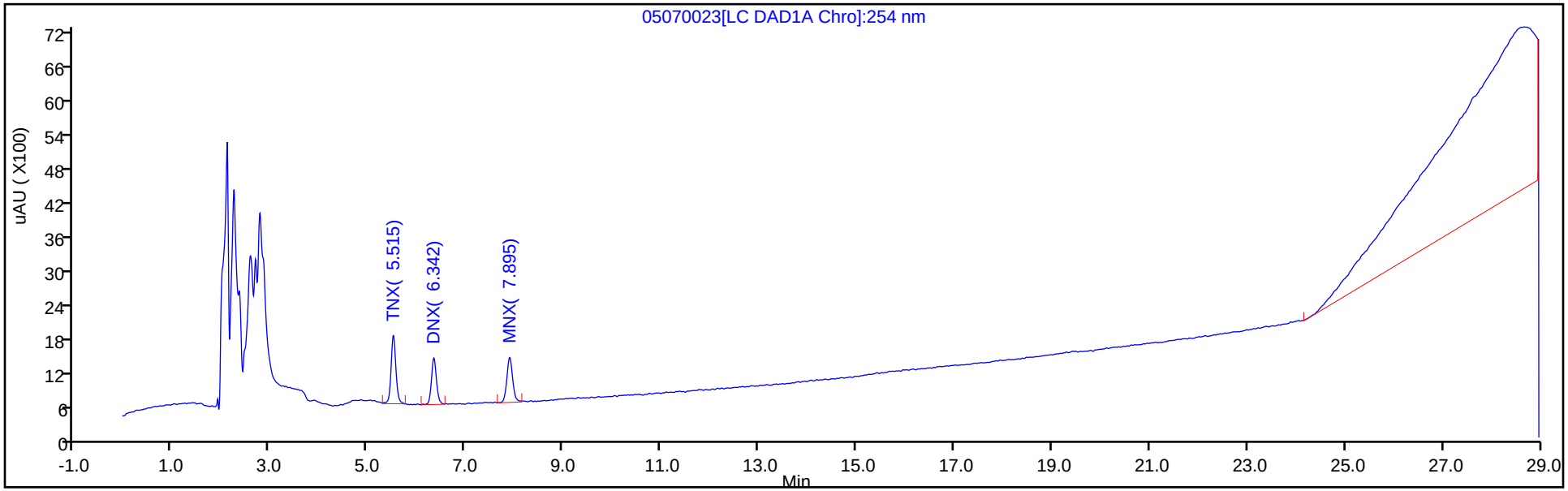
Report Date: 08-May-2019 09:14:04 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

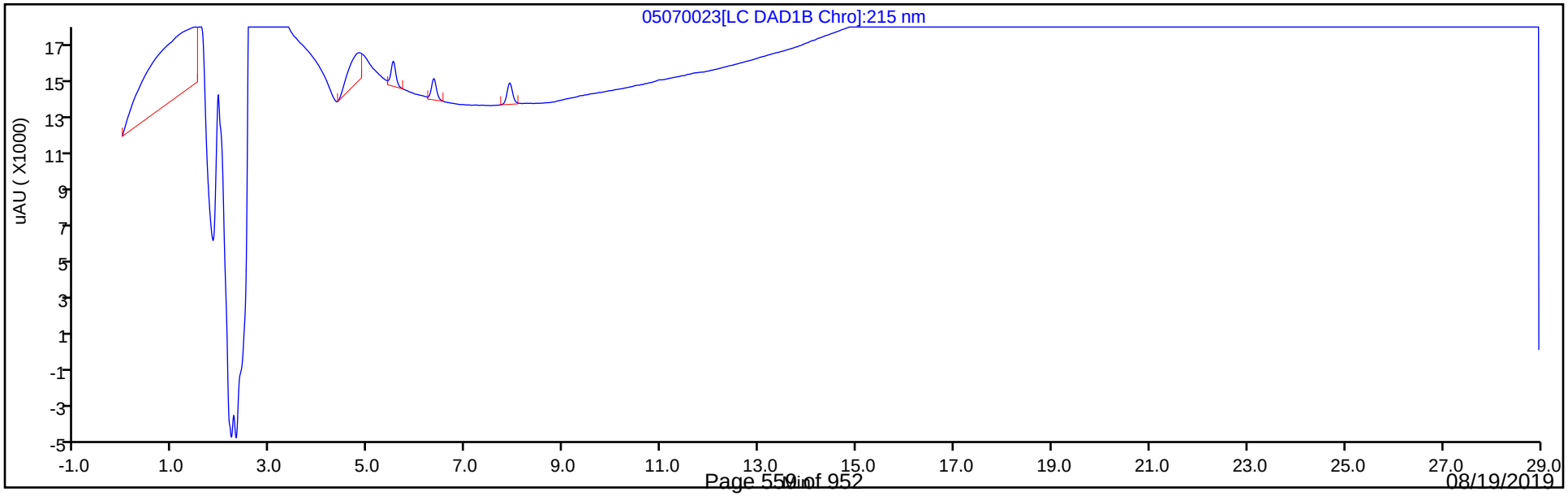
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Injection Date:	08-May-2019 00:28:23	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	IC DMT L1			Worklist Smp#:	23
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	23
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 463276

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/01/2019 14:40 Calibration End Date: 07/01/2019 17:23 Calibration ID: 37011

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-463276/14	07010014.D
Level 2	IC 280-463276/13	07010013.D
Level 3	IC 280-463276/12	07010012.D
Level 4	IC 280-463276/11	07010011.D
Level 5	IC 280-463276/10	07010010.D
Level 6	IC 280-463276/9	07010009.D
Level 7	IC 280-463276/8	07010008.D
Level 8	IC 280-463276/7	07010007.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8			RT WINDOW	AVG RT
HMX	6.642	6.648	6.645	6.638	6.646	6.644	6.645	6.639			6.493 - 6.793	6.643
RDX	7.762	7.768	7.759	7.758	7.759	7.764	7.772	7.759			7.607 - 7.907	7.763
Picric acid	8.209	8.215	8.199	8.191	8.179	8.171	8.158	8.085			8.027 - 8.327	8.176
1,3,5-Trinitrobenzene	8.902	8.908	8.899	8.898	8.899	8.904	8.912	8.899			8.747 - 9.047	8.903
1,3-Dinitrobenzene	9.562	9.568	9.565	9.565	9.559	9.571	9.578	9.565			9.407 - 9.707	9.567
Nitrobenzene	9.949	9.954	9.952	9.951	9.945	9.957	9.965	9.952			9.793 - 10.093	9.953
Tetryl	10.275	10.288	10.279	10.278	10.272	10.291	10.298	10.285			10.120 - 10.420	10.283
Nitroglycerin	10.775	10.788	10.779	10.785	10.779	10.791	10.798	10.778			10.620 - 10.920	10.784
2,4,6-Trinitrotoluene	11.229	11.241	11.232	11.238	11.232	11.244	11.252	11.238			11.123 - 11.323	11.238
4-Amino-2,6-dinitrotoluene	11.422	11.434	11.425	11.425	11.419	11.437	11.452	11.432			11.317 - 11.517	11.431
2-Amino-4,6-dinitrotoluene	11.715	11.721	11.712	11.718	11.705	11.731	11.738	11.718			11.603 - 11.803	11.720
2,6-Dinitrotoluene	11.842	11.854	11.852	11.851	11.845	11.864	11.872	11.858			11.737 - 11.937	11.855
2,4-Dinitrotoluene	12.042	12.054	12.045	12.051	12.039	12.064	12.072	12.052			11.937 - 12.137	12.052
2-Nitrotoluene	12.882	12.894	12.892	12.891	12.879	12.904	12.912	12.898			12.727 - 13.027	12.894
4-Nitrotoluene	13.329	13.334	13.332	13.331	13.325	13.344	13.358	13.338			13.167 - 13.467	13.336
3-Nitrotoluene	13.915	13.934	13.932	13.925	13.919	13.944	13.958	13.938			13.767 - 14.067	13.933
PETN	15.015	15.041	15.032	15.025	15.019	15.051	15.058	15.045			14.860 - 15.160	15.036
1,2-Dinitrobenzene	8.742	8.748	8.739	8.745	8.739	8.751	8.752	8.745			8.587 - 8.887	8.745

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 463276

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/01/2019 14:40 Calibration End Date: 07/01/2019 17:23 Calibration ID: 37011

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-463276/14	07010014.D
Level 2	IC 280-463276/13	07010013.D
Level 3	IC 280-463276/12	07010012.D
Level 4	IC 280-463276/11	07010011.D
Level 5	IC 280-463276/10	07010010.D
Level 6	IC 280-463276/9	07010009.D
Level 7	IC 280-463276/8	07010008.D
Level 8	IC 280-463276/7	07010007.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
HMX	89750 95318	89840 97413	85950 97946	87784 90666	Ave		91833.2446				4.9		20.0			
RDX	116900 107183	113880 113994	106270 115333	106608 108796	Ave		111120.423				3.9		20.0			
Picric acid	115100 83438	96140 88936	86330 89601	83168 83162	Ave		90734.2268				11.9		20.0			
1,3,5-Trinitrobenzene	231900 245955	252720 254053	234380 258481	241100 242023	Ave		245076.507				3.9		20.0			
1,3-Dinitrobenzene	296204 306151	323277 320835	303966 325162	304951 308858	Ave		311175.451				3.4		20.0			
Nitrobenzene	186976 193580	206567 204311	194850 209370	195944 199625	Ave		198903.056				3.8		20.0			
Tetryl	140150 162025	164180 169667	159520 173034	159276 167806	Ave		161957.218				6.2		20.0			
Nitroglycerin	63150 71560	71662 74671	69583 75926	70987 71328	Ave		71108.3505				5.4		20.0			
2,4,6-Trinitrotoluene	226295 222398	236315 231917	222122 235332	219442 224394	Ave		227276.691				2.8		20.0			
4-Amino-2,6-dinitrotoluene	176471 161515	171785 167985	161715 170409	160291 160853	Ave		166377.838				3.7		20.0			
2-Amino-4,6-dinitrotoluene	191476 204177	207458 212138	203998 213209	201440 207996	Ave		205236.402				3.3		20.0			
2,6-Dinitrotoluene	168594 153719	165942 161295	152672 165239	153236 153578	Ave		159284.393				4.2		20.0			
2,4-Dinitrotoluene	290669 296722	305549 310537	292715 315315	293844 298227	Ave		300447.252				3.0		20.0			
2-Nitrotoluene	127617 124990	135872 132549	127368 134538	127386 127948	Ave		129783.617				3.1		20.0			

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

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 463276

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/01/2019 14:40 Calibration End Date: 07/01/2019 17:23 Calibration ID: 37011

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
4-Nitrotoluene	107669 107174	111693 114057	107371 115455	108558 110063	Ave		110254.875				2.9		20.0			
3-Nitrotoluene	144721 139472	152410 147486	142161 150123	141510 143094	Ave		145122.200				3.1		20.0			
PETN	55530 76267	76864 79871	73030 80847	75248 76653	Ave		74288.8082				10.7		20.0			
1,2-Dinitrobenzene	130450 137375	142700 144760	136320 145938	137532 139553	Ave		139328.475				3.6		20.0			

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

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 463276

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/01/2019 14:40 Calibration End Date: 07/01/2019 17:23 Calibration ID: 37011

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-463276/14	07010014.D
Level 2	IC 280-463276/13	07010013.D
Level 3	IC 280-463276/12	07010012.D
Level 4	IC 280-463276/11	07010011.D
Level 5	IC 280-463276/10	07010010.D
Level 6	IC 280-463276/9	07010009.D
Level 7	IC 280-463276/8	07010008.D
Level 8	IC 280-463276/7	07010007.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
HMX	Ave	1795 68189	4492 97946	8595 226664	21946	38127	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
RDX	Ave	2338 79796	5694 115333	10627 271989	26652	42873	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
Picric acid	Ave	2302 62255	4807 89601	8633 207904	20792	33375	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
1,3,5-Trinitrobenzene	Ave	4638 177837	12636 258481	23438 605058	60275	98382	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
1,3-Dinitrobenzene	Ave	5930 224809	16180 325487	30427 772917	76314	122583	0.0200 0.701	0.0501 1.00	0.100 2.50	0.250	0.400
Nitrobenzene	Ave	3747 143304	10349 209789	19524 500061	49084	77587	0.0200 0.701	0.0501 1.00	0.100 2.51	0.251	0.401
Tetryl	Ave	2803 118767	8209 173034	15952 419514	39819	64810	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400
Nitroglycerin	Ave	12630 522695	35831 759263	69583 1783196	177468	286239	0.200 7.00	0.500 10.0	1.00 25.0	2.50	4.00
2,4,6-Trinitrotoluene	Ave	4544 162991	11863 236273	22301 563229	55080	89315	0.0201 0.703	0.0502 1.00	0.100 2.51	0.251	0.402
4-Amino-2,6-dinitrotoluene	Ave	3540 117942	8615 170920	16220 403338	40193	64800	0.0201 0.702	0.0502 1.00	0.100 2.51	0.251	0.401
2-Amino-4,6-dinitrotoluene	Ave	3841 148942	10404 213849	20461 521549	50511	81916	0.0201 0.702	0.0502 1.00	0.100 2.51	0.251	0.401
2,6-Dinitrotoluene	Ave	3382 113245	8322 165735	15313 385096	38424	61672	0.0201 0.702	0.0502 1.00	0.100 2.51	0.251	0.401
2,4-Dinitrotoluene	Ave	5825 217811	15308 315946	29330 747059	73608	118926	0.0200 0.701	0.0501 1.00	0.100 2.51	0.251	0.401
2-Nitrotoluene	Ave	2560 93063	6814 134942	12775 320829	31942	50146	0.0201 0.702	0.0502 1.00	0.100 2.51	0.251	0.401
4-Nitrotoluene	Ave	2162 80159	5607 115917	10780 276257	27248	43041	0.0201 0.703	0.0502 1.00	0.100 2.51	0.251	0.402

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 463276

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/01/2019 14:40 Calibration End Date: 07/01/2019 17:23 Calibration ID: 37011

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
3-Nitrotoluene	Ave	2906 103653	7651 150723	14273 359167	35519	56012	0.0201 0.703	0.0502 1.00	0.100 2.51	0.251	0.402
PETN	Ave	11106 559099	38432 808473	73030 1916332	188119	305068	0.200 7.00	0.500 10.0	1.00 25.0	2.50	4.00
1,2-Dinitrobenzene	Ave	2609 101332	7135 145938	13632 348882	34383	54950	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250	0.400

Curve Type Legend:
Ave = Average

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010007.D
Lims ID: IC MAIN L8
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 01-Jul-2019 14:40:42 ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC MAIN L8
Misc. Info.: 280-0083376-007
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:43 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
	3 HMX	1	6.639	6.643	-0.004	226664	2.50	2.47	
	7 RDX	1	7.759	7.757	0.002	271989	2.50	2.45	
	8 2,4,6-Trinitrophenol	1	8.085	8.177	-0.092	207904	2.50	2.29	
$	9 1,2-Dinitrobenzene	1	8.745	8.737	0.008	348882	2.50	2.50	
	10 1,3,5-Trinitrobenzene	1	8.899	8.897	0.002	605058	2.50	2.47	
	11 1,3-Dinitrobenzene	1	9.565	9.557	0.008	772917	2.50	2.48	
	12 Nitrobenzene	1	9.952	9.943	0.009	500061	2.51	2.51	
	14 Tetryl	1	10.285	10.270	0.015	419514	2.50	2.59	
	15 Nitroglycerin	2	10.778	10.770	0.008	1783196	25.0	25.1	
	16 2,4,6-Trinitrotoluene	1	11.238	11.223	0.015	563229	2.51	2.48	
	17 4-Amino-2,6-dinitrotoluene	1	11.432	11.417	0.015	403338	2.51	2.42	
	18 2-Amino-4,6-dinitrotoluene	1	11.718	11.703	0.015	521549	2.51	2.54	
	19 2,6-Dinitrotoluene	1	11.858	11.837	0.021	385096	2.51	2.42	
	20 2,4-Dinitrotoluene	1	12.052	12.037	0.015	747059	2.51	2.49	
	21 o-Nitrotoluene	1	12.898	12.877	0.021	320829	2.51	2.47	
	22 p-Nitrotoluene	1	13.338	13.317	0.021	276257	2.51	2.51	
	23 m-Nitrotoluene	1	13.938	13.917	0.021	359167	2.51	2.47	
	24 PETN	2	15.045	15.010	0.035	1916332	25.0	25.8	

Reagents:

8330IntermStk_00058 Amount Added: 125.00 Units: uL

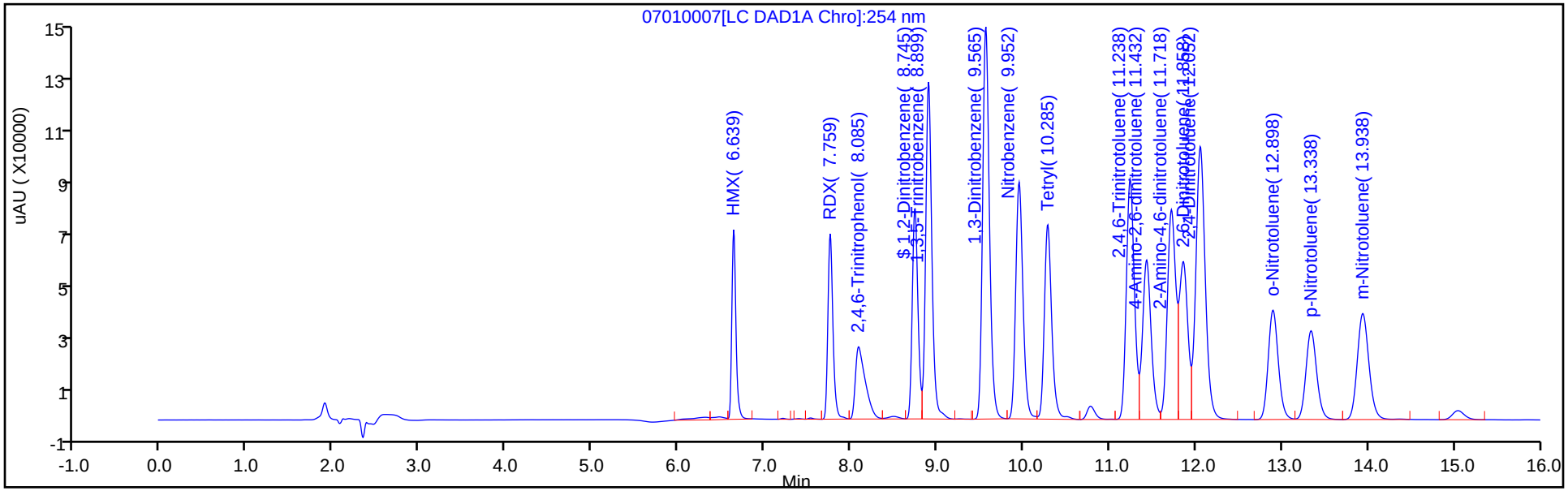
Report Date: 02-Jul-2019 11:34:44 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

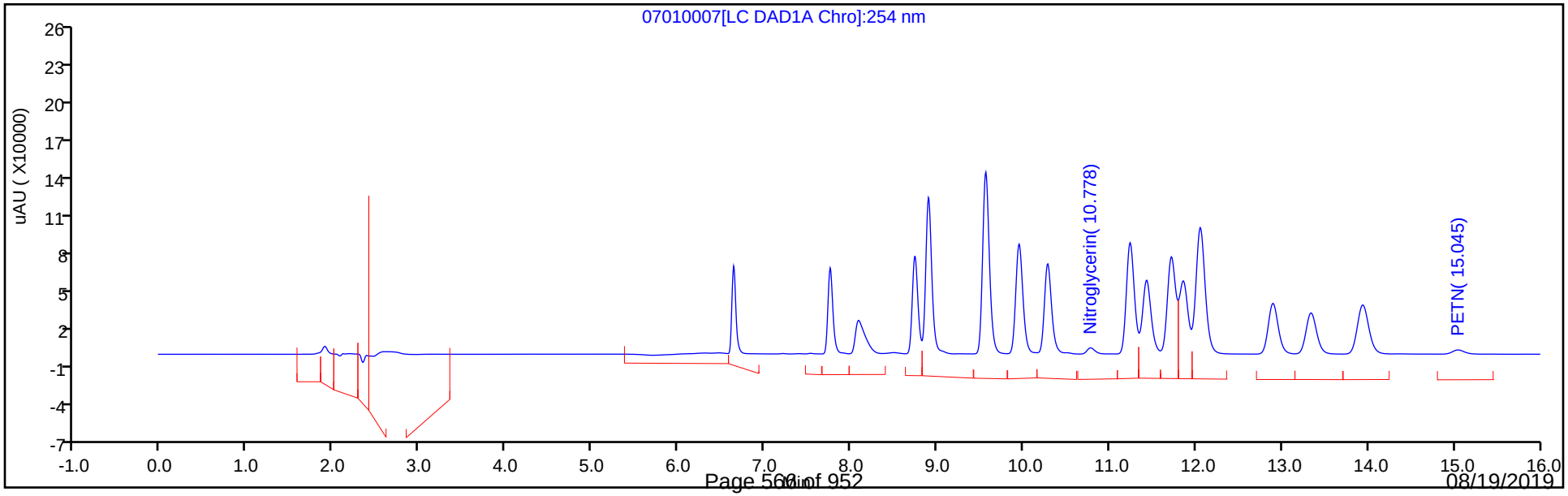
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010007.D

Injection Date:	01-Jul-2019 14:40:42	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC MAIN L8			Worklist Smp#:	7
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010008.D
Lims ID: IC MAIN L7
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 01-Jul-2019 15:04:44 ALS Bottle#: 8 Worklist Smp#: 8
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC MAIN L7
Misc. Info.: 280-0083376-008
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:46 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.645	6.638	0.007	97946	1.00	1.07	
7 RDX	1	7.772	7.758	0.014	115333	1.00	1.04	
8 2,4,6-Trinitrophenol	1	8.158	8.191	-0.033	89601	1.00	0.9875	
$ 9 1,2-Dinitrobenzene	1	8.752	8.745	0.007	145938	1.00	1.05	
10 1,3,5-Trinitrobenzene	1	8.912	8.898	0.014	258481	1.00	1.05	
11 1,3-Dinitrobenzene	1	9.578	9.565	0.013	325487	1.00	1.05	
12 Nitrobenzene	1	9.965	9.951	0.014	209789	1.00	1.05	
14 Tetryl	1	10.298	10.278	0.020	173034	1.00	1.07	
15 Nitroglycerin	2	10.798	10.785	0.013	759263	10.0	10.7	
16 2,4,6-Trinitrotoluene	1	11.252	11.238	0.014	236273	1.00	1.04	
17 4-Amino-2,6-dinitrotoluene	1	11.452	11.425	0.027	170920	1.00	1.03	
18 2-Amino-4,6-dinitrotoluene	1	11.738	11.718	0.020	213849	1.00	1.04	
19 2,6-Dinitrotoluene	1	11.872	11.851	0.021	165735	1.00	1.04	
20 2,4-Dinitrotoluene	1	12.072	12.051	0.021	315946	1.00	1.05	
21 o-Nitrotoluene	1	12.912	12.891	0.021	134942	1.00	1.04	
22 p-Nitrotoluene	1	13.358	13.331	0.027	115917	1.00	1.05	
23 m-Nitrotoluene	1	13.958	13.925	0.033	150723	1.00	1.04	
24 PETN	2	15.058	15.025	0.033	808473	10.0	10.9	

Reagents:

8330IntermStk_00058 Amount Added: 50.00 Units: uL

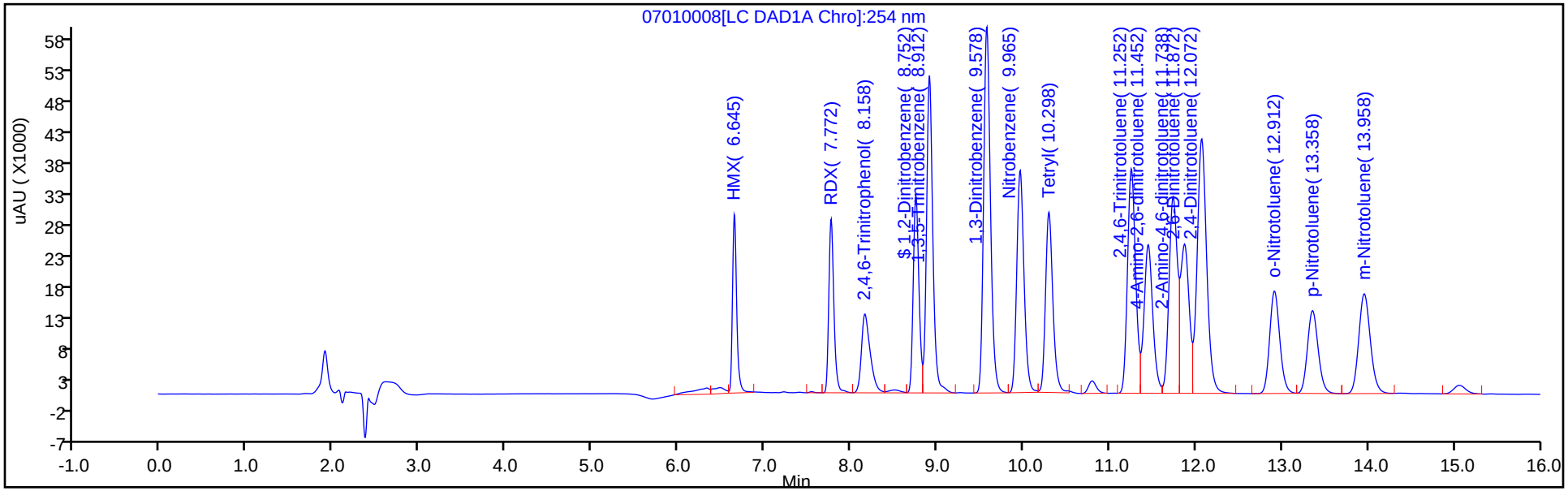
Report Date: 02-Jul-2019 11:34:46 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

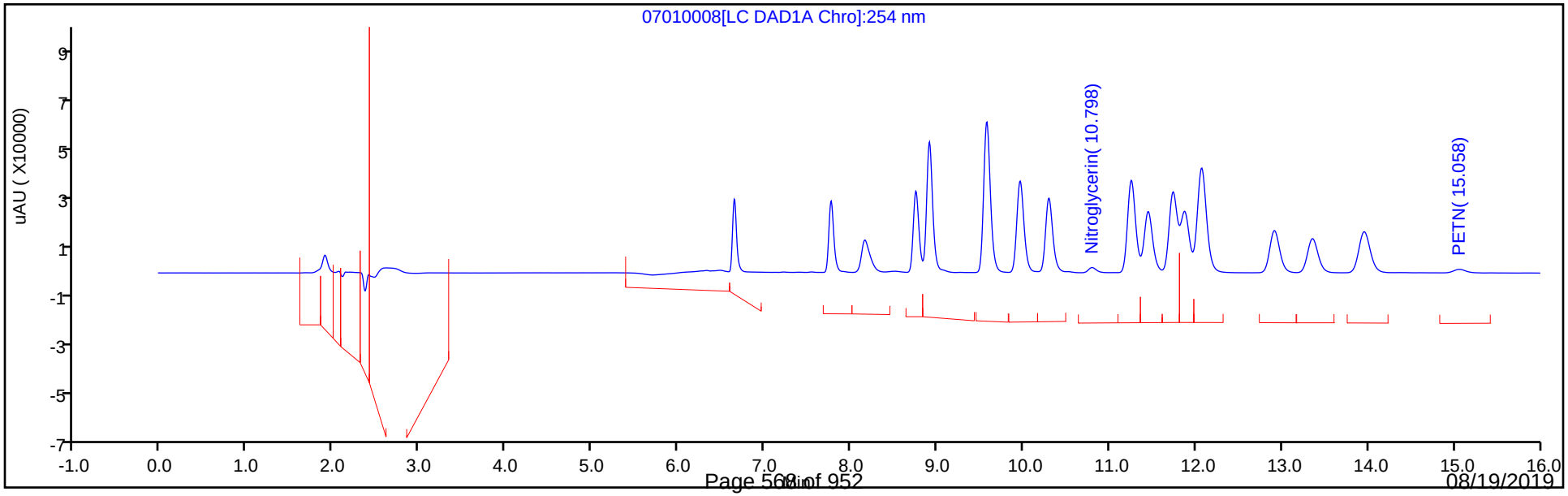
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010008.D

Injection Date:	01-Jul-2019 15:04:44	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC MAIN L7			Worklist Smp#:	8
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010009.D
Lims ID: IC MAIN L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 01-Jul-2019 15:27:41 ALS Bottle#: 9 Worklist Smp#: 9
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC MAIN L6
Misc. Info.: 280-0083376-009
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:47 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.644	6.643	0.001	68189	0.7000	0.7425	
7 RDX	1	7.764	7.757	0.007	79796	0.7000	0.7181	
8 2,4,6-Trinitrophenol	1	8.171	8.177	-0.006	62255	0.7000	0.6861	
$ 9 1,2-Dinitrobenzene	1	8.751	8.737	0.014	101332	0.7000	0.7273	
10 1,3,5-Trinitrobenzene	1	8.904	8.897	0.007	177837	0.7000	0.7256	
11 1,3-Dinitrobenzene	1	9.571	9.557	0.014	224809	0.7007	0.7225	
12 Nitrobenzene	1	9.957	9.943	0.014	143304	0.7014	0.7205	
14 Tetryl	1	10.291	10.270	0.021	118767	0.7000	0.7333	
15 Nitroglycerin	2	10.791	10.770	0.021	522695	7.00	7.35	
16 2,4,6-Trinitrotoluene	1	11.244	11.223	0.021	162991	0.7028	0.7171	
17 4-Amino-2,6-dinitrotoluene	1	11.437	11.417	0.020	117942	0.7021	0.7089	
18 2-Amino-4,6-dinitrotoluene	1	11.731	11.703	0.028	148942	0.7021	0.7257	
19 2,6-Dinitrotoluene	1	11.864	11.837	0.027	113245	0.7021	0.7110	
20 2,4-Dinitrotoluene	1	12.064	12.037	0.027	217811	0.7014	0.7250	
21 o-Nitrotoluene	1	12.904	12.877	0.027	93063	0.7021	0.7171	
22 p-Nitrotoluene	1	13.344	13.317	0.027	80159	0.7028	0.7270	
23 m-Nitrotoluene	1	13.944	13.917	0.027	103653	0.7028	0.7142	
24 PETN	2	15.051	15.010	0.041	559099	7.00	7.53	

Reagents:

8330IntermStk_00058 Amount Added: 35.00 Units: uL

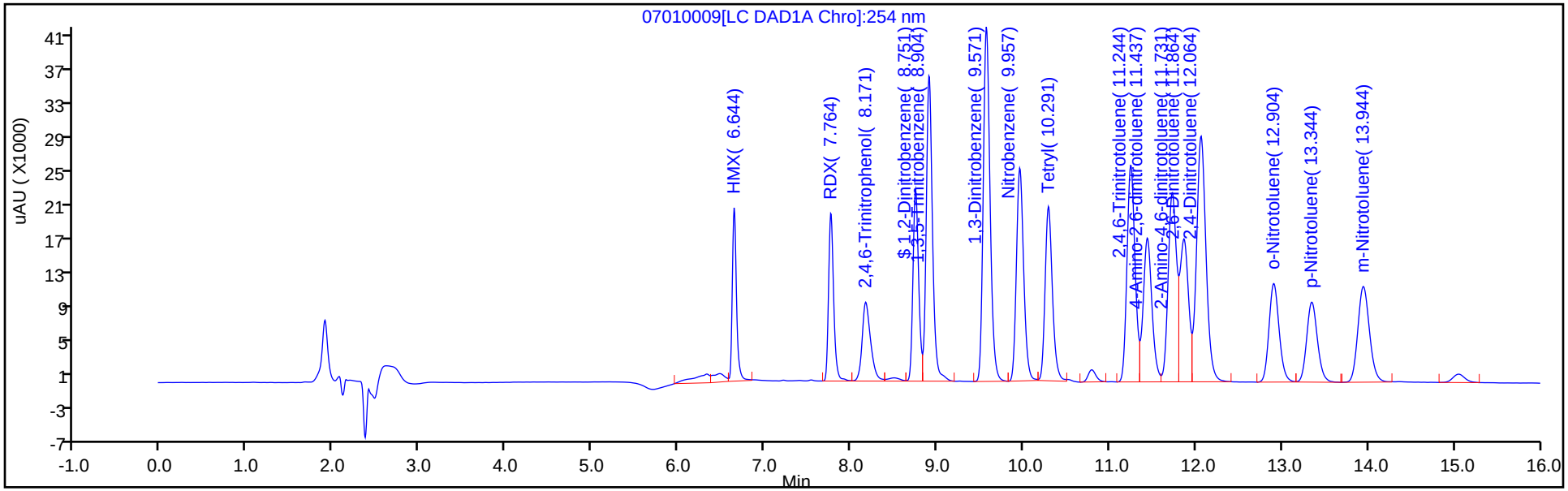
Report Date: 02-Jul-2019 11:34:48 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

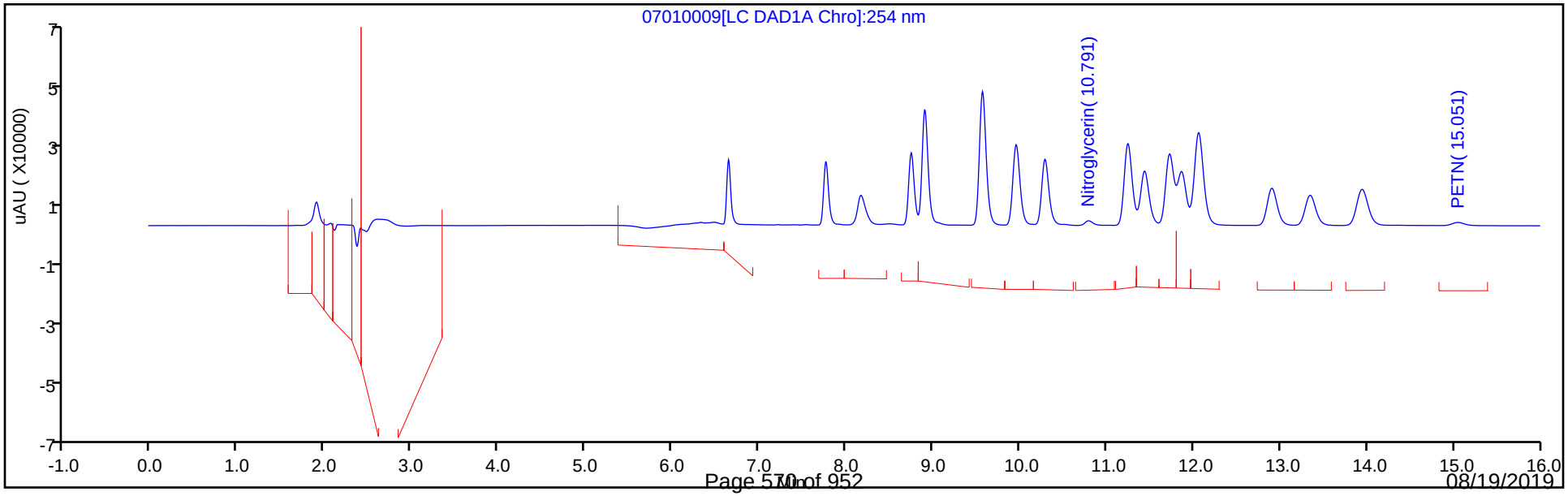
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010009.D

Injection Date:	01-Jul-2019 15:27:41	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC MAIN L6			Worklist Smp#:	9
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	9
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010010.D
Lims ID: IC MAIN L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 01-Jul-2019 15:50:38 ALS Bottle#: 10 Worklist Smp#: 10
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC MAIN L5
Misc. Info.: 280-0083376-010
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:49 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.646	6.638	0.008	38127	0.4000	0.4152	
7 RDX	1	7.759	7.758	0.001	42873	0.4000	0.3858	
8 2,4,6-Trinitrophenol	1	8.179	8.191	-0.012	33375	0.4000	0.3678	
$ 9 1,2-Dinitrobenzene	1	8.739	8.745	-0.006	54950	0.4000	0.3944	
10 1,3,5-Trinitrobenzene	1	8.899	8.898	0.001	98382	0.4000	0.4014	
11 1,3-Dinitrobenzene	1	9.559	9.565	-0.006	122583	0.4004	0.3939	
12 Nitrobenzene	1	9.945	9.951	-0.006	77587	0.4008	0.3901	
14 Tetryl	1	10.272	10.278	-0.006	64810	0.4000	0.4002	
15 Nitroglycerin	2	10.779	10.785	-0.006	286239	4.00	4.03	
16 2,4,6-Trinitrotoluene	1	11.232	11.238	-0.006	89315	0.4016	0.3930	
17 4-Amino-2,6-dinitrotoluene	1	11.419	11.425	-0.006	64800	0.4012	0.3895	
18 2-Amino-4,6-dinitrotoluene	1	11.705	11.718	-0.013	81916	0.4012	0.3991	
19 2,6-Dinitrotoluene	1	11.845	11.851	-0.006	61672	0.4012	0.3872	
20 2,4-Dinitrotoluene	1	12.039	12.051	-0.012	118926	0.4008	0.3958	
21 o-Nitrotoluene	1	12.879	12.891	-0.012	50146	0.4012	0.3864	
22 p-Nitrotoluene	1	13.325	13.331	-0.006	43041	0.4016	0.3904	
23 m-Nitrotoluene	1	13.919	13.925	-0.006	56012	0.4016	0.3860	
24 PETN	2	15.019	15.025	-0.006	305068	4.00	4.11	

Reagents:

8330IntermStk_00058 Amount Added: 20.00 Units: uL

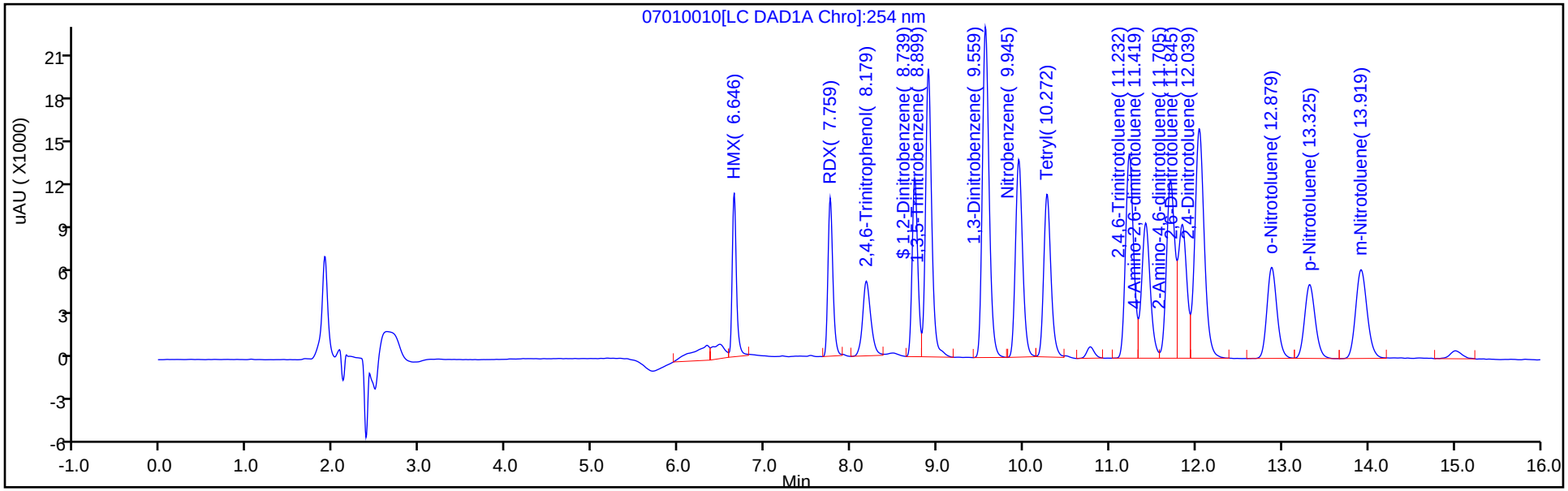
Report Date: 02-Jul-2019 11:34:50 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

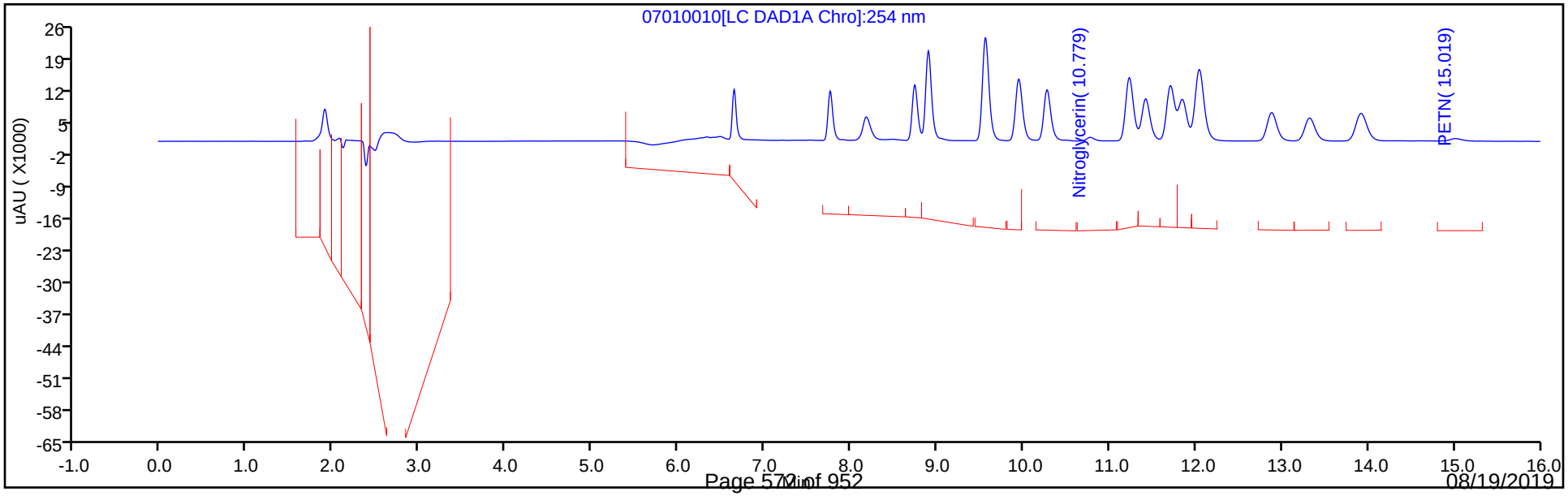
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010010.D

Injection Date:	01-Jul-2019 15:50:38	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC MAIN L5			Worklist Smp#:	10
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	10
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010011.D
Lims ID: IC MAIN L4
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 01-Jul-2019 16:13:37 ALS Bottle#: 11 Worklist Smp#: 11
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC MAIN L4
Misc. Info.: 280-0083376-011
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:51 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 01-Jul-2019 16:40:25

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.638	6.643	-0.005	21946	0.2500	0.2390	
7 RDX	1	7.758	7.757	0.001	26652	0.2500	0.2398	
8 2,4,6-Trinitrophenol	1	8.191	8.177	0.014	20792	0.2500	0.2292	
$ 9 1,2-Dinitrobenzene	1	8.745	8.737	0.008	34383	0.2500	0.2468	
10 1,3,5-Trinitrobenzene	1	8.898	8.897	0.001	60275	0.2500	0.2459	
11 1,3-Dinitrobenzene	1	9.565	9.557	0.008	76314	0.2503	0.2452	
12 Nitrobenzene	1	9.951	9.943	0.008	49084	0.2505	0.2468	
14 Tetryl	1	10.278	10.270	0.008	39819	0.2500	0.2459	
15 Nitroglycerin	2	10.785	10.770	0.015	177468	2.50	2.50	
16 2,4,6-Trinitrotoluene	1	11.238	11.223	0.015	55080	0.2510	0.2423	
17 4-Amino-2,6-dinitrotoluene	1	11.425	11.417	0.008	40193	0.2508	0.2416	
18 2-Amino-4,6-dinitrotoluene	1	11.718	11.703	0.015	50511	0.2508	0.2461	
19 2,6-Dinitrotoluene	1	11.851	11.837	0.014	38424	0.2508	0.2412	
20 2,4-Dinitrotoluene	1	12.051	12.037	0.014	73608	0.2505	0.2450	
21 o-Nitrotoluene	1	12.891	12.877	0.014	31942	0.2508	0.2461	
22 p-Nitrotoluene	1	13.331	13.317	0.014	27248	0.2510	0.2471	
23 m-Nitrotoluene	1	13.925	13.917	0.008	35519	0.2510	0.2448	
24 PETN	2	15.025	15.010	0.015	188119	2.50	2.53	

Reagents:

8330IntermStk_00058 Amount Added: 12.50 Units: uL

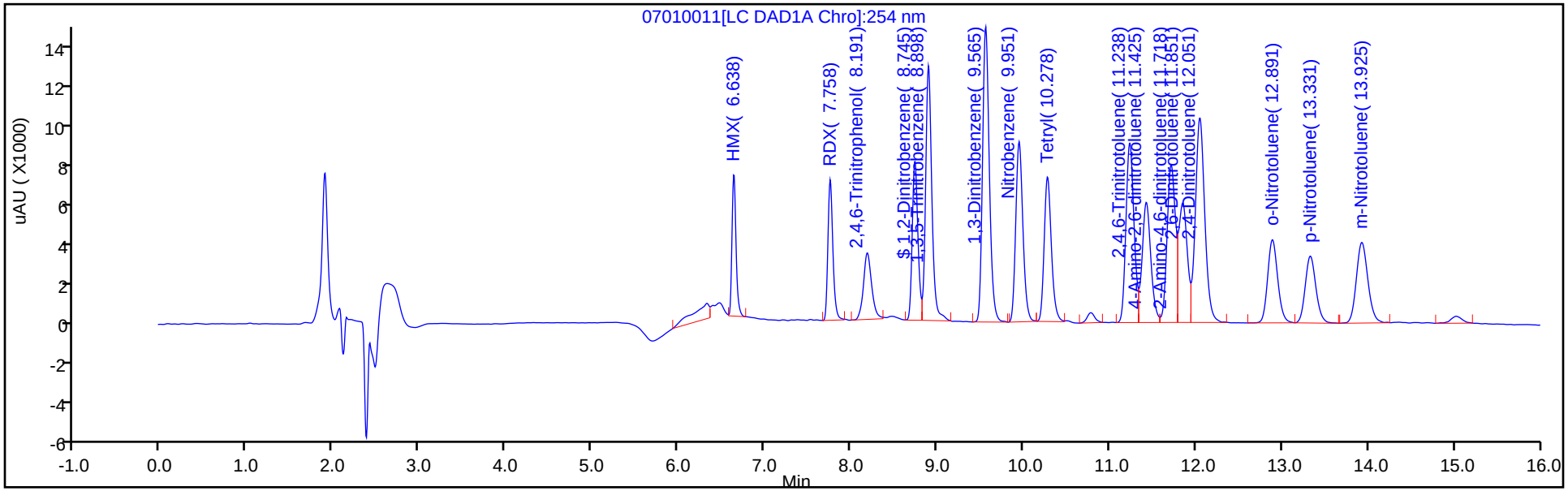
Report Date: 02-Jul-2019 11:34:51 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

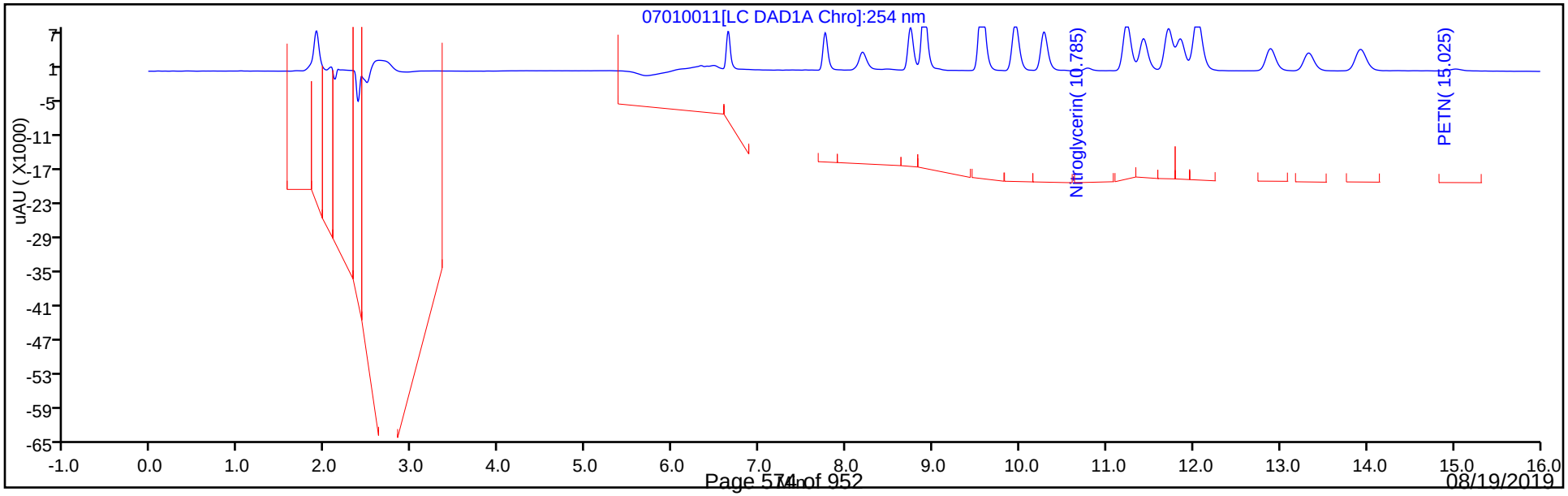
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010011.D

Injection Date:	01-Jul-2019 16:13:37	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC MAIN L4			Worklist Smp#:	11
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	11
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010012.D
Lims ID: IC MAIN L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 01-Jul-2019 16:36:33 ALS Bottle#: 12 Worklist Smp#: 12
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC MAIN L3
Misc. Info.: 280-0083376-012
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:53 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 01-Jul-2019 18:30:35

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.645	6.643	0.002	8595	0.1000	0.0936	M
7 RDX	1	7.759	7.757	0.002	10627	0.1000	0.0956	
8 2,4,6-Trinitrophenol	1	8.199	8.177	0.022	8633	0.1000	0.0951	
$ 9 1,2-Dinitrobenzene	1	8.739	8.737	0.002	13632	0.1000	0.0978	
10 1,3,5-Trinitrobenzene	1	8.899	8.897	0.002	23438	0.1000	0.0956	
11 1,3-Dinitrobenzene	1	9.565	9.557	0.008	30427	0.1001	0.0978	
12 Nitrobenzene	1	9.952	9.943	0.009	19524	0.1002	0.0982	
14 Tetryl	1	10.279	10.270	0.009	15952	0.1000	0.0985	
15 Nitroglycerin	2	10.779	10.770	0.009	69583	1.00	0.9785	
16 2,4,6-Trinitrotoluene	1	11.232	11.223	0.009	22301	0.1004	0.0981	
17 4-Amino-2,6-dinitrotoluene	1	11.425	11.417	0.008	16220	0.1003	0.0975	
18 2-Amino-4,6-dinitrotoluene	1	11.712	11.703	0.009	20461	0.1003	0.0997	
19 2,6-Dinitrotoluene	1	11.852	11.837	0.015	15313	0.1003	0.0961	
20 2,4-Dinitrotoluene	1	12.045	12.037	0.008	29330	0.1002	0.0976	
21 o-Nitrotoluene	1	12.892	12.877	0.015	12775	0.1003	0.0984	
22 p-Nitrotoluene	1	13.332	13.317	0.015	10780	0.1004	0.0978	
23 m-Nitrotoluene	1	13.932	13.917	0.015	14273	0.1004	0.0984	
24 PETN	2	15.032	15.010	0.022	73030	1.00	0.9831	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00058 Amount Added: 5.00 Units: uL

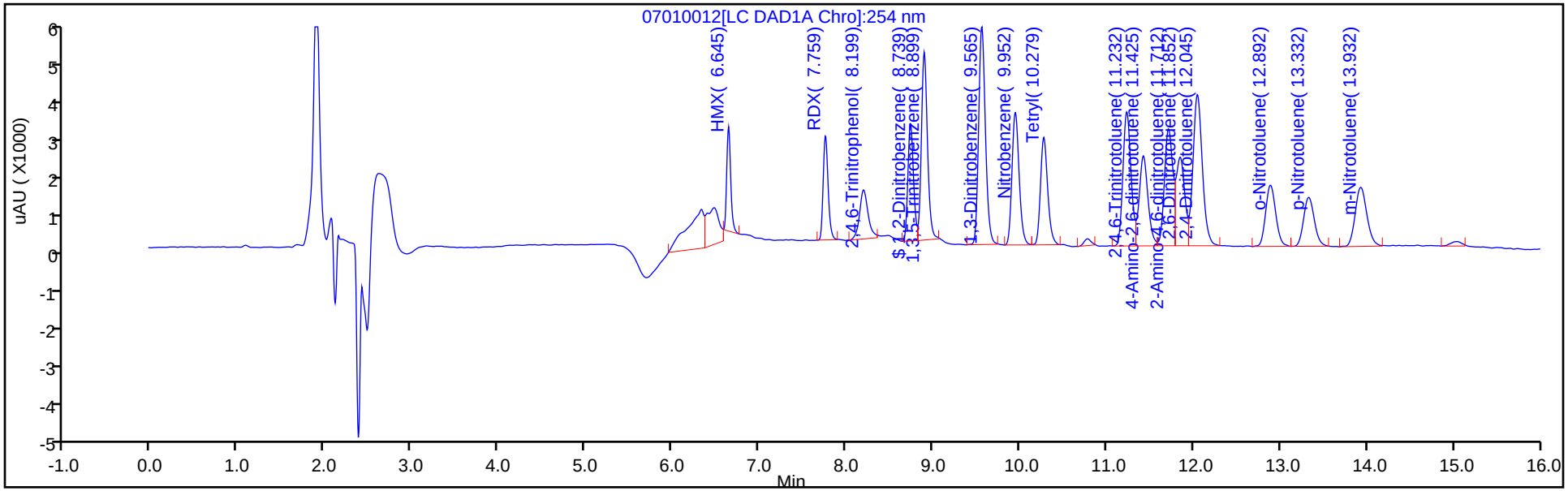
Report Date: 02-Jul-2019 11:34:53 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

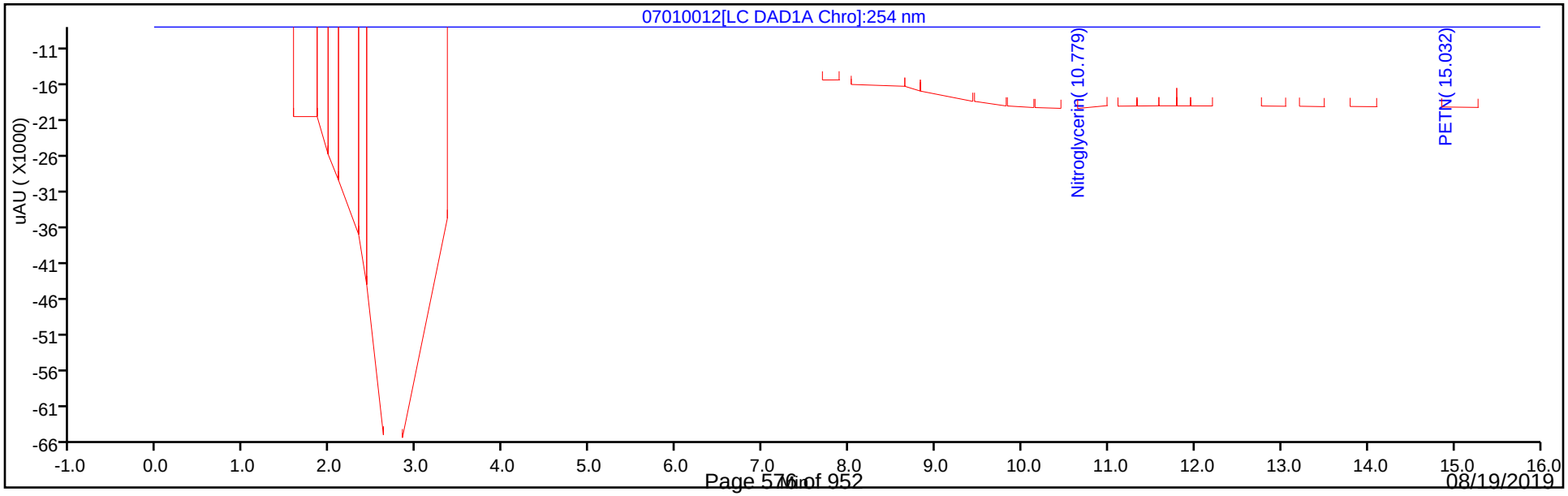
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010012.D

Injection Date:	01-Jul-2019 16:36:33	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC MAIN L3			Worklist Smp#:	12
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	12
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

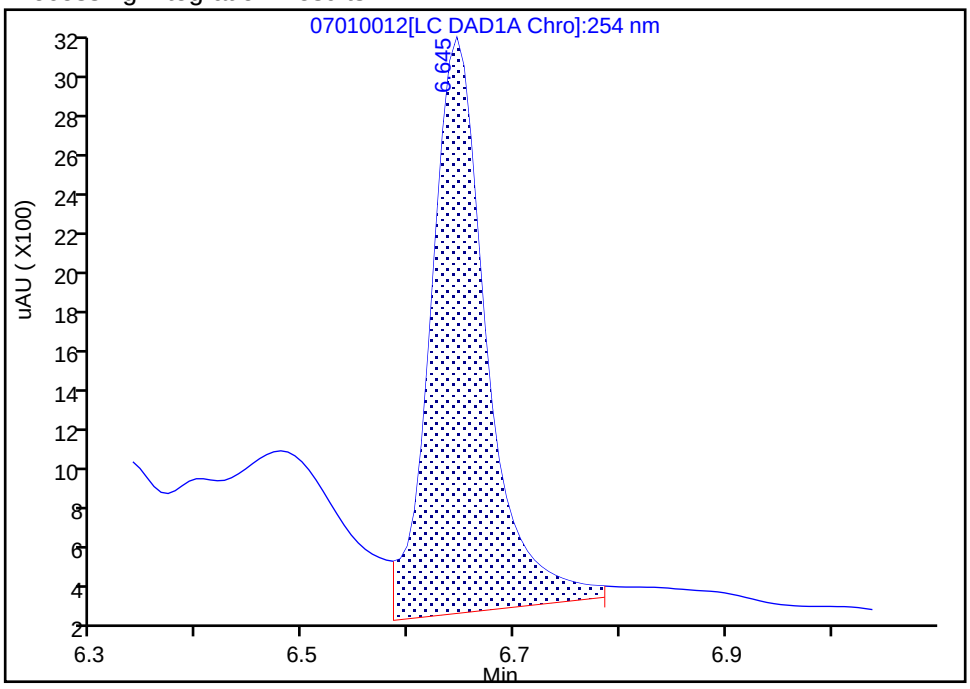
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010012.D				
Injection Date:	01-Jul-2019 16:36:33	Instrument ID:	CHHPLC_X3		
Lims ID:	IC MAIN L3				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	12	Worklist Smp#:	12
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

3 HMX, CAS: 2691-41-0

Signal: 1

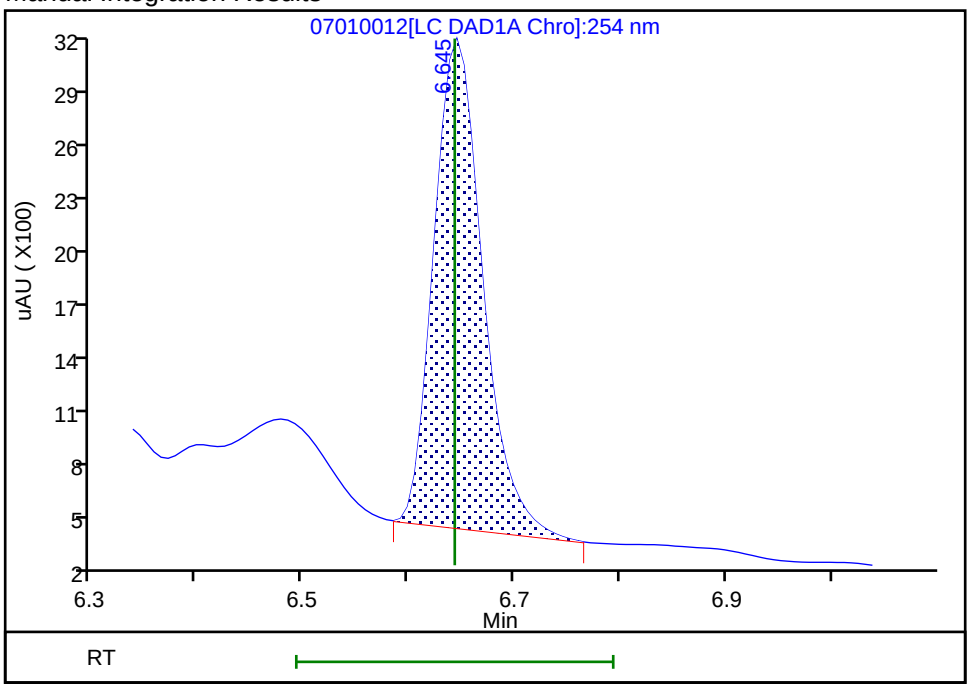
Processing Integration Results

RT: 6.65
Area: 10637
Amount: 0.107460
Amount Units: ug/mL



Manual Integration Results

RT: 6.65
Area: 8595
Amount: 0.093594
Amount Units: ug/mL



Reviewer: fiedlerh, 01-Jul-2019 18:30:35
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010013.D
Lims ID: IC MAIN L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 01-Jul-2019 17:00:38 ALS Bottle#: 13 Worklist Smp#: 13
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC MAIN L2
Misc. Info.: 280-0083376-013
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:55 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 01-Jul-2019 18:30:58

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.648	6.643	0.005	4492	0.0500	0.0489	M
7 RDX	1	7.768	7.757	0.011	5694	0.0500	0.0512	
8 2,4,6-Trinitrophenol	1	8.215	8.177	0.038	4807	0.0500	0.0530	
$ 9 1,2-Dinitrobenzene	1	8.748	8.737	0.011	7135	0.0500	0.0512	
10 1,3,5-Trinitrobenzene	1	8.908	8.897	0.011	12636	0.0500	0.0516	
11 1,3-Dinitrobenzene	1	9.568	9.557	0.011	16180	0.0501	0.0520	
12 Nitrobenzene	1	9.954	9.943	0.011	10349	0.0501	0.0520	
14 Tetryl	1	10.288	10.270	0.018	8209	0.0500	0.0507	
15 Nitroglycerin	2	10.788	10.770	0.018	35831	0.5000	0.5039	
16 2,4,6-Trinitrotoluene	1	11.241	11.223	0.018	11863	0.0502	0.0522	
17 4-Amino-2,6-dinitrotoluene	1	11.434	11.417	0.017	8615	0.0502	0.0518	
18 2-Amino-4,6-dinitrotoluene	1	11.721	11.703	0.018	10404	0.0502	0.0507	M
19 2,6-Dinitrotoluene	1	11.854	11.837	0.017	8322	0.0502	0.0522	M
20 2,4-Dinitrotoluene	1	12.054	12.037	0.017	15308	0.0501	0.0510	
21 o-Nitrotoluene	1	12.894	12.877	0.017	6814	0.0502	0.0525	
22 p-Nitrotoluene	1	13.334	13.317	0.017	5607	0.0502	0.0509	
23 m-Nitrotoluene	1	13.934	13.917	0.017	7651	0.0502	0.0527	
24 PETN	2	15.041	15.010	0.031	38432	0.5000	0.5173	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00058 Amount Added: 2.50 Units: uL

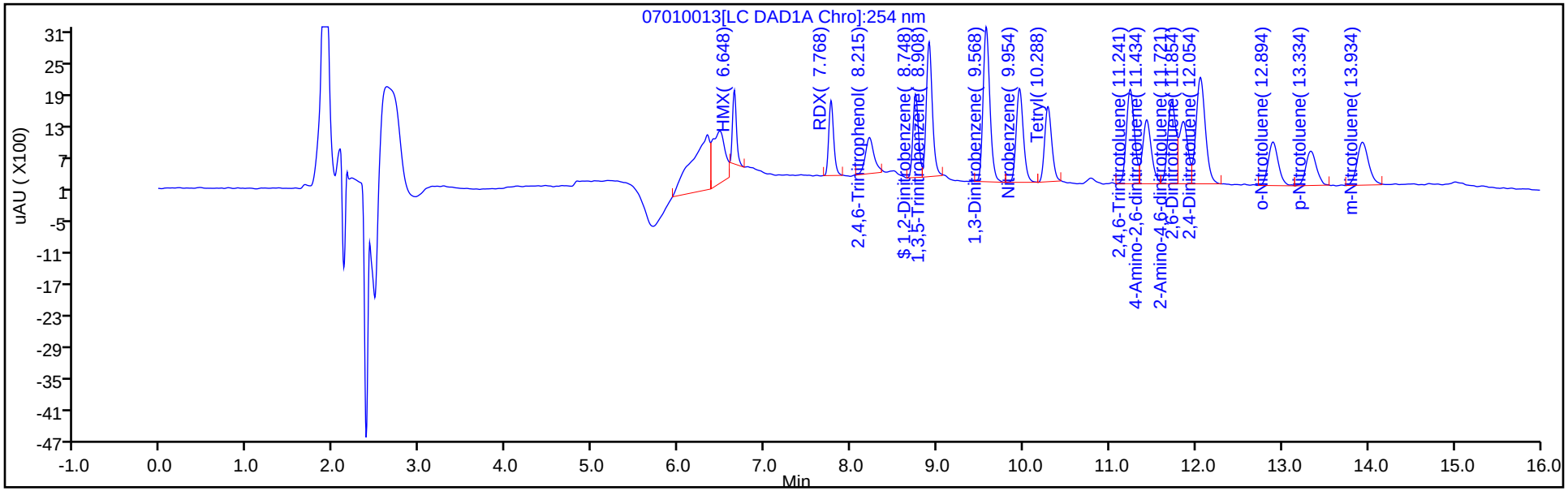
Report Date: 02-Jul-2019 11:34:55 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

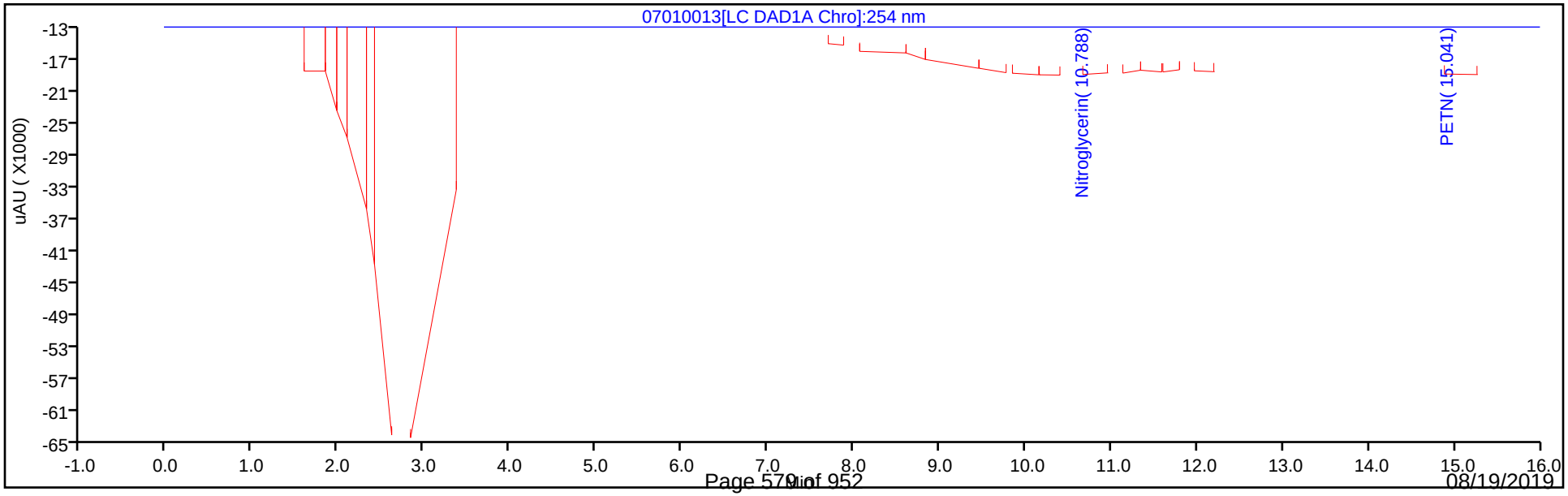
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010013.D

Injection Date:	01-Jul-2019 17:00:38	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC MAIN L2			Worklist Smp#:	13
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	13
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

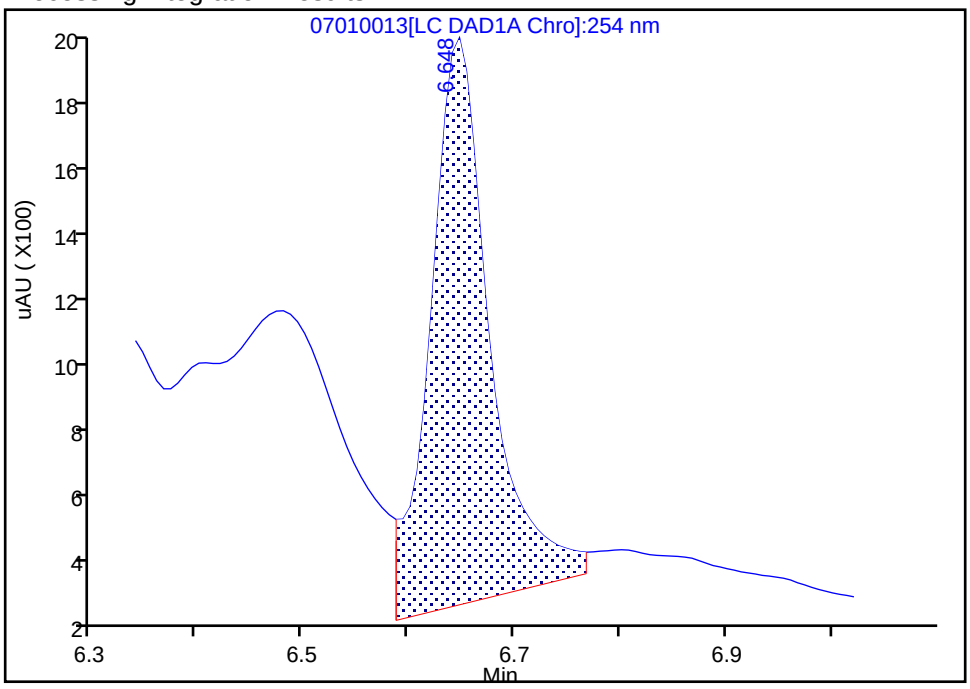
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010013.D				
Injection Date:	01-Jul-2019 17:00:38	Instrument ID:	CHHPLC_X3		
Lims ID:	IC MAIN L2				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

3 HMX, CAS: 2691-41-0

Signal: 1

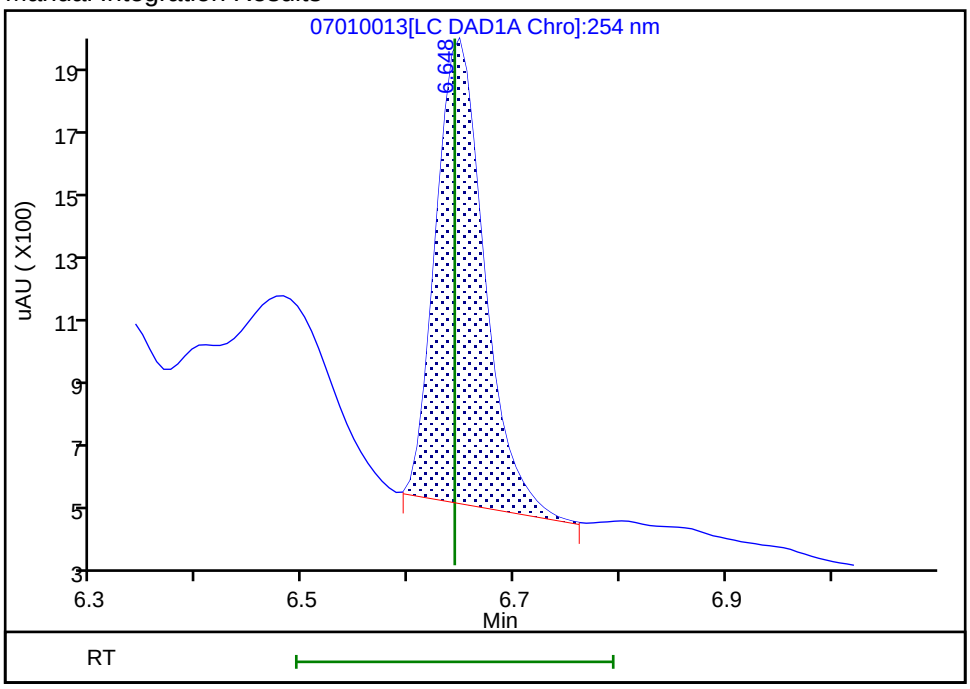
Processing Integration Results

RT: 6.65
Area: 6332
Amount: 0.065662
Amount Units: ug/mL



Manual Integration Results

RT: 6.65
Area: 4492
Amount: 0.048915
Amount Units: ug/mL



Reviewer: fiedlerh, 01-Jul-2019 18:30:57

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010014.D
Lims ID: IC MAIN L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 01-Jul-2019 17:23:38 ALS Bottle#: 14 Worklist Smp#: 14
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC MAIN L1
Misc. Info.: 280-0083376-014
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:57 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 01-Jul-2019 18:31:18

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.642	6.643	-0.001	1795	0.0200	0.0195	
7 RDX	1	7.762	7.757	0.005	2338	0.0200	0.0210	
8 2,4,6-Trinitrophenol	1	8.209	8.177	0.032	2302	0.0200	0.0254	M
$ 9 1,2-Dinitrobenzene	1	8.742	8.737	0.005	2609	0.0200	0.0187	
10 1,3,5-Trinitrobenzene	1	8.902	8.897	0.005	4638	0.0200	0.0189	
11 1,3-Dinitrobenzene	1	9.562	9.557	0.005	5930	0.0200	0.0191	
12 Nitrobenzene	1	9.949	9.943	0.006	3747	0.0200	0.0188	
14 Tetryl	1	10.275	10.270	0.005	2803	0.0200	0.0173	
15 Nitroglycerin	2	10.775	10.770	0.005	12630	0.2000	0.1776	
16 2,4,6-Trinitrotoluene	1	11.229	11.223	0.006	4544	0.0201	0.0200	
17 4-Amino-2,6-dinitrotoluene	1	11.422	11.417	0.005	3540	0.0201	0.0213	
18 2-Amino-4,6-dinitrotoluene	1	11.715	11.703	0.012	3841	0.0201	0.0187	M
19 2,6-Dinitrotoluene	1	11.842	11.837	0.005	3382	0.0201	0.0212	M
20 2,4-Dinitrotoluene	1	12.042	12.037	0.005	5825	0.0200	0.0194	
21 o-Nitrotoluene	1	12.882	12.877	0.005	2560	0.0201	0.0197	
22 p-Nitrotoluene	1	13.329	13.317	0.012	2162	0.0201	0.0196	
23 m-Nitrotoluene	1	13.915	13.917	-0.002	2906	0.0201	0.0200	
24 PETN	2	15.015	15.010	0.005	11106	0.2000	0.1495	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00058 Amount Added: 1.00 Units: uL

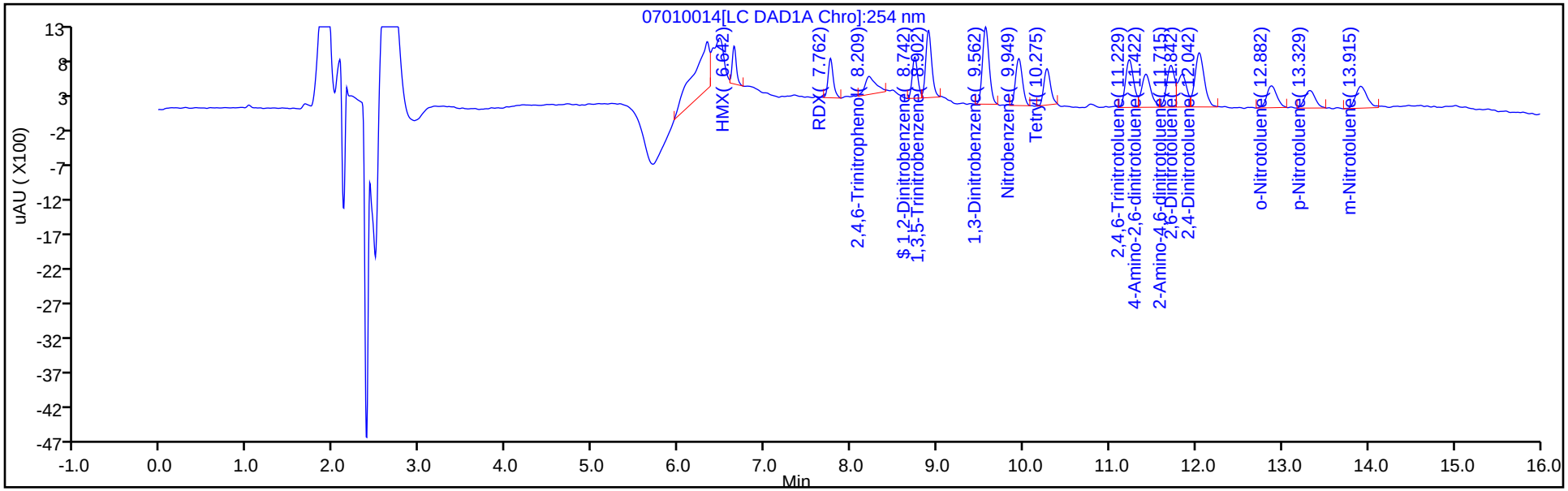
Report Date: 02-Jul-2019 11:34:58 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

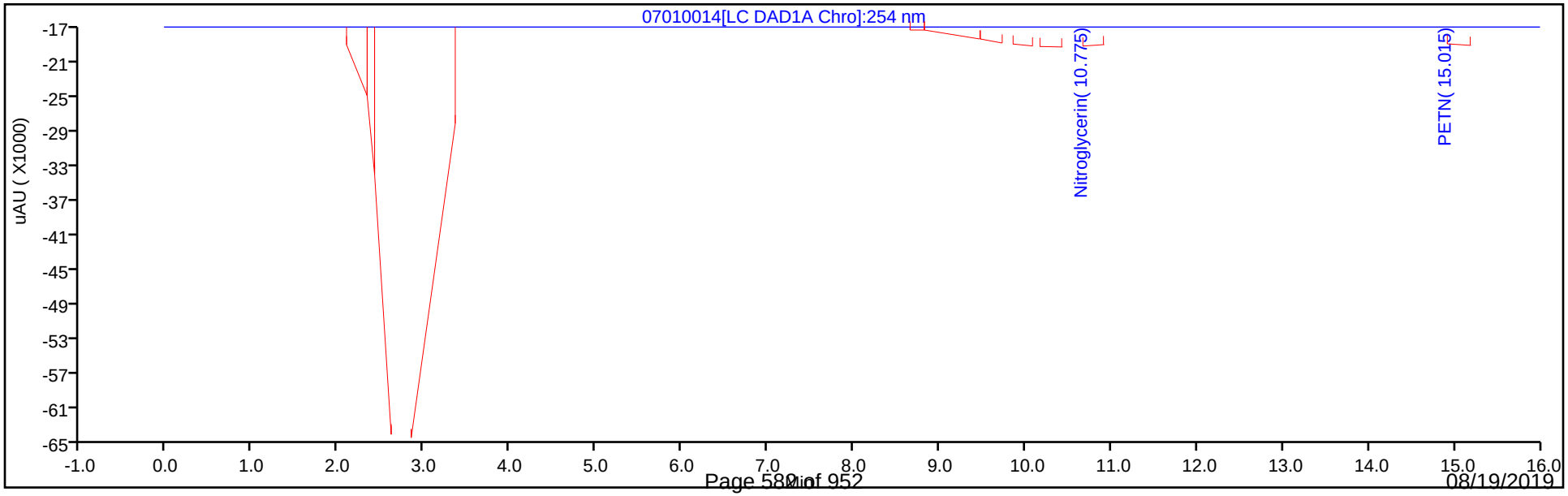
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010014.D

Injection Date:	01-Jul-2019 17:23:38	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC MAIN L1			Worklist Smp#:	14
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	14
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

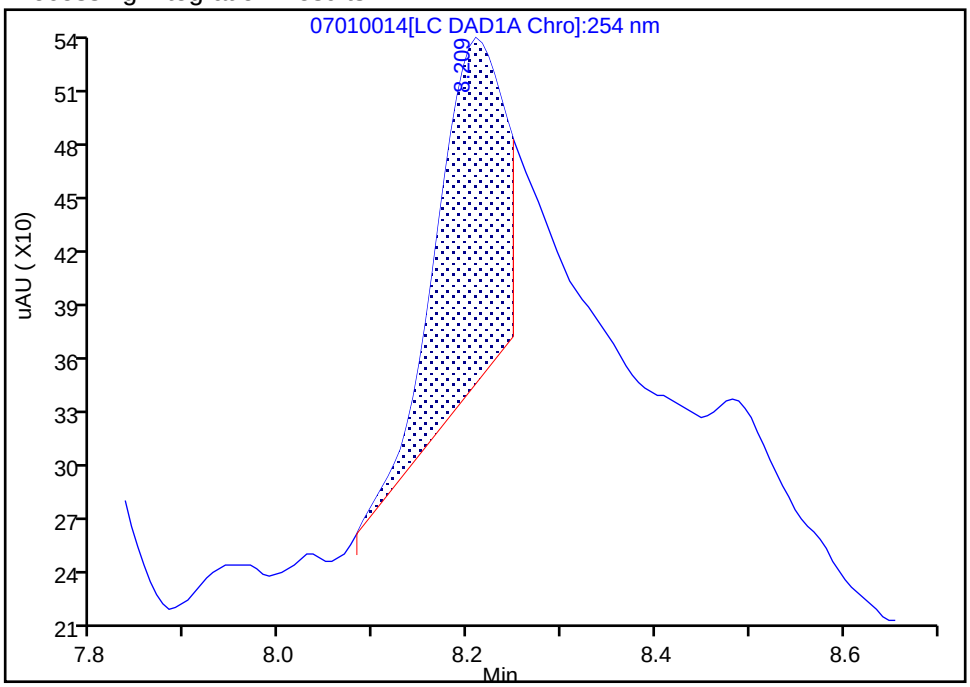
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010014.D
Injection Date: 01-Jul-2019 17:23:38 Instrument ID: CHHPLC_X3
Lims ID: IC MAIN L1
Client ID:
Operator ID: hkf ALS Bottle#: 14 Worklist Smp#: 14
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330
Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

8 2,4,6-Trinitrophenol, CAS: 88-89-1

Signal: 1

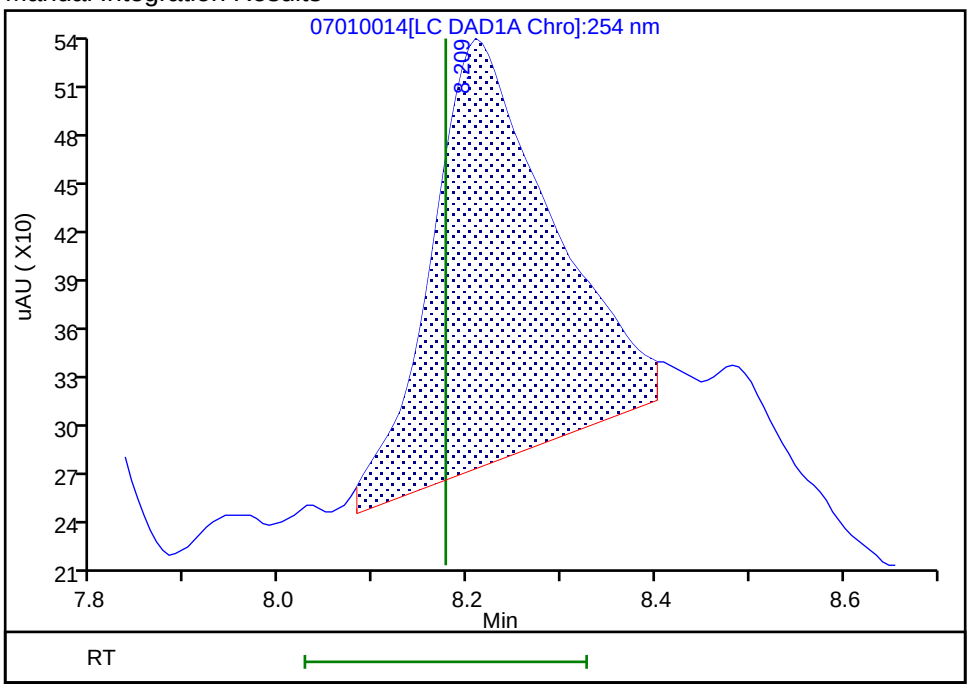
Processing Integration Results

RT: 8.21
Area: 906
Amount: 0.011048
Amount Units: ug/mL



Manual Integration Results

RT: 8.21
Area: 2302
Amount: 0.025371
Amount Units: ug/mL



Reviewer: fiedlerh, 01-Jul-2019 18:33:21
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 463276

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/01/2019 21:36 Calibration End Date: 07/02/2019 00:18 Calibration ID: 37013

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-463276/32	07010032.D
Level 2	IC 280-463276/31	07010031.D
Level 3	IC 280-463276/30	07010030.D
Level 4	IC 280-463276/29	07010029.D
Level 5	IC 280-463276/28	07010028.D
Level 6	IC 280-463276/27	07010027.D
Level 7	IC 280-463276/26	07010026.D
Level 8	IC 280-463276/25	07010025.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8			RT WINDOW	AVG RT
TNX	6.550	6.545	6.549	6.550	6.548	6.552	6.556	6.547			6.450 - 6.650	6.550
DNX	6.883	6.878	6.882	6.883	6.882	6.885	6.890	6.880			6.783 - 6.983	6.883
MNX	7.350	7.345	7.342	7.343	7.348	7.352	7.356	7.340			7.193 - 7.493	7.347

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 463276

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/01/2019 21:36 Calibration End Date: 07/02/2019 00:18 Calibration ID: 37013

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-463276/32	07010032.D
Level 2	IC 280-463276/31	07010031.D
Level 3	IC 280-463276/30	07010030.D
Level 4	IC 280-463276/29	07010029.D
Level 5	IC 280-463276/28	07010028.D
Level 6	IC 280-463276/27	07010027.D
Level 7	IC 280-463276/26	07010026.D
Level 8	IC 280-463276/25	07010025.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
TNX	210589 222797	208352 218948	210300 221984	212915 213827	Ave		214964.079				2.6		20.0			
DNX	170629 158132	155125 156499	151928 157632	151201 147859	Ave		156125.739				4.4		20.0			
MNX	140231 145495	137018 144045	134996 144473	138841 135229	Ave		140040.970				3.0		20.0			

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

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1 Analy Batch No.: 463276

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/01/2019 21:36 Calibration End Date: 07/02/2019 00:18 Calibration ID: 37013

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-463276/32	07010032.D
Level 2	IC 280-463276/31	07010031.D
Level 3	IC 280-463276/30	07010030.D
Level 4	IC 280-463276/29	07010029.D
Level 5	IC 280-463276/28	07010028.D
Level 6	IC 280-463276/27	07010027.D
Level 7	IC 280-463276/26	07010026.D
Level 8	IC 280-463276/25	07010025.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
TNX	Ave	4216 153417	10428 222206	21051 535103	53282	89208	0.0200 0.701	0.0501 1.00	0.100 2.50	0.250	0.400
DNX	Ave	3416 109659	7764 157790	15208 370018	37838	63316	0.0200 0.701	0.0501 1.00	0.100 2.50	0.250	0.400
MNX	Ave	3273 117670	7995 168600	15754 394530	40507	67917	0.0233 0.817	0.0584 1.17	0.117 2.92	0.292	0.467

Curve Type Legend:
Ave = Average

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010025.D				
Lims ID:	IC DMT L8				
Client ID:					
Sample Type:	IC	Calib Level:	8		
Inject. Date:	01-Jul-2019 21:36:10	ALS Bottle#:	25	Worklist Smp#:	25
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L8				
Misc. Info.:	280-0083376-025				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Sublist:	chrom-8330_X3*sub17				
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	02-Jul-2019 11:35:19	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0309				

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.547	6.550	-0.003	535103	2.50	2.49	
5 DNX	1	6.880	6.883	-0.003	370018	2.50	2.37	
6 MNX	1	7.340	7.343	-0.003	394530	2.92	2.82	

Reagents:

8330 DMT_00002 Amount Added: 125.00 Units: uL

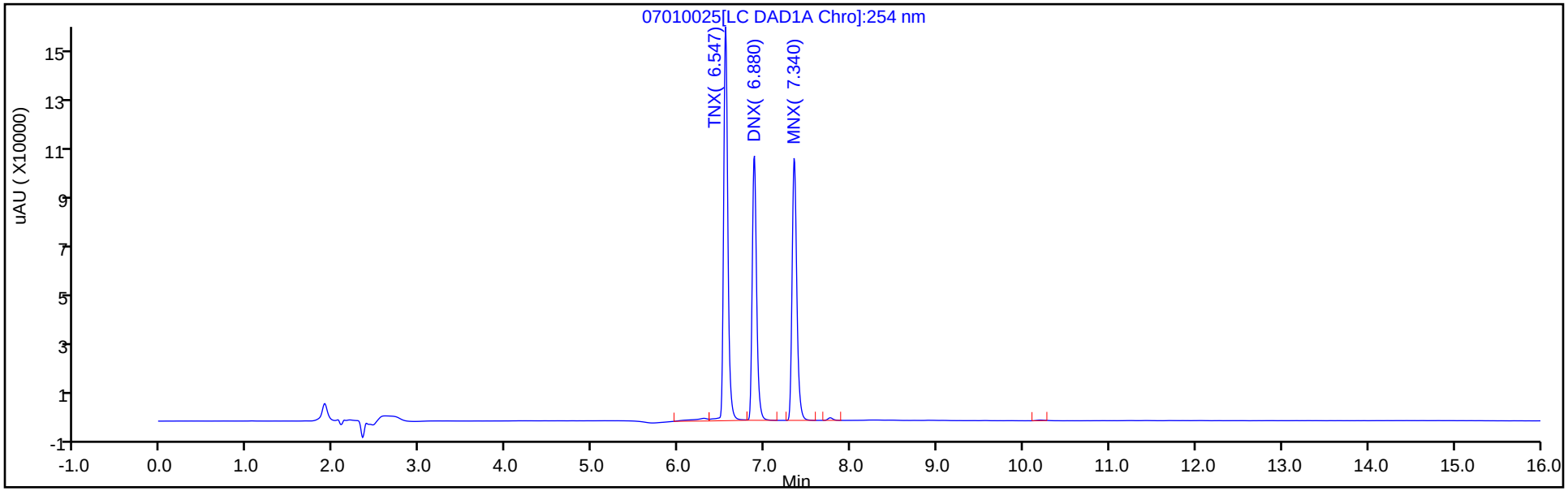
Report Date: 02-Jul-2019 11:35:19 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

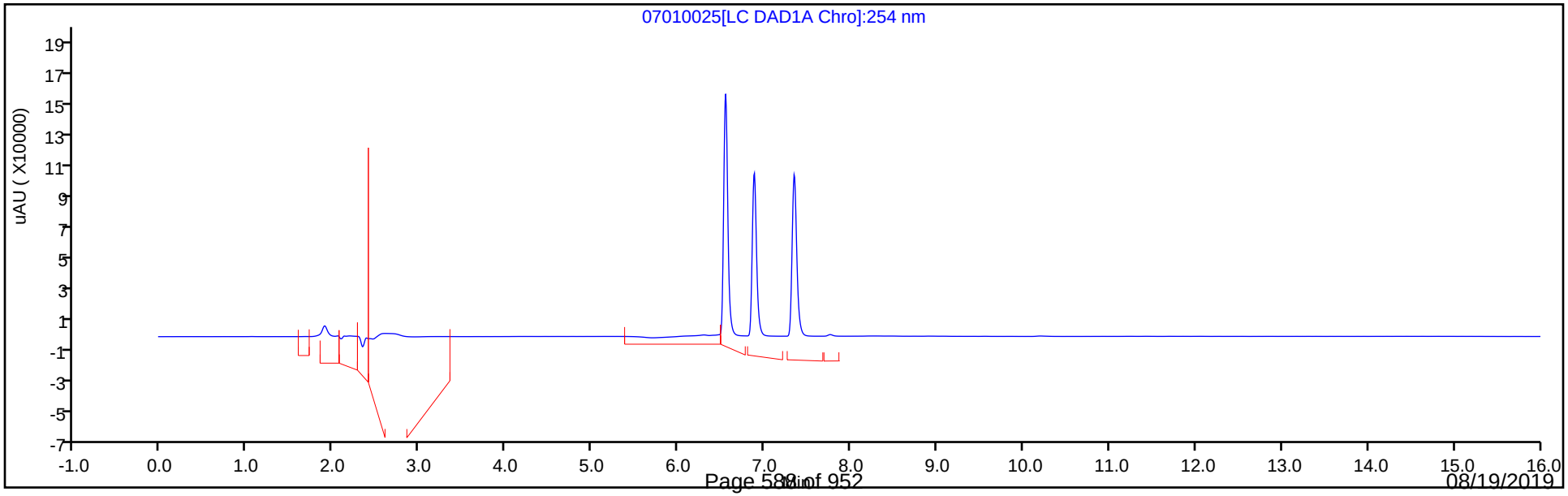
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010025.D

Injection Date:	01-Jul-2019 21:36:10	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC DMT L8			Worklist Smp#:	25
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	25
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010026.D
Lims ID: IC DMT L7
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 01-Jul-2019 22:00:21 ALS Bottle#: 26 Worklist Smp#: 26
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC DMT L7
Misc. Info.: 280-0083376-026
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub17

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:35:21 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 02-Jul-2019 09:04:16

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.556	6.550	0.006	222206	1.00	1.03	M
5 DNX	1	6.890	6.883	0.007	157790	1.00	1.01	M
6 MNX	1	7.356	7.343	0.013	168600	1.17	1.20	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 50.00 Units: uL

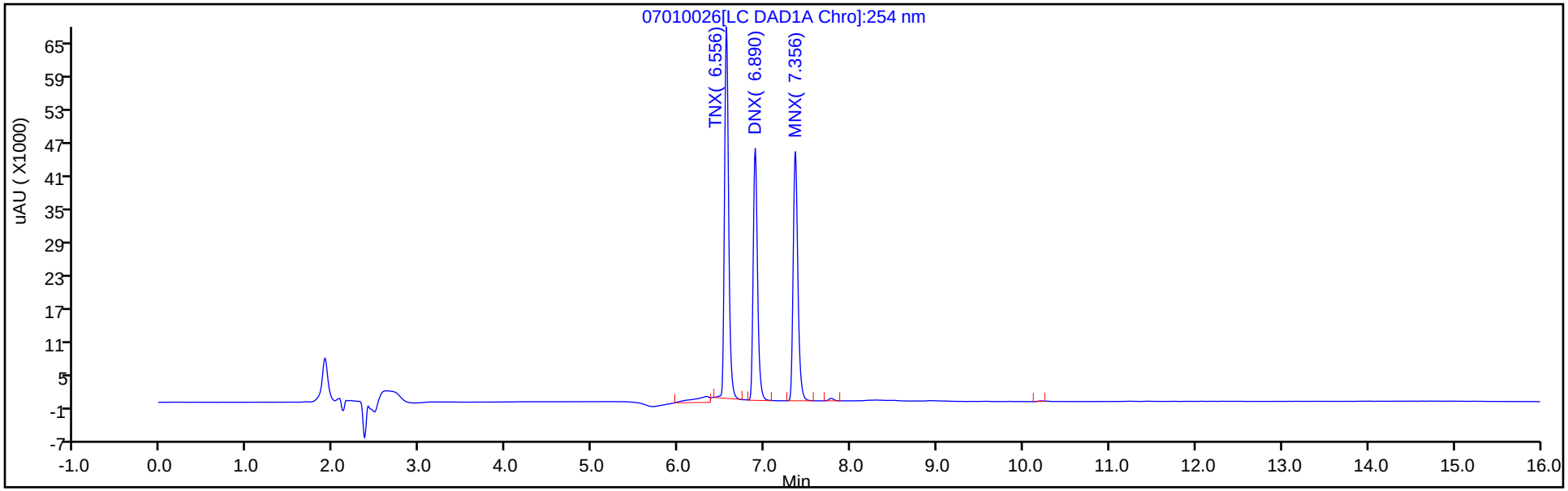
Report Date: 02-Jul-2019 11:35:21 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

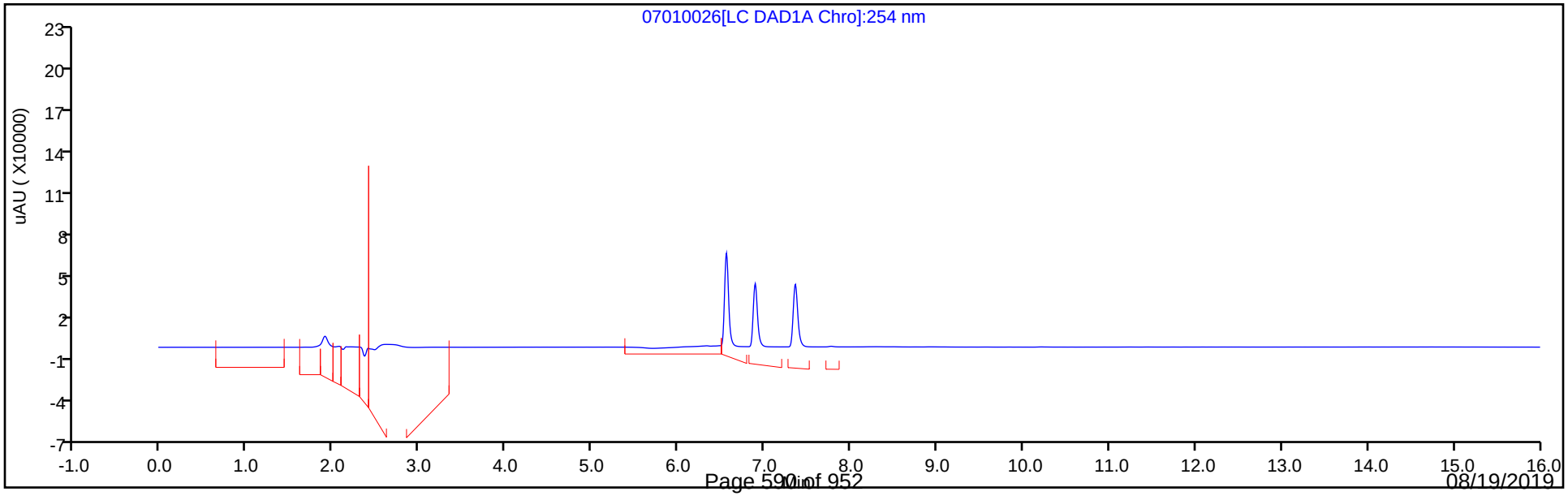
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010026.D

Injection Date:	01-Jul-2019 22:00:21	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC DMT L7			Worklist Smp#:	26
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	26
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

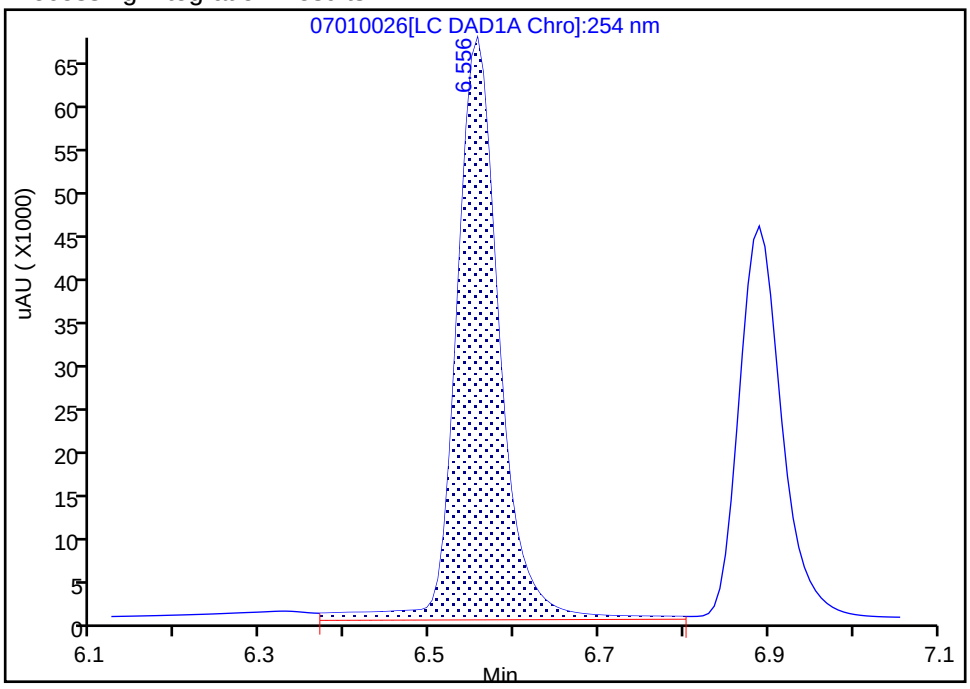
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010026.D				
Injection Date:	01-Jul-2019 22:00:21	Instrument ID:	CHHPLC_X3		
Lims ID:	IC DMT L7				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	26	Worklist Smp#:	26
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

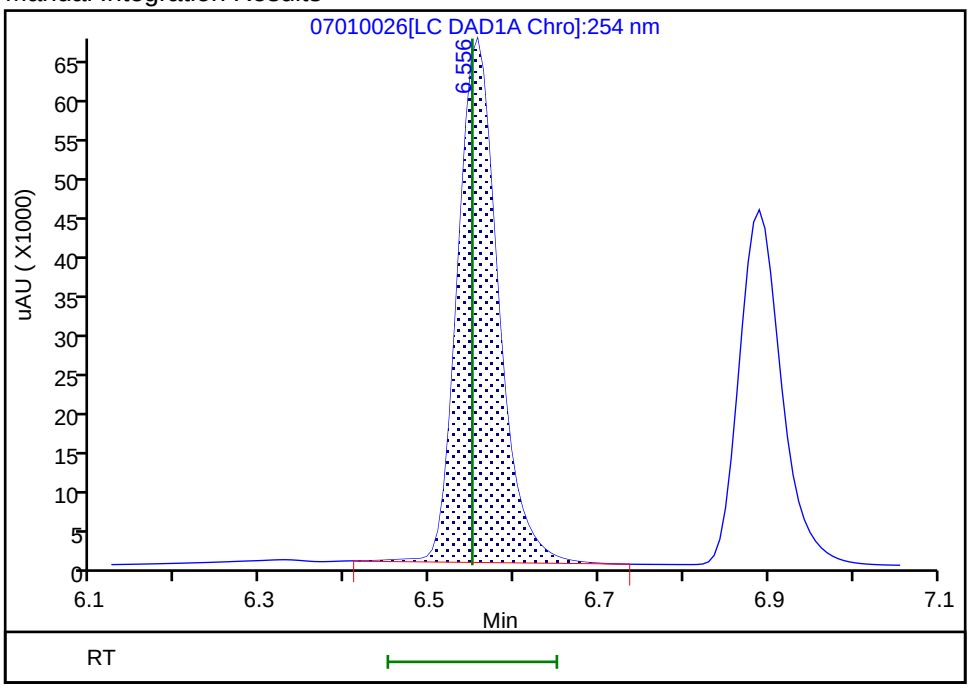
Processing Integration Results

RT: 6.56
Area: 238054
Amount: 0.989410
Amount Units: ug/mL



Manual Integration Results

RT: 6.56
Area: 222206
Amount: 1.033689
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:04:11

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

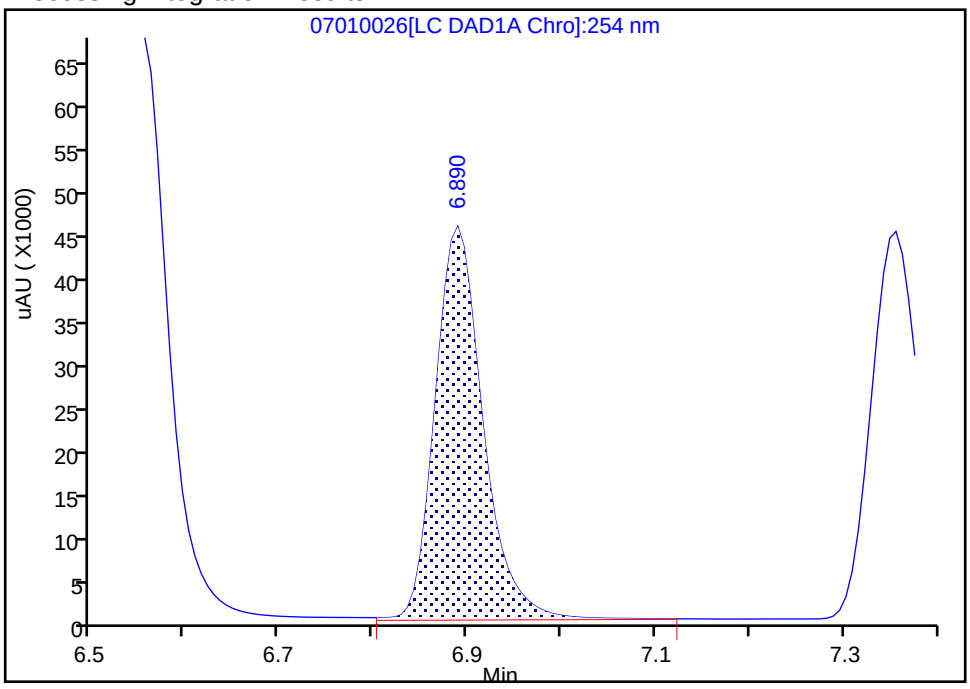
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010026.D				
Injection Date:	01-Jul-2019 22:00:21	Instrument ID:	CHHPLC_X3		
Lims ID:	IC DMT L7				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	26	Worklist Smp#:	26
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

5 DNX, CAS: 80251-29-2

Signal: 1

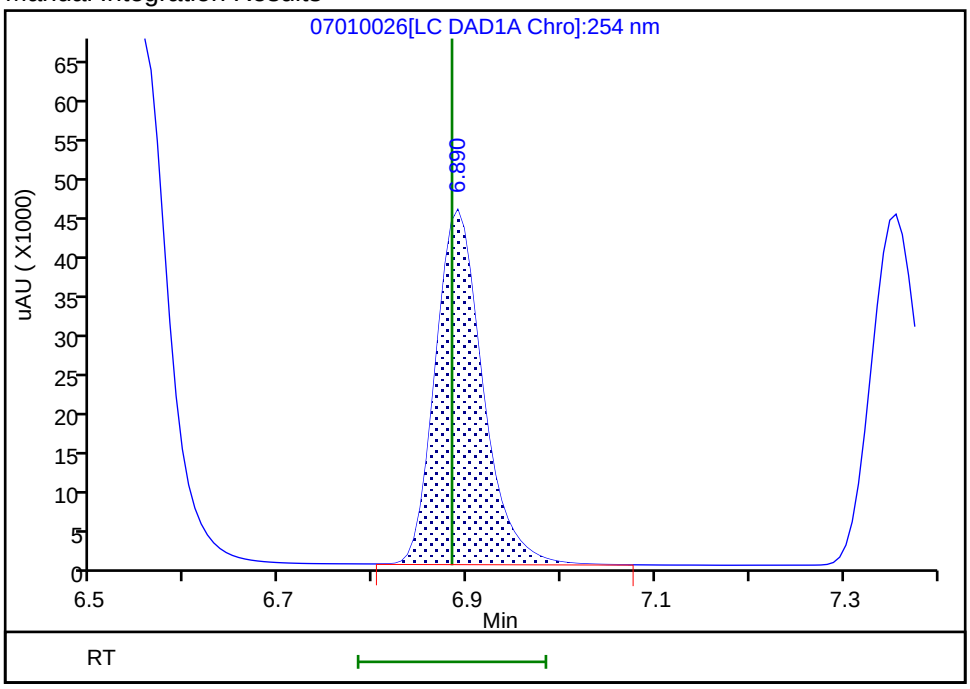
Processing Integration Results

RT: 6.89
Area: 160640
Amount: 1.026574
Amount Units: ug/mL



Manual Integration Results

RT: 6.89
Area: 157790
Amount: 1.010660
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:04:15
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010027.D
Lims ID: IC DMT L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 01-Jul-2019 22:23:20 ALS Bottle#: 27 Worklist Smp#: 27
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC DMT L6
Misc. Info.: 280-0083376-027
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub17

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:35:22 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 02-Jul-2019 09:03:59

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.552	6.550	0.002	153417	0.7007	0.7137	M
5 DNX	1	6.885	6.883	0.002	109659	0.7007	0.7024	M
6 MNX	1	7.352	7.343	0.009	117670	0.8169	0.8403	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 35.00 Units: uL

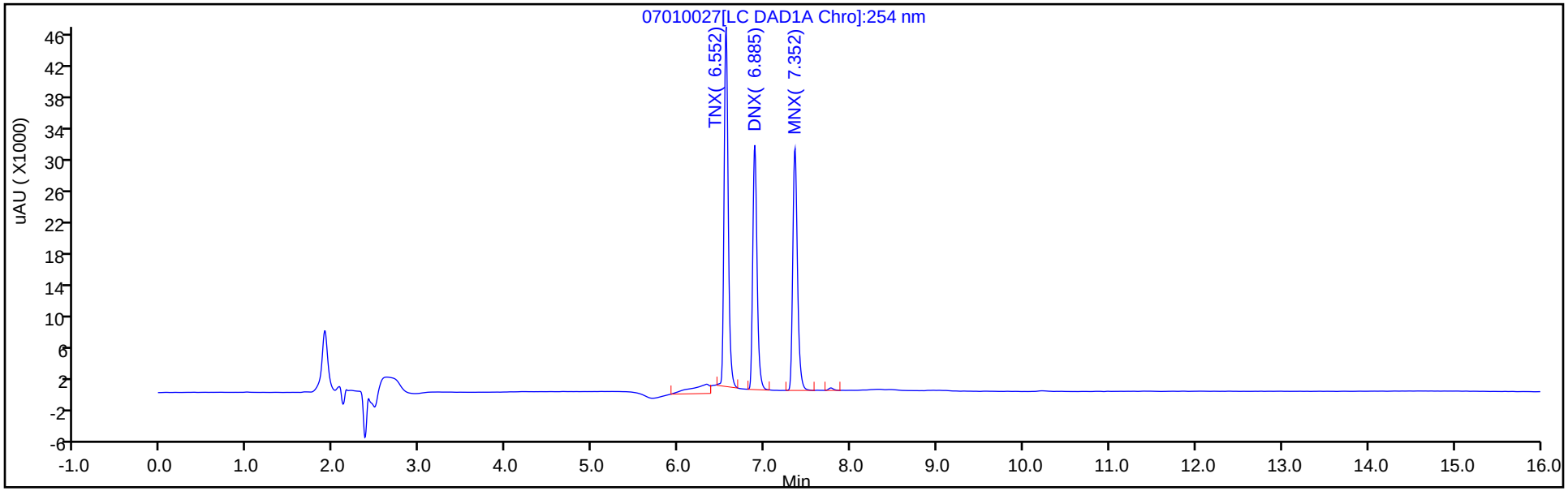
Report Date: 02-Jul-2019 11:35:23 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

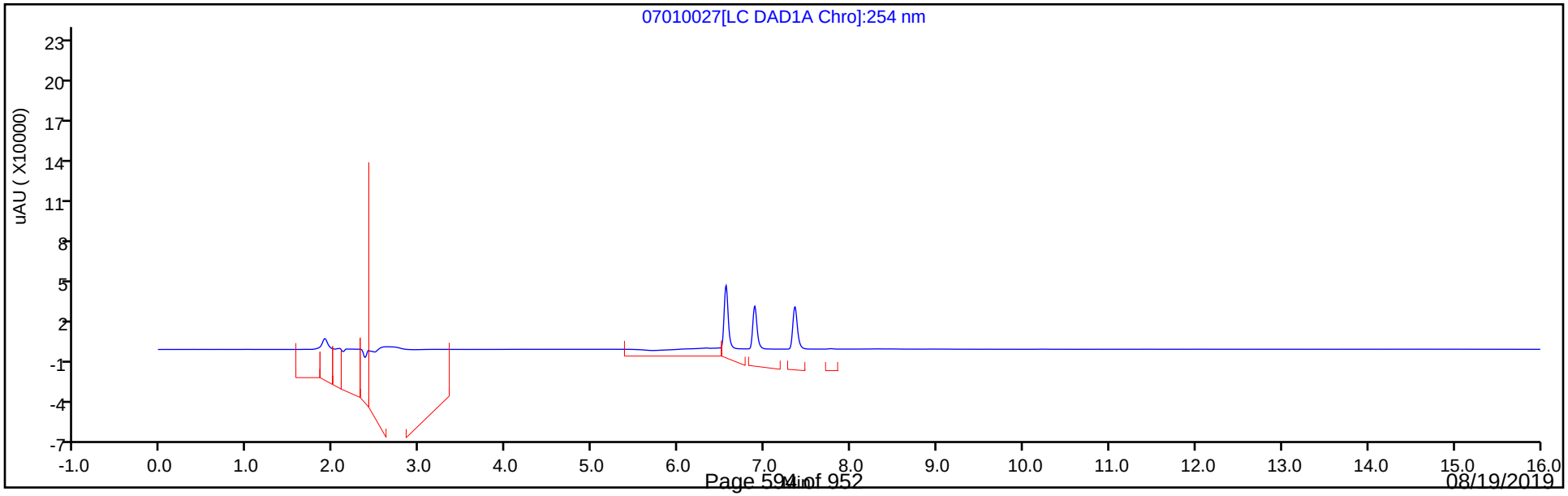
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010027.D

Injection Date:	01-Jul-2019 22:23:20	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC DMT L6			Worklist Smp#:	27
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	27
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

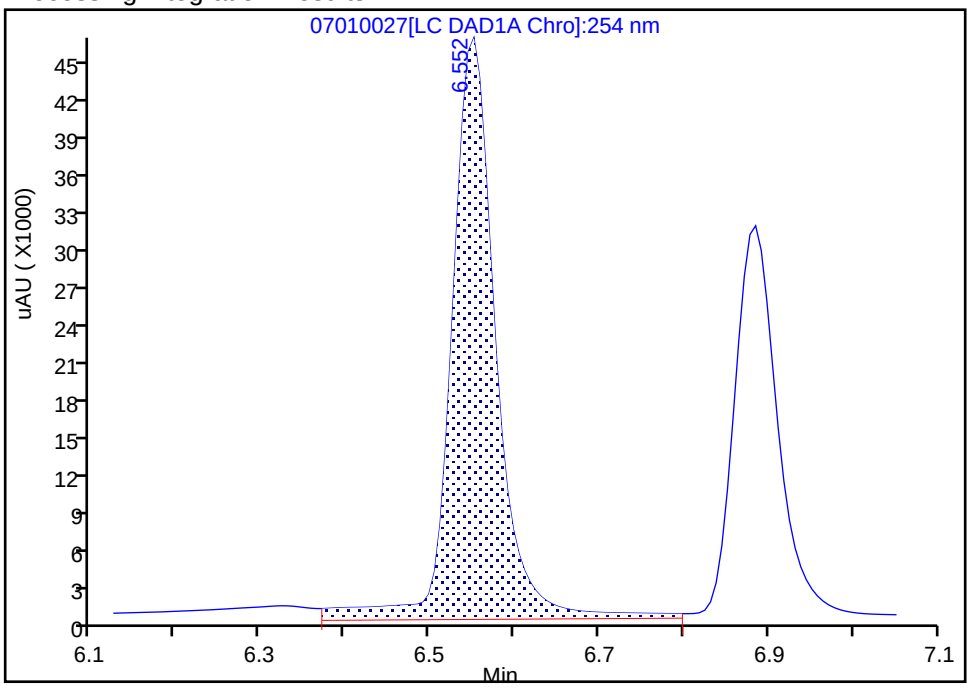
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010027.D				
Injection Date:	01-Jul-2019 22:23:20	Instrument ID:	CHHPLC_X3		
Lims ID:	IC DMT L6				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	27	Worklist Smp#:	27
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

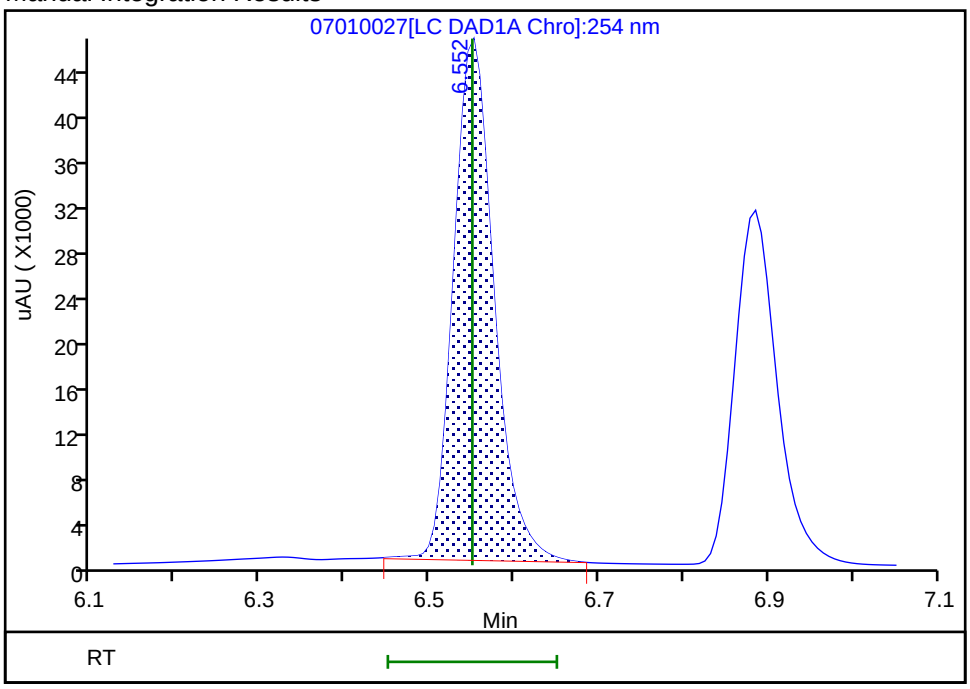
Processing Integration Results

RT: 6.55
Area: 172073
Amount: 0.705419
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 153417
Amount: 0.713687
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:03:43
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

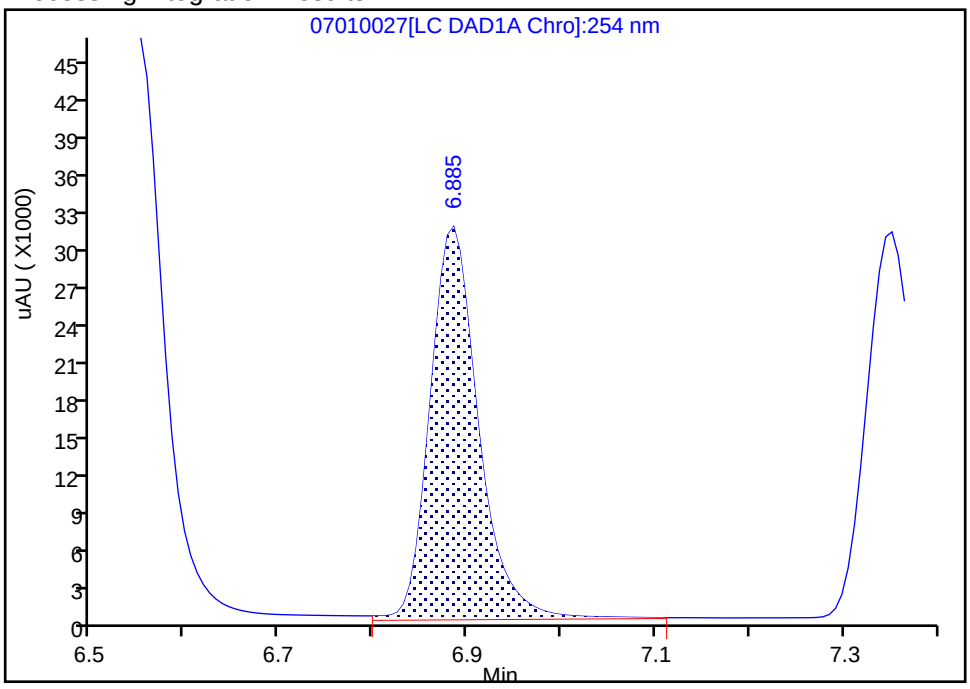
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010027.D				
Injection Date:	01-Jul-2019 22:23:20	Instrument ID:	CHHPLC_X3		
Lims ID:	IC DMT L6				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	27	Worklist Smp#:	27
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

5 DNX, CAS: 80251-29-2

Signal: 1

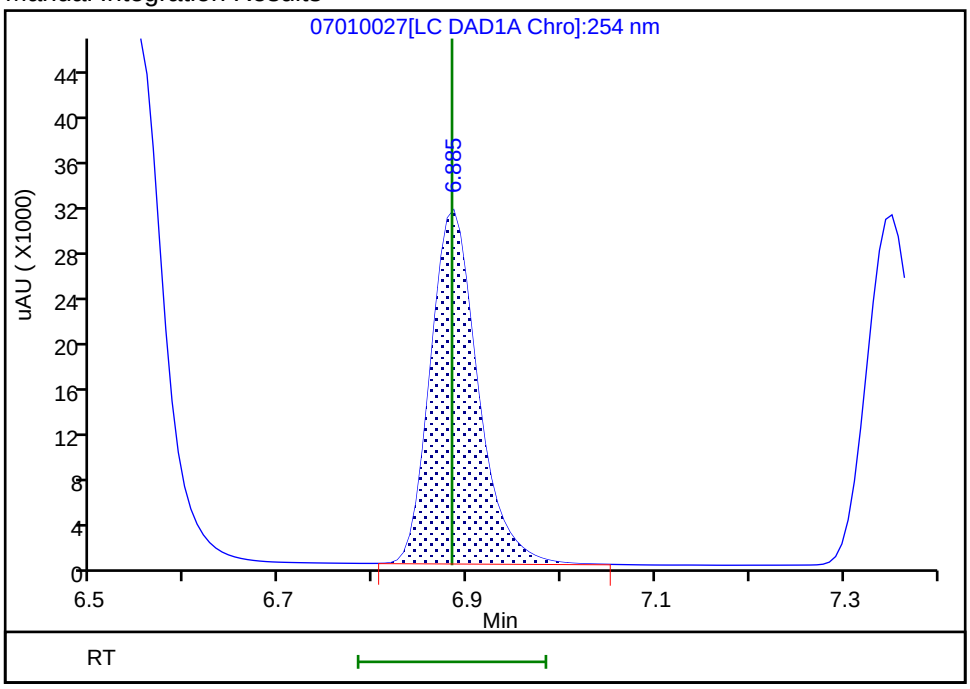
Processing Integration Results

RT: 6.89
Area: 113520
Amount: 0.722273
Amount Units: ug/mL



Manual Integration Results

RT: 6.89
Area: 109659
Amount: 0.702376
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:03:57
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010028.D				
Lims ID:	IC DMT L5				
Client ID:					
Sample Type:	IC	Calib Level:	5		
Inject. Date:	01-Jul-2019 22:46:18	ALS Bottle#:	28	Worklist Smp#:	28
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L5				
Misc. Info.:	280-0083376-028				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Sublist:	chrom-8330_X3*sub17				
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	02-Jul-2019 11:35:24	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0309				
First Level Reviewer: fiedlerh		Date:	02-Jul-2019 09:03:31		

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.548	6.550	-0.002	89208	0.4004	0.4150	M
5 DNX	1	6.882	6.883	-0.001	63316	0.4004	0.4055	M
6 MNX	1	7.348	7.343	0.005	67917	0.4668	0.4850	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 20.00 Units: uL

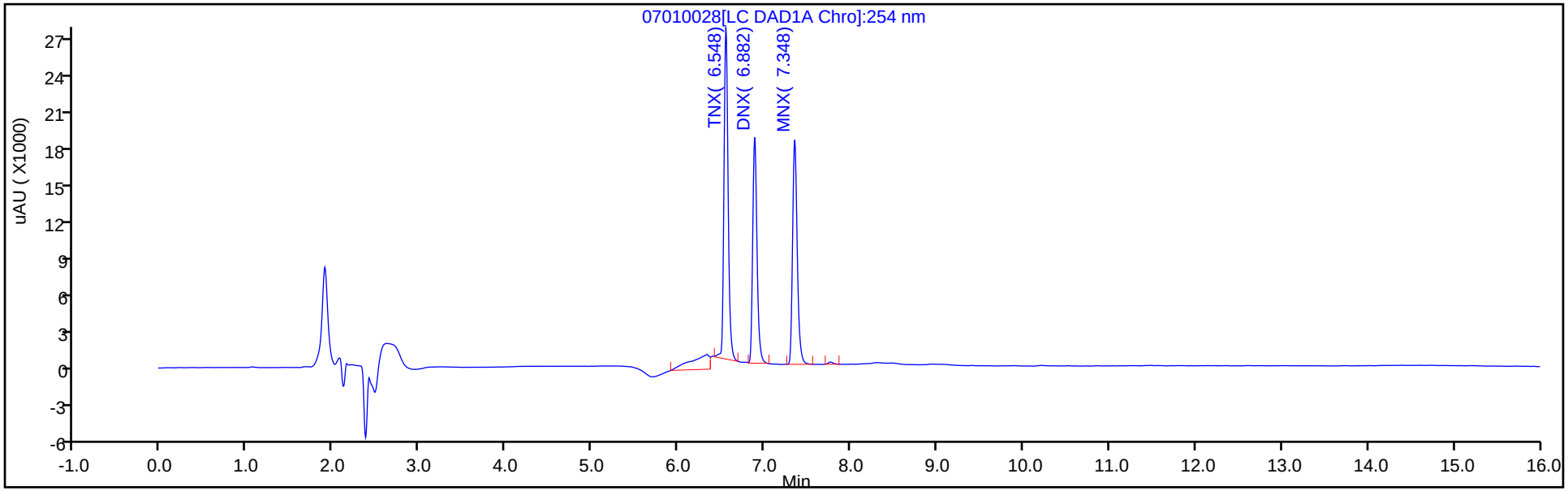
Report Date: 02-Jul-2019 11:35:24 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

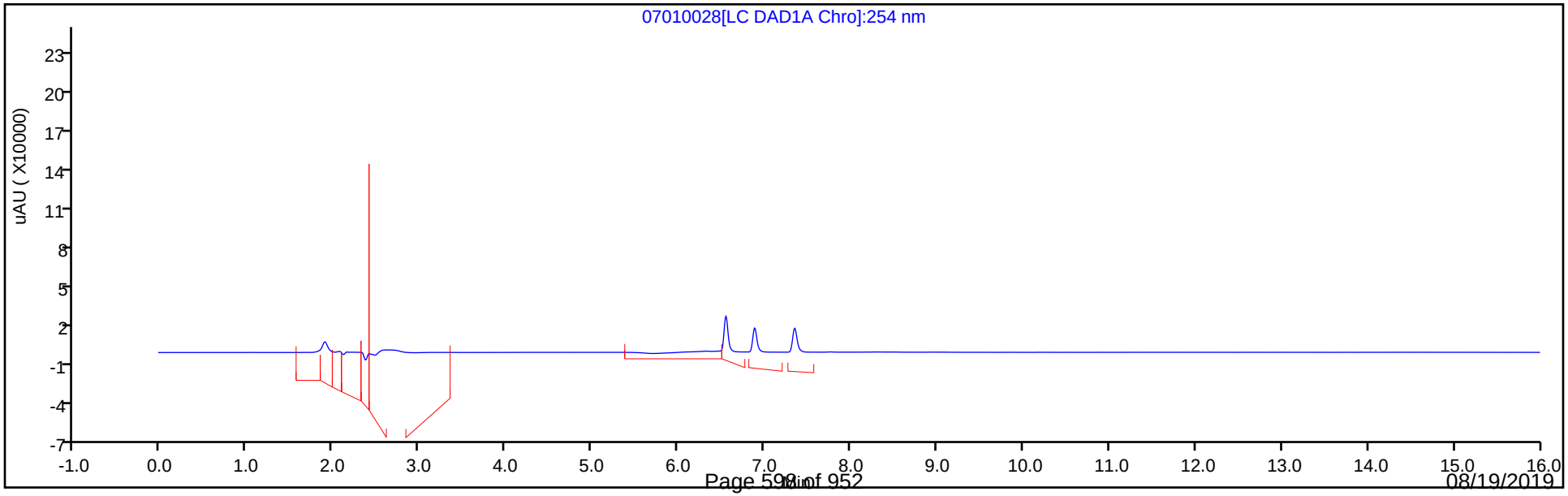
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010028.D

Injection Date:	01-Jul-2019 22:46:18	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC DMT L5			Worklist Smp#:	28
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	28
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

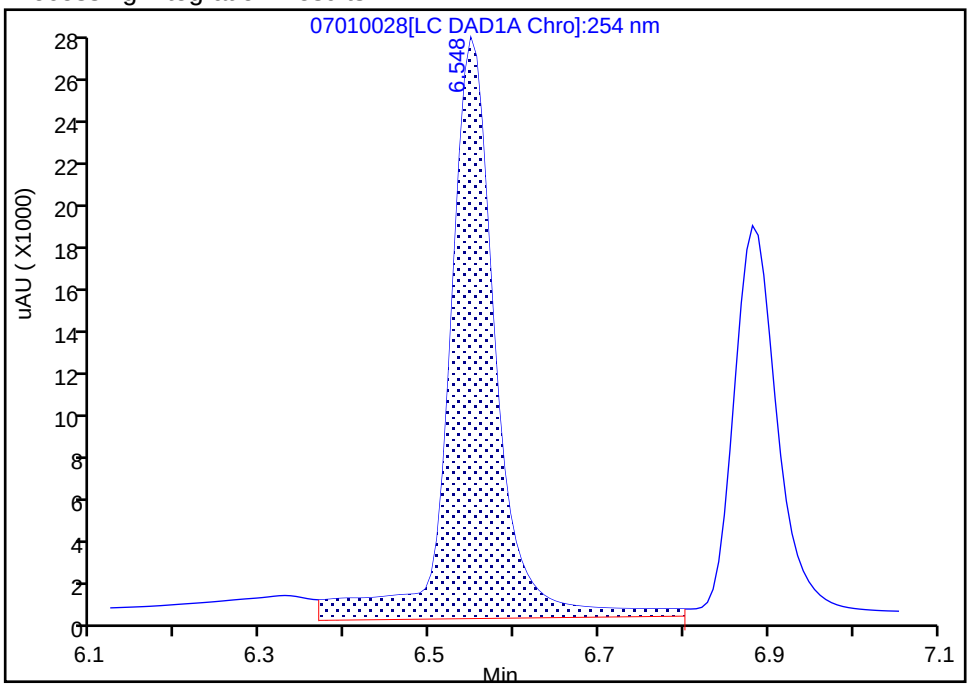
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010028.D				
Injection Date:	01-Jul-2019 22:46:18	Instrument ID:	CHHPLC_X3		
Lims ID:	IC DMT L5				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	28	Worklist Smp#:	28
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

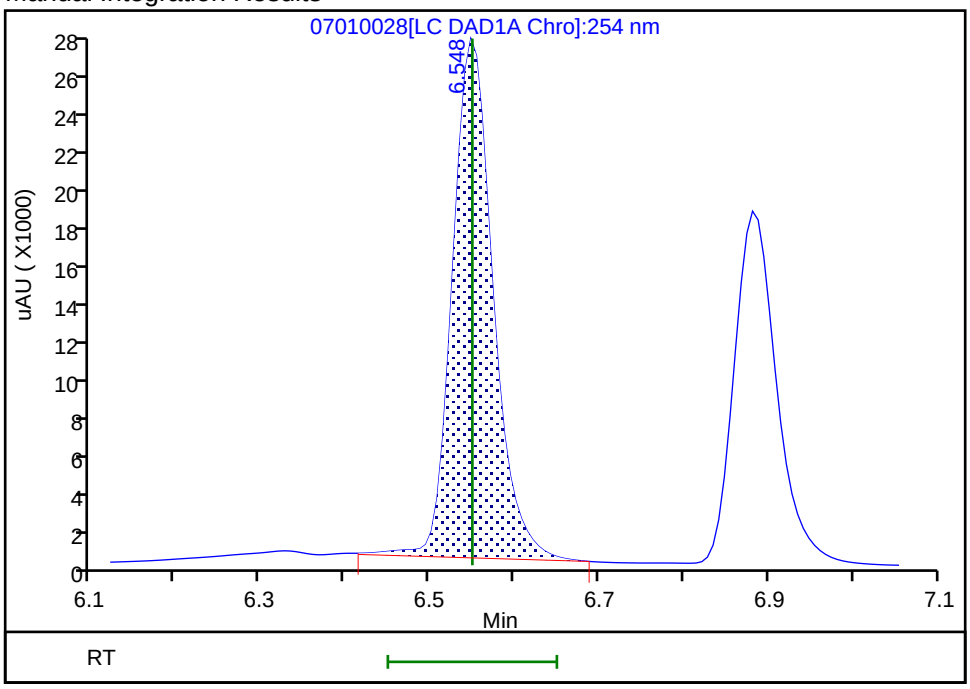
Processing Integration Results

RT: 6.55
Area: 106504
Amount: 0.427161
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 89208
Amount: 0.414990
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:03:27

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

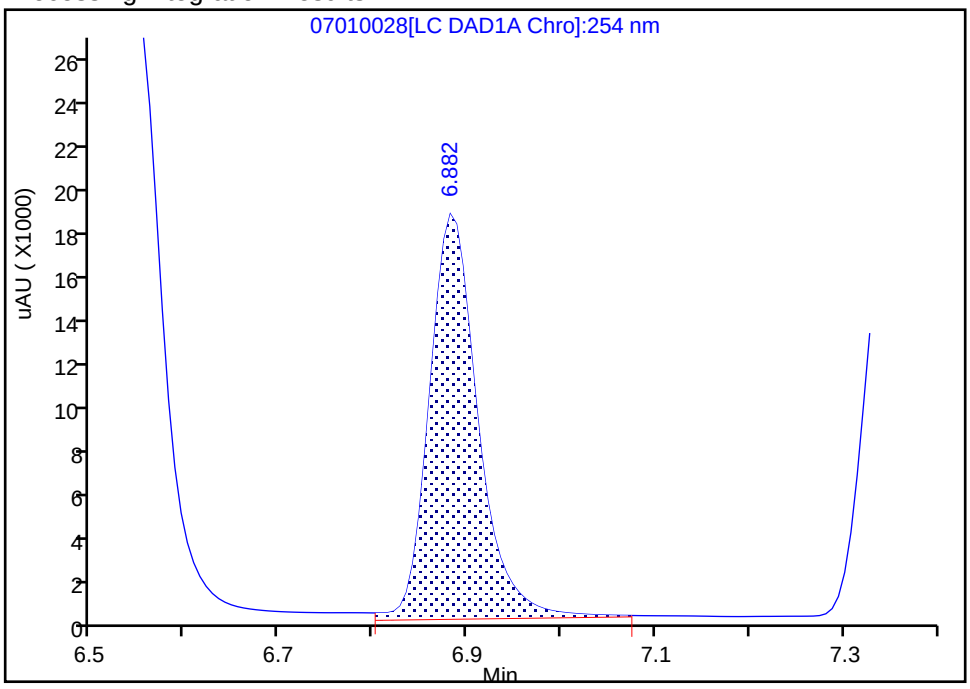
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010028.D
Injection Date: 01-Jul-2019 22:46:18 Instrument ID: CHHPLC_X3
Lims ID: IC DMT L5
Client ID:
Operator ID: hkf ALS Bottle#: 28 Worklist Smp#: 28
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330
Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

5 DNX, CAS: 80251-29-2

Signal: 1

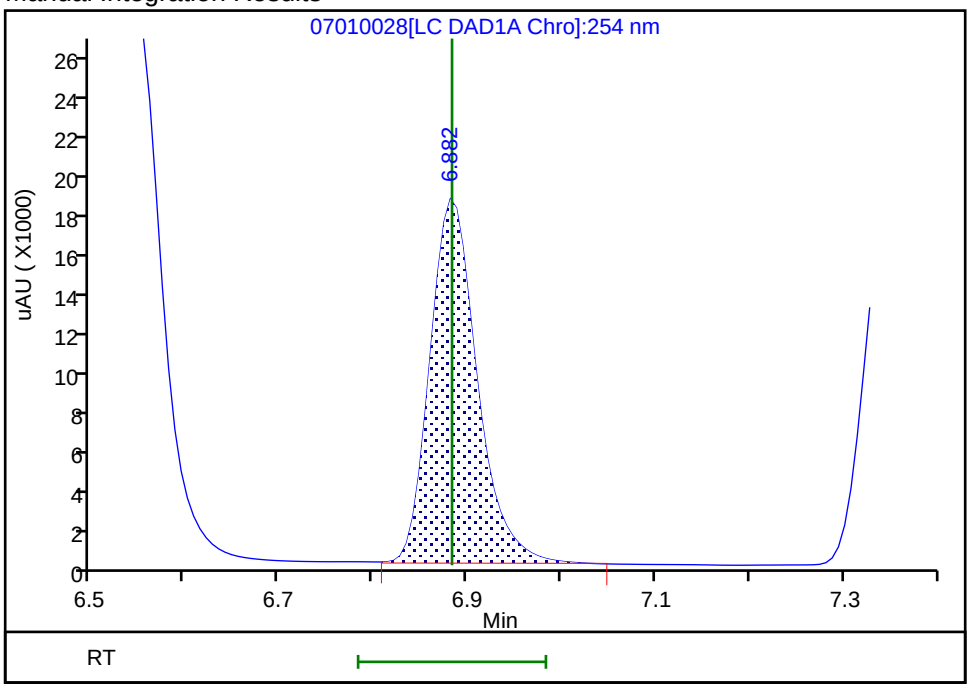
Processing Integration Results

RT: 6.88
Area: 66458
Amount: 0.420218
Amount Units: ug/mL



Manual Integration Results

RT: 6.88
Area: 63316
Amount: 0.405545
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:03:30
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010029.D				
Lims ID:	IC DMT L4				
Client ID:					
Sample Type:	IC	Calib Level:	4		
Inject. Date:	01-Jul-2019 23:09:14	ALS Bottle#:	29	Worklist Smp#:	29
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L4				
Misc. Info.:	280-0083376-029				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Sublist:	chrom-8330_X3*sub17				
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	02-Jul-2019 11:35:26	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0309				
First Level Reviewer: fiedlerh		Date:	02-Jul-2019 09:03:16		

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.550	6.550	0.000	53282	0.2503	0.2479	M
5 DNX	1	6.883	6.883	0.000	37838	0.2503	0.2424	
6 MNX	1	7.343	7.343	0.000	40507	0.2918	0.2893	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 12.50 Units: uL

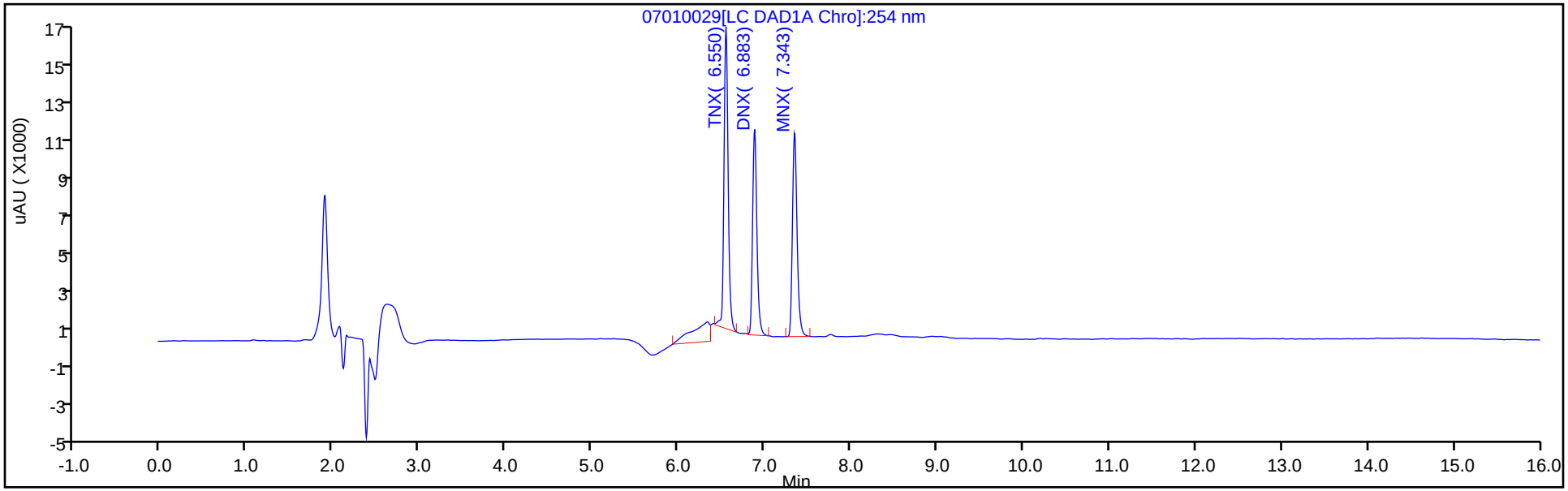
Report Date: 02-Jul-2019 11:35:26 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

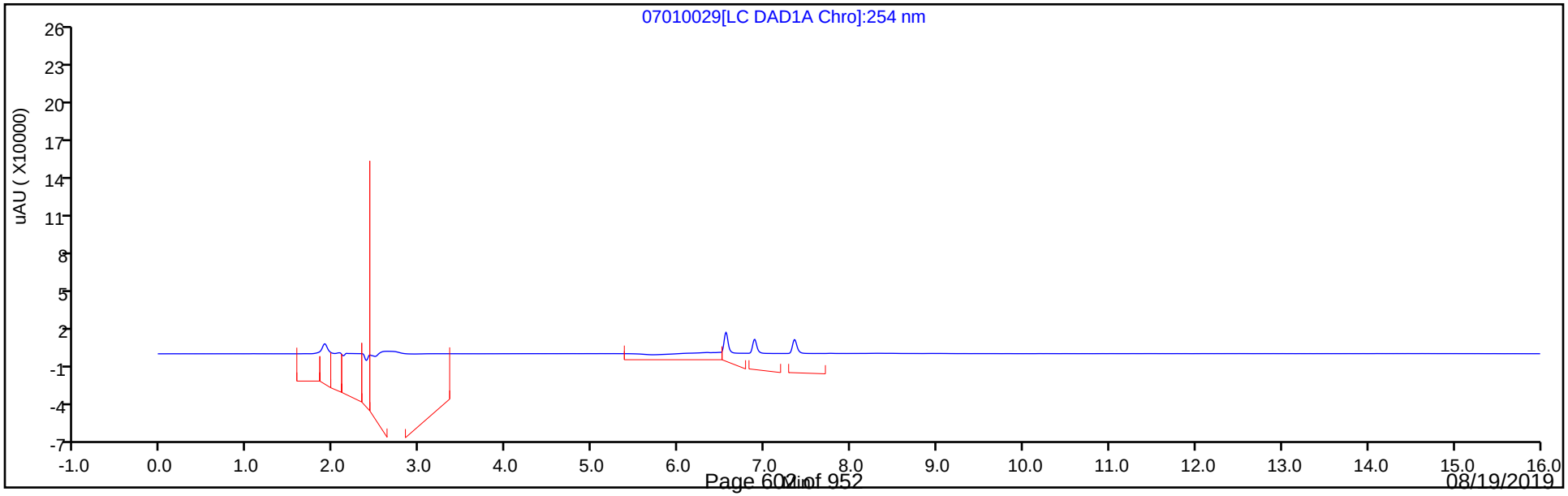
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010029.D

Injection Date:	01-Jul-2019 23:09:14	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC DMT L4			Worklist Smp#:	29
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	29
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

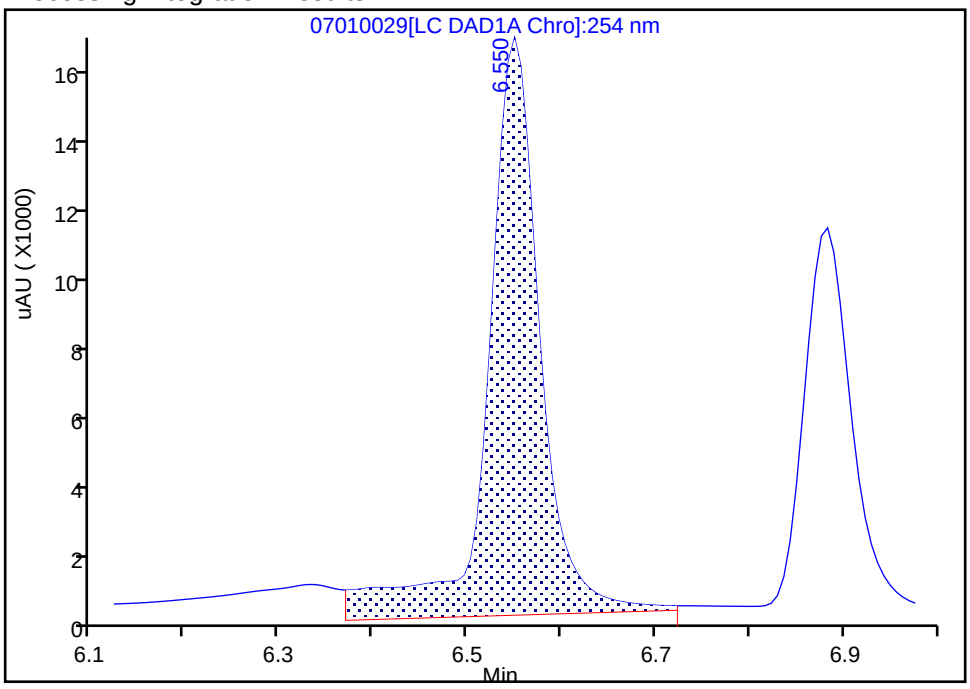
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010029.D				
Injection Date:	01-Jul-2019 23:09:14	Instrument ID:	CHHPLC_X3		
Lims ID:	IC DMT L4				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	29	Worklist Smp#:	29
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

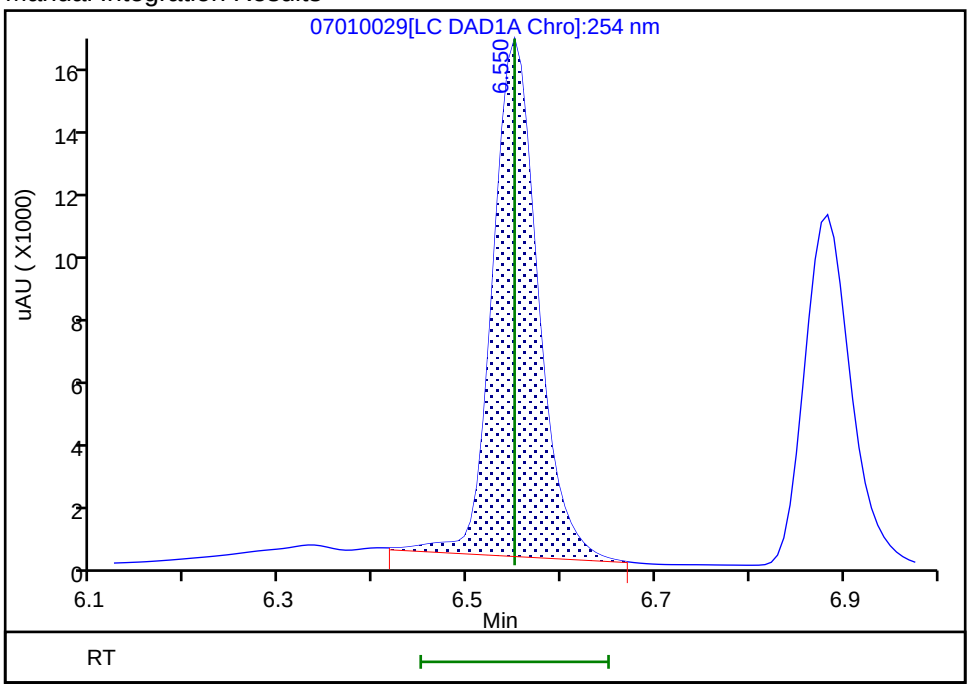
Processing Integration Results

RT: 6.55
Area: 64440
Amount: 0.252802
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 53282
Amount: 0.247865
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:03:09

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010030.D
Lims ID: IC DMT L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 01-Jul-2019 23:32:12 ALS Bottle#: 30 Worklist Smp#: 30
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC DMT L3
Misc. Info.: 280-0083376-030
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub17

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:35:27 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 02-Jul-2019 09:04:35

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.549	6.550	-0.001	21051	0.1001	0.0979	M
5 DNX	1	6.882	6.883	-0.001	15208	0.1001	0.0974	
6 MNX	1	7.342	7.343	-0.001	15754	0.1167	0.1125	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 5.00 Units: uL

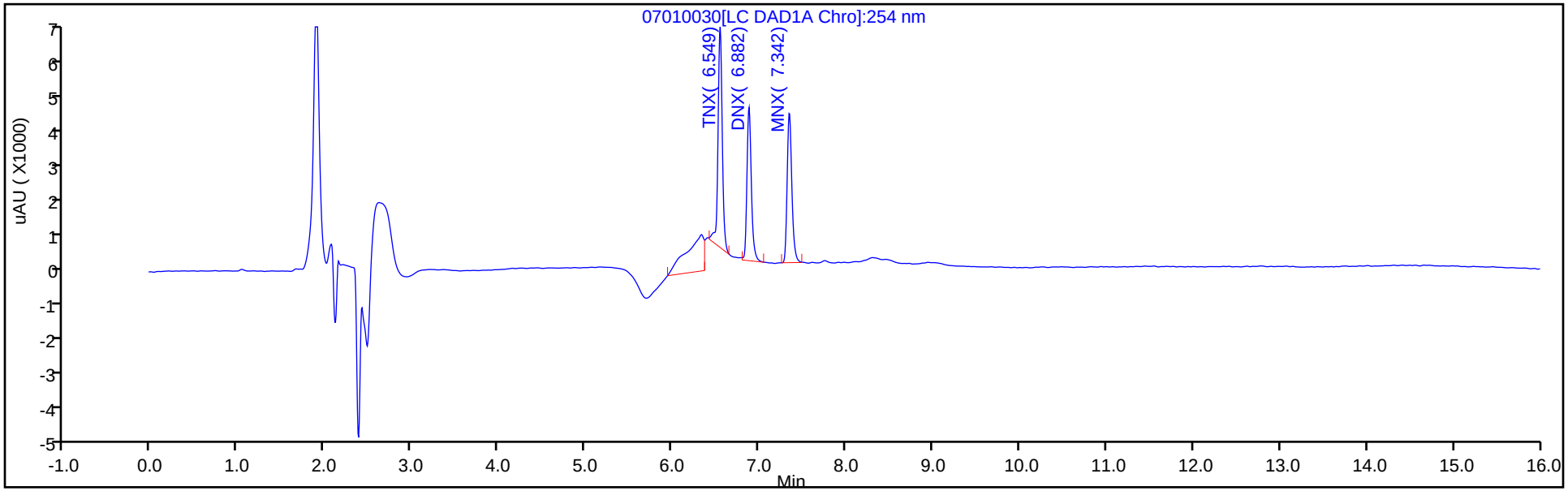
Report Date: 02-Jul-2019 11:35:28 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

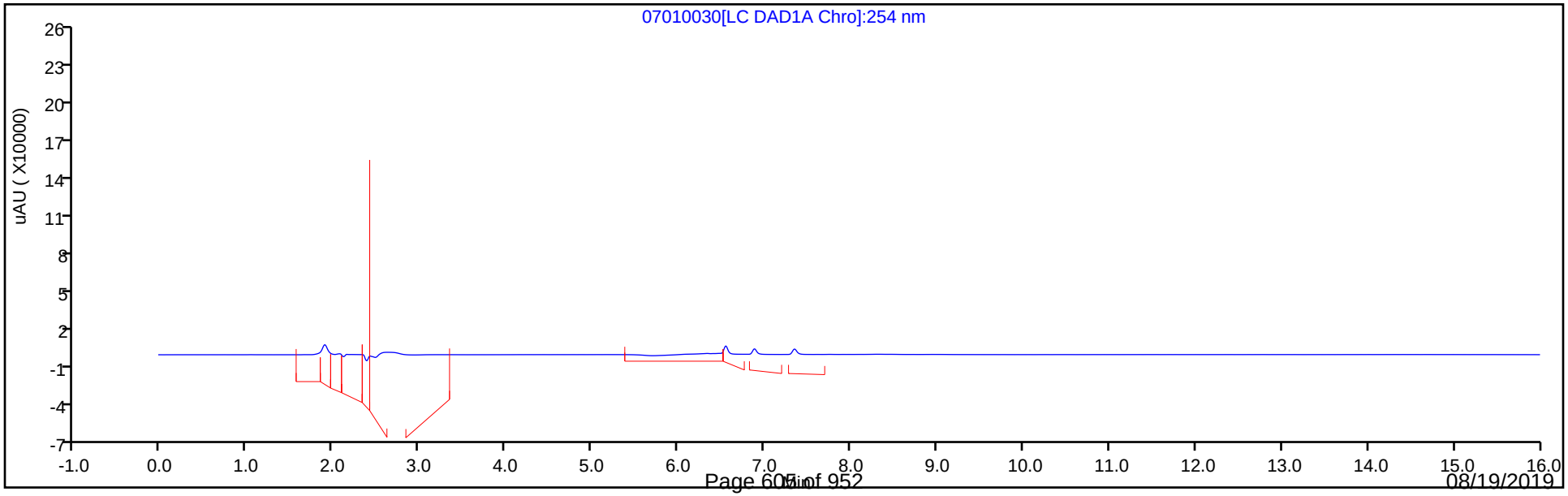
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010030.D

Injection Date:	01-Jul-2019 23:32:12	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC DMT L3			Worklist Smp#:	30
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	30
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

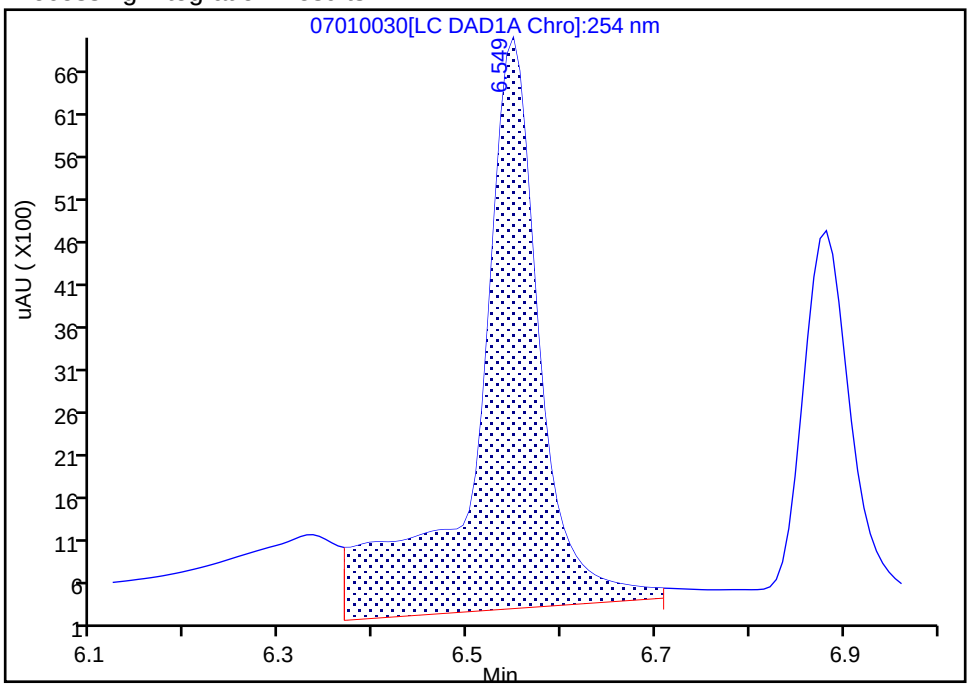
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010030.D				
Injection Date:	01-Jul-2019 23:32:12	Instrument ID:	CHHPLC_X3		
Lims ID:	IC DMT L3				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	30	Worklist Smp#:	30
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

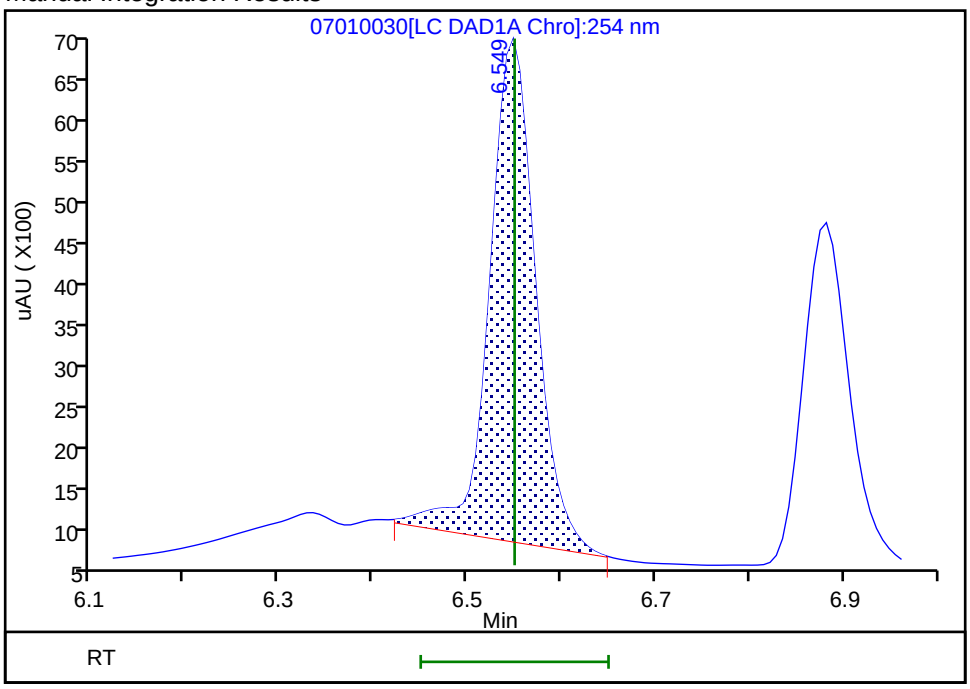
Processing Integration Results

RT: 6.55
Area: 31755
Amount: 0.133076
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 21051
Amount: 0.097928
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:04:34
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010031.D
Lims ID: IC DMT L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 01-Jul-2019 23:55:10 ALS Bottle#: 31 Worklist Smp#: 31
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC DMT L2
Misc. Info.: 280-0083376-031
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub17

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:35:29 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 02-Jul-2019 09:04:53

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.545	6.550	-0.005	10428	0.0501	0.0485	M
5 DNX	1	6.878	6.883	-0.005	7764	0.0501	0.0497	
6 MNX	1	7.345	7.343	0.002	7995	0.0584	0.0571	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 2.50 Units: uL

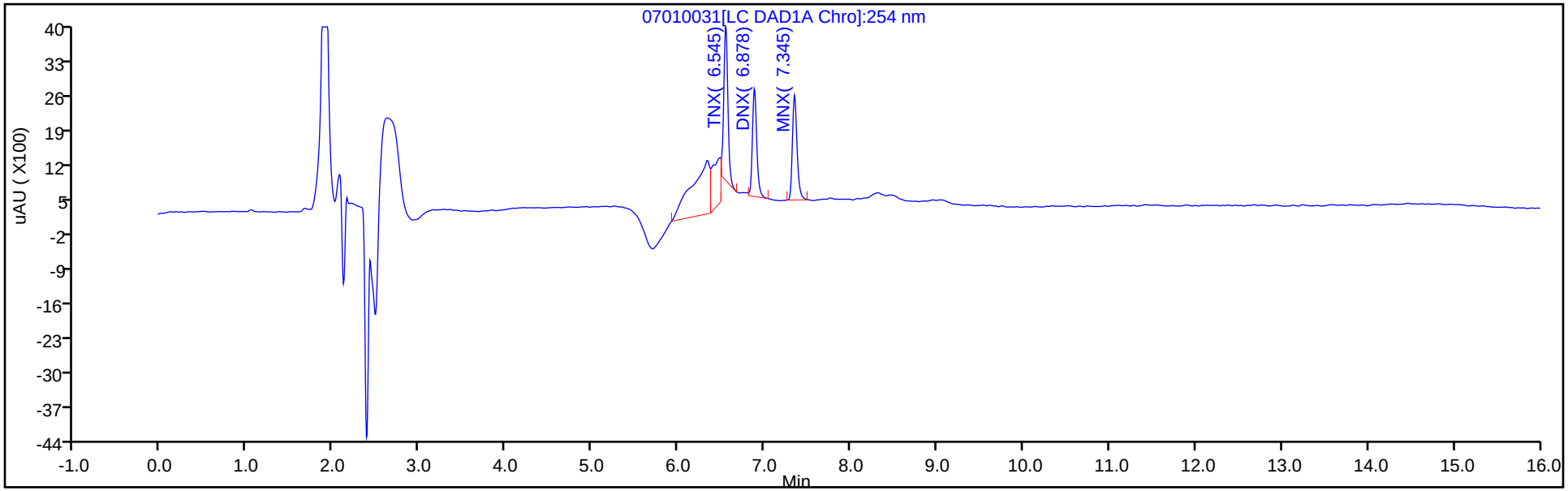
Report Date: 02-Jul-2019 11:35:29 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

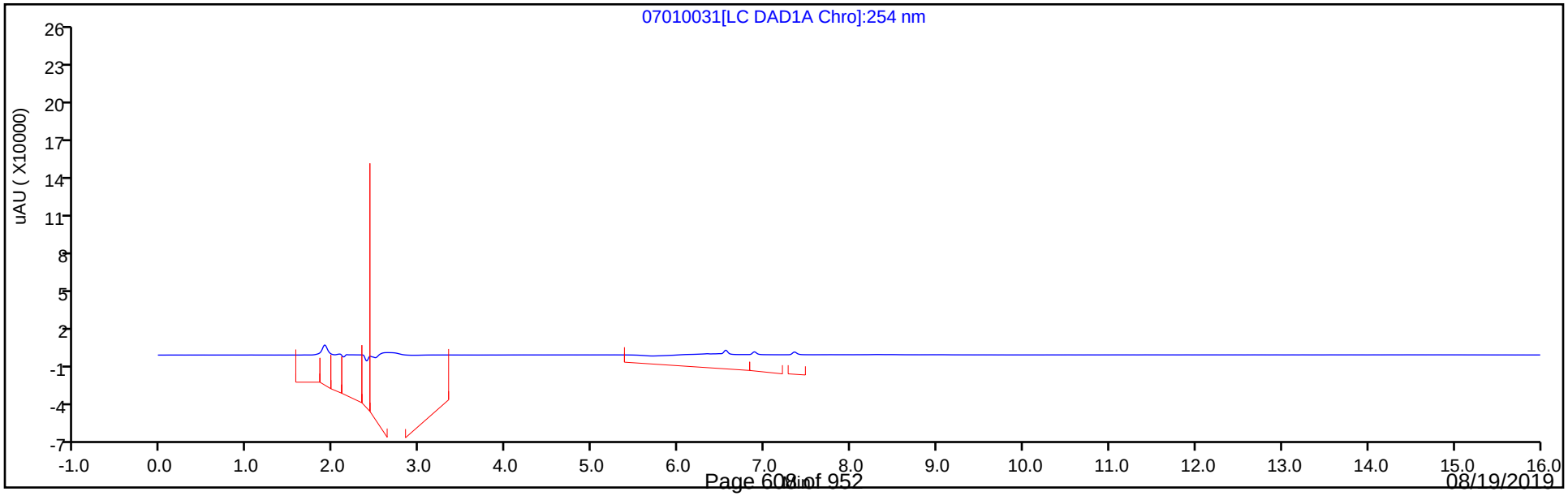
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010031.D

Injection Date:	01-Jul-2019 23:55:10	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC DMT L2			Worklist Smp#:	31
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	31
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

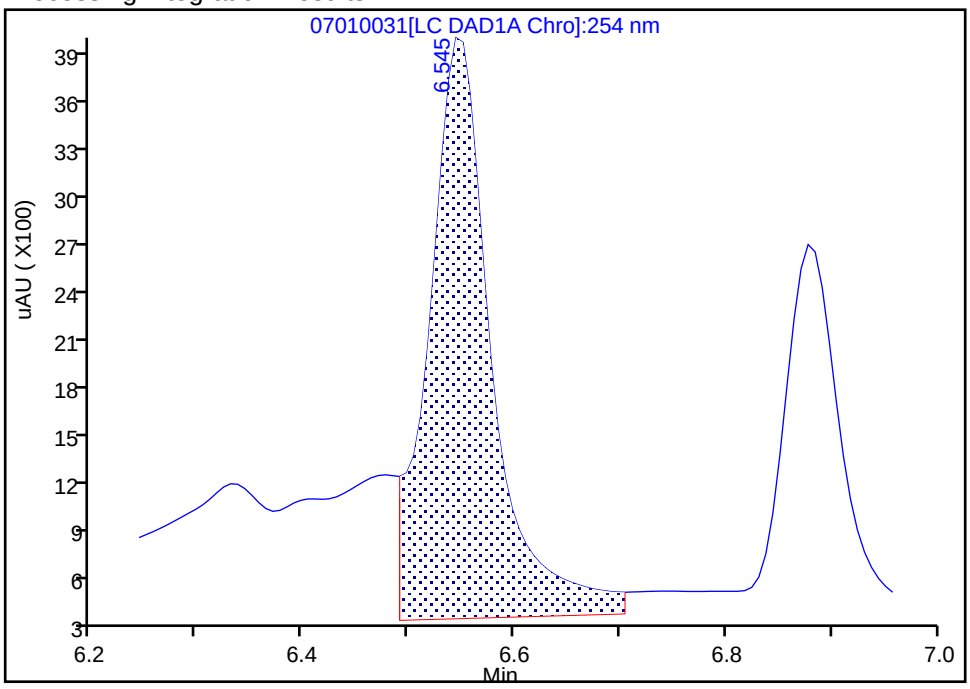
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010031.D				
Injection Date:	01-Jul-2019 23:55:10	Instrument ID:	CHHPLC_X3		
Lims ID:	IC DMT L2				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	31	Worklist Smp#:	31
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

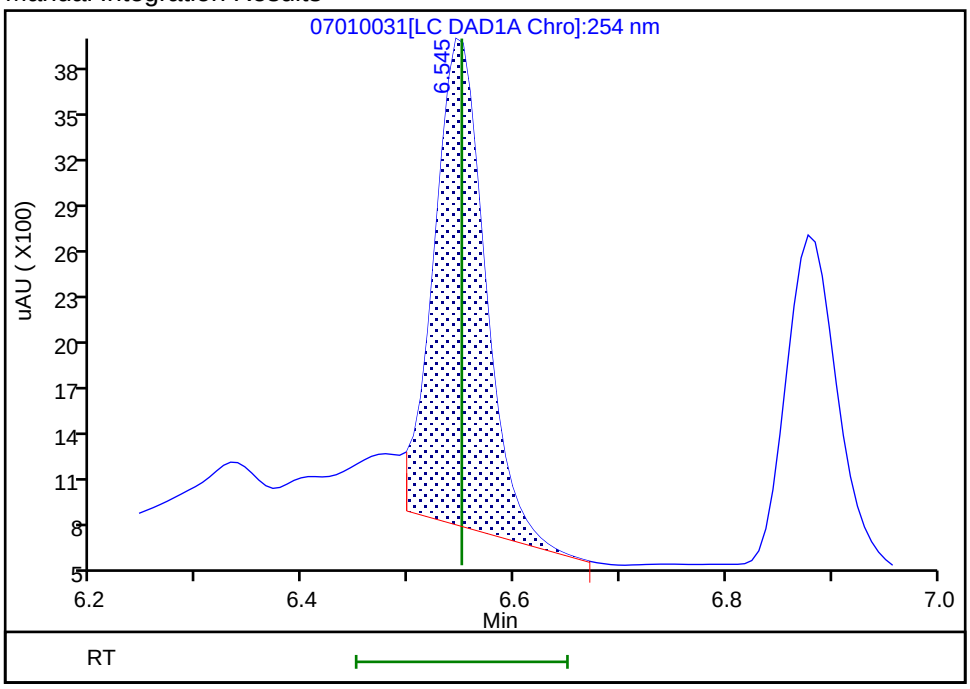
Processing Integration Results

RT: 6.54
Area: 14549
Amount: 0.064589
Amount Units: ug/mL



Manual Integration Results

RT: 6.54
Area: 10428
Amount: 0.048510
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:04:49
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Lims ID:	IC DMT L1				
Client ID:					
Sample Type:	IC	Calib Level:	1		
Inject. Date:	02-Jul-2019 00:18:07	ALS Bottle#:	32	Worklist Smp#:	32
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	IC DMT L1				
Misc. Info.:	280-0083376-032				
Operator ID:	hkf	Instrument ID:	CHHPLC_X3		
Sublist:	chrom-8330_X3*sub17				
Method:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	02-Jul-2019 11:35:30	Calib Date:	02-Jul-2019 00:18:07		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX0309				

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.550	6.550	0.000	4216	0.0200	0.0196	
5 DNX	1	6.883	6.883	0.000	3416	0.0200	0.0219	
6 MNX	1	7.350	7.343	0.007	3273	0.0233	0.0234	

Reagents:

8330 DMT_00002 Amount Added: 1.00 Units: uL

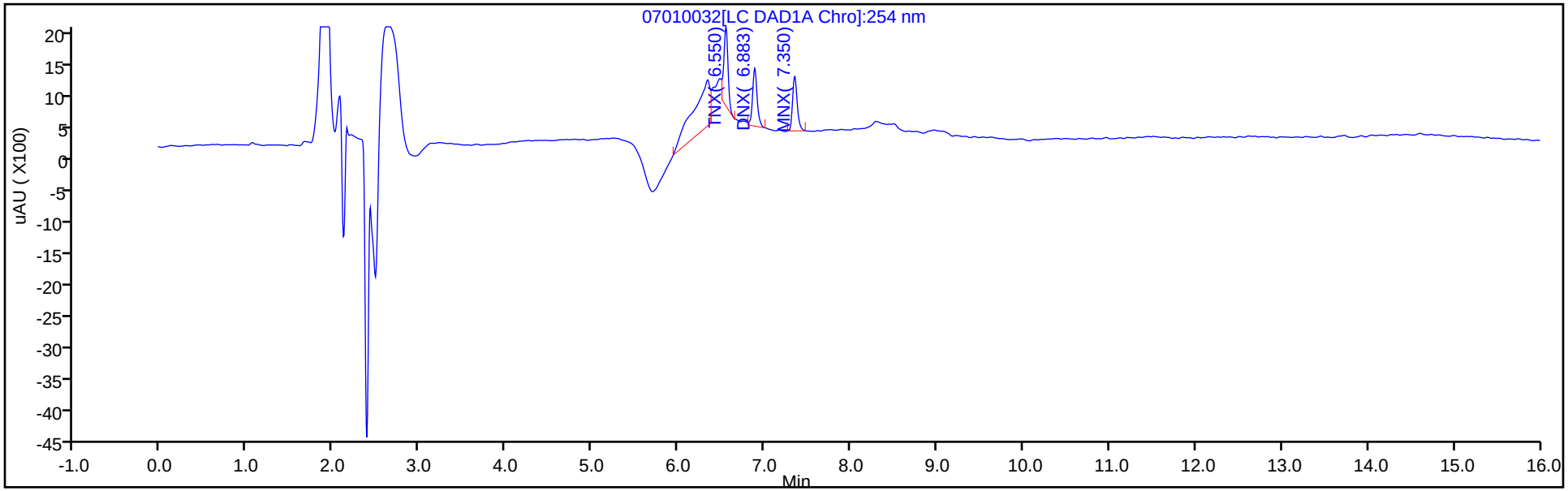
Report Date: 02-Jul-2019 11:35:30 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

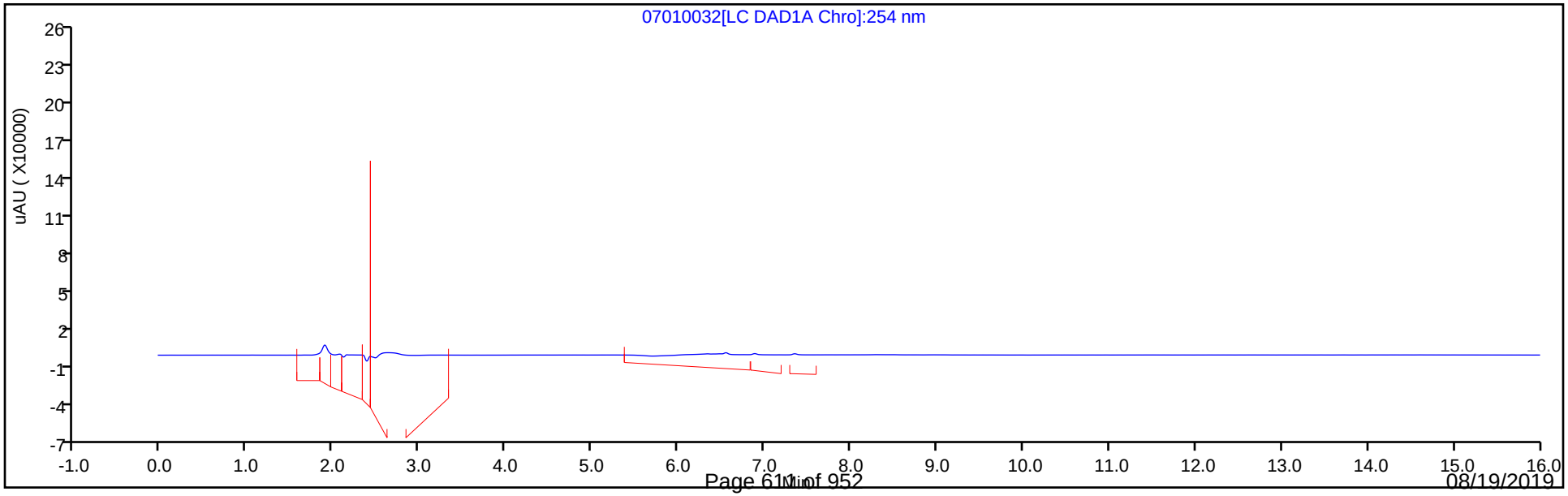
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Injection Date:	02-Jul-2019 00:18:07	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	IC DMT L1			Worklist Smp#:	32
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	32
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-457315/15 Calibration Date: 05/07/2019 19:48

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 15:08

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/07/2019 19:13

Lab File ID: 05070015.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Picric acid	Ave	154920	167918		434	400	8.4	15.0
HMX	Ave	171198	162118		379	400	-5.3	15.0
RDX	Ave	208444	201700		387	400	-3.2	15.0
Nitrobenzene	Ave	405448	399908		395	400	-1.4	15.0
1,3-Dinitrobenzene	Ave	635564	627893		395	400	-1.2	15.0
Nitroglycerin	Ave	192935	175353		3640	4000	-9.1	15.0
2-Nitrotoluene	Ave	261865	254708		389	400	-2.7	15.0
4-Nitrotoluene	Ave	226647	225693		398	400	-0.4	15.0
4-Amino-2,6-dinitrotoluene	Ave	297375	294185		396	400	-1.1	15.0
3-Nitrotoluene	Ave	292691	283468		387	400	-3.2	15.0
2-Amino-4,6-dinitrotoluene	Ave	430236	422210		393	400	-1.9	15.0
1,3,5-Trinitrobenzene	Ave	457546	454625		397	400	-0.6	15.0
2,6-Dinitrotoluene	Ave	293465	278643		380	400	-5.1	15.0
2,4-Dinitrotoluene	Ave	569466	552483		388	400	-3.0	15.0
Tetryl	Ave	314480	326443		415	400	3.8	15.0
2,4,6-Trinitrotoluene	Ave	407281	373723		367	400	-8.2	15.0
PETN	Ave	132364	127215		3840	4000	-3.9	15.0
1,2-Dinitrobenzene	Ave	276856	252750		365	400	-8.7	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-457315/15 Calibration Date: 05/07/2019 19:48

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 15:08

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/07/2019 19:13

Lab File ID: 05070015.D

Analyte	RT	RT WINDOW	
		FROM	TO
Picric acid	6.08	5.79	6.09
HMX	7.20	7.05	7.35
RDX	9.28	9.15	9.45
Nitrobenzene	12.30	12.18	12.48
1,3-Dinitrobenzene	15.88	15.73	16.03
Nitroglycerin	15.88	15.72	16.02
2-Nitrotoluene	16.71	16.57	16.87
4-Nitrotoluene	17.04	16.90	17.20
4-Amino-2,6-dinitrotoluene	17.44	17.29	17.59
3-Nitrotoluene	17.96	17.82	18.12
2-Amino-4,6-dinitrotoluene	18.46	18.30	18.60
1,3,5-Trinitrobenzene	19.22	19.06	19.36
2,6-Dinitrotoluene	20.08	19.92	20.22
2,4-Dinitrotoluene	20.62	20.47	20.77
Tetryl	23.98	23.82	24.12
2,4,6-Trinitrotoluene	24.96	24.80	25.10
PETN	25.36	25.20	25.50
1,2-Dinitrobenzene	13.34	13.20	13.50

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070015.D
Lims ID: ICV FULL 8330
Client ID:
Sample Type: ICV
Inject. Date: 07-May-2019 19:48:22 ALS Bottle#: 15 Worklist Smp#: 15
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: ICV FULL 8330
Misc. Info.: 280-0081649-015
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist:

Method: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 08-May-2019 09:13:52 Calib Date: 07-May-2019 19:13:24
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070014.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0325

First Level Reviewer: fiedlerh Date: 08-May-2019 09:05:17

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
	1 2,6-diamino-4-nitrotoluene	1	4.430	4.446	-0.016	161383	0.4000	0.4089	
	2 2,4-diamino-6-nitrotoluene	1	5.030	4.993	0.037	94666	0.4000	0.3700	
	5 2,4,6-Trinitrophenol	1	6.077	5.940	0.137	67167	0.4000	0.4336	
	6 HMX	1	7.203	7.200	0.003	64847	0.4000	0.3788	
	8 RDX	1	9.283	9.300	-0.017	80680	0.4000	0.3871	
	9 Nitrobenzene	1	12.296	12.326	-0.030	159963	0.4000	0.3945	
$	10 1,2-Dinitrobenzene	1	13.336	13.346	-0.010	101100	0.4000	0.3652	
	11 3,5-Dinitroaniline	1	15.263	15.266	-0.003	190443	0.4000	0.4055	
	13 Nitroglycerin	2	15.883	15.873	0.010	701412	4.00	3.64	
	12 1,3-Dinitrobenzene	1	15.876	15.880	-0.004	251157	0.4000	0.3952	
	14 o-Nitrotoluene	1	16.710	16.720	-0.010	101883	0.4000	0.3891	
	15 p-Nitrotoluene	1	17.043	17.053	-0.010	90277	0.4000	0.3983	
	16 4-Amino-2,6-dinitrotoluene	1	17.443	17.440	0.003	117674	0.4000	0.3957	
	17 m-Nitrotoluene	1	17.956	17.966	-0.010	113387	0.4000	0.3874	
	18 2-Amino-4,6-dinitrotoluene	1	18.463	18.446	0.017	168884	0.4000	0.3925	
	19 1,3,5-Trinitrobenzene	1	19.216	19.213	0.003	181850	0.4000	0.3974	
	20 2,6-Dinitrotoluene	1	20.076	20.073	0.003	111457	0.4000	0.3798	
	21 2,4-Dinitrotoluene	1	20.623	20.620	0.003	220993	0.4000	0.3881	
	22 Tetryl	1	23.977	23.966	0.011	130577	0.4000	0.4152	
	23 2,4,6-Trinitrotoluene	1	24.957	24.953	0.004	149489	0.4000	0.3670	
	24 PETN	2	25.363	25.353	0.010	508858	4.00	3.84	

Reagents:

3,5-DNA LCS_00033	Amount Added:	40.00	Units: uL
8330Surrogate_00103	Amount Added:	40.00	Units: uL
8330DiaminLCS_00032	Amount Added:	40.00	Units: uL
8330 LCS_00084	Amount Added:	40.00	Units: uL

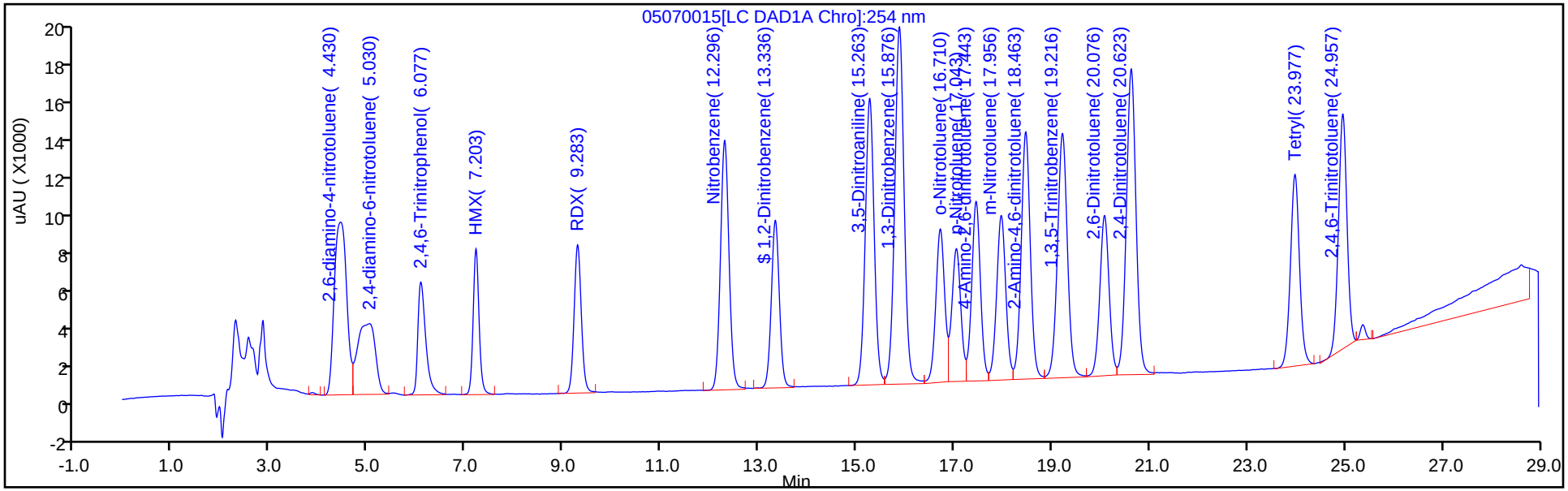
Report Date: 08-May-2019 09:13:54 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

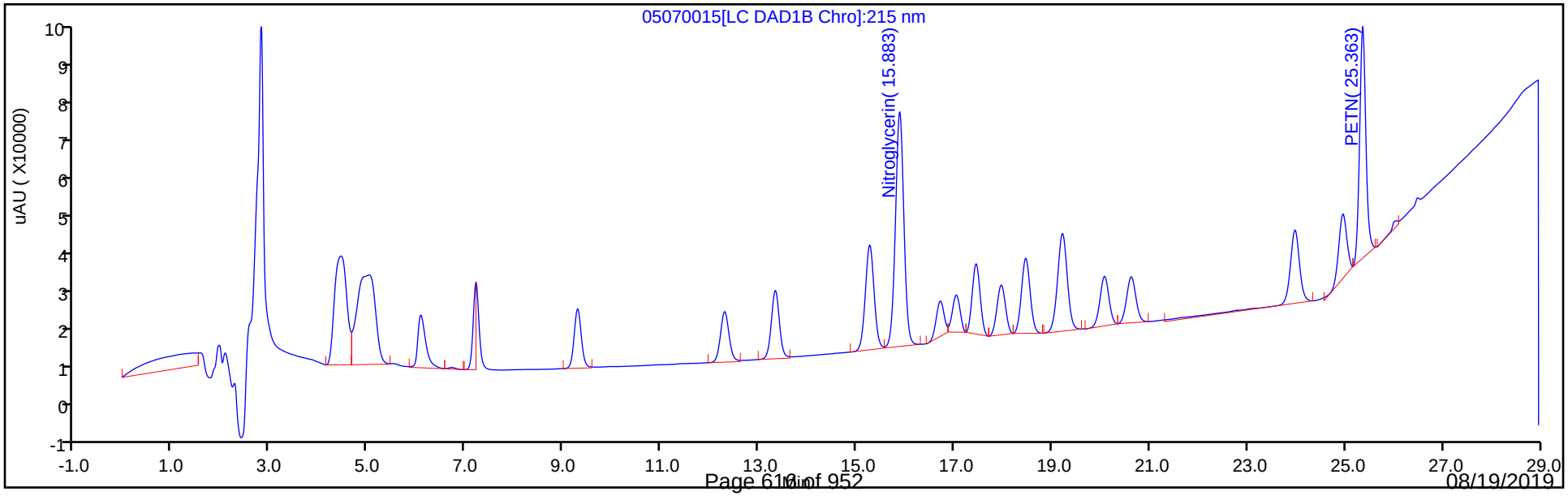
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070015.D

Injection Date:	07-May-2019 19:48:22	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	ICV FULL 8330			Worklist Smp#:	15
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	15
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-457456/7 Calibration Date: 05/08/2019 12:21

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 20:23

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/08/2019 00:28

Lab File ID: 05080007.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
TNX	Ave	403427	391751		389	400	-2.9	15.0
DNX	Ave	289881	287488		397	400	-0.8	15.0
MNX	Ave	269525	267778		464	467	-0.6	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-457456/7 Calibration Date: 05/08/2019 12:21

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 20:23

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/08/2019 00:28

Lab File ID: 05080007.D

Analyte	RT	RT WINDOW	
		FROM	TO
TNX	5.52	5.36	5.66
DNX	6.35	6.19	6.49
MNX	7.91	7.74	8.04

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190508-81686.b\05080007.D				
Lims ID:	ICV DMT				
Client ID:					
Sample Type:	ICV				
Inject. Date:	08-May-2019 12:21:28	ALS Bottle#:	7	Worklist Smp#:	7
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	ICV DMT				
Misc. Info.:	280-0081686-007				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Sublist:					
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190508-81686.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	09-May-2019 08:52:46	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0337				

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.516	5.512	0.004	156857	0.4004	0.3888	
4 DNX	1	6.349	6.338	0.011	115110	0.4004	0.3971	
7 MNX	1	7.909	7.892	0.017	124999	0.4668	0.4638	

Reagents:

8330_OP_DMT_00002 Amount Added: 40.00 Units: uL

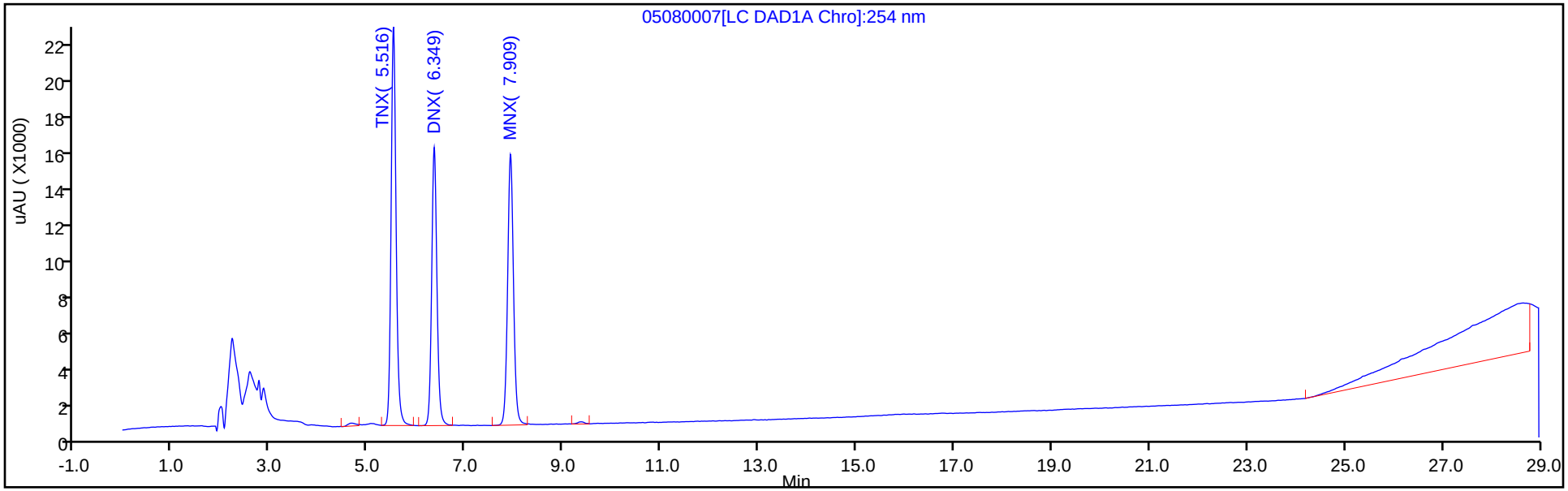
Report Date: 09-May-2019 08:53:02 Chrom Revision: 2.3 03-May-2019 15:52:00

Eurofins TestAmerica, Denver

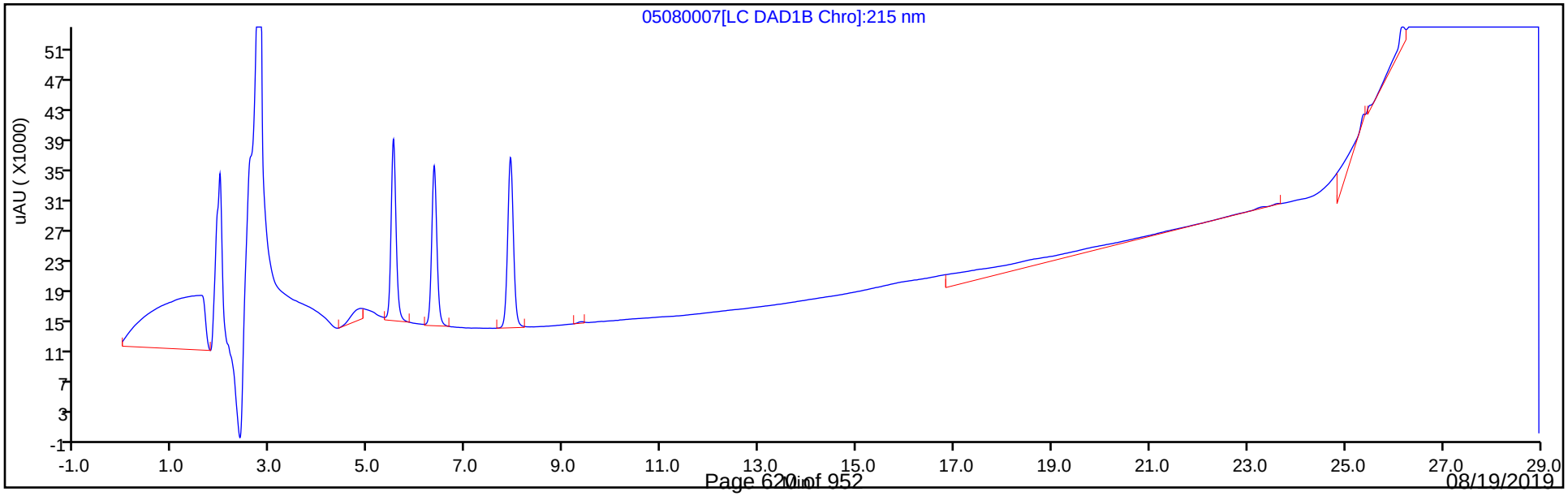
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190508-81686.b\05080007.D

Injection Date:	08-May-2019 12:21:28	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	ICV DMT			Worklist Smp#:	7
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467721/7 Calibration Date: 08/15/2019 11:54

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 15:08

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/07/2019 19:13

Lab File ID: 08150007.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	171198	176808		258	250	3.3	15.0
RDX	Ave	208444	215628		259	250	3.4	15.0
Nitrobenzene	Ave	405448	425409		263	251	4.9	15.0
Nitroglycerin	Ave	192935	193333		2510	2500	0.2	15.0
1,3-Dinitrobenzene	Ave	635564	652871		257	250	2.7	15.0
2-Nitrotoluene	Ave	261865	268542		257	251	2.6	15.0
4-Nitrotoluene	Ave	226647	226291		251	251	-0.2	15.0
4-Amino-2,6-dinitrotoluene	Ave	297375	320566		270	251	7.8	15.0
3-Nitrotoluene	Ave	292691	288665		248	251	-1.4	15.0
2-Amino-4,6-dinitrotoluene	Ave	430236	452921		264	251	5.3	15.0
1,3,5-Trinitrobenzene	Ave	457546	467068		255	250	2.1	15.0
2,6-Dinitrotoluene	Ave	293465	294676		252	251	0.4	15.0
2,4-Dinitrotoluene	Ave	569466	584467		257	251	2.6	15.0
Tetryl	Ave	314480	334244		266	250	6.3	15.0
2,4,6-Trinitrotoluene	Ave	407281	404371		249	251	-0.7	15.0
PETN	Ave	132364	152507		2880	2500	15.2*	15.0
Picric acid	Ave	154920			12.0	250		
1,2-Dinitrobenzene	Ave	276856	285384		258	250	3.1	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467721/7 Calibration Date: 08/15/2019 11:54

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 15:08

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/07/2019 19:13

Lab File ID: 08150007.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	7.06	6.91	7.21
RDX	9.06	8.91	9.21
Nitrobenzene	12.14	11.99	12.29
Nitroglycerin	15.55	15.40	15.70
1,3-Dinitrobenzene	15.60	15.45	15.75
2-Nitrotoluene	16.49	16.34	16.64
4-Nitrotoluene	16.81	16.66	16.96
4-Amino-2,6-dinitrotoluene	17.10	16.95	17.25
3-Nitrotoluene	17.72	17.57	17.87
2-Amino-4,6-dinitrotoluene	18.05	17.90	18.20
1,3,5-Trinitrobenzene	18.92	18.77	19.07
2,6-Dinitrotoluene	19.78	19.63	19.93
2,4-Dinitrotoluene	20.30	20.15	20.45
Tetryl	23.56	23.41	23.71
2,4,6-Trinitrotoluene	24.65	24.50	24.80
PETN	25.05	24.90	25.20
Picric acid			
1,2-Dinitrobenzene	13.08	12.93	13.23

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150007.D
Lims ID: CCV 8330
Client ID:
Sample Type: CCV
Inject. Date: 15-Aug-2019 11:54:16 ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV 8330
Misc. Info.: 280-0084482-007
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 16-Aug-2019 13:24:46 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0321

First Level Reviewer: fiedlerh Date: 16-Aug-2019 10:56:59

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1	2,6-diamino-4-nitrotoluene	1	4.435	4.435	0.000	149547	0.2500	0.3790	
2	2,4-diamino-6-nitrotoluene	1	4.969	4.969	0.000	63573	0.2500	0.2485	
5	2,4,6-Trinitrophenol	1		6.217			ND	ND	
6	HMX	1	7.055	7.055	0.000	44202	0.2500	0.2582	
8	RDX	1	9.055	9.055	0.000	53907	0.2500	0.2586	
9	Nitrobenzene	1	12.135	12.135	0.000	106565	0.2505	0.2628	
$ 10	1,2-Dinitrobenzene	1	13.082	13.082	0.000	71346	0.2500	0.2577	
11	3,5-Dinitroaniline	1	14.908	14.908	0.000	133368	0.2500	0.2837	
13	Nitroglycerin	2	15.548	15.548	0.000	483333	2.50	2.51	
12	1,3-Dinitrobenzene	1	15.602	15.602	0.000	163381	0.2503	0.2571	
14	o-Nitrotoluene	1	16.488	16.488	0.000	67337	0.2508	0.2571	
15	p-Nitrotoluene	1	16.808	16.808	0.000	56799	0.2510	0.2506	
16	4-Amino-2,6-dinitrotoluene	1	17.095	17.095	0.000	80382	0.2508	0.2703	
17	m-Nitrotoluene	1	17.715	17.715	0.000	72455	0.2510	0.2475	
18	2-Amino-4,6-dinitrotoluene	1	18.048	18.048	0.000	113570	0.2508	0.2640	
19	1,3,5-Trinitrobenzene	1	18.915	18.915	0.000	116767	0.2500	0.2552	
20	2,6-Dinitrotoluene	1	19.775	19.775	0.000	73890	0.2508	0.2518	
21	2,4-Dinitrotoluene	1	20.295	20.295	0.000	146409	0.2505	0.2571	
22	Tetryl	1	23.555	23.555	0.000	83561	0.2500	0.2657	
23	2,4,6-Trinitrotoluene	1	24.649	24.649	0.000	101497	0.2510	0.2492	
24	PETN	2	25.049	25.049	0.000	381267	2.50	2.88	

QC Flag Legend

Processing Flags
ND - Not Detected or Marked ND

Reagents:

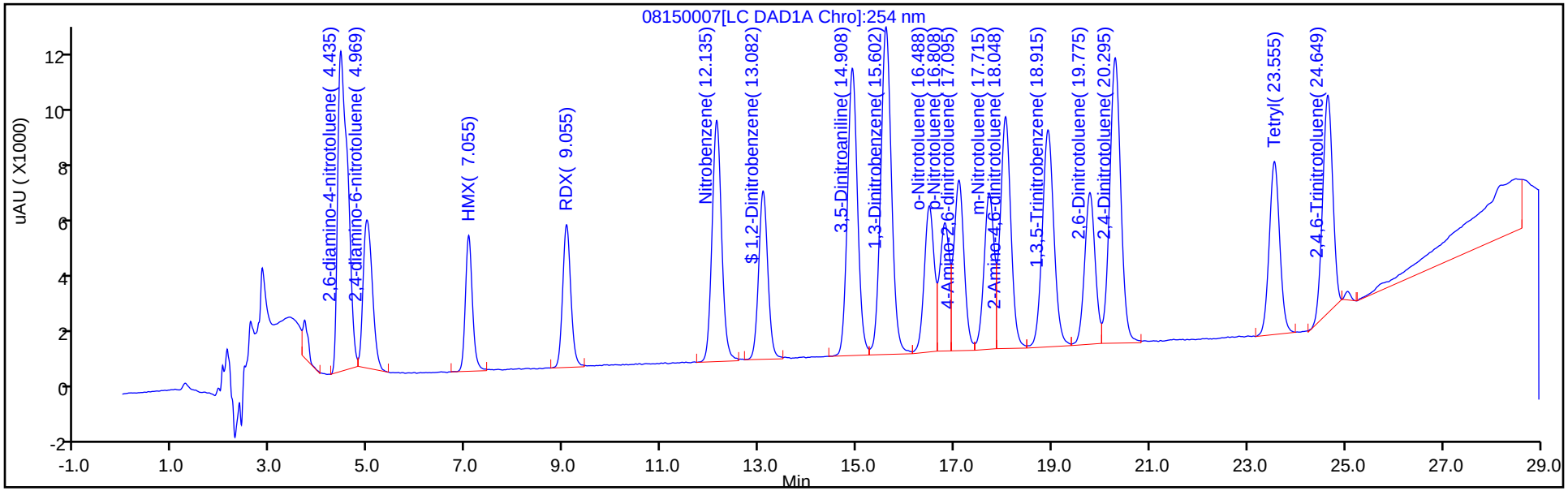
8330IntermStk_00059	Amount Added:	25.00	Units: uL
8330_ADDs_00022	Amount Added:	12.50	Units: uL

Report Date: 16-Aug-2019 13:24:46 Chrom Revision: 2.3 15-Jul-2019 06:58:08

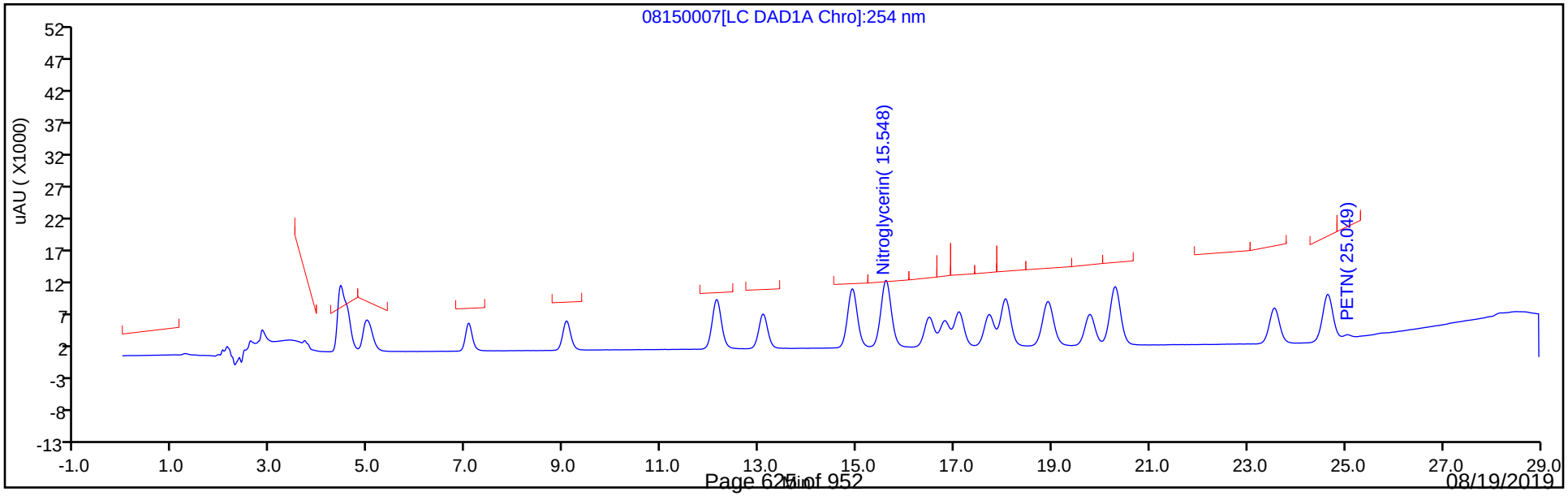
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150007.D				
Injection Date:	15-Aug-2019 11:54:16	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	CCV 8330			Worklist Smp#:	7
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467721/8 Calibration Date: 08/15/2019 12:29

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 20:23

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/08/2019 00:28

Lab File ID: 08150008.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
TNX	Ave	403427	486977		302	250	20.7*	15.0
DNX	Ave	289881	348012		300	250	20.1*	15.0
MNX	Ave	269525	320490		347	292	18.9*	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467721/8 Calibration Date: 08/15/2019 12:29

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 20:23

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/08/2019 00:28

Lab File ID: 08150008.D

Analyte	RT	RT WINDOW	
		FROM	TO
TNX	5.42	5.27	5.57
DNX	6.21	6.06	6.36
MNX	7.69	7.54	7.84

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150008.D				
Lims ID:	CCV DMT				
Client ID:					
Sample Type:	CCV				
Inject. Date:	15-Aug-2019 12:29:15	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	CCV DMT				
Misc. Info.:	280-0084482-008				
Operator ID:	HKF	Instrument ID:	CHHPLC_G2_LUNA		
Sublist:	chrom-G2_8330_Luna*sub13				
Method:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m				
Limit Group:	GCSV - 8330				
Last Update:	16-Aug-2019 13:24:47	Calib Date:	08-May-2019 00:28:23		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D				
Column 1 :	Luna-Phenyl hexyl (4.60 mm)		Det: LC DAD1A, 254 nm		
Process Host:	CTX0321				
First Level Reviewer: fiedlerh		Date:	16-Aug-2019 10:57:13		

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.419	5.419	0.000	121866	0.2503	0.3021	
4 DNX	1	6.206	6.206	0.000	87090	0.2503	0.3004	
7 MNX	1	7.693	7.693	0.000	93503	0.2918	0.3469	a

QC Flag Legend

Review Flags
a - User Assigned ID

Reagents:

8330 DMT_00002 Amount Added: 12.50 Units: uL

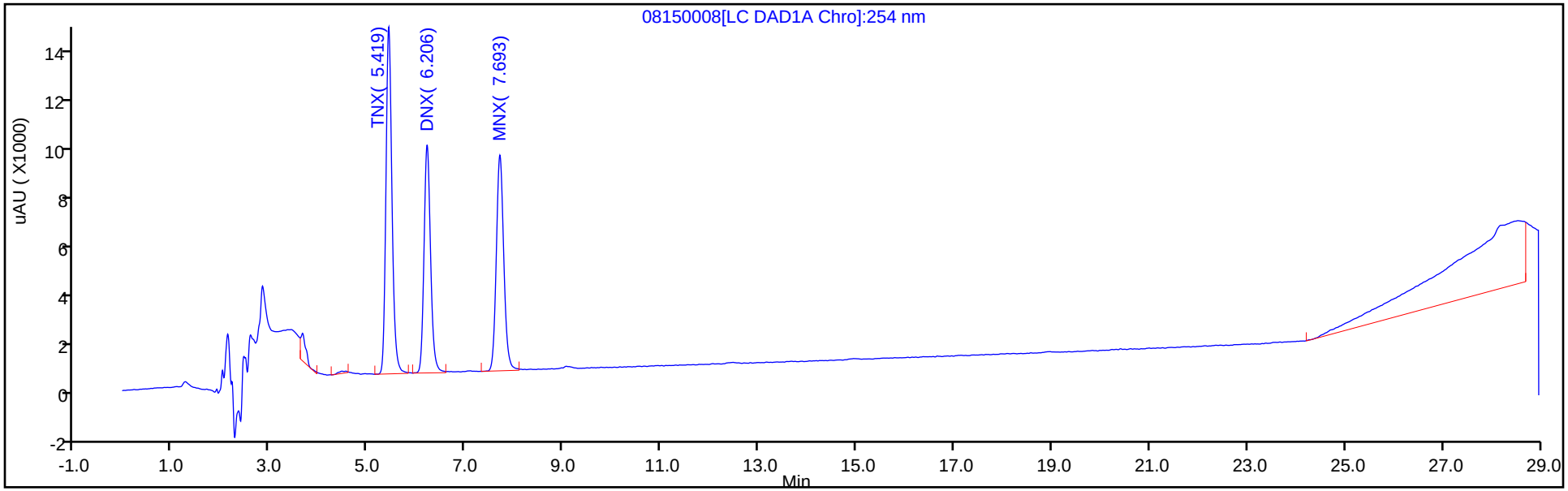
Report Date: 16-Aug-2019 13:24:47 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

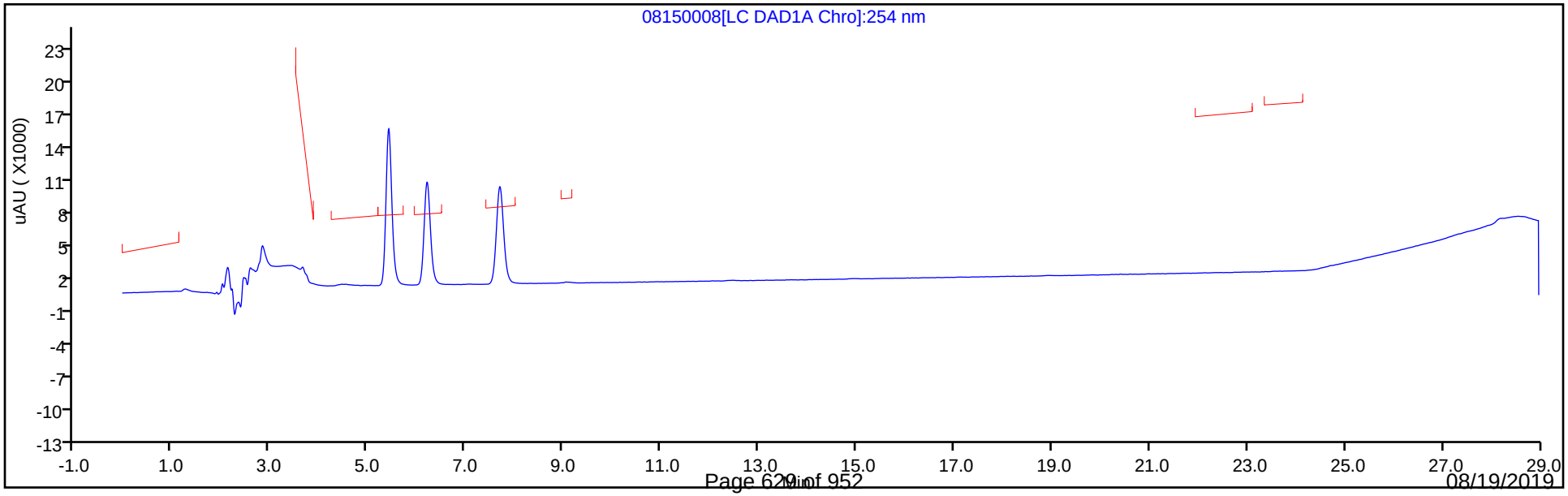
Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150008.D

Injection Date:	15-Aug-2019 12:29:15	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	CCV DMT			Worklist Smp#:	8
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

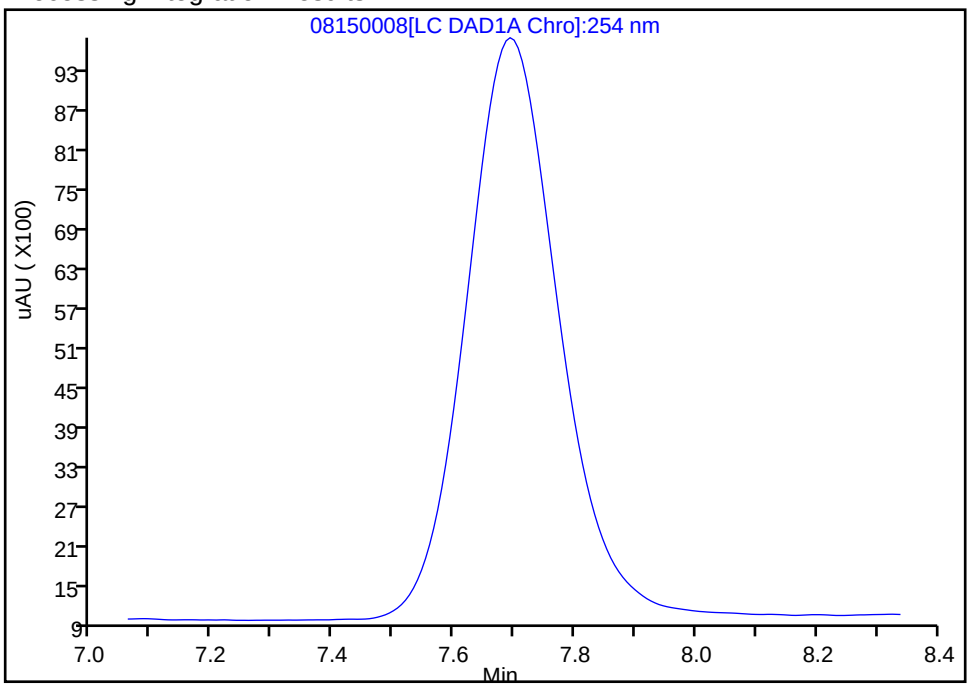
Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150008.D				
Injection Date:	15-Aug-2019 12:29:15	Instrument ID:	CHHPLC_G2_LUNA		
Lims ID:	CCV DMT				
Client ID:					
Operator ID:	HKF	ALS Bottle#:	8	Worklist Smp#:	8
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		
Column:	Luna-Phenyl hexyl (4.60 mm)	Detector	LC DAD1A, 254 nm		

7 MNX, CAS: 5755-27-1

Signal: 1

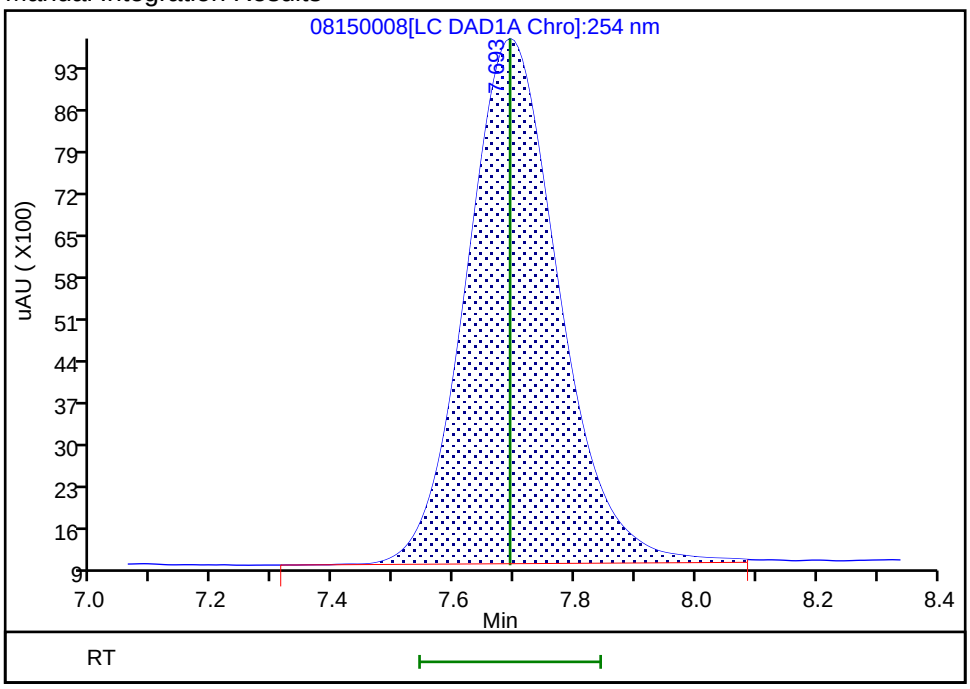
Processing Integration Results

Not Detected
Expected RT: 7.69



Manual Integration Results

RT: 7.69
Area: 93503
Amount: 0.346918
Amount Units: ug/ml



Reviewer: fiedlerh, 16-Aug-2019 10:57:05
Audit Action: Assigned Compound ID Audit Reason:

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467721/17 Calibration Date: 08/15/2019 17:44

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 15:08

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/07/2019 19:13

Lab File ID: 08150017.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	171198	179556		262	250	4.9	15.0
RDX	Ave	208444	216688		260	250	4.0	15.0
Nitrobenzene	Ave	405448	417481		258	251	3.0	15.0
Nitroglycerin	Ave	192935	191632		2480	2500	-0.7	15.0
1,3-Dinitrobenzene	Ave	635564	650589		256	250	2.4	15.0
2-Nitrotoluene	Ave	261865	263777		253	251	0.7	15.0
4-Nitrotoluene	Ave	226647	226108		250	251	-0.2	15.0
4-Amino-2,6-dinitrotoluene	Ave	297375	317866		268	251	6.9	15.0
3-Nitrotoluene	Ave	292691	290012		249	251	-0.9	15.0
2-Amino-4,6-dinitrotoluene	Ave	430236	444427		259	251	3.3	15.0
1,3,5-Trinitrobenzene	Ave	457546	463396		253	250	1.3	15.0
2,6-Dinitrotoluene	Ave	293465	291545		249	251	-0.7	15.0
2,4-Dinitrotoluene	Ave	569466	579054		255	251	1.7	15.0
Tetryl	Ave	314480	333828		265	250	6.2	15.0
2,4,6-Trinitrotoluene	Ave	407281	409163		252	251	0.5	15.0
PETN	Ave	132364	148998		2810	2500	12.6	15.0
Picric acid	Ave	154920			12.0	250		
1,2-Dinitrobenzene	Ave	276856	282964		256	250	2.2	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467721/17 Calibration Date: 08/15/2019 17:44

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 15:08

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/07/2019 19:13

Lab File ID: 08150017.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	7.07	6.91	7.21
RDX	9.09	8.91	9.21
Nitrobenzene	12.13	11.99	12.29
Nitroglycerin	15.58	15.40	15.70
1,3-Dinitrobenzene	15.62	15.45	15.75
2-Nitrotoluene	16.49	16.34	16.64
4-Nitrotoluene	16.81	16.66	16.96
4-Amino-2,6-dinitrotoluene	17.12	16.95	17.25
3-Nitrotoluene	17.71	17.57	17.87
2-Amino-4,6-dinitrotoluene	18.09	17.90	18.20
1,3,5-Trinitrobenzene	18.93	18.77	19.07
2,6-Dinitrotoluene	19.78	19.63	19.93
2,4-Dinitrotoluene	20.31	20.15	20.45
Tetryl	23.58	23.41	23.71
2,4,6-Trinitrotoluene	24.66	24.50	24.80
PETN	25.08	24.90	25.20
Picric acid			
1,2-Dinitrobenzene	13.11	12.93	13.23

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150017.D
Lims ID: CCV 8330
Client ID:
Sample Type: CCV
Inject. Date: 15-Aug-2019 17:44:04 ALS Bottle#: 7 Worklist Smp#: 17
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV 8330
Misc. Info.: 280-0084482-017
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub6

Method: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 16-Aug-2019 13:24:58 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0321

First Level Reviewer: fiedlerh Date: 16-Aug-2019 11:07:47

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 2,6-diamino-4-nitrotoluene	1	4.426	4.435	-0.009	108041	0.2500	0.2738	
2 2,4-diamino-6-nitrotoluene	1	4.893	4.969	-0.076	103888	0.2500	0.4061	
5 2,4,6-Trinitrophenol	1		6.217			ND	ND	
6 HMX	1	7.073	7.055	0.018	44889	0.2500	0.2622	
8 RDX	1	9.086	9.055	0.031	54172	0.2500	0.2599	
9 Nitrobenzene	1	12.133	12.135	-0.002	104579	0.2505	0.2579	
$ 10 1,2-Dinitrobenzene	1	13.106	13.082	0.024	70741	0.2500	0.2555	
11 3,5-Dinitroaniline	1	14.946	14.908	0.038	133229	0.2500	0.2834	
13 Nitroglycerin	2	15.579	15.548	0.031	479079	2.50	2.48	
12 1,3-Dinitrobenzene	1	15.619	15.602	0.017	162810	0.2503	0.2562	
14 o-Nitrotoluene	1	16.486	16.488	-0.002	66142	0.2508	0.2526	
15 p-Nitrotoluene	1	16.806	16.808	-0.002	56753	0.2510	0.2504	
16 4-Amino-2,6-dinitrotoluene	1	17.119	17.095	0.024	79705	0.2508	0.2680	
17 m-Nitrotoluene	1	17.713	17.715	-0.002	72793	0.2510	0.2487	
18 2-Amino-4,6-dinitrotoluene	1	18.086	18.048	0.038	111440	0.2508	0.2590	
19 1,3,5-Trinitrobenzene	1	18.926	18.915	0.011	115849	0.2500	0.2532	
20 2,6-Dinitrotoluene	1	19.779	19.775	0.004	73105	0.2508	0.2491	
21 2,4-Dinitrotoluene	1	20.313	20.295	0.018	145053	0.2505	0.2547	
22 Tetryl	1	23.579	23.555	0.024	83457	0.2500	0.2654	
23 2,4,6-Trinitrotoluene	1	24.659	24.649	0.010	102700	0.2510	0.2522	
24 PETN	2	25.079	25.049	0.030	372496	2.50	2.81	

QC Flag Legend

Processing Flags
ND - Not Detected or Marked ND

Reagents:

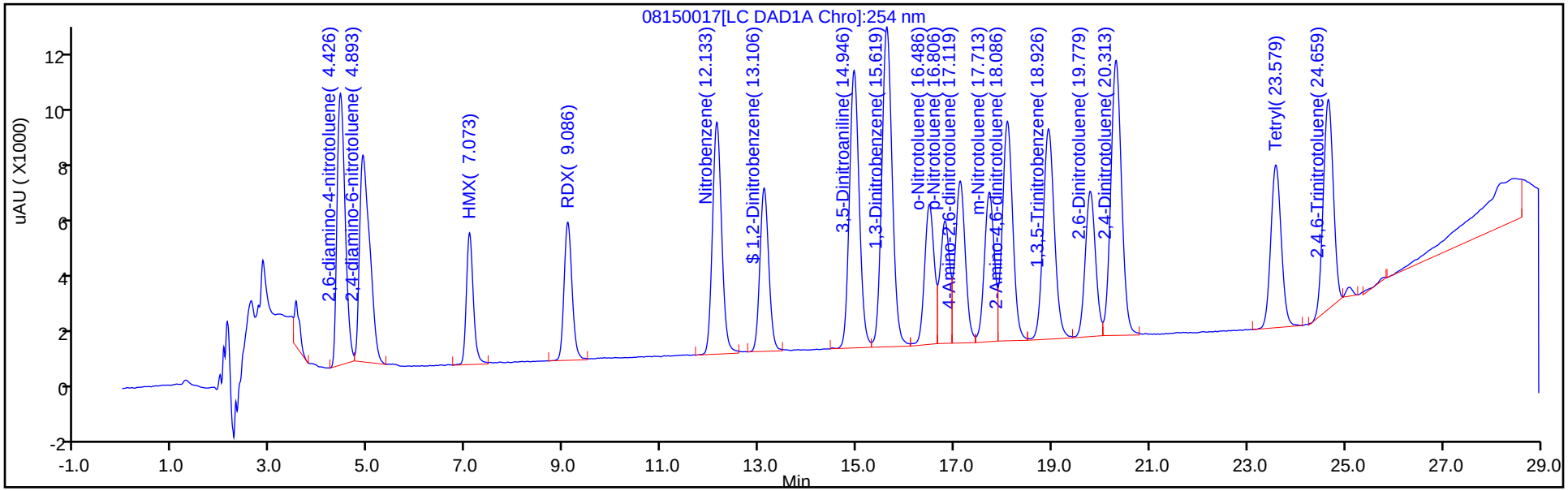
8330IntermStk_00059	Amount Added:	25.00	Units: uL
8330_ADDs_00022	Amount Added:	12.50	Units: uL

Report Date: 16-Aug-2019 13:24:58 Chrom Revision: 2.3 15-Jul-2019 06:58:08

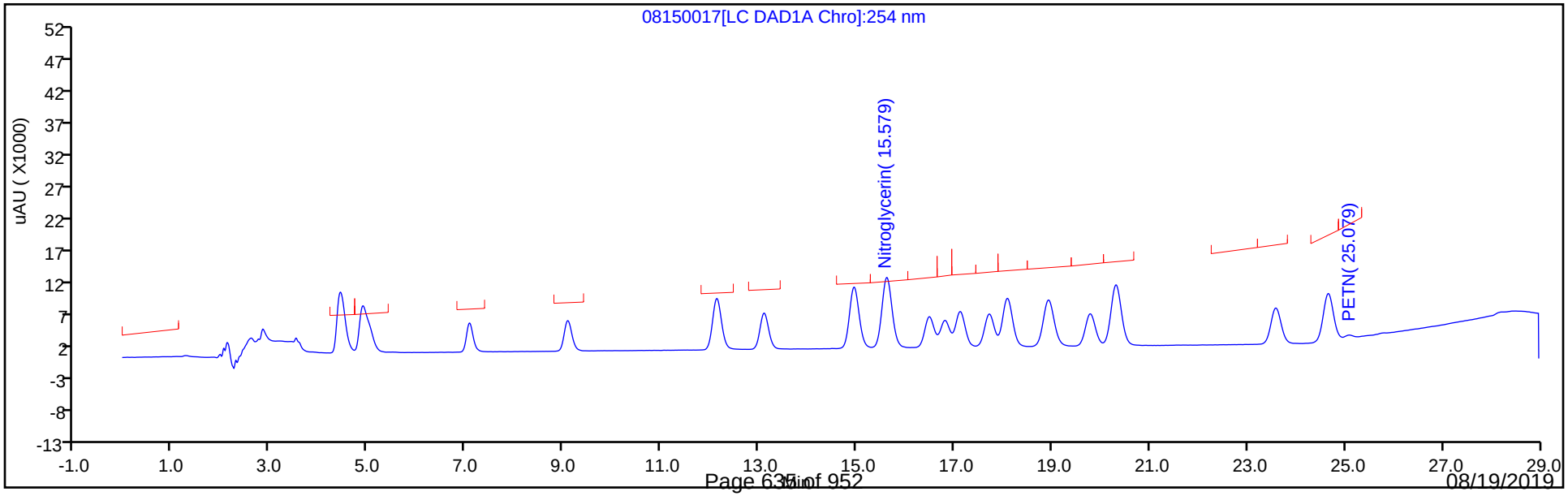
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150017.D				
Injection Date:	15-Aug-2019 17:44:04	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	CCV 8330			Worklist Smp#:	17
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467721/18 Calibration Date: 08/15/2019 18:19

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 20:23

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/08/2019 00:28

Lab File ID: 08150018.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
TNX	Ave	403427	474913		295	250	17.7*	15.0
DNX	Ave	289881	343800		297	250	18.6*	15.0
MNX	Ave	269525	319750		346	292	18.6*	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467721/18 Calibration Date: 08/15/2019 18:19

Instrument ID: CHHPLC_G2_LUNA Calib Start Date: 05/07/2019 20:23

GC Column: Luna-phenylhex ID: 4.60(mm) Calib End Date: 05/08/2019 00:28

Lab File ID: 08150018.D

Analyte	RT	RT WINDOW	
		FROM	TO
TNX	5.43	5.27	5.57
DNX	6.21	6.06	6.36
MNX	7.71	7.54	7.84

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150018.D
Lims ID: CCV DMT
Client ID:
Sample Type: CCV
Inject. Date: 15-Aug-2019 18:19:06 ALS Bottle#: 8 Worklist Smp#: 18
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV DMT
Misc. Info.: 280-0084482-018
Operator ID: HKF Instrument ID: CHHPLC_G2_LUNA
Sublist: chrom-G2_8330_Luna*sub13

Method: \\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\G2_8330_Luna.m
Limit Group: GCSV - 8330
Last Update: 16-Aug-2019 13:24:59 Calib Date: 08-May-2019 00:28:23
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\G2_LUNA\20190507-81649.b\05070023.D

Column 1 : Luna-Phenyl hexyl (4.60 mm) Det: LC DAD1A, 254 nm
Process Host: CTX0321

First Level Reviewer: fiedlerh Date: 16-Aug-2019 11:07:53

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
3 TNX	1	5.427	5.419	0.008	118847	0.2503	0.2946	
4 DNX	1	6.214	6.206	0.008	86036	0.2503	0.2968	
7 MNX	1	7.714	7.693	0.021	93287	0.2918	0.3461	

Reagents:

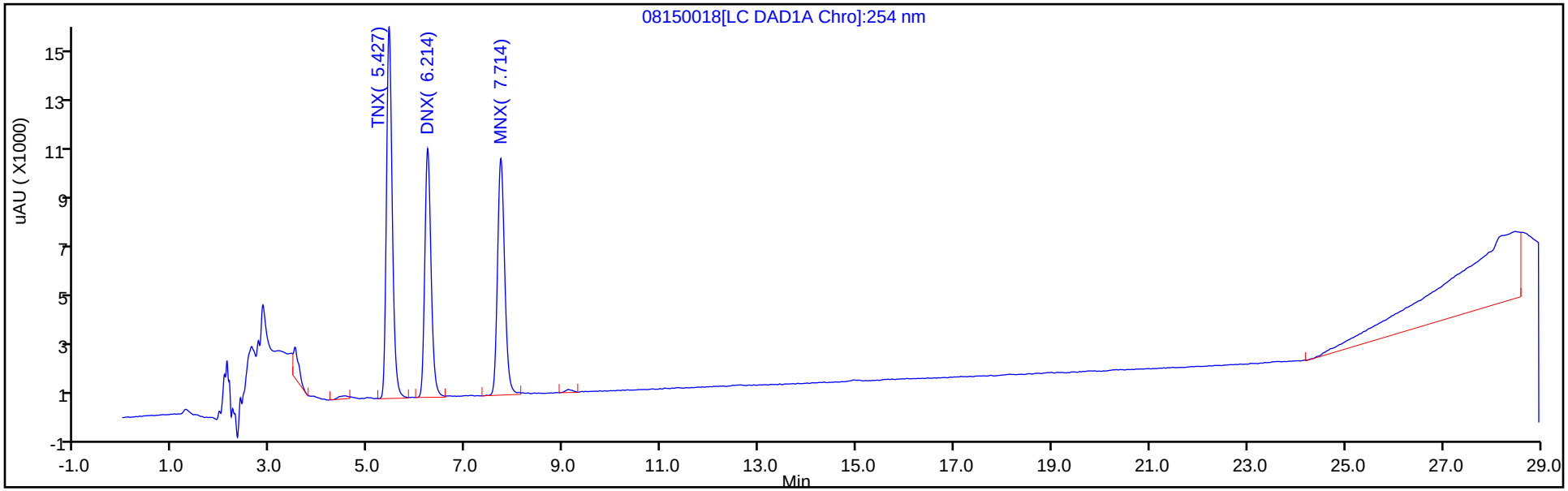
8330 DMT_00002 Amount Added: 12.50 Units: uL

Report Date: 16-Aug-2019 13:24:59 Chrom Revision: 2.3 15-Jul-2019 06:58:08

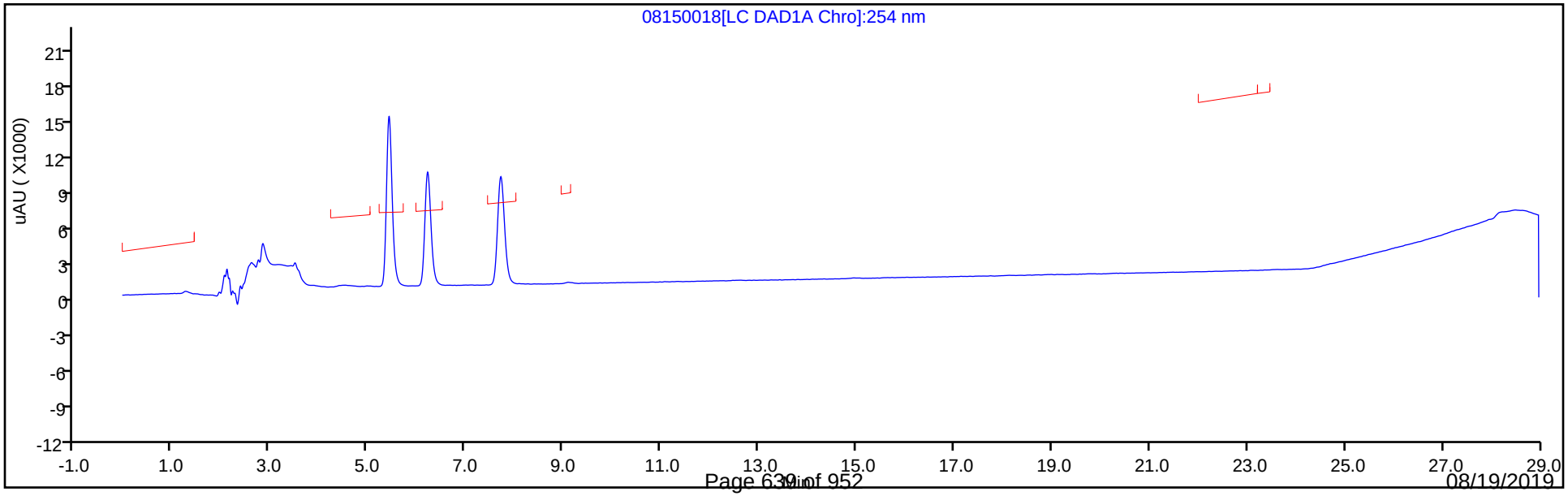
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\G2_LUNA\20190815-84482.b\08150018.D				
Injection Date:	15-Aug-2019 18:19:06	Instrument ID:	CHHPLC_G2_LUNA	Operator ID:	HKF
Lims ID:	CCV DMT			Worklist Smp#:	18
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	8
Method:	G2_8330_Luna	Limit Group:	GCSV - 8330		

Column: Luna-Phenyl hexyl (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-463276/15 Calibration Date: 07/01/2019 17:46

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 14:40

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/01/2019 17:23

Lab File ID: 07010015.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	91833	83503		364	400	-9.1	15.0
RDX	Ave	111120	100688		362	400	-9.4	15.0
Picric acid	Ave	90734	85358		376	400	-5.9	15.0
1,3,5-Trinitrobenzene	Ave	245077	234935		383	400	-4.1	15.0
1,3-Dinitrobenzene	Ave	311175	300153		386	400	-3.5	15.0
Nitrobenzene	Ave	198903	196135		394	400	-1.4	15.0
Tetryl	Ave	161957	167540		414	400	3.4	15.0
Nitroglycerin	Ave	71108	66318		3730	4000	-6.7	15.0
2,4,6-Trinitrotoluene	Ave	227277	202738		357	400	-10.8	15.0
4-Amino-2,6-dinitrotoluene	Ave	166378	148768		358	400	-10.6	15.0
2-Amino-4,6-dinitrotoluene	Ave	205236	194233		379	400	-5.4	15.0
2,6-Dinitrotoluene	Ave	159284	144348		362	400	-9.4	15.0
2,4-Dinitrotoluene	Ave	300447	282300		376	400	-6.0	15.0
2-Nitrotoluene	Ave	129784	121650		375	400	-6.3	15.0
4-Nitrotoluene	Ave	110255	105768		384	400	-4.1	15.0
3-Nitrotoluene	Ave	145122	136635		377	400	-5.8	15.0
PETN	Ave	74289	73091		3940	4000	-1.6	15.0
1,2-Dinitrobenzene	Ave	139328	123173		354	400	-11.6	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-463276/15 Calibration Date: 07/01/2019 17:46

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 14:40

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/01/2019 17:23

Lab File ID: 07010015.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	6.64	6.49	6.79
RDX	7.76	7.61	7.91
Picric acid	8.18	8.03	8.33
1,3,5-Trinitrobenzene	8.90	8.75	9.05
1,3-Dinitrobenzene	9.56	9.41	9.71
Nitrobenzene	9.94	9.79	10.09
Tetryl	10.27	10.12	10.42
Nitroglycerin	10.77	10.62	10.92
2,4,6-Trinitrotoluene	11.22	11.12	11.32
4-Amino-2,6-dinitrotoluene	11.42	11.32	11.52
2-Amino-4,6-dinitrotoluene	11.70	11.60	11.80
2,6-Dinitrotoluene	11.84	11.74	11.94
2,4-Dinitrotoluene	12.04	11.94	12.14
2-Nitrotoluene	12.88	12.73	13.03
4-Nitrotoluene	13.32	13.17	13.47
3-Nitrotoluene	13.92	13.77	14.07
PETN	15.01	14.86	15.16
1,2-Dinitrobenzene	8.74	8.59	8.89

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010015.D
Lims ID: ICV MAIN
Client ID:
Sample Type: ICV
Inject. Date: 01-Jul-2019 17:46:34 ALS Bottle#: 15 Worklist Smp#: 15
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: ICV MAIN
Misc. Info.: 280-0083376-015
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist:

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:34:59 Calib Date: 01-Jul-2019 17:23:38
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010014.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 01-Jul-2019 18:32:41

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.643	6.643	0.000	33401	0.4000	0.3637	M
7 RDX	1	7.757	7.757	0.000	40275	0.4000	0.3624	
8 2,4,6-Trinitrophenol	1	8.177	8.177	0.000	34143	0.4000	0.3763	
$ 9 1,2-Dinitrobenzene	1	8.737	8.737	0.000	49269	0.4000	0.3536	
10 1,3,5-Trinitrobenzene	1	8.897	8.897	0.000	93974	0.4000	0.3834	
11 1,3-Dinitrobenzene	1	9.557	9.557	0.000	120061	0.4000	0.3858	
12 Nitrobenzene	1	9.943	9.943	0.000	78454	0.4000	0.3944	
14 Tetryl	1	10.270	10.270	0.000	67016	0.4000	0.4138	
15 Nitroglycerin	2	10.770	10.770	0.000	265271	4.00	3.73	
16 2,4,6-Trinitrotoluene	1	11.223	11.223	0.000	81095	0.4000	0.3568	
17 4-Amino-2,6-dinitrotoluene	1	11.417	11.417	0.000	59507	0.4000	0.3577	
18 2-Amino-4,6-dinitrotoluene	1	11.703	11.703	0.000	77693	0.4000	0.3786	
19 2,6-Dinitrotoluene	1	11.837	11.837	0.000	57739	0.4000	0.3625	
20 2,4-Dinitrotoluene	1	12.037	12.037	0.000	112920	0.4000	0.3758	
21 o-Nitrotoluene	1	12.877	12.877	0.000	48660	0.4000	0.3749	
22 p-Nitrotoluene	1	13.317	13.317	0.000	42307	0.4000	0.3837	
23 m-Nitrotoluene	1	13.917	13.917	0.000	54654	0.4000	0.3766	
24 PETN	2	15.010	15.010	0.000	292363	4.00	3.94	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330Surrogate_00103 Amount Added: 40.00 Units: uL
8330 LCS_00089 Amount Added: 40.00 Units: uL

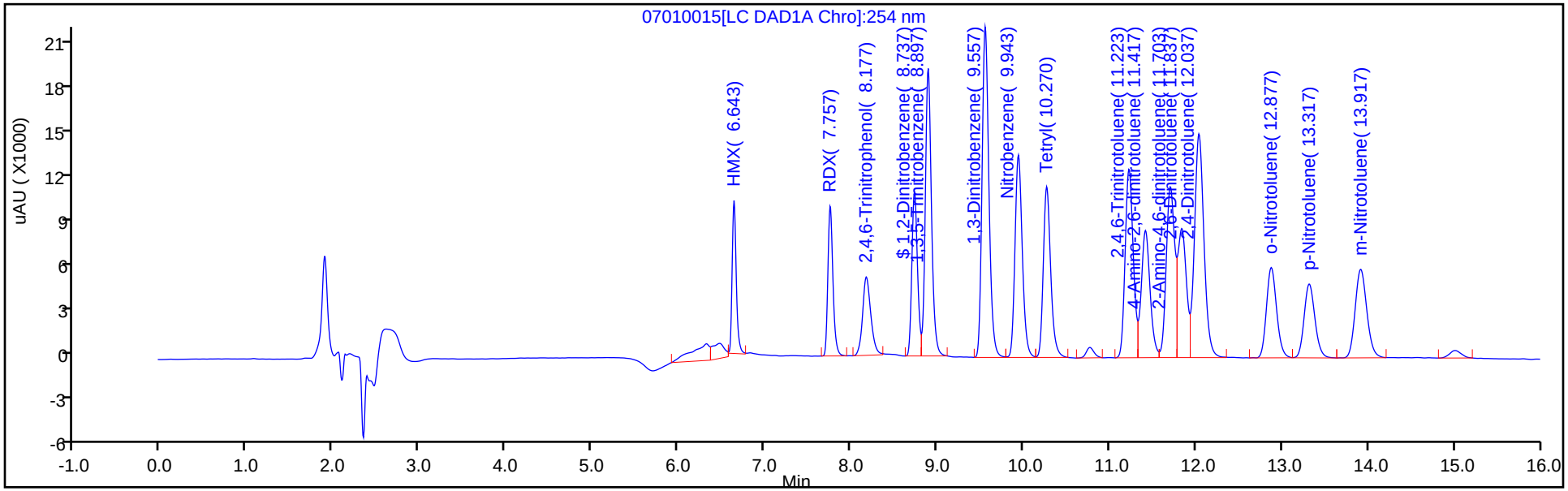
Report Date: 02-Jul-2019 11:34:59 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

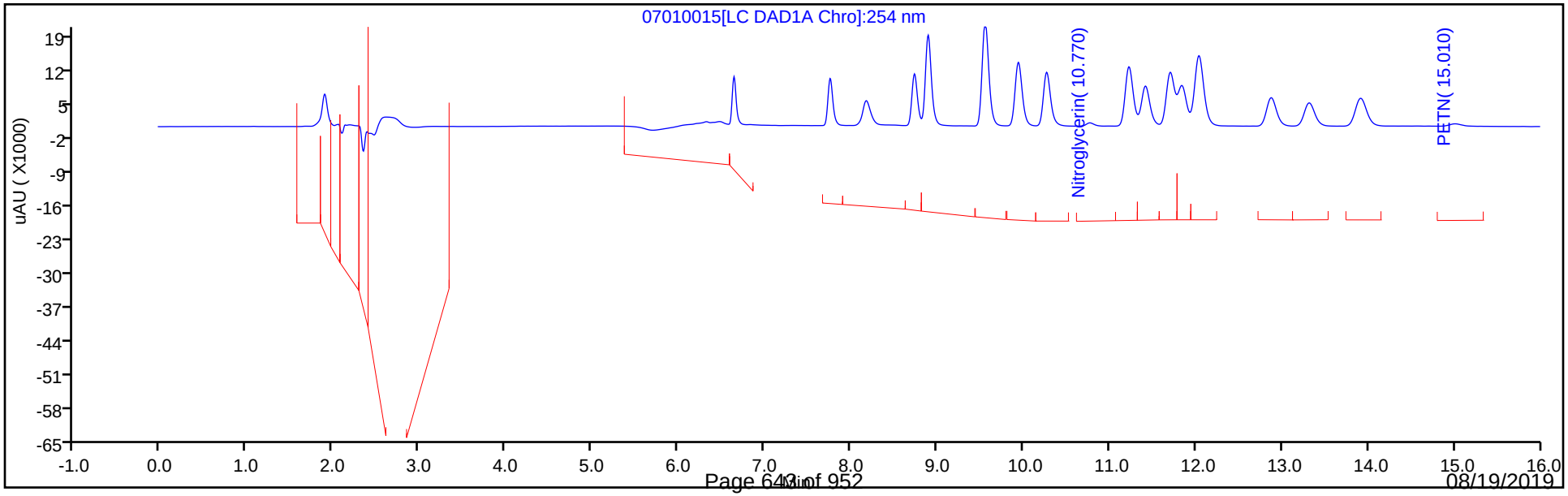
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010015.D

Injection Date:	01-Jul-2019 17:46:34	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	ICV MAIN			Worklist Smp#:	15
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	15
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

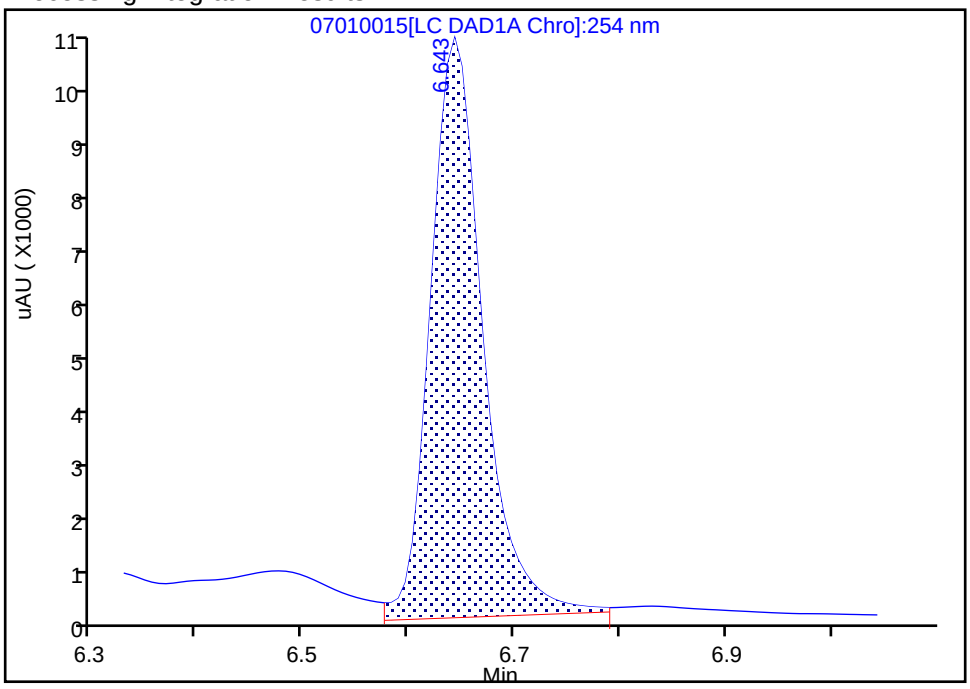
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010015.D				
Injection Date:	01-Jul-2019 17:46:34	Instrument ID:	CHHPLC_X3		
Lims ID:	ICV MAIN				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	15	Worklist Smp#:	15
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

3 HMX, CAS: 2691-41-0

Signal: 1

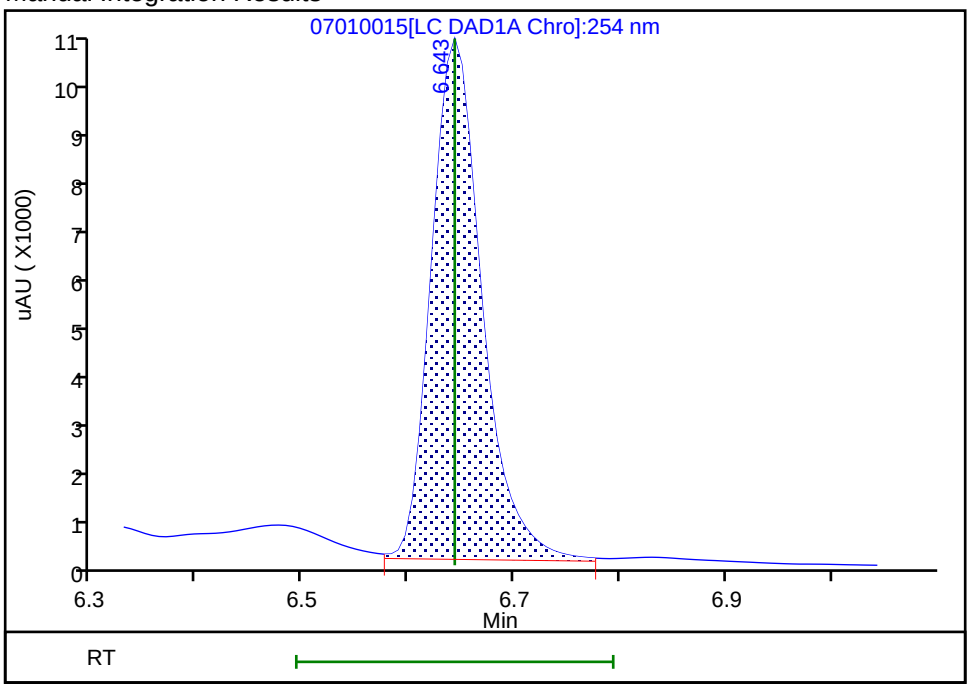
Processing Integration Results

RT: 6.64
Area: 35035
Amount: 0.381507
Amount Units: ug/mL



Manual Integration Results

RT: 6.64
Area: 33401
Amount: 0.363714
Amount Units: ug/mL



Reviewer: fiedlerh, 01-Jul-2019 18:32:36
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-463276/33 Calibration Date: 07/02/2019 00:41

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 21:36

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/02/2019 00:18

Lab File ID: 07010033.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
TNX	Ave	214964	214136		399	400	-0.4	15.0
DNX	Ave	156126	152123		390	400	-2.6	15.0
MNX	Ave	140041	139925		466	467	-0.0	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICV 280-463276/33 Calibration Date: 07/02/2019 00:41

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 21:36

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/02/2019 00:18

Lab File ID: 07010033.D

Analyte	RT	RT WINDOW	
		FROM	TO
TNX	6.55	6.45	6.65
DNX	6.88	6.78	6.98
MNX	7.35	7.19	7.49

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010033.D
Lims ID: ICV DMT
Client ID:
Sample Type: ICV
Inject. Date: 02-Jul-2019 00:41:04 ALS Bottle#: 33 Worklist Smp#: 33
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: ICV DMT
Misc. Info.: 280-0083376-033
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist:

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 02-Jul-2019 11:35:30 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0309

First Level Reviewer: fiedlerh Date: 02-Jul-2019 09:05:47

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.547	6.550	-0.003	85740	0.4004	0.3989	M
5 DNX	1	6.881	6.883	-0.002	60910	0.4004	0.3901	M
6 MNX	1	7.347	7.343	0.004	65317	0.4668	0.4664	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330_OP_DMT_00002 Amount Added: 40.00 Units: uL

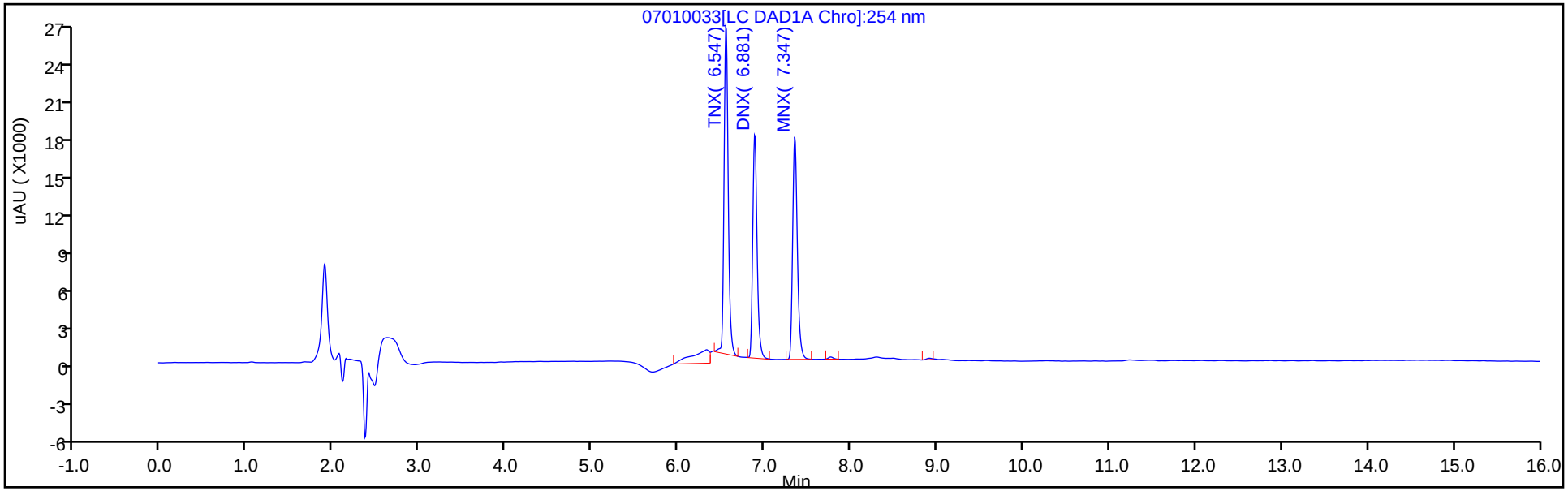
Report Date: 02-Jul-2019 11:35:32 Chrom Revision: 2.3 20-Jun-2019 20:50:56

Eurofins TestAmerica, Denver

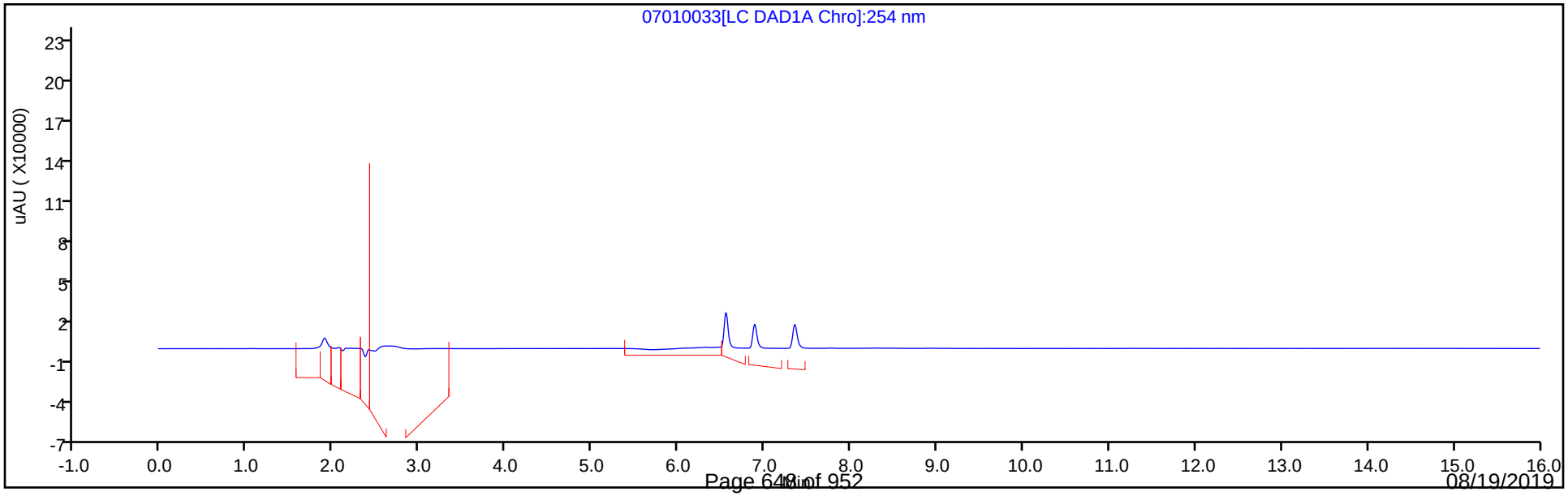
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010033.D

Injection Date:	02-Jul-2019 00:41:04	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	ICV DMT			Worklist Smp#:	33
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	33
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

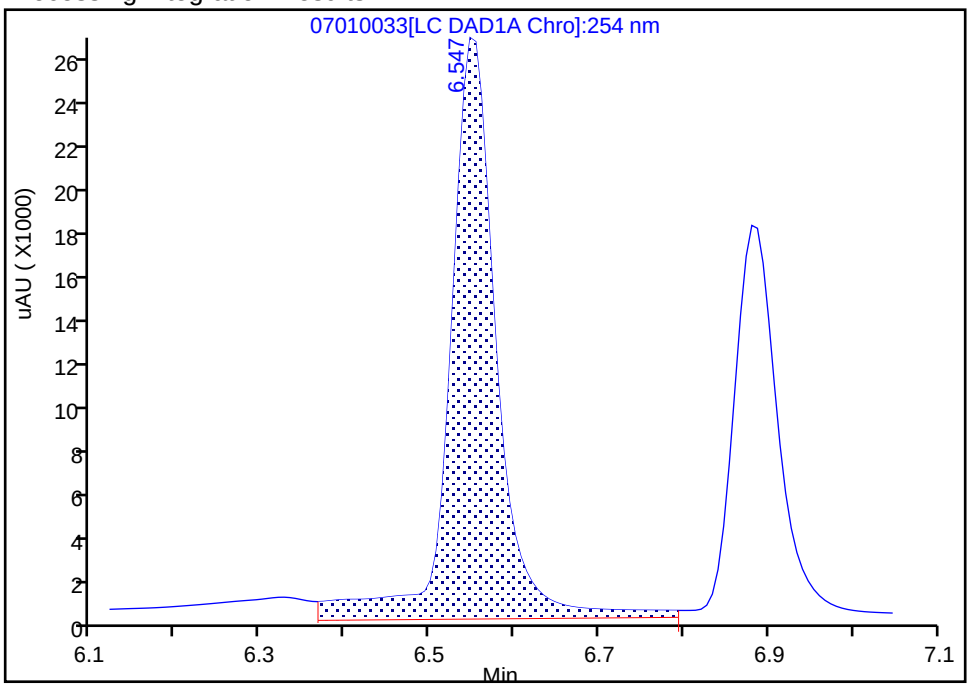
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010033.D				
Injection Date:	02-Jul-2019 00:41:04	Instrument ID:	CHHPLC_X3		
Lims ID:	ICV DMT				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	33	Worklist Smp#:	33
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

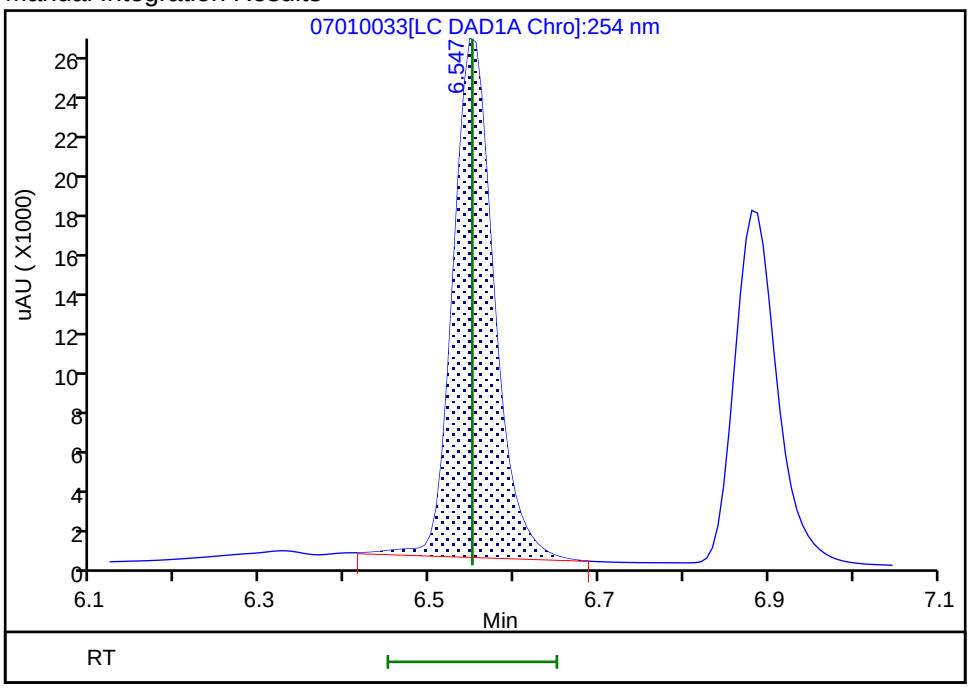
Processing Integration Results

RT: 6.55
Area: 101055
Amount: 0.470102
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 85740
Amount: 0.398857
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:05:27
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

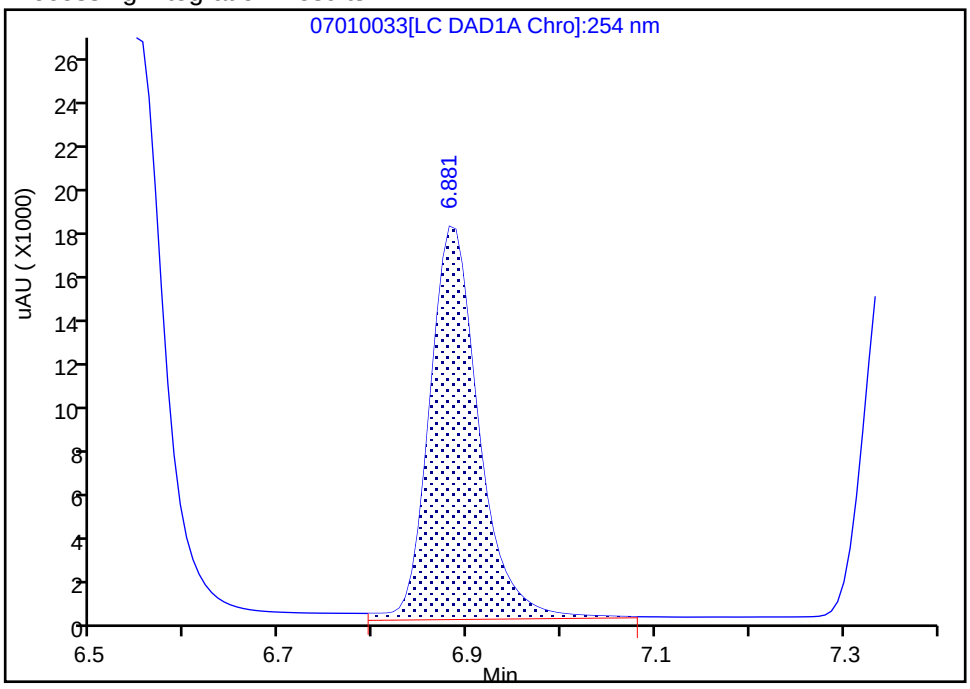
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010033.D				
Injection Date:	02-Jul-2019 00:41:04	Instrument ID:	CHHPLC_X3		
Lims ID:	ICV DMT				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	33	Worklist Smp#:	33
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

5 DNX, CAS: 80251-29-2

Signal: 1

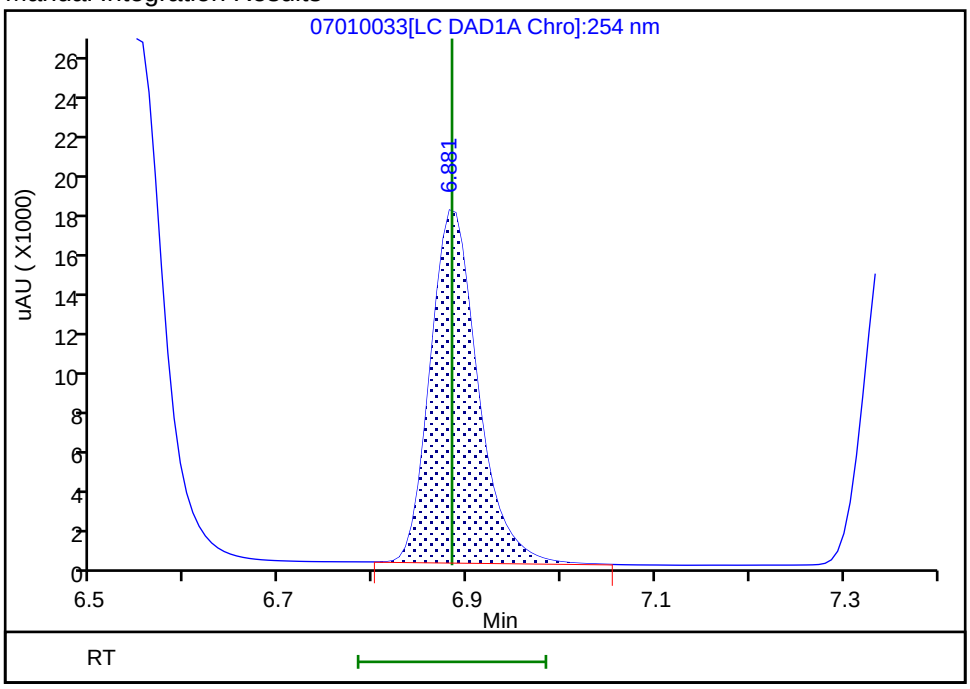
Processing Integration Results

RT: 6.88
Area: 63769
Amount: 0.408446
Amount Units: ug/mL



Manual Integration Results

RT: 6.88
Area: 60910
Amount: 0.390134
Amount Units: ug/mL



Reviewer: fiedlerh, 02-Jul-2019 09:05:30
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/38 Calibration Date: 08/12/2019 23:52

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 14:40

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/01/2019 17:23

Lab File ID: 08120038.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	91833	92144		251	250	0.3	15.0
RDX	Ave	111120	107060		241	250	-3.7	15.0
Picric acid	Ave	90734	84108		232	250	-7.3	15.0
1,3,5-Trinitrobenzene	Ave	245077	253956		259	250	3.6	15.0
1,3-Dinitrobenzene	Ave	311175	309722		249	250	-0.5	15.0
Nitrobenzene	Ave	198903	198491		250	251	-0.2	15.0
Tetryl	Ave	161957	170080		263	250	5.0	15.0
Nitroglycerin	Ave	71108	71296		2510	2500	0.3	15.0
2,4,6-Trinitrotoluene	Ave	227277	225414		249	251	-0.8	15.0
4-Amino-2,6-dinitrotoluene	Ave	166378	162931		246	251	-2.1	15.0
2-Amino-4,6-dinitrotoluene	Ave	205236	197918		242	251	-3.6	15.0
2,6-Dinitrotoluene	Ave	159284	162285		255	251	1.9	15.0
2,4-Dinitrotoluene	Ave	300447	297764		248	251	-0.9	15.0
2-Nitrotoluene	Ave	129784	129109		249	251	-0.5	15.0
4-Nitrotoluene	Ave	110255	112271		256	251	1.8	15.0
3-Nitrotoluene	Ave	145122	145060		251	251	-0.0	15.0
PETN	Ave	74289	76684		2580	2500	3.2	15.0
1,2-Dinitrobenzene	Ave	139328	137784		247	250	-1.1	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/38 Calibration Date: 08/12/2019 23:52

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 14:40

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/01/2019 17:23

Lab File ID: 08120038.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	6.68	6.53	6.83
RDX	7.76	7.61	7.91
Picric acid	8.12	7.95	8.25
1,3,5-Trinitrobenzene	8.89	8.73	9.03
1,3-Dinitrobenzene	9.55	9.38	9.68
Nitrobenzene	9.94	9.76	10.06
Tetryl	10.26	10.07	10.37
Nitroglycerin	10.76	10.58	10.88
2,4,6-Trinitrotoluene	11.22	11.09	11.29
4-Amino-2,6-dinitrotoluene	11.42	11.27	11.47
2-Amino-4,6-dinitrotoluene	11.71	11.56	11.76
2,6-Dinitrotoluene	11.84	11.70	11.90
2,4-Dinitrotoluene	12.04	11.90	12.10
2-Nitrotoluene	12.89	12.68	12.98
4-Nitrotoluene	13.34	13.12	13.42
3-Nitrotoluene	13.94	13.72	14.02
PETN	15.05	14.81	15.11
1,2-Dinitrobenzene	8.72	8.56	8.86

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120038.D
Lims ID: CCV INT
Client ID:
Sample Type: CCV
Inject. Date: 12-Aug-2019 23:52:58 ALS Bottle#: 7 Worklist Smp#: 38
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV INT
Misc. Info.: 280-0084372-038
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:51 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:19:45

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
	3 HMX	1	6.684	6.677	0.007	23036	0.2500	0.2508	M
	7 RDX	1	7.764	7.757	0.007	26765	0.2500	0.2409	
	8 2,4,6-Trinitrophenol	1	8.124	8.097	0.027	21027	0.2500	0.2317	
$	9 1,2-Dinitrobenzene	1	8.724	8.710	0.014	34446	0.2500	0.2472	
	10 1,3,5-Trinitrobenzene	1	8.890	8.877	0.013	63489	0.2500	0.2591	
	11 1,3-Dinitrobenzene	1	9.550	9.530	0.020	77508	0.2503	0.2491	
	12 Nitrobenzene	1	9.937	9.910	0.027	49722	0.2505	0.2500	
	14 Tetryl	1	10.257	10.224	0.033	42520	0.2500	0.2625	
	15 Nitroglycerin	2	10.763	10.730	0.033	178240	2.50	2.51	
	16 2,4,6-Trinitrotoluene	1	11.223	11.190	0.033	56579	0.2510	0.2489	
	17 4-Amino-2,6-dinitrotoluene	1	11.417	11.370	0.047	40855	0.2508	0.2456	
	18 2-Amino-4,6-dinitrotoluene	1	11.710	11.657	0.053	49628	0.2508	0.2418	
	19 2,6-Dinitrotoluene	1	11.843	11.797	0.046	40693	0.2508	0.2555	
	20 2,4-Dinitrotoluene	1	12.043	11.997	0.046	74590	0.2505	0.2483	
	21 o-Nitrotoluene	1	12.890	12.830	0.060	32374	0.2508	0.2494	
	22 p-Nitrotoluene	1	13.337	13.270	0.067	28180	0.2510	0.2556	
	23 m-Nitrotoluene	1	13.937	13.870	0.067	36410	0.2510	0.2509	
	24 PETN	2	15.050	14.964	0.086	191710	2.50	2.58	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

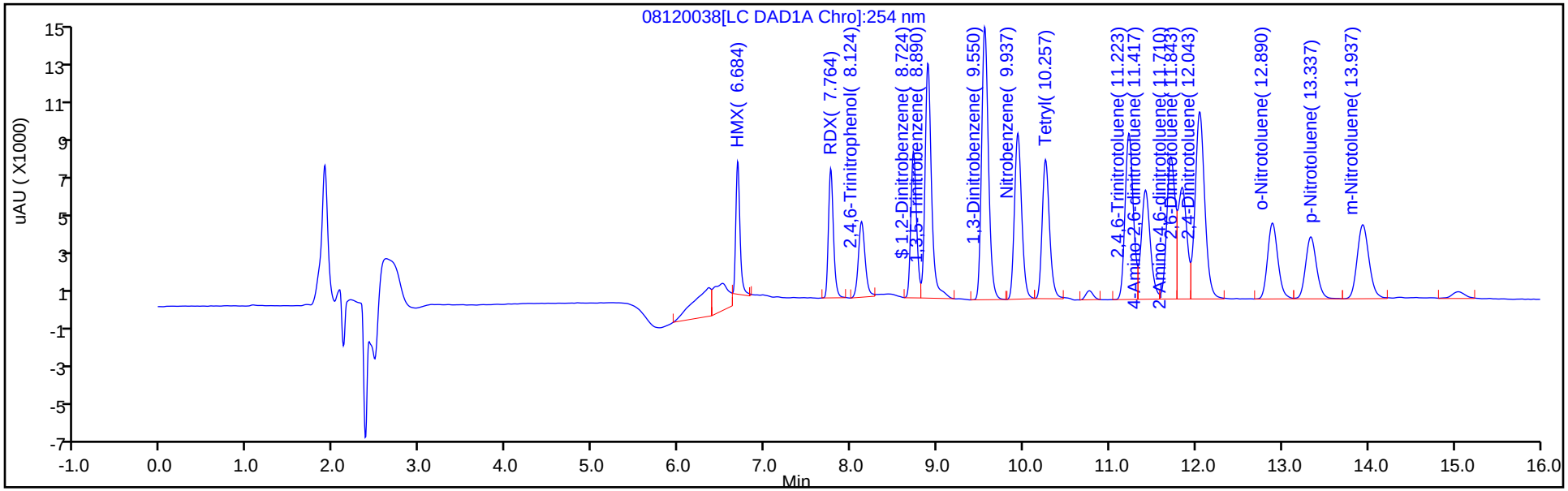
8330IntermStk_00059 Amount Added: 25.00 Units: uL

Report Date: 13-Aug-2019 14:09:51 Chrom Revision: 2.3 15-Jul-2019 06:58:08

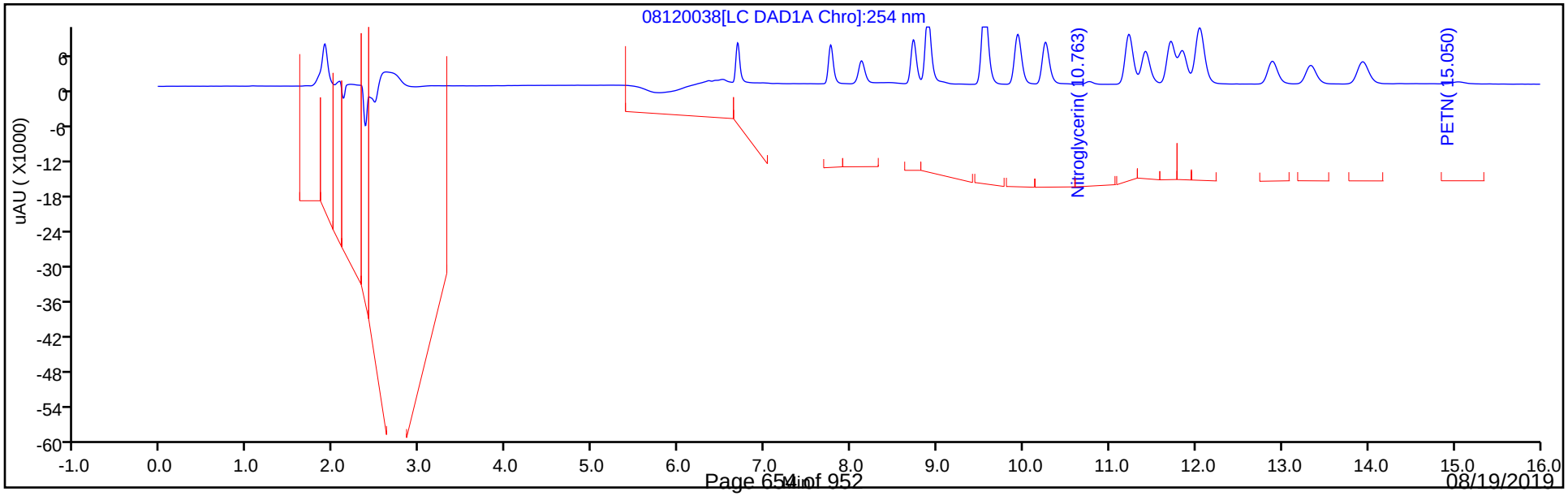
Eurofins TestAmerica, Denver

Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120038.D				
Injection Date:	12-Aug-2019 23:52:58	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	CCV INT			Worklist Smp#:	38
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

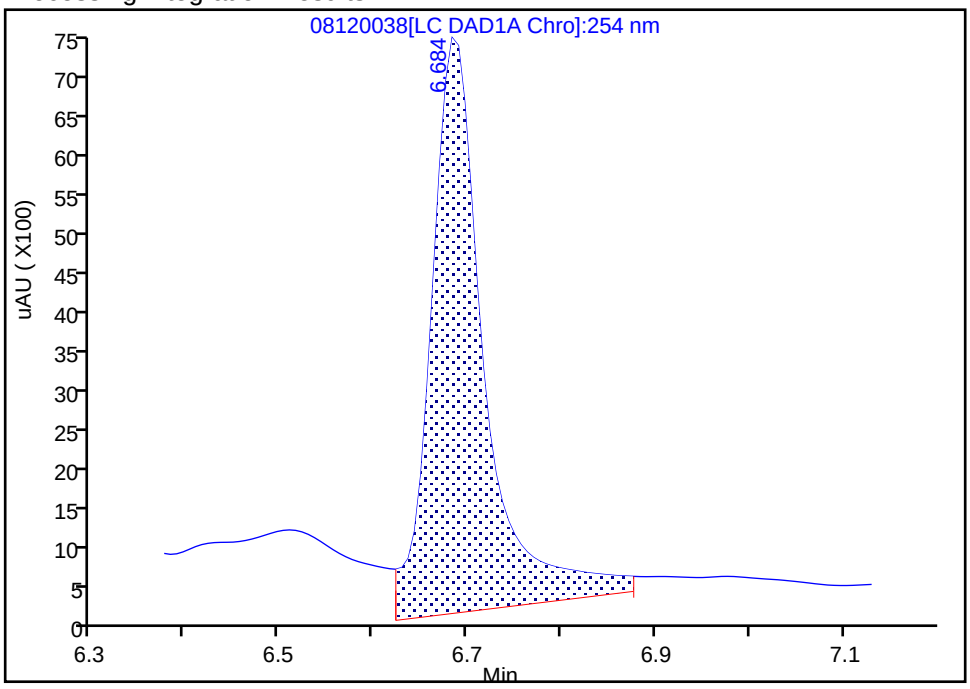
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120038.D
Injection Date: 12-Aug-2019 23:52:58 Instrument ID: CHHPLC_X3
Lims ID: CCV INT
Client ID:
Operator ID: hkf ALS Bottle#: 7 Worklist Smp#: 38
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330
Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

3 HMX, CAS: 2691-41-0

Signal: 1

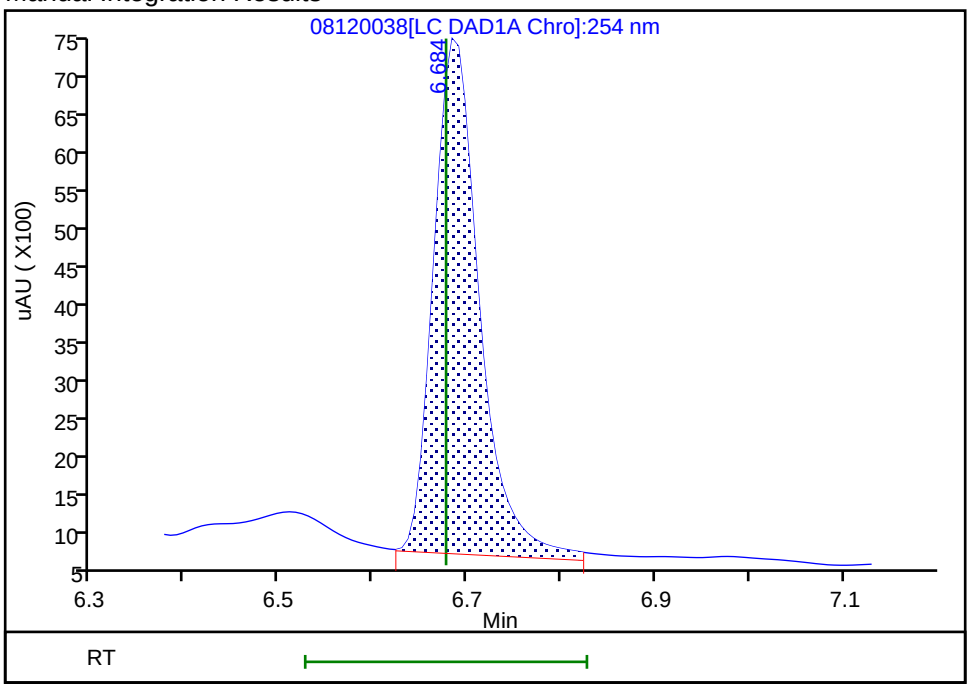
Processing Integration Results

RT: 6.68
Area: 28914
Amount: 0.314853
Amount Units: ug/mL



Manual Integration Results

RT: 6.68
Area: 23036
Amount: 0.250846
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 13:19:43
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/40 Calibration Date: 08/13/2019 00:38

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 21:36

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/02/2019 00:18

Lab File ID: 08120040.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
TNX	Ave	214964	198314		231	250	-7.7	15.0
DNX	Ave	156126	152615		245	250	-2.2	15.0
MNX	Ave	140041	140243		292	292	0.1	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/40 Calibration Date: 08/13/2019 00:38

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 21:36

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/02/2019 00:18

Lab File ID: 08120040.D

Analyte	RT	RT WINDOW	
		FROM	TO
TNX	6.59	6.49	6.69
DNX	6.91	6.81	7.01
MNX	7.36	7.22	7.52

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120040.D
Lims ID: CCV DMT
Client ID:
Sample Type: CCV
Inject. Date: 13-Aug-2019 00:38:50 ALS Bottle#: 40 Worklist Smp#: 40
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV DMT
Misc. Info.: 280-0084372-040
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub17

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:48 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:20:16

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.589	6.587	0.002	49628	0.2503	0.2309	M
5 DNX	1	6.909	6.907	0.002	38192	0.2503	0.2446	
6 MNX	1	7.362	7.367	-0.005	40916	0.2918	0.2922	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 12.50 Units: uL

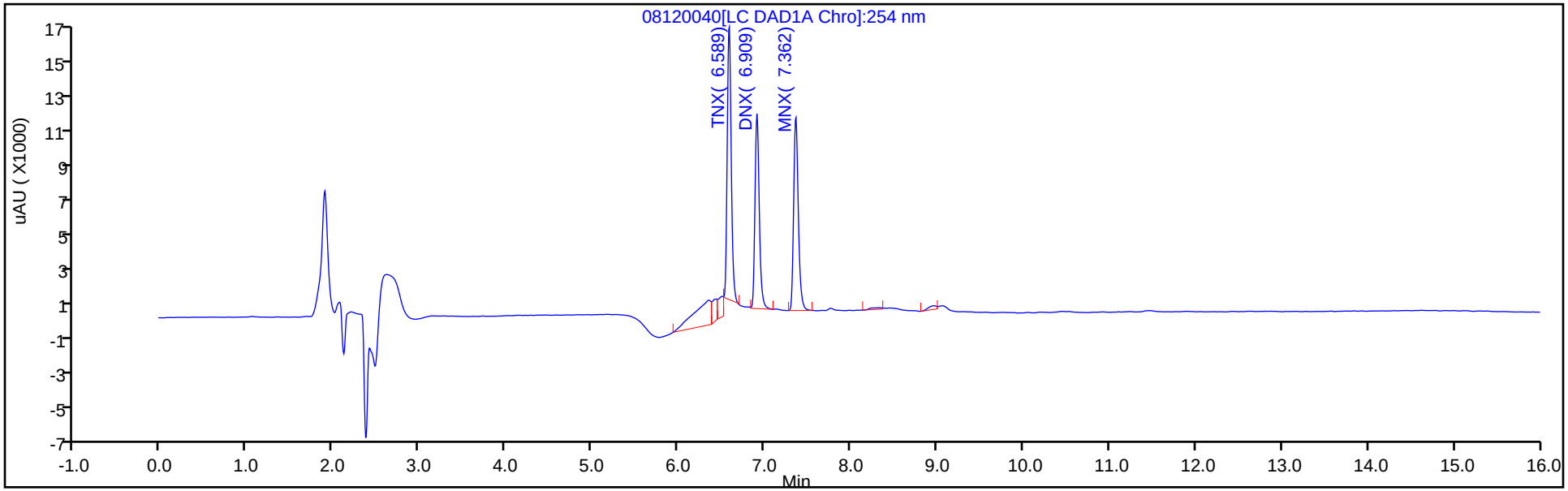
Report Date: 13-Aug-2019 14:09:49 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

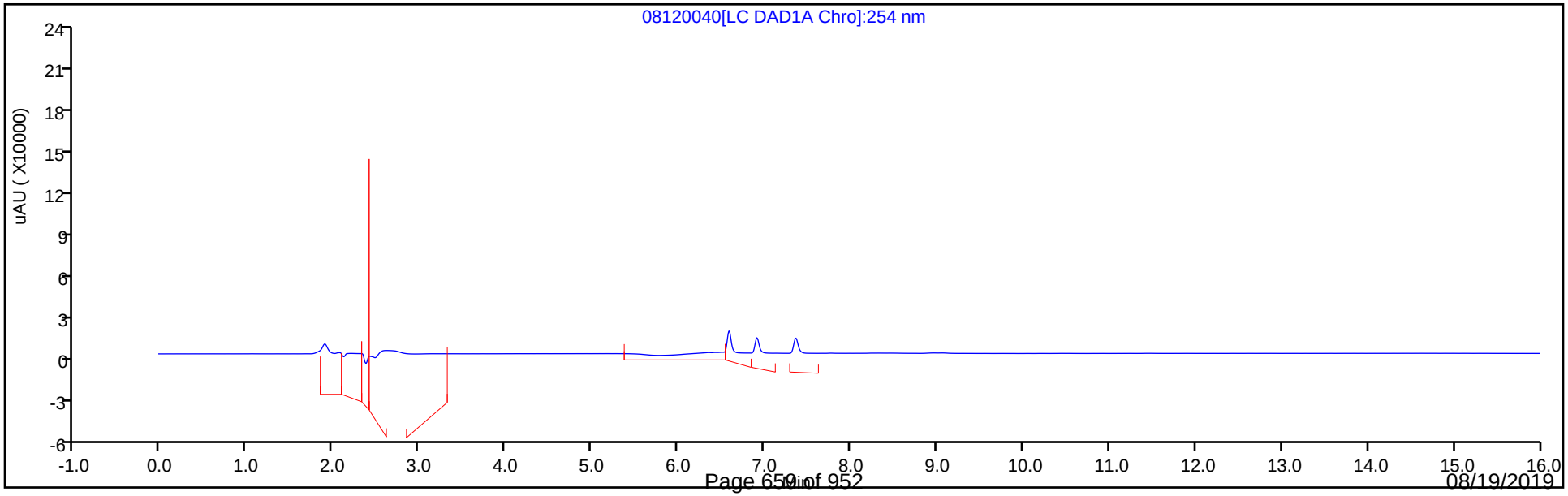
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120040.D

Injection Date:	13-Aug-2019 00:38:50	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	CCV DMT			Worklist Smp#:	40
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	40
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

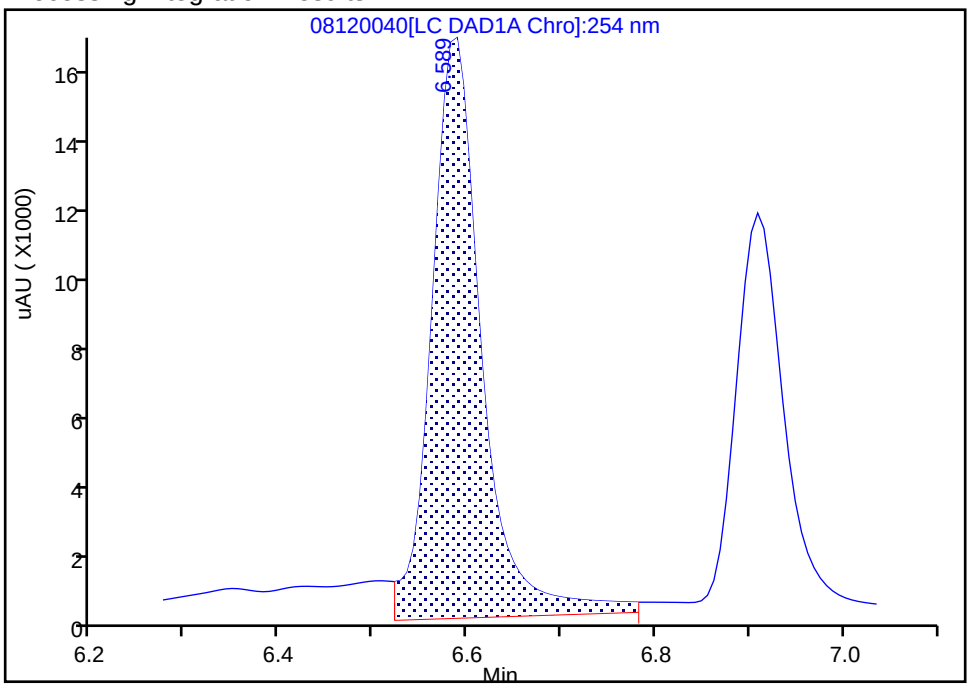
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120040.D				
Injection Date:	13-Aug-2019 00:38:50	Instrument ID:	CHHPLC_X3		
Lims ID:	CCV DMT				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	40	Worklist Smp#:	40
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

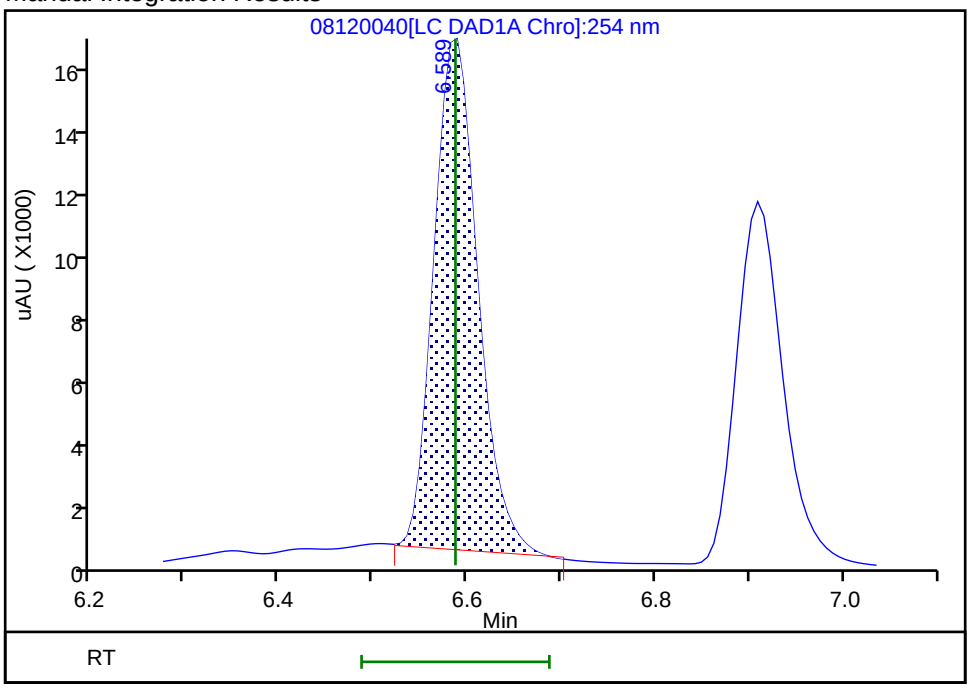
Processing Integration Results

RT: 6.59
Area: 59925
Amount: 0.278768
Amount Units: ug/mL



Manual Integration Results

RT: 6.59
Area: 49628
Amount: 0.230866
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 13:20:13
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/51 Calibration Date: 08/13/2019 04:51

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 14:40

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/01/2019 17:23

Lab File ID: 08120051.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	91833	89696		244	250	-2.3	15.0
RDX	Ave	111120	106640		240	250	-4.0	15.0
Picric acid	Ave	90734	84908		234	250	-6.4	15.0
1,3,5-Trinitrobenzene	Ave	245077	254712		260	250	3.9	15.0
1,3-Dinitrobenzene	Ave	311175	308991		248	250	-0.7	15.0
Nitrobenzene	Ave	198903	195629		246	251	-1.6	15.0
Tetryl	Ave	161957	170648		263	250	5.4	15.0
Nitroglycerin	Ave	71108	71256		2510	2500	0.2	15.0
2,4,6-Trinitrotoluene	Ave	227277	226558		250	251	-0.3	15.0
4-Amino-2,6-dinitrotoluene	Ave	166378	162425		245	251	-2.4	15.0
2-Amino-4,6-dinitrotoluene	Ave	205236	202935		248	251	-1.1	15.0
2,6-Dinitrotoluene	Ave	159284	156865		247	251	-1.5	15.0
2,4-Dinitrotoluene	Ave	300447	299134		249	251	-0.4	15.0
2-Nitrotoluene	Ave	129784	127848		247	251	-1.5	15.0
4-Nitrotoluene	Ave	110255	111012		253	251	0.7	15.0
3-Nitrotoluene	Ave	145122	144044		249	251	-0.7	15.0
PETN	Ave	74289	76841		2590	2500	3.4	15.0
1,2-Dinitrobenzene	Ave	139328	139176		250	250	-0.1	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/51 Calibration Date: 08/13/2019 04:51

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 14:40

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/01/2019 17:23

Lab File ID: 08120051.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	6.68	6.53	6.83
RDX	7.77	7.61	7.91
Picric acid	8.13	7.95	8.25
1,3,5-Trinitrobenzene	8.89	8.73	9.03
1,3-Dinitrobenzene	9.55	9.38	9.68
Nitrobenzene	9.94	9.76	10.06
Tetryl	10.27	10.07	10.37
Nitroglycerin	10.77	10.58	10.88
2,4,6-Trinitrotoluene	11.23	11.09	11.29
4-Amino-2,6-dinitrotoluene	11.43	11.27	11.47
2-Amino-4,6-dinitrotoluene	11.73	11.56	11.76
2,6-Dinitrotoluene	11.85	11.70	11.90
2,4-Dinitrotoluene	12.06	11.90	12.10
2-Nitrotoluene	12.91	12.68	12.98
4-Nitrotoluene	13.35	13.12	13.42
3-Nitrotoluene	13.95	13.72	14.02
PETN	15.06	14.81	15.11
1,2-Dinitrobenzene	8.73	8.56	8.86

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120051.D
Lims ID: CCV INT
Client ID:
Sample Type: CCV
Inject. Date: 13-Aug-2019 04:51:27 ALS Bottle#: 7 Worklist Smp#: 51
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV INT
Misc. Info.: 280-0084372-051
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:24:11

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.680	6.677	0.003	22424	0.2500	0.2442	M
7 RDX	1	7.766	7.757	0.009	26660	0.2500	0.2399	
8 2,4,6-Trinitrophenol	1	8.126	8.097	0.029	21227	0.2500	0.2339	
$ 9 1,2-Dinitrobenzene	1	8.726	8.710	0.016	34794	0.2500	0.2497	
10 1,3,5-Trinitrobenzene	1	8.893	8.877	0.016	63678	0.2500	0.2598	
11 1,3-Dinitrobenzene	1	9.553	9.530	0.023	77325	0.2503	0.2485	
12 Nitrobenzene	1	9.939	9.910	0.029	49005	0.2505	0.2464	
14 Tetryl	1	10.266	10.224	0.042	42662	0.2500	0.2634	
15 Nitroglycerin	2	10.773	10.730	0.043	178139	2.50	2.51	
16 2,4,6-Trinitrotoluene	1	11.233	11.190	0.043	56866	0.2510	0.2502	
17 4-Amino-2,6-dinitrotoluene	1	11.426	11.370	0.056	40728	0.2508	0.2448	
18 2-Amino-4,6-dinitrotoluene	1	11.726	11.657	0.069	50886	0.2508	0.2479	
19 2,6-Dinitrotoluene	1	11.853	11.797	0.056	39334	0.2508	0.2469	
20 2,4-Dinitrotoluene	1	12.059	11.997	0.062	74933	0.2505	0.2494	
21 o-Nitrotoluene	1	12.906	12.830	0.076	32058	0.2508	0.2470	
22 p-Nitrotoluene	1	13.346	13.270	0.076	27864	0.2510	0.2527	
23 m-Nitrotoluene	1	13.953	13.870	0.083	36155	0.2510	0.2491	
24 PETN	2	15.059	14.964	0.095	192102	2.50	2.59	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00059 Amount Added: 25.00 Units: uL

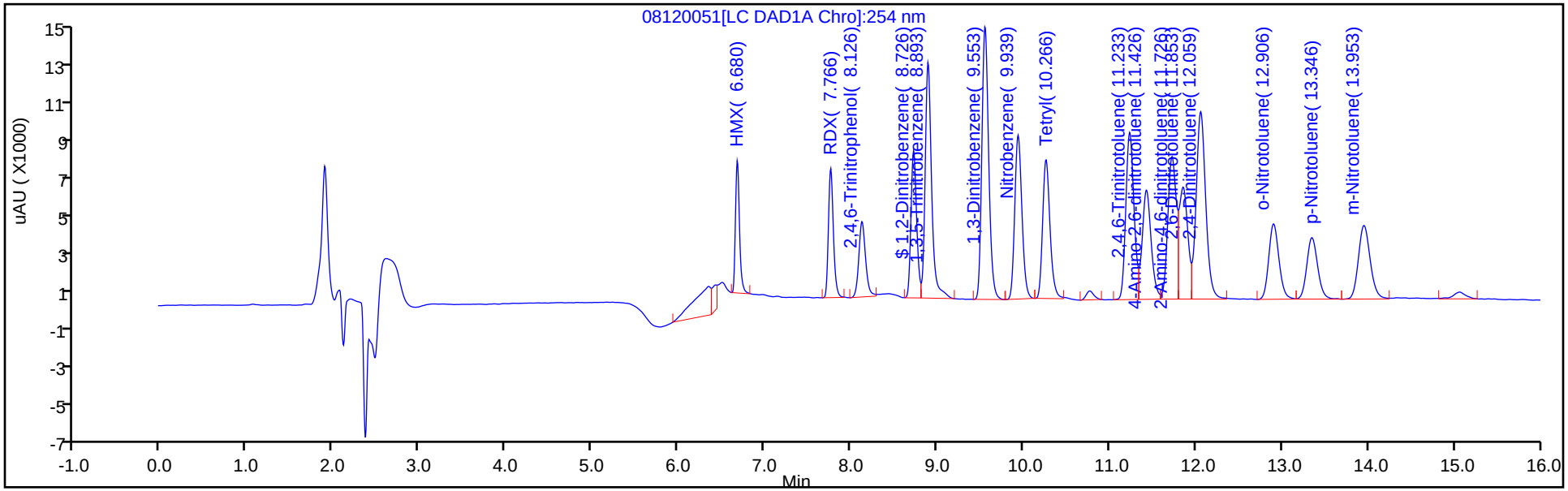
Report Date: 13-Aug-2019 14:09:37 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

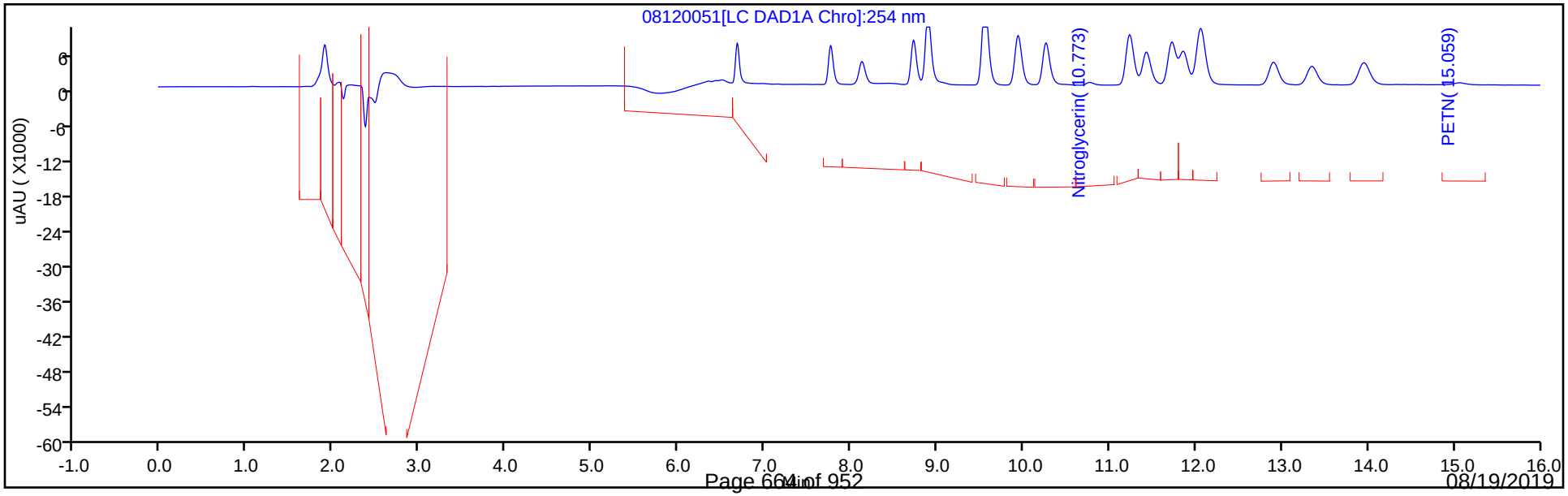
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120051.D

Injection Date:	13-Aug-2019 04:51:27	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	CCV INT			Worklist Smp#:	51
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

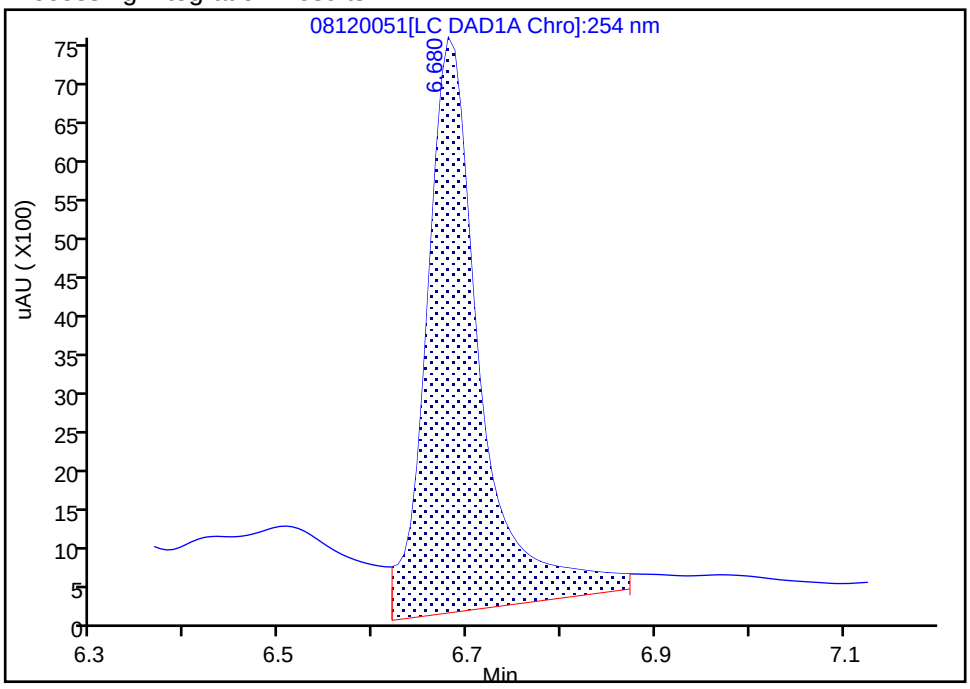
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120051.D				
Injection Date:	13-Aug-2019 04:51:27	Instrument ID:	CHHPLC_X3		
Lims ID:	CCV INT				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	7	Worklist Smp#:	51
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

3 HMX, CAS: 2691-41-0

Signal: 1

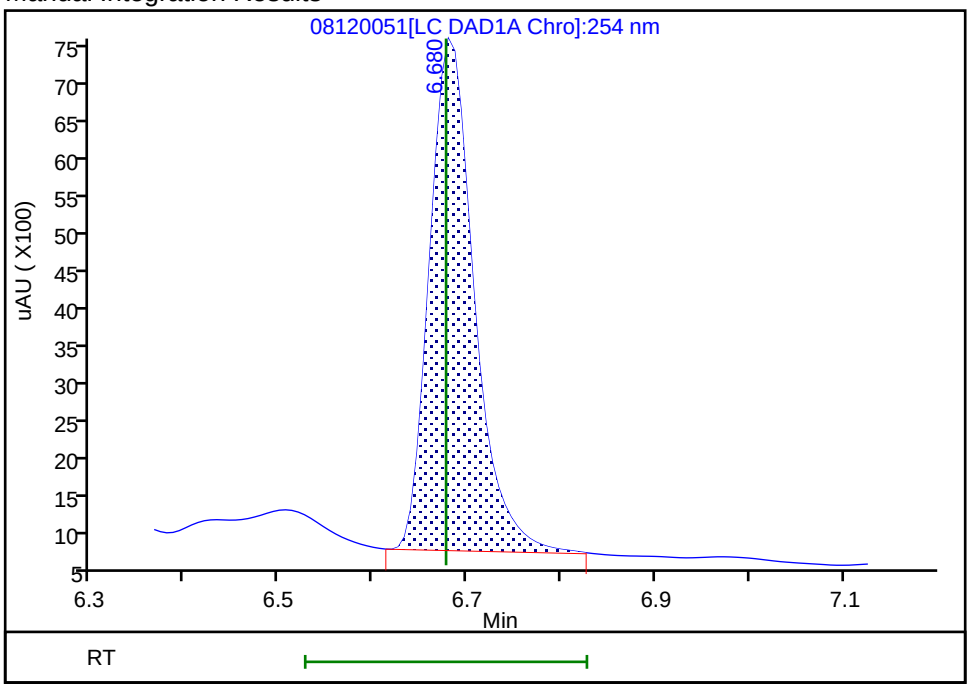
Processing Integration Results

RT: 6.68
Area: 29178
Amount: 0.317728
Amount Units: ug/mL



Manual Integration Results

RT: 6.68
Area: 22424
Amount: 0.244182
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 13:24:08
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/53 Calibration Date: 08/13/2019 05:37

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 21:36

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/02/2019 00:18

Lab File ID: 08120053.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
TNX	Ave	214964	198038		231	250	-7.9	15.0
DNX	Ave	156126	152903		245	250	-2.1	15.0
MNX	Ave	140041	139657		291	292	-0.3	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/53 Calibration Date: 08/13/2019 05:37

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 21:36

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/02/2019 00:18

Lab File ID: 08120053.D

Analyte	RT	RT WINDOW	
		FROM	TO
TNX	6.58	6.49	6.69
DNX	6.91	6.81	7.01
MNX	7.36	7.22	7.52

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120053.D
Lims ID: CCV DMT
Client ID:
Sample Type: CCV
Inject. Date: 13-Aug-2019 05:37:18 ALS Bottle#: 40 Worklist Smp#: 53
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV DMT
Misc. Info.: 280-0084372-053
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub17

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:33 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:25:39

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.584	6.587	-0.003	49559	0.2503	0.2305	M
5 DNX	1	6.911	6.907	0.004	38264	0.2503	0.2451	M
6 MNX	1	7.358	7.367	-0.009	40745	0.2918	0.2910	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 12.50 Units: uL

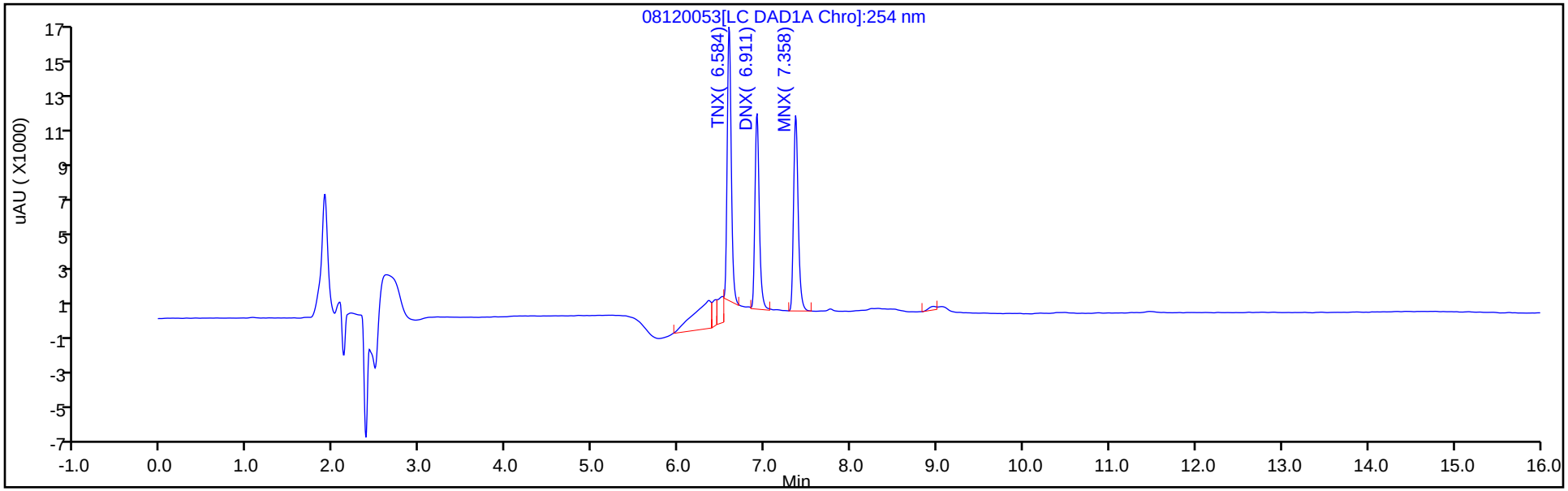
Report Date: 13-Aug-2019 14:09:34 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

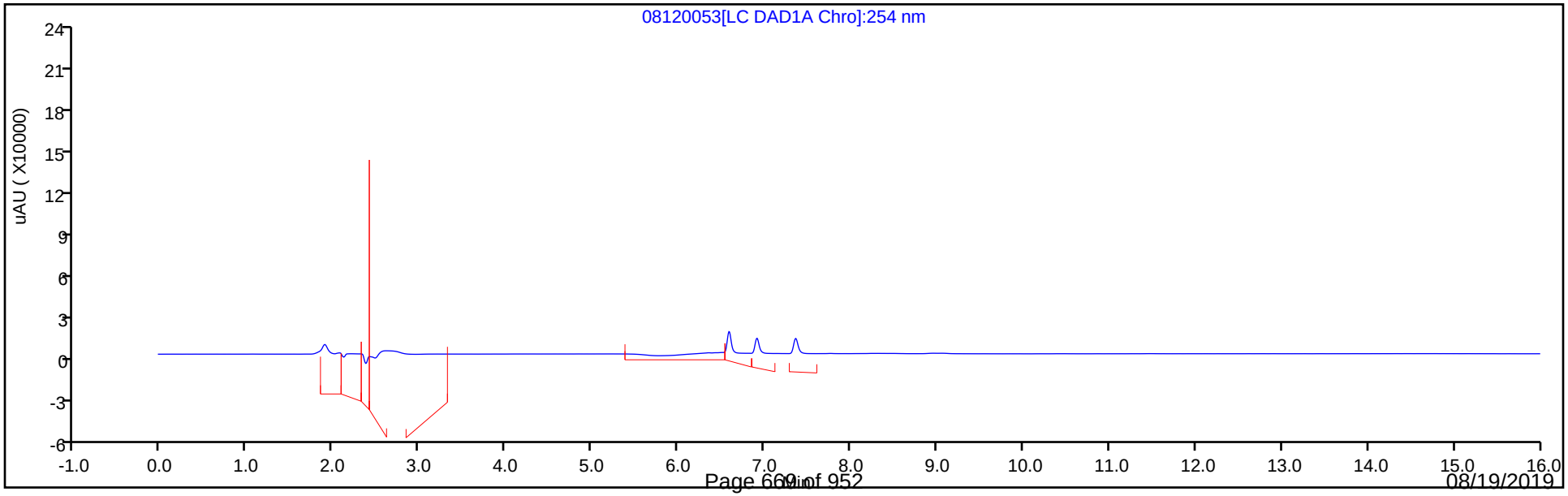
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120053.D

Injection Date:	13-Aug-2019 05:37:18	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	CCV DMT			Worklist Smp#:	53
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	40
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

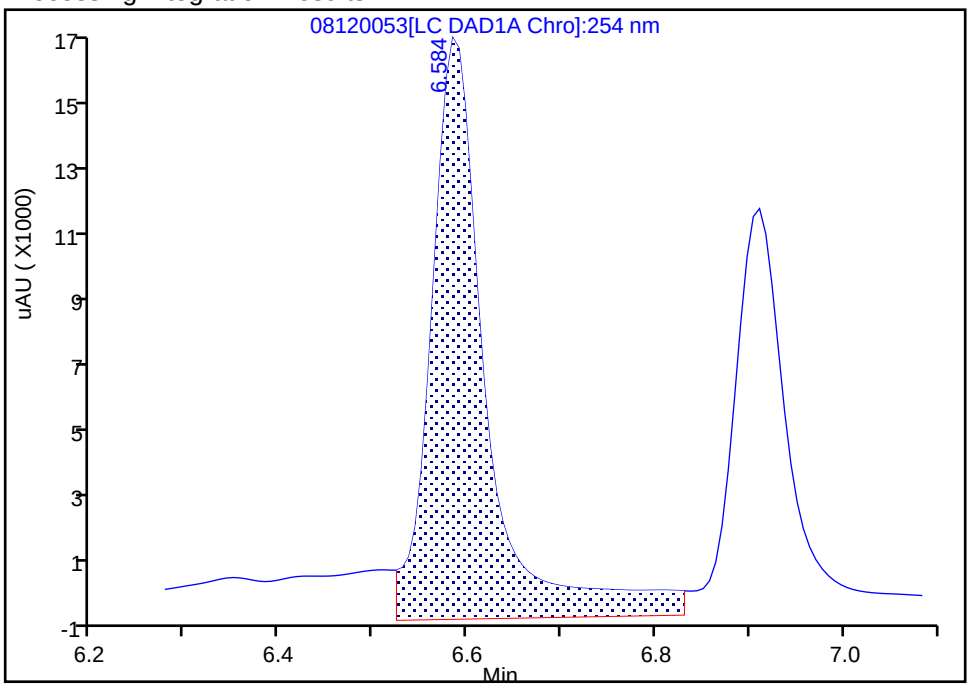
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120053.D				
Injection Date:	13-Aug-2019 05:37:18	Instrument ID:	CHHPLC_X3		
Lims ID:	CCV DMT				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	40	Worklist Smp#:	53
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

2 TNX, CAS: 13980-04-6

Signal: 1

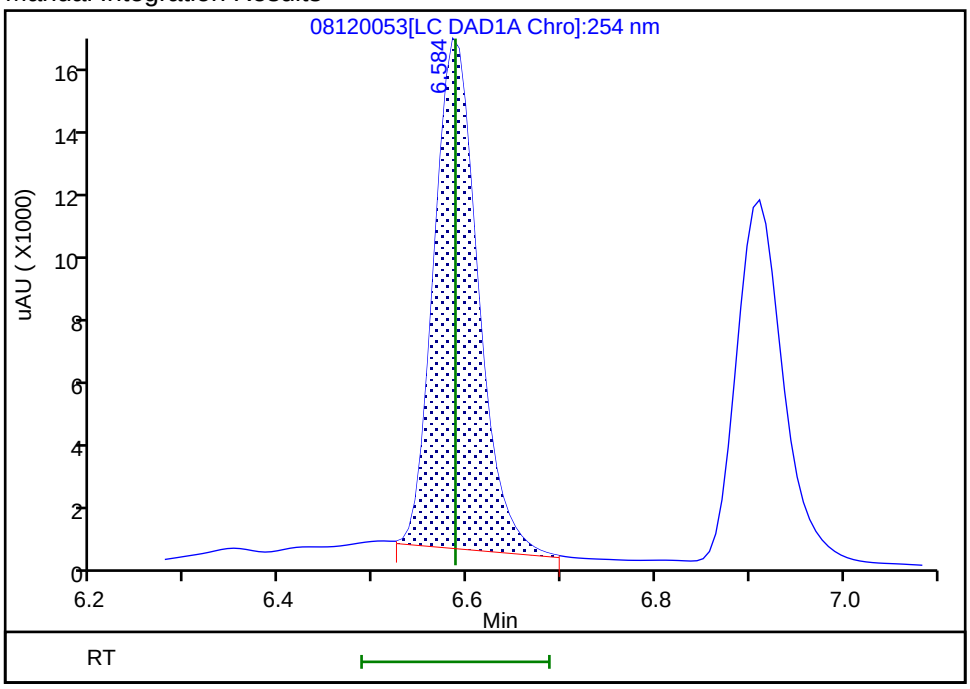
Processing Integration Results

RT: 6.58
Area: 66952
Amount: 0.311457
Amount Units: ug/mL



Manual Integration Results

RT: 6.58
Area: 49559
Amount: 0.230545
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 13:25:34

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

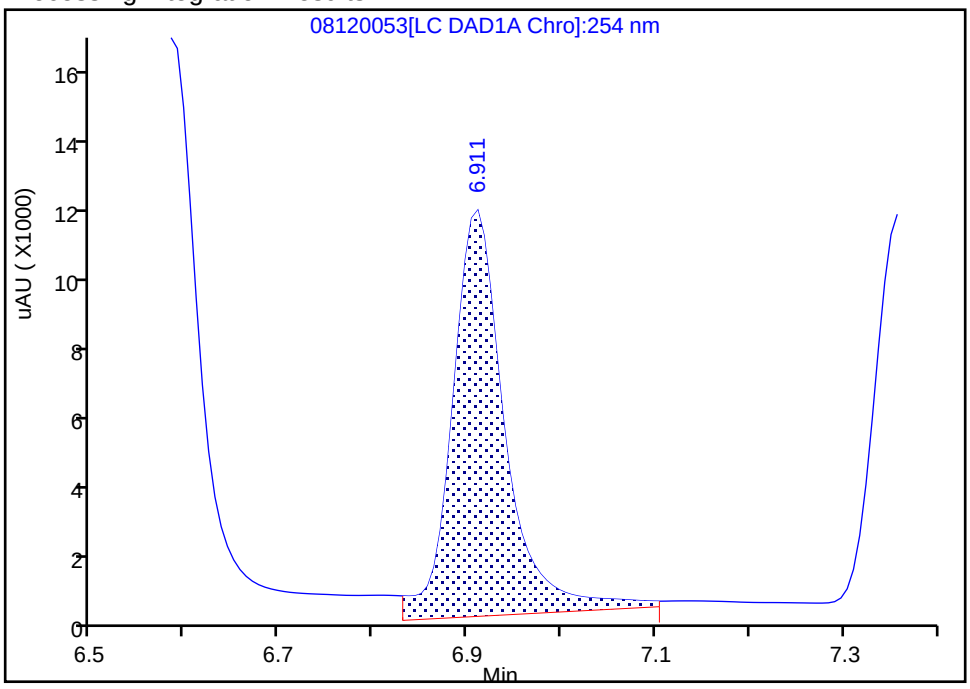
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120053.D				
Injection Date:	13-Aug-2019 05:37:18	Instrument ID:	CHHPLC_X3		
Lims ID:	CCV DMT				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	40	Worklist Smp#:	53
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

5 DNX, CAS: 80251-29-2

Signal: 1

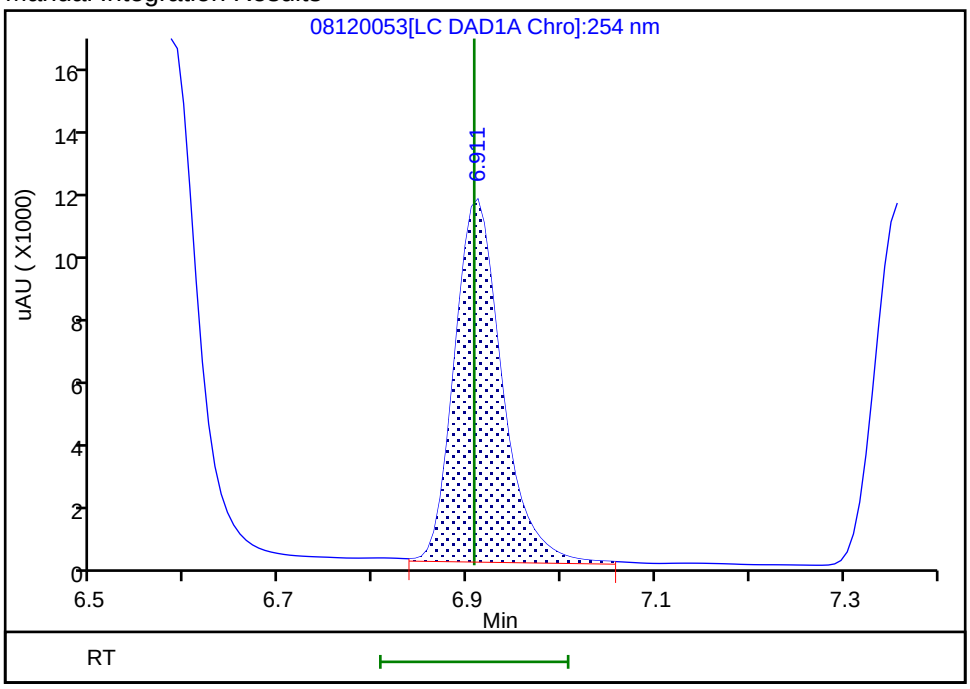
Processing Integration Results

RT: 6.91
Area: 44342
Amount: 0.284015
Amount Units: ug/mL



Manual Integration Results

RT: 6.91
Area: 38264
Amount: 0.245085
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 13:25:37

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/61 Calibration Date: 08/13/2019 08:40

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 14:40

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/01/2019 17:23

Lab File ID: 08120061.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	91833	90112		245	250	-1.9	15.0
RDX	Ave	111120	107332		241	250	-3.4	15.0
Picric acid	Ave	90734	83152		229	250	-8.4	15.0
1,3,5-Trinitrobenzene	Ave	245077	252580		258	250	3.1	15.0
1,3-Dinitrobenzene	Ave	311175	309738		249	250	-0.5	15.0
Nitrobenzene	Ave	198903	193912		244	251	-2.5	15.0
Tetryl	Ave	161957	167036		258	250	3.1	15.0
Nitroglycerin	Ave	71108	71134		2500	2500	0.0	15.0
2,4,6-Trinitrotoluene	Ave	227277	225251		249	251	-0.9	15.0
4-Amino-2,6-dinitrotoluene	Ave	166378	163797		247	251	-1.6	15.0
2-Amino-4,6-dinitrotoluene	Ave	205236	190018		232	251	-7.4	15.0
2,6-Dinitrotoluene	Ave	159284	168622		265	251	5.9	15.0
2,4-Dinitrotoluene	Ave	300447	298335		249	251	-0.7	15.0
2-Nitrotoluene	Ave	129784	125428		242	251	-3.4	15.0
4-Nitrotoluene	Ave	110255	109279		249	251	-0.9	15.0
3-Nitrotoluene	Ave	145122	141116		244	251	-2.8	15.0
PETN	Ave	74289	76535		2580	2500	3.0	15.0
1,2-Dinitrobenzene	Ave	139328	138824		249	250	-0.4	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/61 Calibration Date: 08/13/2019 08:40

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 14:40

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/01/2019 17:23

Lab File ID: 08120061.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	6.68	6.53	6.83
RDX	7.76	7.61	7.91
Picric acid	8.12	7.95	8.25
1,3,5-Trinitrobenzene	8.89	8.73	9.03
1,3-Dinitrobenzene	9.55	9.38	9.68
Nitrobenzene	9.93	9.76	10.06
Tetryl	10.25	10.07	10.37
Nitroglycerin	10.75	10.58	10.88
2,4,6-Trinitrotoluene	11.22	11.09	11.29
4-Amino-2,6-dinitrotoluene	11.40	11.27	11.47
2-Amino-4,6-dinitrotoluene	11.70	11.56	11.76
2,6-Dinitrotoluene	11.83	11.70	11.90
2,4-Dinitrotoluene	12.04	11.90	12.10
2-Nitrotoluene	12.88	12.68	12.98
4-Nitrotoluene	13.32	13.12	13.42
3-Nitrotoluene	13.92	13.72	14.02
PETN	15.03	14.81	15.11
1,2-Dinitrobenzene	8.72	8.56	8.86

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120061.D
Lims ID: CCV INT
Client ID:
Sample Type: CCV
Inject. Date: 13-Aug-2019 08:40:49 ALS Bottle#: 7 Worklist Smp#: 61
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV INT
Misc. Info.: 280-0084372-061
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub9

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:23 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 14:04:54

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
3 HMX	1	6.683	6.677	0.006	22528	0.2500	0.2453	M
7 RDX	1	7.756	7.757	-0.001	26833	0.2500	0.2415	
8 2,4,6-Trinitrophenol	1	8.123	8.097	0.026	20788	0.2500	0.2291	
$ 9 1,2-Dinitrobenzene	1	8.716	8.710	0.006	34706	0.2500	0.2491	
10 1,3,5-Trinitrobenzene	1	8.890	8.877	0.013	63145	0.2500	0.2577	
11 1,3-Dinitrobenzene	1	9.549	9.530	0.019	77512	0.2503	0.2491	
12 Nitrobenzene	1	9.929	9.910	0.019	48575	0.2505	0.2442	
14 Tetryl	1	10.249	10.224	0.025	41759	0.2500	0.2578	M
15 Nitroglycerin	2	10.749	10.730	0.019	177836	2.50	2.50	
16 2,4,6-Trinitrotoluene	1	11.216	11.190	0.026	56538	0.2510	0.2488	
17 4-Amino-2,6-dinitrotoluene	1	11.403	11.370	0.033	41072	0.2508	0.2469	
18 2-Amino-4,6-dinitrotoluene	1	11.696	11.657	0.039	47647	0.2508	0.2322	M
19 2,6-Dinitrotoluene	1	11.829	11.797	0.032	42282	0.2508	0.2654	M
20 2,4-Dinitrotoluene	1	12.036	11.997	0.039	74733	0.2505	0.2487	
21 o-Nitrotoluene	1	12.876	12.830	0.046	31451	0.2508	0.2423	
22 p-Nitrotoluene	1	13.323	13.270	0.053	27429	0.2510	0.2488	
23 m-Nitrotoluene	1	13.923	13.870	0.053	35420	0.2510	0.2441	
24 PETN	2	15.029	14.964	0.065	191338	2.50	2.58	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00059 Amount Added: 25.00 Units: uL

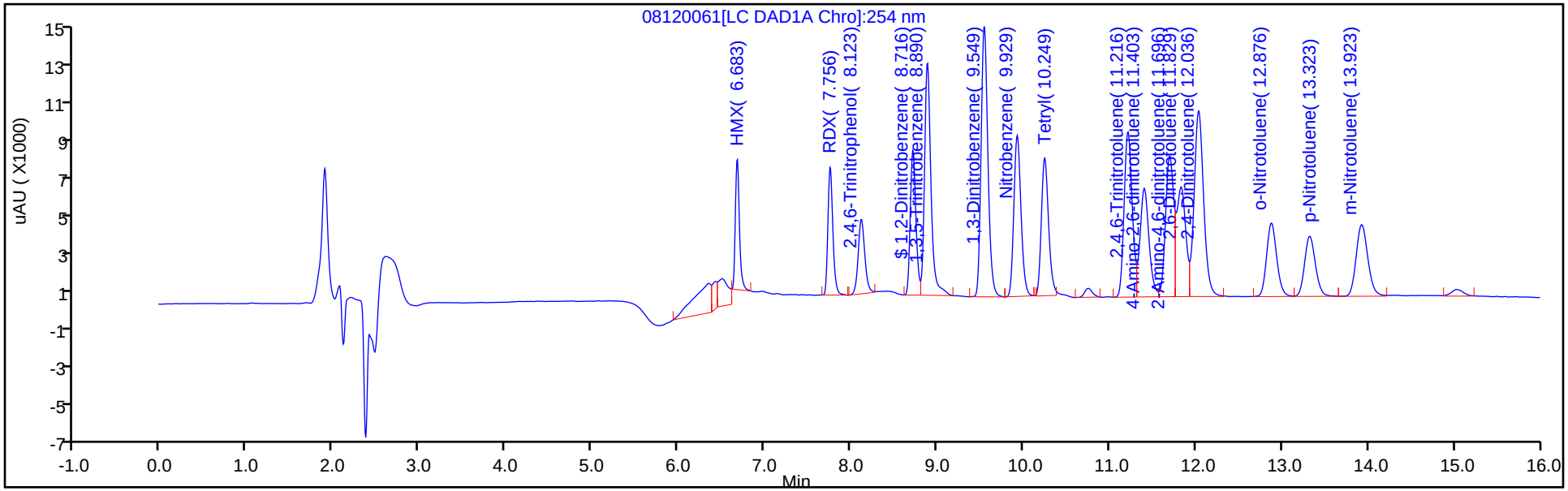
Report Date: 13-Aug-2019 14:09:23 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

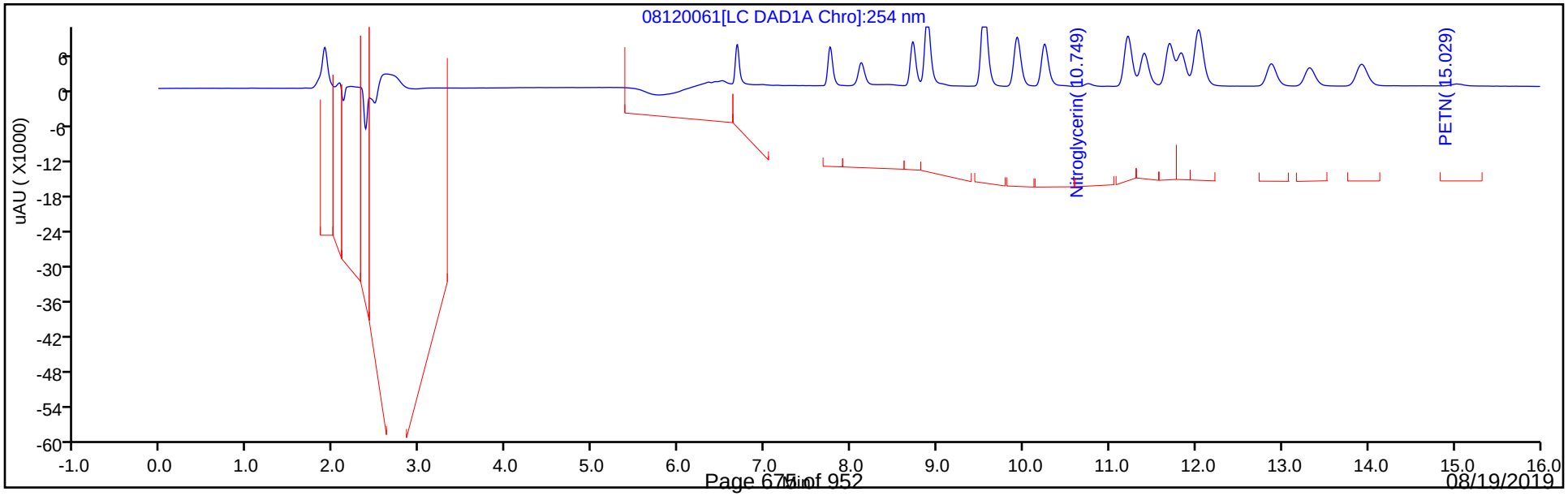
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120061.D

Injection Date:	13-Aug-2019 08:40:49	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	CCV INT			Worklist Smp#:	61
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

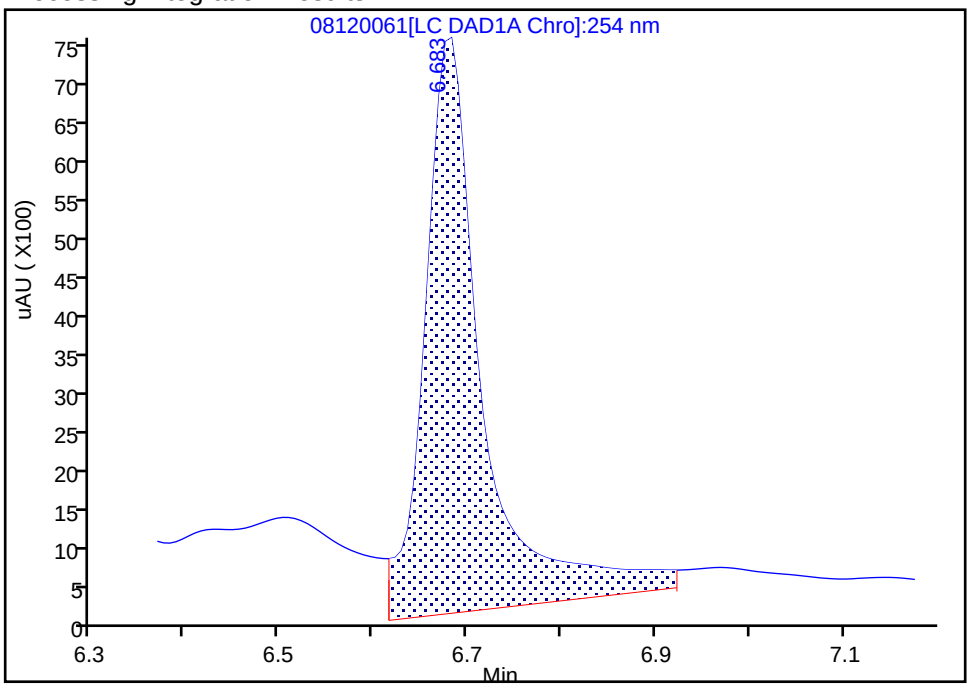
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120061.D
Injection Date: 13-Aug-2019 08:40:49 Instrument ID: CHHPLC_X3
Lims ID: CCV INT
Client ID:
Operator ID: hkf ALS Bottle#: 7 Worklist Smp#: 61
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330
Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

3 HMX, CAS: 2691-41-0

Signal: 1

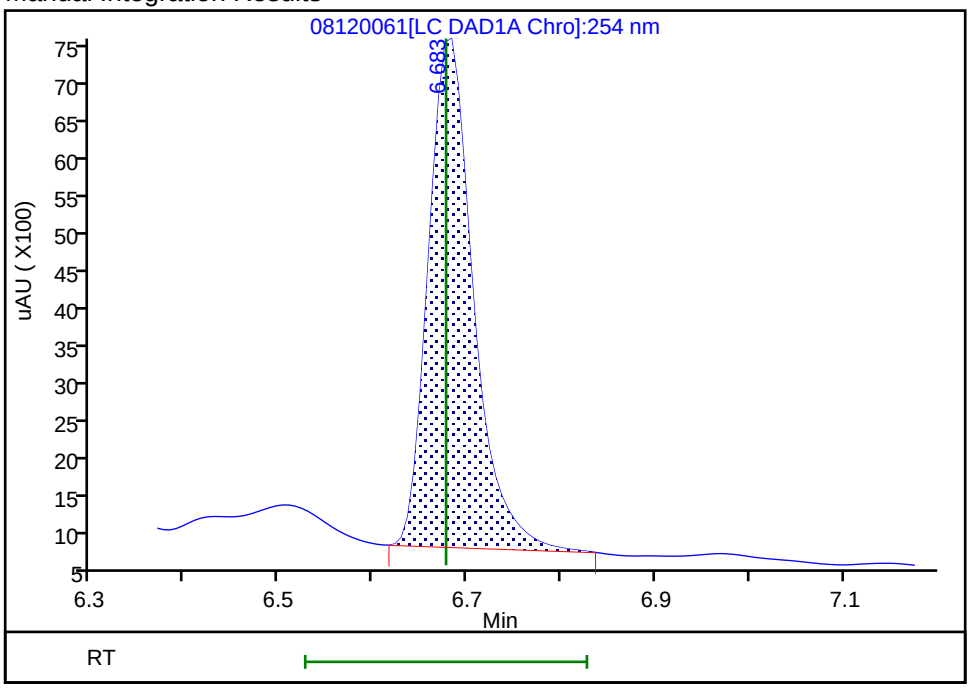
Processing Integration Results

RT: 6.68
Area: 31899
Amount: 0.347358
Amount Units: ug/mL



Manual Integration Results

RT: 6.68
Area: 22528
Amount: 0.245314
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 14:03:43
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

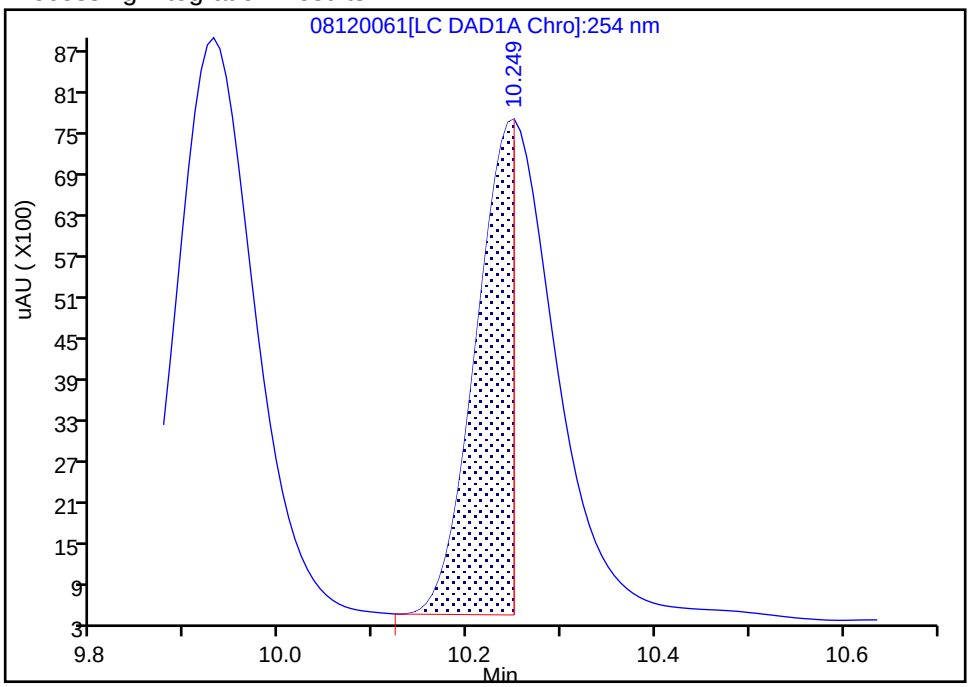
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120061.D				
Injection Date:	13-Aug-2019 08:40:49	Instrument ID:	CHHPLC_X3		
Lims ID:	CCV INT				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	7	Worklist Smp#:	61
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

14 Tetryl, CAS: 479-45-8

Signal: 1

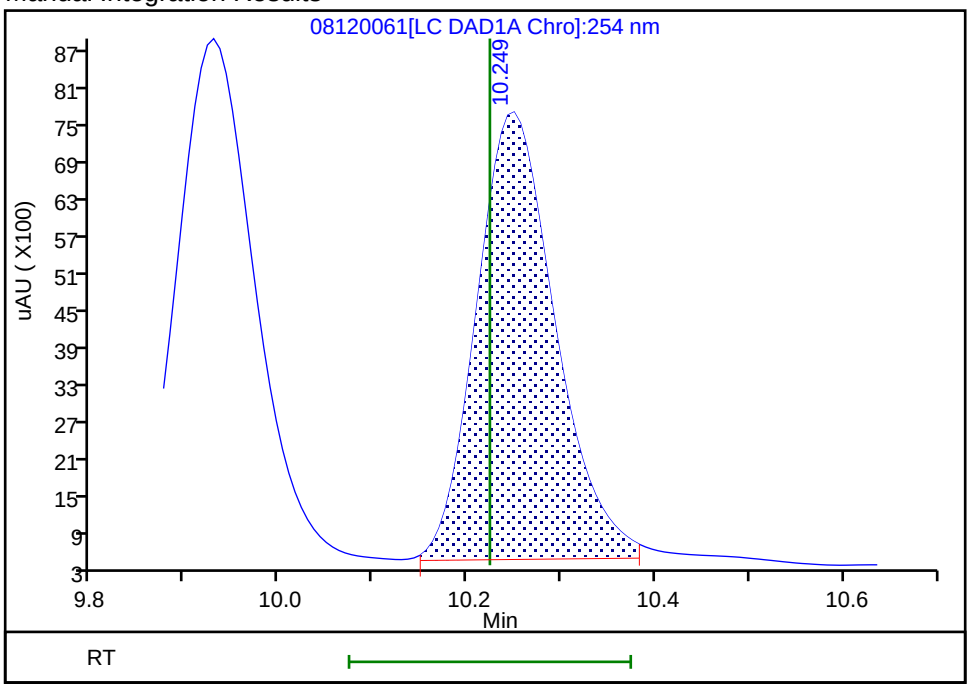
Processing Integration Results

RT: 10.25
Area: 19614
Amount: 0.121106
Amount Units: ug/mL



Manual Integration Results

RT: 10.25
Area: 41759
Amount: 0.257840
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 14:04:40

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/63 Calibration Date: 08/13/2019 09:26

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 21:36

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/02/2019 00:18

Lab File ID: 08120063.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
TNX	Ave	214964	195197		227	250	-9.2	15.0
DNX	Ave	156126	151972		244	250	-2.7	15.0
MNX	Ave	140041	138612		289	292	-1.0	15.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: CCV 280-467289/63 Calibration Date: 08/13/2019 09:26

Instrument ID: CHHPLC_X3 Calib Start Date: 07/01/2019 21:36

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 07/02/2019 00:18

Lab File ID: 08120063.D

Analyte	RT	RT WINDOW	
		FROM	TO
TNX	6.59	6.49	6.69
DNX	6.91	6.81	7.01
MNX	7.35	7.22	7.52

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120063.D
Lims ID: CCV DMT
Client ID:
Sample Type: CCV
Inject. Date: 13-Aug-2019 09:26:42 ALS Bottle#: 40 Worklist Smp#: 63
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV DMT
Misc. Info.: 280-0084372-063
Operator ID: hkf Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub17

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:19 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 14:05:30

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.586	6.587	-0.001	48848	0.2503	0.2272	M
5 DNX	1	6.906	6.907	-0.001	38031	0.2503	0.2436	
6 MNX	1	7.353	7.367	-0.014	40440	0.2918	0.2888	

QC Flag Legend

Review Flags
M - Manually Integrated

Reagents:

8330 DMT_00002 Amount Added: 12.50 Units: uL

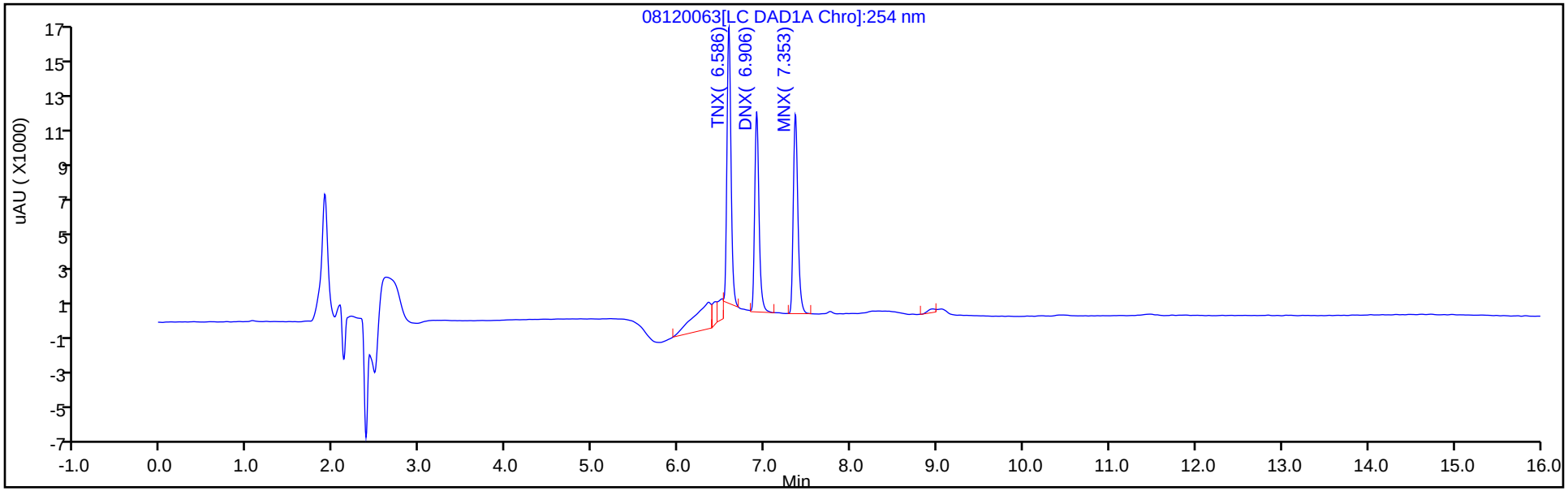
Report Date: 13-Aug-2019 14:09:19 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

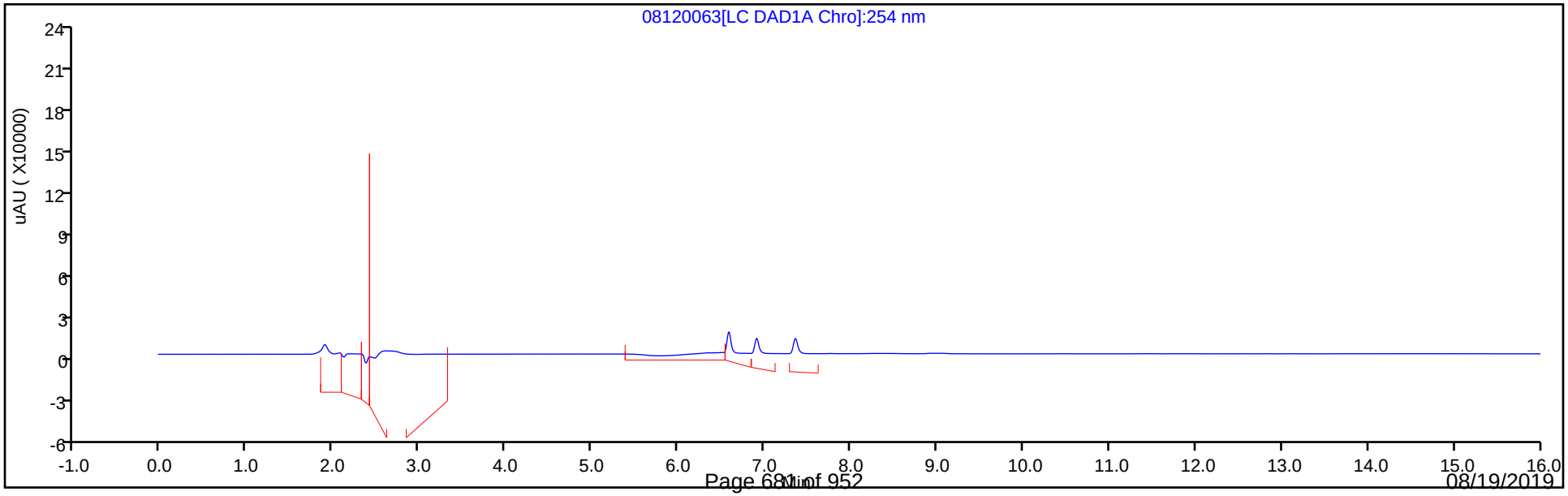
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120063.D

Injection Date:	13-Aug-2019 09:26:42	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	CCV DMT			Worklist Smp#:	63
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	40
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

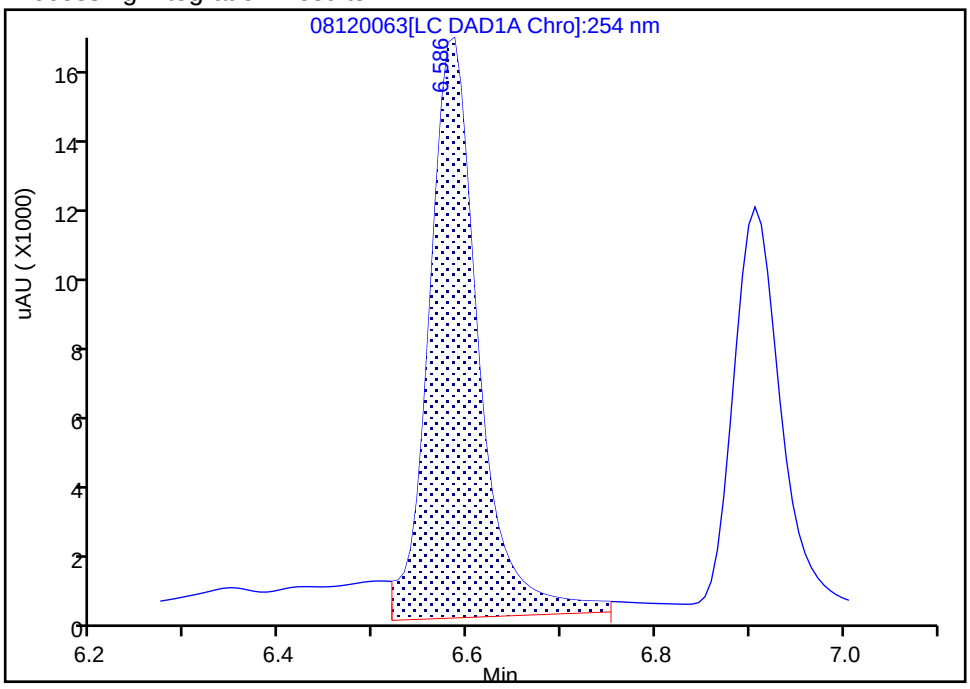
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120063.D
Injection Date: 13-Aug-2019 09:26:42 Instrument ID: CHHPLC_X3
Lims ID: CCV DMT
Client ID:
Operator ID: hkf ALS Bottle#: 40 Worklist Smp#: 63
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330
Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

2 TNX, CAS: 13980-04-6

Signal: 1

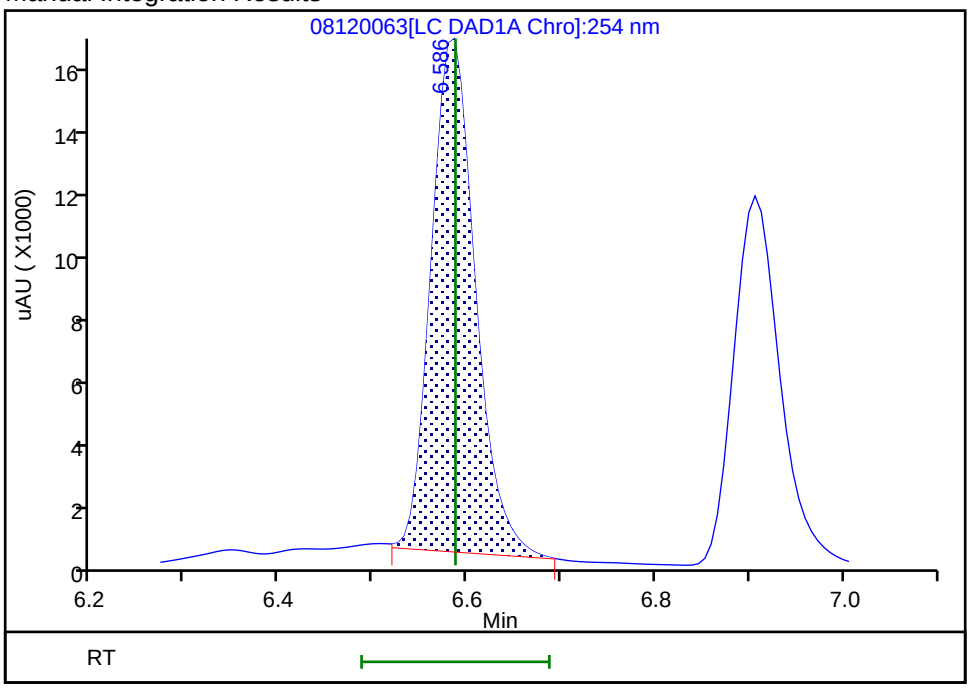
Processing Integration Results

RT: 6.59
Area: 57356
Amount: 0.266817
Amount Units: ug/mL



Manual Integration Results

RT: 6.59
Area: 48848
Amount: 0.227238
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 14:05:28
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 280-466732/1-A

Matrix: Water Lab File ID: 08120041.D

Analysis Method: 8330A Date Collected:

Extraction Method: 3535 Date Extracted: 08/05/2019 17:00

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 01:01

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	0.40	U M	1.0	0.40	0.20
99-65-0	1,3-Dinitrobenzene	0.20	U	0.40	0.20	0.089
118-96-7	2,4,6-Trinitrotoluene	0.40	U	0.40	0.40	0.16
121-14-2	2,4-Dinitrotoluene	0.20	U	0.40	0.20	0.084
606-20-2	2,6-Dinitrotoluene	0.20	U	0.20	0.20	0.065
35572-78-2	2-Amino-4,6-dinitrotoluene	0.12	U	0.20	0.12	0.051
88-72-2	2-Nitrotoluene	0.20	U	0.40	0.20	0.086
99-08-1	3-Nitrotoluene	0.40	U	0.40	0.40	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U	0.20	0.12	0.058
99-99-0	4-Nitrotoluene	0.40	U	1.0	0.40	0.20
2691-41-0	HMX	0.20	U	0.40	0.20	0.088
5755-27-1	MNX	0.40	U M	2.0	0.40	0.15
98-95-3	Nitrobenzene	0.20	U	0.40	0.20	0.091
121-82-4	RDX	0.40	U	0.40	0.40	0.16
479-45-8	Tetryl	0.20	U	0.24	0.20	0.079

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	85		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120041.D
Lims ID: MB 280-466732/1-A
Client ID:
Sample Type: MB
Inject. Date: 13-Aug-2019 01:01:48 ALS Bottle#: 41 Worklist Smp#: 41
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: MB 280-466732/1-
Misc. Info.: 280-0084372-041
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:20:25

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
1	2,6-diamino-4-nitrotoluene	1		6.532				ND	U
2	TNX	1		6.587				ND	
3	HMX	1		6.677				ND	
4	2,4-diamino-6-nitrotoluene	1		6.718				ND	
5	DNX	1		6.907				ND	
6	MNX	1		7.367				ND	U
7	RDX	1		7.757				ND	
8	2,4,6-Trinitrophenol	1		8.097				ND	
$ 9	1,2-Dinitrobenzene	1	8.724	8.710	0.014	23726	0.2000	0.1703	
10	1,3,5-Trinitrobenzene	1		8.877				ND	U
11	1,3-Dinitrobenzene	1		9.530				ND	
12	Nitrobenzene	1		9.910				ND	
13	3,5-Dinitroaniline	1		10.151				ND	
14	Tetryl	1		10.224				ND	
15	Nitroglycerin	2		10.730				ND	
16	2,4,6-Trinitrotoluene	1		11.190				ND	
17	4-Amino-2,6-dinitrotoluene	1		11.370				ND	
18	2-Amino-4,6-dinitrotoluene	1		11.657				ND	
19	2,6-Dinitrotoluene	1		11.797				ND	
20	2,4-Dinitrotoluene	1		11.997				ND	
21	o-Nitrotoluene	1		12.830				ND	
22	p-Nitrotoluene	1		13.270				ND	
23	m-Nitrotoluene	1		13.870				ND	
24	PETN	2		14.964				ND	
25	Ammonium Picrate	1		0.000				ND	

QC Flag Legend

Review Flags

U - Marked Undetected

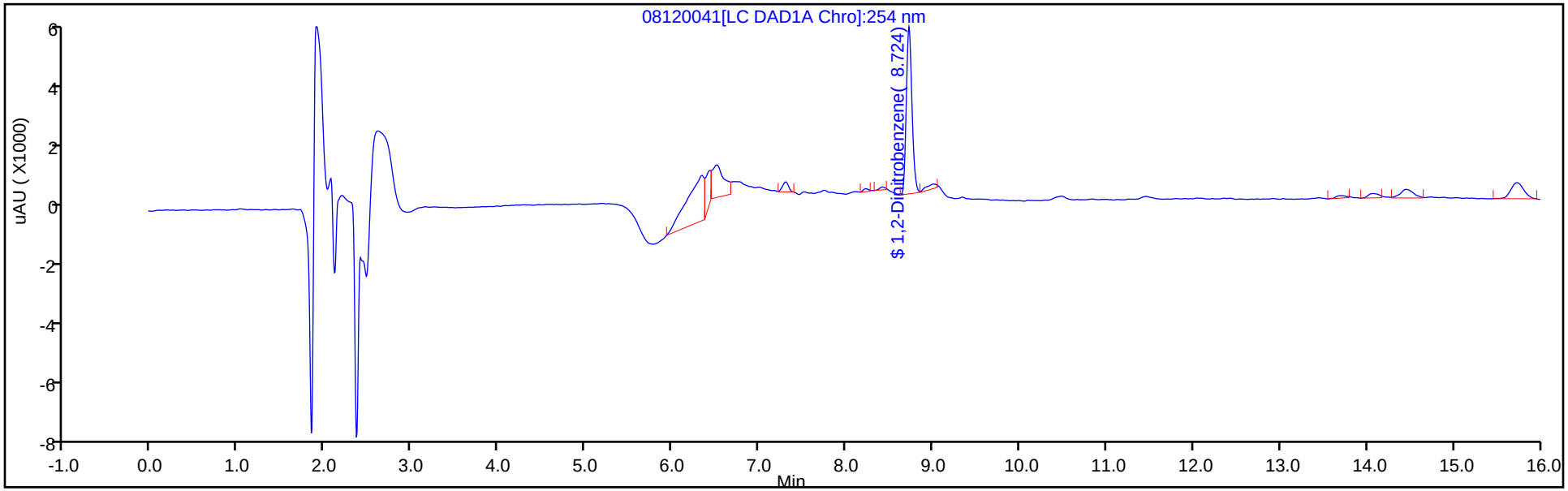
Report Date: 13-Aug-2019 14:09:47 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

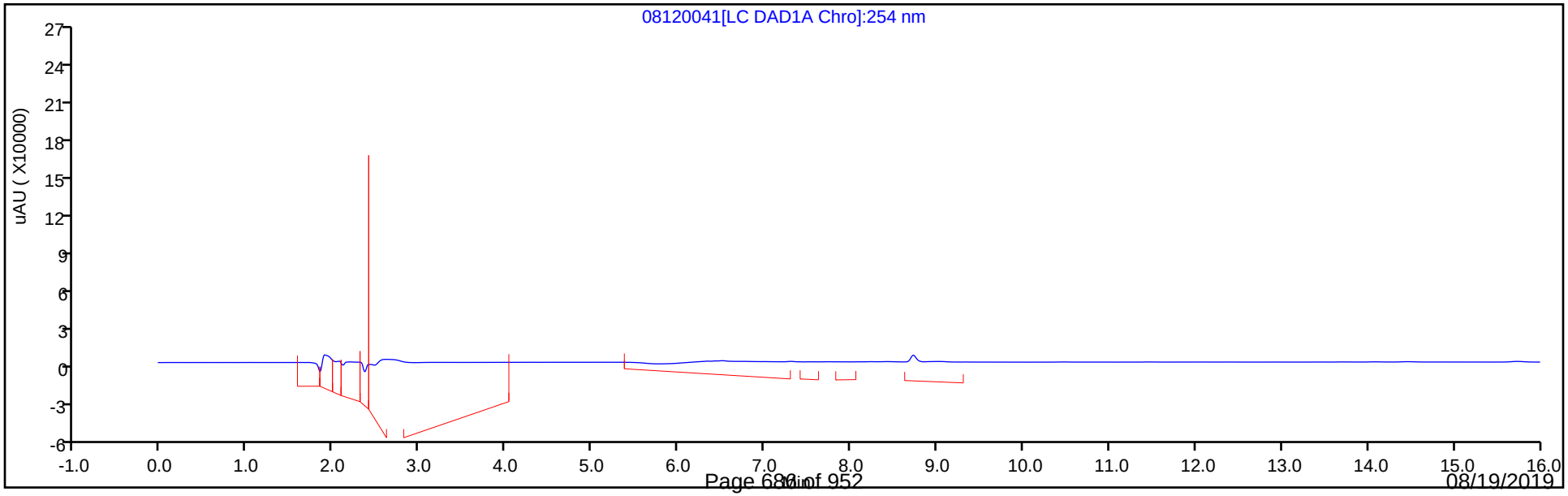
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120041.D

Injection Date:	13-Aug-2019 01:01:48	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	MB 280-466732/1-A			Worklist Smp#:	41
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	41
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120041.D
Lims ID: MB 280-466732/1-A
Client ID:
Sample Type: MB
Inject. Date: 13-Aug-2019 01:01:48 ALS Bottle#: 41 Worklist Smp#: 41
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: MB 280-466732/1-
Misc. Info.: 280-0084372-041
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:20:25

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1703	85.14

User Disabled Compound Report

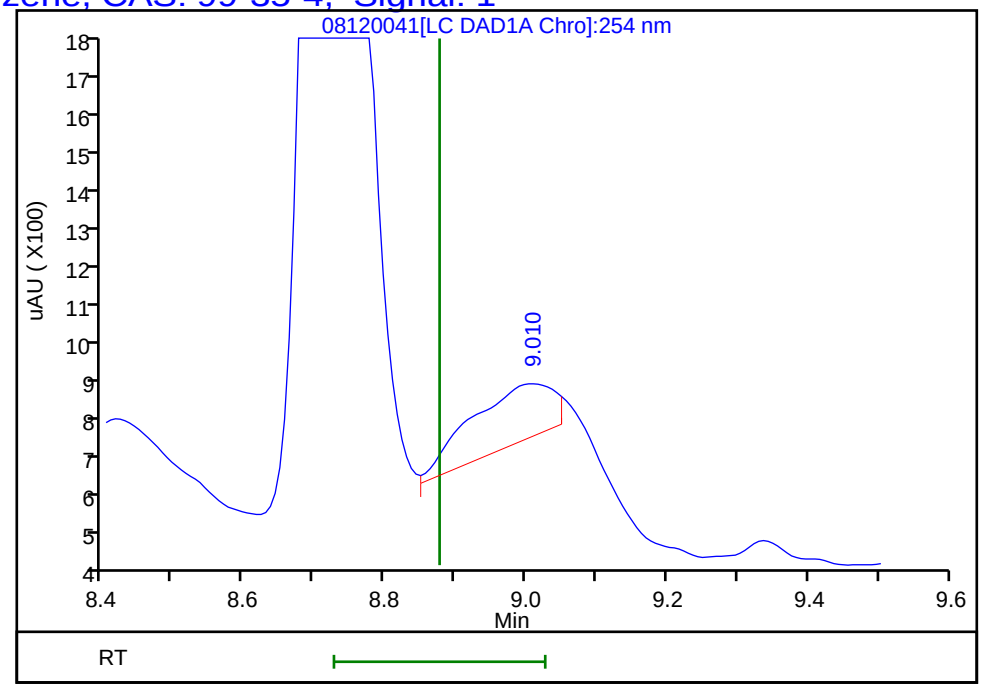
Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120041.D
Injection Date: 13-Aug-2019 01:01:48 Instrument ID: CHHPLC_X3
Lims ID: MB 280-466732/1-A
Client ID:
Operator ID: hkf ALS Bottle#: 41 Worklist Smp#: 41
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330

Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

10 1,3,5-Trinitrobenzene, CAS: 99-35-4, Signal: 1

RT: 9.01
Response: 1249
Amount: 0.005096



Reviewer: fiedlerh, 13-Aug-2019 13:20:25
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

User Disabled Compound Report

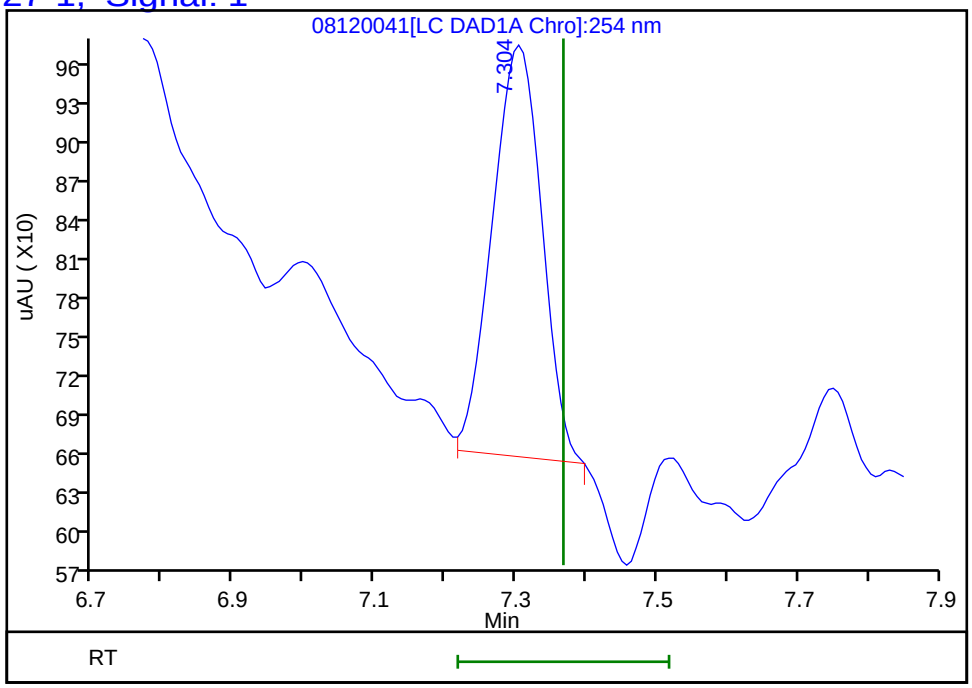
Eurofins TestAmerica, Denver

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120041.D
Injection Date: 13-Aug-2019 01:01:48 Instrument ID: CHHPLC_X3
Lims ID: MB 280-466732/1-A
Client ID:
Operator ID: hkf ALS Bottle#: 41 Worklist Smp#: 41
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330

Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

6 MNX, CAS: 5755-27-1, Signal: 1

RT: 7.30
Response: 1520
Amount: 0.010854



Reviewer: fiedlerh, 13-Aug-2019 13:20:25
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 280-466732/2-A

Matrix: Water Lab File ID: 08120042.D

Analysis Method: 8330A Date Collected:

Extraction Method: 3535 Date Extracted: 08/05/2019 17:00

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 01:24

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	1.97		1.0	0.40	0.20
99-65-0	1,3-Dinitrobenzene	1.76		0.40	0.20	0.089
118-96-7	2,4,6-Trinitrotoluene	1.65		0.40	0.40	0.16
121-14-2	2,4-Dinitrotoluene	1.68		0.40	0.20	0.084
606-20-2	2,6-Dinitrotoluene	1.72		0.20	0.20	0.065
35572-78-2	2-Amino-4,6-dinitrotoluene	1.60		0.20	0.12	0.051
88-72-2	2-Nitrotoluene	1.43		0.40	0.20	0.086
99-08-1	3-Nitrotoluene	1.57		0.40	0.40	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	1.55		0.20	0.12	0.058
99-99-0	4-Nitrotoluene	1.53		1.0	0.40	0.20
2691-41-0	HMX	1.75	M	0.40	0.20	0.088
98-95-3	Nitrobenzene	1.61		0.40	0.20	0.091
121-82-4	RDX	1.78		0.40	0.40	0.16
479-45-8	Tetryl	1.88		0.24	0.20	0.079

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	84		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120042.D
Lims ID: LCS 280-466732/2-A
Client ID:
Sample Type: LCS
Inject. Date: 13-Aug-2019 01:24:43 ALS Bottle#: 42 Worklist Smp#: 42
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-466732/2
Misc. Info.: 280-0084372-042
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:20:35

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
	3 HMX	1	6.685	6.677	0.008	16070	0.2000	0.1750	M
	7 RDX	1	7.765	7.757	0.008	19784	0.2000	0.1780	
	8 2,4,6-Trinitrophenol	1	8.112	8.097	0.015	17385	0.2000	0.1916	
$	9 1,2-Dinitrobenzene	1	8.725	8.710	0.015	23530	0.2000	0.1689	
	10 1,3,5-Trinitrobenzene	1	8.892	8.877	0.015	48233	0.2000	0.1968	
	11 1,3-Dinitrobenzene	1	9.552	9.530	0.022	54758	0.2000	0.1760	
	12 Nitrobenzene	1	9.939	9.910	0.029	32119	0.2000	0.1615	
	14 Tetryl	1	10.259	10.224	0.035	30521	0.2000	0.1885	
	15 Nitroglycerin	2	10.765	10.730	0.035	124406	2.00	1.75	
	16 2,4,6-Trinitrotoluene	1	11.225	11.190	0.035	37489	0.2000	0.1649	
	17 4-Amino-2,6-dinitrotoluene	1	11.419	11.370	0.049	25753	0.2000	0.1548	
	18 2-Amino-4,6-dinitrotoluene	1	11.712	11.657	0.055	32894	0.2000	0.1603	
	19 2,6-Dinitrotoluene	1	11.845	11.797	0.048	27323	0.2000	0.1715	
	20 2,4-Dinitrotoluene	1	12.052	11.997	0.055	50526	0.2000	0.1682	
	21 o-Nitrotoluene	1	12.892	12.830	0.062	18589	0.2000	0.1432	
	22 p-Nitrotoluene	1	13.339	13.270	0.069	16859	0.2000	0.1529	
	23 m-Nitrotoluene	1	13.945	13.870	0.075	22848	0.2000	0.1574	
	24 PETN	2	15.052	14.964	0.088	135967	2.00	1.83	

QC Flag Legend

Review Flags
M - Manually Integrated

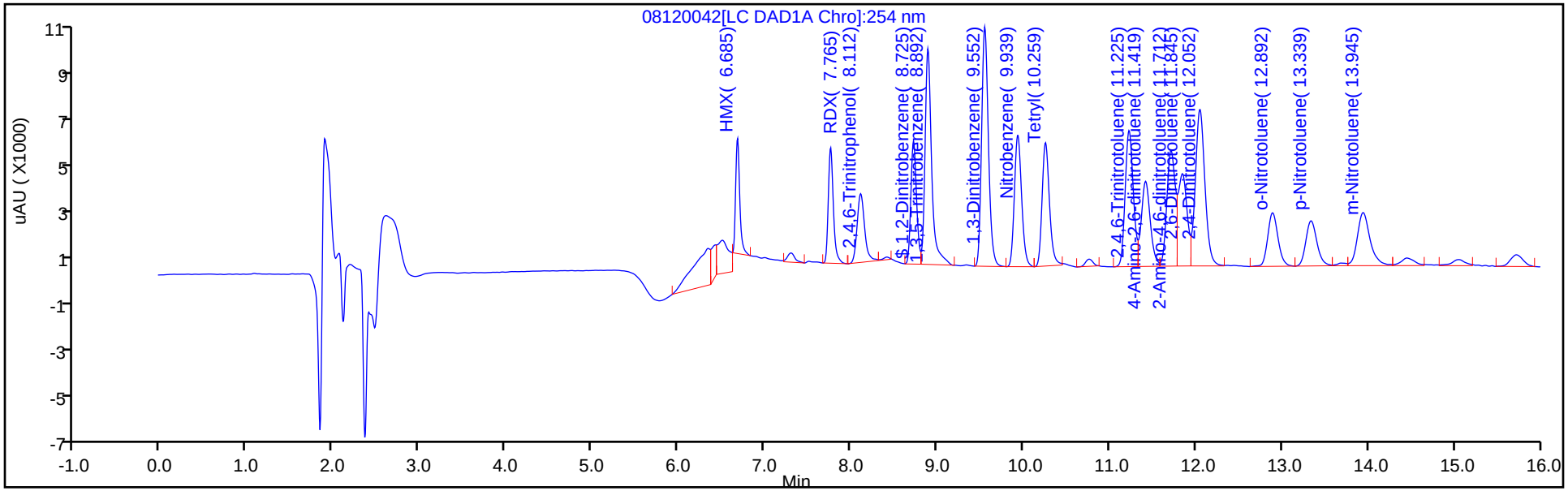
Report Date: 13-Aug-2019 14:09:46 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

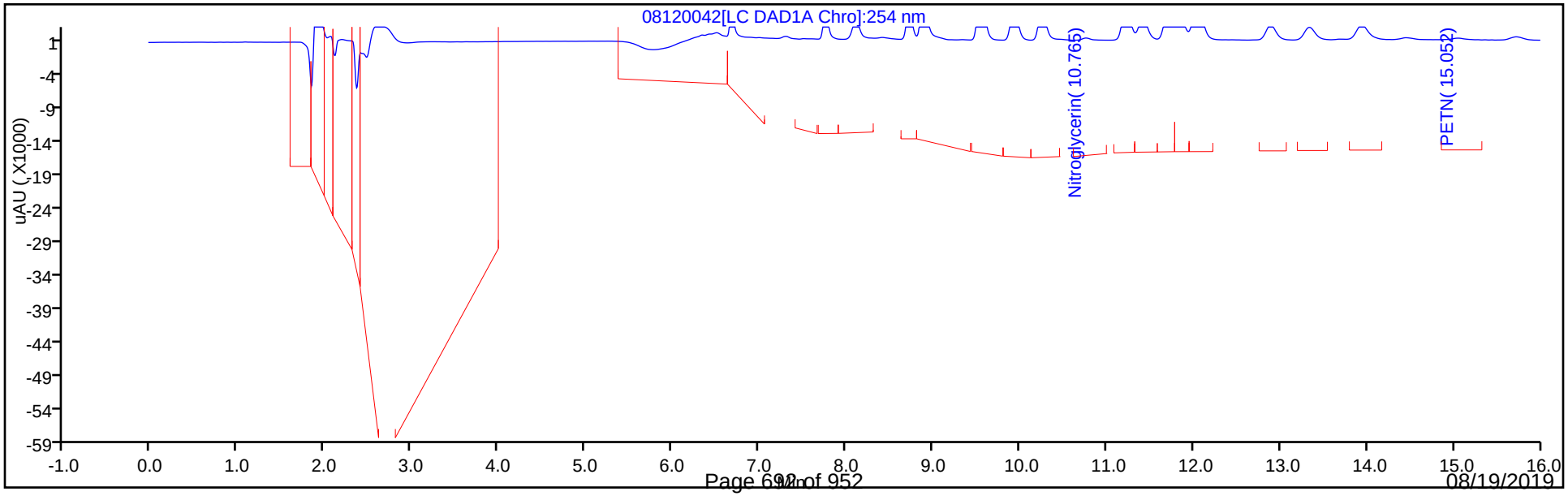
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120042.D

Injection Date:	13-Aug-2019 01:24:43	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	LCS 280-466732/2-A			Worklist Smp#:	42
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	42
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120042.D
Lims ID: LCS 280-466732/2-A
Client ID:
Sample Type: LCS
Inject. Date: 13-Aug-2019 01:24:43 ALS Bottle#: 42 Worklist Smp#: 42
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-466732/2
Misc. Info.: 280-0084372-042
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:20:35

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1689	84.44

Manual Integration/User Assign Peak Report

Eurofins TestAmerica, Denver

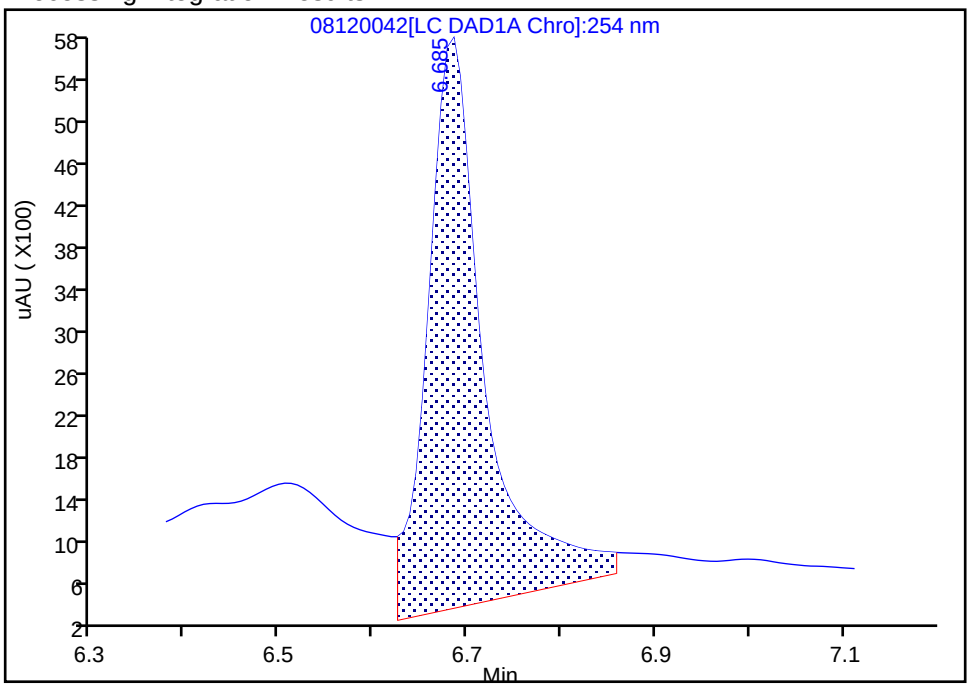
Data File:	\\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120042.D				
Injection Date:	13-Aug-2019 01:24:43	Instrument ID:	CHHPLC_X3		
Lims ID:	LCS 280-466732/2-A				
Client ID:					
Operator ID:	hkf	ALS Bottle#:	42	Worklist Smp#:	42
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

3 HMX, CAS: 2691-41-0

Signal: 1

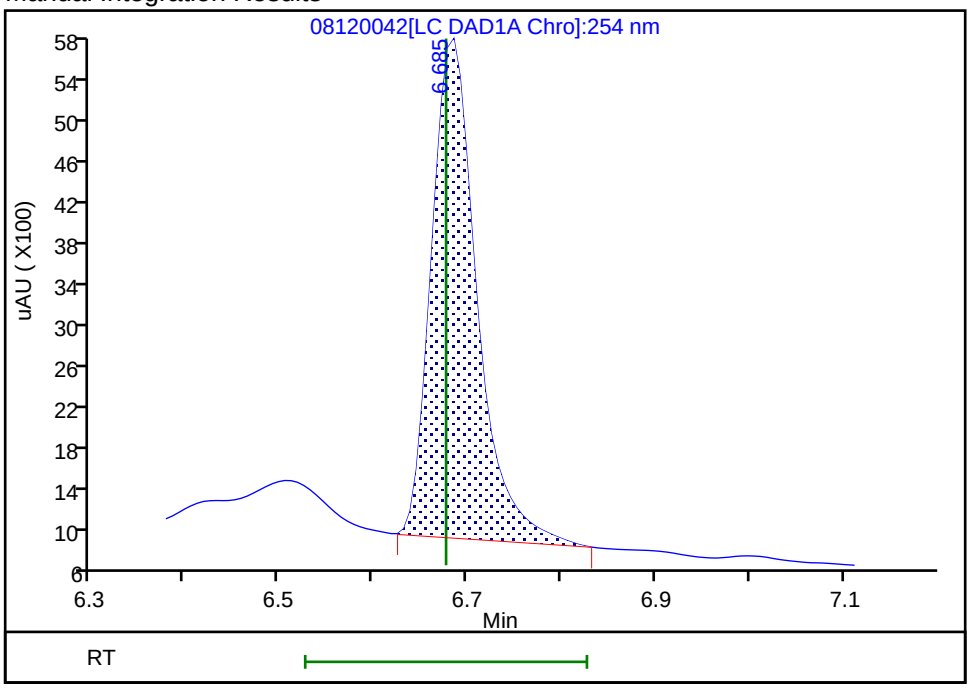
Processing Integration Results

RT: 6.69
Area: 22990
Amount: 0.250345
Amount Units: ug/mL



Manual Integration Results

RT: 6.69
Area: 16070
Amount: 0.174991
Amount Units: ug/mL



Reviewer: fiedlerh, 13-Aug-2019 13:20:34

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 280-466732/3-A

Matrix: Water Lab File ID: 08120043.D

Analysis Method: 8330A Date Collected:

Extraction Method: 3535 Date Extracted: 08/05/2019 17:00

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 01:47

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
5755-27-1	MNX	2.36		2.0	0.40	0.15

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	88		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120043.D
Lims ID: LCS 280-466732/3-A
Client ID:
Sample Type: LCS
Inject. Date: 13-Aug-2019 01:47:40 ALS Bottle#: 43 Worklist Smp#: 43
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-466732/3
Misc. Info.: 280-0084372-043
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:20:54

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.583	6.587	-0.004	37497	0.2002	0.1744	M
5 DNX	1	6.910	6.907	0.003	29701	0.2002	0.1902	
6 MNX	1	7.357	7.367	-0.010	32997	0.2334	0.2356	
$ 9 1,2-Dinitrobenzene	1	8.730	8.710	0.020	24393	0.2000	0.1751	

QC Flag Legend

Review Flags
M - Manually Integrated

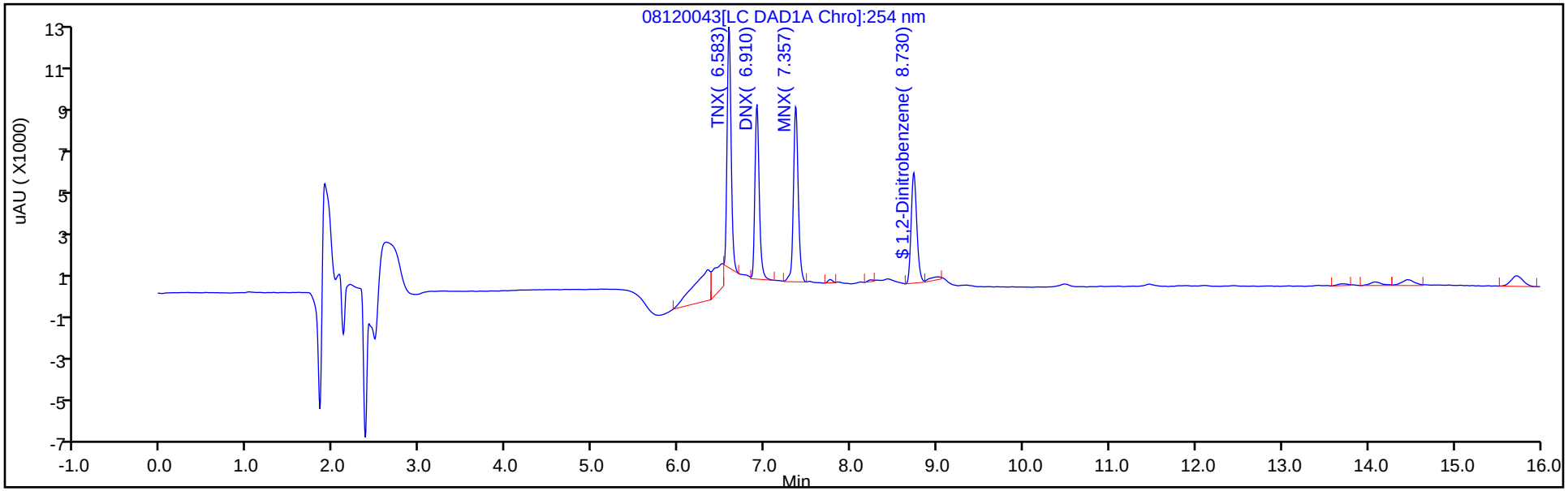
Report Date: 13-Aug-2019 14:09:45 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

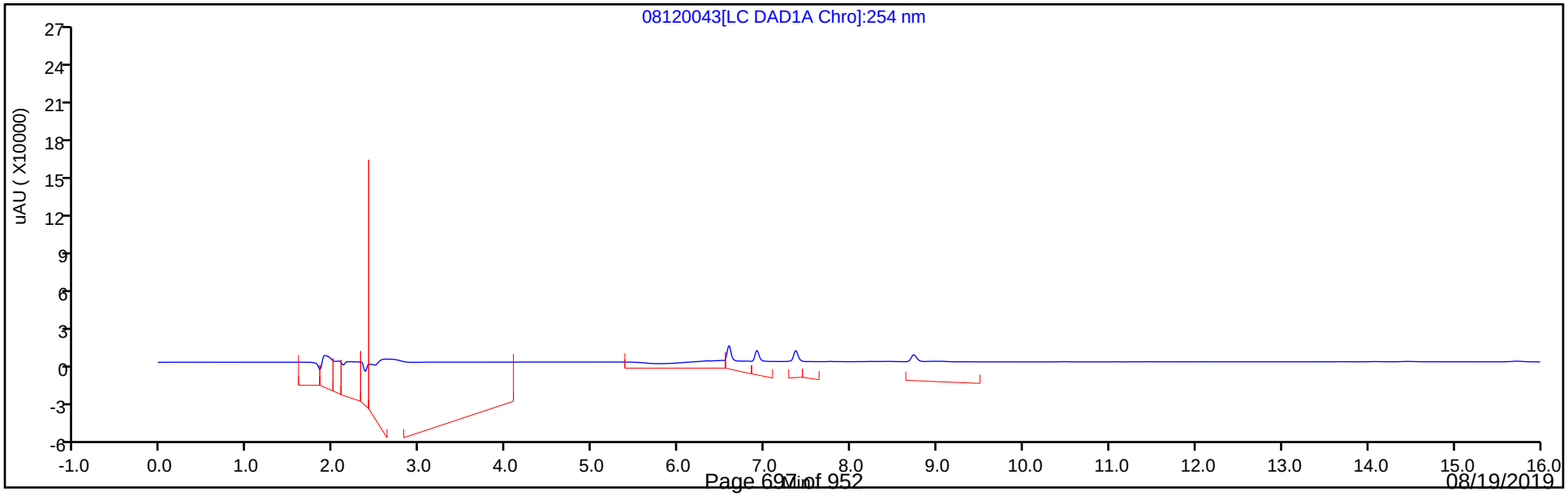
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120043.D

Injection Date:	13-Aug-2019 01:47:40	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	LCS 280-466732/3-A			Worklist Smp#:	43
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	43
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120043.D
Lims ID: LCS 280-466732/3-A
Client ID:
Sample Type: LCS
Inject. Date: 13-Aug-2019 01:47:40 ALS Bottle#: 43 Worklist Smp#: 43
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-466732/3
Misc. Info.: 280-0084372-043
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:20:54

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1751	87.54

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Client Sample ID: Lab Sample ID: LCSD 280-466732/4-A

Matrix: Water Lab File ID: 08120044.D

Analysis Method: 8330A Date Collected:

Extraction Method: 3535 Date Extracted: 08/05/2019 17:00

Sample wt/vol: 500(mL) Date Analyzed: 08/13/2019 02:10

Con. Extract Vol.: 5(mL) Dilution Factor: 1

Injection Volume: 100(uL) GC Column: UltraCarb5uODS ID: 4.6(mm)

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

Analysis Batch No.: 467289 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
5755-27-1	MNX	2.33		2.0	0.40	0.15

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	85		83-119

Eurofins TestAmerica, Denver
Target Compound Quantitation Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120044.D
Lims ID: LCSD 280-466732/4-A
Client ID:
Sample Type: LCSD
Inject. Date: 13-Aug-2019 02:10:39 ALS Bottle#: 44 Worklist Smp#: 44
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCSD 280-466732/
Misc. Info.: 280-0084372-044
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:21:08

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
2 TNX	1	6.584	6.587	-0.003	37190	0.2002	0.1730	M
5 DNX	1	6.911	6.907	0.004	29668	0.2002	0.1900	
6 MNX	1	7.358	7.367	-0.009	32567	0.2334	0.2326	
$ 9 1,2-Dinitrobenzene	1	8.731	8.710	0.021	23810	0.2000	0.1709	

QC Flag Legend

Review Flags
M - Manually Integrated

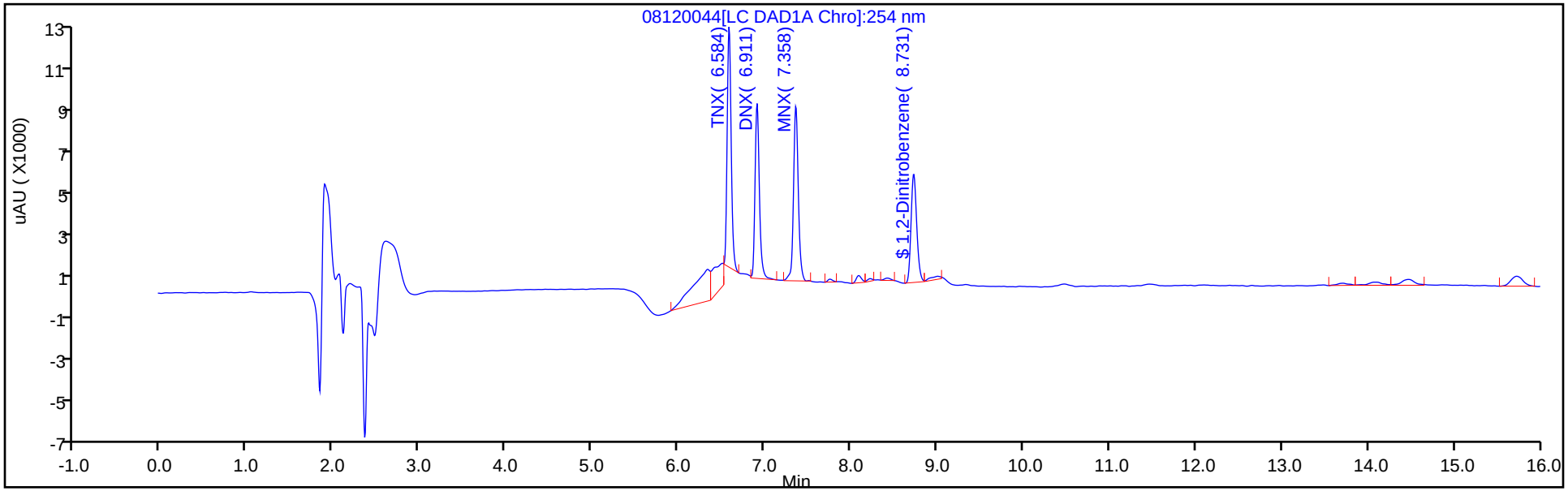
Report Date: 13-Aug-2019 14:09:44 Chrom Revision: 2.3 15-Jul-2019 06:58:08

Eurofins TestAmerica, Denver

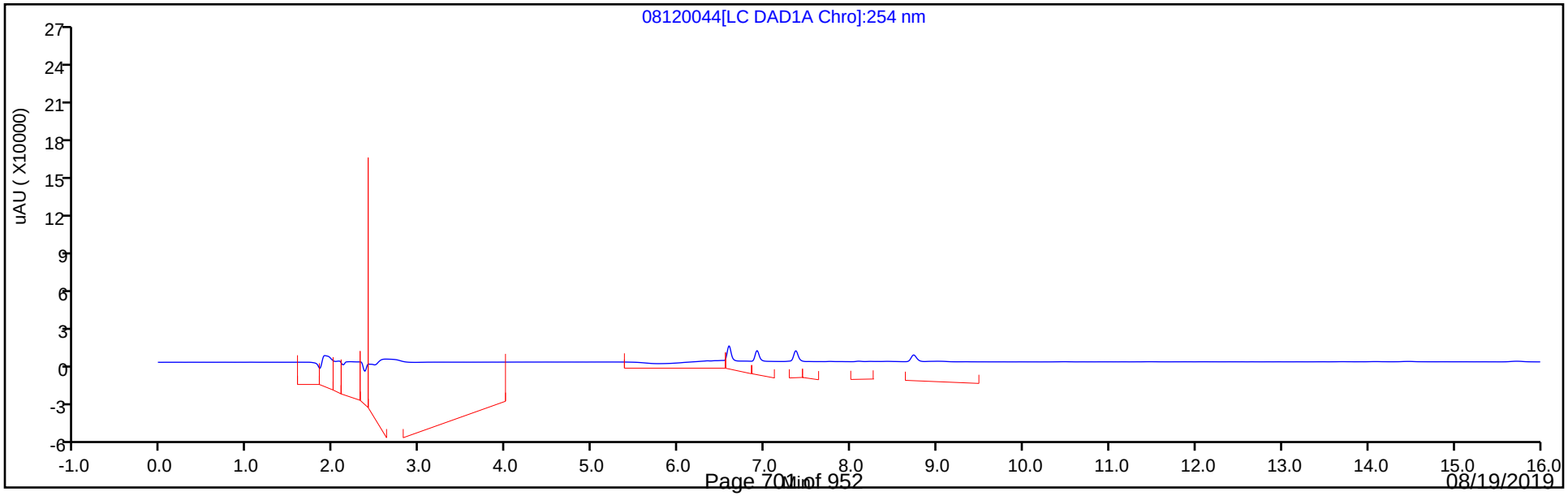
Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120044.D

Injection Date:	13-Aug-2019 02:10:39	Instrument ID:	CHHPLC_X3	Operator ID:	hkf
Lims ID:	LCSD 280-466732/4-A			Worklist Smp#:	44
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	44
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Eurofins TestAmerica, Denver
Recovery Report

Data File: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\08120044.D
Lims ID: LCSD 280-466732/4-A
Client ID:
Sample Type: LCSD
Inject. Date: 13-Aug-2019 02:10:39 ALS Bottle#: 44 Worklist Smp#: 44
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCSD 280-466732/
Misc. Info.: 280-0084372-044
Operator ID: hkf Instrument ID: CHHPLC_X3

Method: \\chromna\Denver\ChromData\CHHPLC_X\20190812-84372.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 13-Aug-2019 14:09:36 Calib Date: 02-Jul-2019 00:18:07
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Denver\ChromData\CHHPLC_X\20190701-83376.b\07010032.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX0340

First Level Reviewer: fiedlerh Date: 13-Aug-2019 13:21:08

Compound	Amount Added	Amount Recovered	% Rec.
$ 9 1,2-Dinitrobenzene	0.2000	0.1709	85.45

HPLC/IC ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_G2_LUNA Start Date: 05/07/2019 15:08

Analysis Batch Number: 457315 End Date: 05/08/2019 01:03

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 280-457315/7		05/07/2019 15:08	1	05070007.D	Luna-phenylhex 4.6(mm)
IC 280-457315/8		05/07/2019 15:43	1	05070008.D	Luna-phenylhex 4.6(mm)
IC 280-457315/9		05/07/2019 16:18	1	05070009.D	Luna-phenylhex 4.6(mm)
IC 280-457315/10		05/07/2019 16:53	1	05070010.D	Luna-phenylhex 4.6(mm)
IC 280-457315/11		05/07/2019 17:28	1	05070011.D	Luna-phenylhex 4.6(mm)
IC 280-457315/12		05/07/2019 18:03	1	05070012.D	Luna-phenylhex 4.6(mm)
IC 280-457315/13		05/07/2019 18:38	1	05070013.D	Luna-phenylhex 4.6(mm)
IC 280-457315/14		05/07/2019 19:13	1	05070014.D	Luna-phenylhex 4.6(mm)
ICV 280-457315/15		05/07/2019 19:48	1	05070015.D	Luna-phenylhex 4.6(mm)
IC 280-457315/16		05/07/2019 20:23	1	05070016.D	Luna-phenylhex 4.6(mm)
IC 280-457315/17		05/07/2019 20:58	1	05070017.D	Luna-phenylhex 4.6(mm)
IC 280-457315/18		05/07/2019 21:33	1	05070018.D	Luna-phenylhex 4.6(mm)
IC 280-457315/19		05/07/2019 22:08	1	05070019.D	Luna-phenylhex 4.6(mm)
IC 280-457315/20		05/07/2019 22:43	1	05070020.D	Luna-phenylhex 4.6(mm)
IC 280-457315/21		05/07/2019 23:18	1	05070021.D	Luna-phenylhex 4.6(mm)
IC 280-457315/22		05/07/2019 23:53	1	05070022.D	Luna-phenylhex 4.6(mm)
IC 280-457315/23		05/08/2019 00:28	1	05070023.D	Luna-phenylhex 4.6(mm)
ICV 280-457315/24		05/08/2019 01:03	1		Luna-phenylhex 4.6(mm)

HPLC/IC ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_G2_LUNA Start Date: 05/08/2019 12:21

Analysis Batch Number: 457456 End Date: 05/08/2019 16:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ICV 280-457456/7		05/08/2019 12:21	1	05080007.D	Luna-phenylhex 4.6(mm)
CCV 280-457456/8		05/08/2019 12:56	1		Luna-phenylhex 4.6(mm)
ZZZZZ		05/08/2019 13:31	1		Luna-phenylhex 4.6(mm)
ZZZZZ		05/08/2019 14:06	1		Luna-phenylhex 4.6(mm)
ZZZZZ		05/08/2019 14:41	1		Luna-phenylhex 4.6(mm)
ZZZZZ		05/08/2019 15:16	1		Luna-phenylhex 4.6(mm)
CCV 280-457456/13		05/08/2019 15:51	1		Luna-phenylhex 4.6(mm)
CCV 280-457456/14		05/08/2019 16:26	1		Luna-phenylhex 4.6(mm)

HPLC/IC ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_X3 Start Date: 07/01/2019 14:40

Analysis Batch Number: 463276 End Date: 07/02/2019 00:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 280-463276/7		07/01/2019 14:40	1	07010007.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/8		07/01/2019 15:04	1	07010008.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/9		07/01/2019 15:27	1	07010009.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/10		07/01/2019 15:50	1	07010010.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/11		07/01/2019 16:13	1	07010011.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/12		07/01/2019 16:36	1	07010012.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/13		07/01/2019 17:00	1	07010013.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/14		07/01/2019 17:23	1	07010014.D	UltraCarb5uODS 4.6(mm)
ICV 280-463276/15		07/01/2019 17:46	1	07010015.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/16		07/01/2019 18:09	1		UltraCarb5uODS 4.6(mm)
IC 280-463276/17		07/01/2019 18:32	1		UltraCarb5uODS 4.6(mm)
IC 280-463276/18		07/01/2019 18:55	1		UltraCarb5uODS 4.6(mm)
IC 280-463276/19		07/01/2019 19:18	1		UltraCarb5uODS 4.6(mm)
IC 280-463276/20		07/01/2019 19:41	1		UltraCarb5uODS 4.6(mm)
IC 280-463276/21		07/01/2019 20:04	1		UltraCarb5uODS 4.6(mm)
IC 280-463276/22		07/01/2019 20:27	1		UltraCarb5uODS 4.6(mm)
IC 280-463276/23		07/01/2019 20:50	1		UltraCarb5uODS 4.6(mm)
ICV 280-463276/24		07/01/2019 21:13	1		UltraCarb5uODS 4.6(mm)
IC 280-463276/25		07/01/2019 21:36	1	07010025.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/26		07/01/2019 22:00	1	07010026.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/27		07/01/2019 22:23	1	07010027.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/28		07/01/2019 22:46	1	07010028.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/29		07/01/2019 23:09	1	07010029.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/30		07/01/2019 23:32	1	07010030.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/31		07/01/2019 23:55	1	07010031.D	UltraCarb5uODS 4.6(mm)
IC 280-463276/32		07/02/2019 00:18	1	07010032.D	UltraCarb5uODS 4.6(mm)
ICV 280-463276/33		07/02/2019 00:41	1	07010033.D	UltraCarb5uODS 4.6(mm)

HPLC/IC ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_X3 Start Date: 08/12/2019 23:52

Analysis Batch Number: 467289 End Date: 08/13/2019 09:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-467289/38		08/12/2019 23:52	1	08120038.D	UltraCarb5uODS 4.6(mm)
CCV 280-467289/39		08/13/2019 00:15	1		UltraCarb5uODS 4.6(mm)
CCV 280-467289/40		08/13/2019 00:38	1	08120040.D	UltraCarb5uODS 4.6(mm)
MB 280-466732/1-A		08/13/2019 01:01	1	08120041.D	UltraCarb5uODS 4.6(mm)
LCS 280-466732/2-A		08/13/2019 01:24	1	08120042.D	UltraCarb5uODS 4.6(mm)
LCS 280-466732/3-A		08/13/2019 01:47	1	08120043.D	UltraCarb5uODS 4.6(mm)
LCSD 280-466732/4-A		08/13/2019 02:10	1	08120044.D	UltraCarb5uODS 4.6(mm)
ZZZZZ		08/13/2019 02:33	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		08/13/2019 02:56	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		08/13/2019 03:19	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		08/13/2019 03:42	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		08/13/2019 04:05	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		08/13/2019 04:28	1		UltraCarb5uODS 4.6(mm)
CCV 280-467289/51		08/13/2019 04:51	1	08120051.D	UltraCarb5uODS 4.6(mm)
CCV 280-467289/52		08/13/2019 05:14	1		UltraCarb5uODS 4.6(mm)
CCV 280-467289/53		08/13/2019 05:37	1	08120053.D	UltraCarb5uODS 4.6(mm)
280-126873-1		08/13/2019 06:00	1	08120054.D	UltraCarb5uODS 4.6(mm)
280-126873-2		08/13/2019 06:23	1	08120055.D	UltraCarb5uODS 4.6(mm)
280-126873-4		08/13/2019 06:46	1	08120056.D	UltraCarb5uODS 4.6(mm)
280-126873-6		08/13/2019 07:09	1	08120057.D	UltraCarb5uODS 4.6(mm)
280-126873-7		08/13/2019 07:32	1	08120058.D	UltraCarb5uODS 4.6(mm)
ZZZZZ		08/13/2019 07:54	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		08/13/2019 08:17	1		UltraCarb5uODS 4.6(mm)
CCV 280-467289/61		08/13/2019 08:40	1	08120061.D	UltraCarb5uODS 4.6(mm)
CCV 280-467289/62		08/13/2019 09:03	1		UltraCarb5uODS 4.6(mm)
CCV 280-467289/63		08/13/2019 09:26	1	08120063.D	UltraCarb5uODS 4.6(mm)

HPLC/IC ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: CHHPLC_G2_LUNA Start Date: 08/15/2019 11:54

Analysis Batch Number: 467721 End Date: 08/15/2019 18:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-467721/7		08/15/2019 11:54	1	08150007.D	Luna-phenylhex 4.6(mm)
CCV 280-467721/8		08/15/2019 12:29	1	08150008.D	Luna-phenylhex 4.6(mm)
280-126873-1		08/15/2019 13:04	1	08150009.D	Luna-phenylhex 4.6(mm)
280-126873-2		08/15/2019 13:39	1	08150010.D	Luna-phenylhex 4.6(mm)
280-126873-4		08/15/2019 14:14	1	08150011.D	Luna-phenylhex 4.6(mm)
280-126873-6		08/15/2019 14:49	1	08150012.D	Luna-phenylhex 4.6(mm)
280-126873-7		08/15/2019 15:24	1	08150013.D	Luna-phenylhex 4.6(mm)
ZZZZZ		08/15/2019 15:59	1		Luna-phenylhex 4.6(mm)
ZZZZZ		08/15/2019 16:34	1		Luna-phenylhex 4.6(mm)
ZZZZZ		08/15/2019 17:09	100		Luna-phenylhex 4.6(mm)
CCV 280-467721/17		08/15/2019 17:44	1	08150017.D	Luna-phenylhex 4.6(mm)
CCV 280-467721/18		08/15/2019 18:19	1	08150018.D	Luna-phenylhex 4.6(mm)

HPLC/IC BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 466732 Batch Start Date: 08/05/19 19:47 Batch Analyst: Exstrum, Adam J

Batch Method: 3535 Batch End Date: 08/05/19 23:56

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	8330 LCS 00092	8330_OP_DMT 00003	8330Surrogate 00108	AnalysisComment
MB 280-466732/1		3535, 8330A		500 mL	5 mL			0.1 mL	
LCS 280-466732/2		3535, 8330A		500 mL	5 mL	0.1 mL		0.1 mL	8330
LCS 280-466732/3		3535, 8330A		500 mL	5 mL		0.1 mL	0.1 mL	DMT
LCSD 280-466732/4		3535, 8330A		500 mL	5 mL		0.1 mL	0.1 mL	DMT
280-126873-B-1	SP-S2	3535, 8330A	T	500 mL	5 mL			0.1 mL	
280-126873-B-2	SP-E1	3535, 8330A	T	500 mL	5 mL			0.1 mL	
280-126873-B-4	SP-S22	3535, 8330A	T	500 mL	5 mL			0.1 mL	
280-126873-B-6	SP-S6	3535, 8330A	T	500 mL	5 mL			0.1 mL	
280-126873-B-7	SP-S8	3535, 8330A	T	500 mL	5 mL			0.1 mL	

Batch Notes	
Acid ID	0.1AAinACN_00131
Acid Name	0.1AAinACN
Balance ID	24350888
Batch Comment	DV-OP-0017
First End time	08/05/2019 22:05
Pipette/Syringe/Dispenser ID	Jiji, Soot
Rinse Solvent Lot	Acetonitrile_00034
Rinse Solvent Name	Acetonitrile
Solvent Lot #	CaCl2_Sol_00066/67
Solvent Name	Calcium Chloride
SPE Cartridge Lot ID	005039142A
SPE Cartridge Type	Porapak RDX Cartridges
Analyst ID - Spike Analyst	AE
Analyst ID - Spike Witness Analyst	Reviewer: DC
First Start time	08/05/2019 20:01

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.

HPLC/IC BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 466732 Batch Start Date: 08/05/19 19:47 Batch Analyst: Exstrum, Adam J

Batch Method: 3535 Batch End Date: 08/05/19 23:56

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.

METALS

COVER PAGE
METALS

Lab Name: Eurofins TestAmerica, Denver Job Number: 280-126873-1

SDG No.:

Project: Cornhusker (CHAAP)

Client Sample ID	Lab Sample ID
SP-E1	280-126873-2
SP-E11	280-126873-3

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: SP-E1 Lab Sample ID: 280-126873-2

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG ID.:

Matrix: Water Date Sampled: 07/31/2019 08:56

Reporting Basis: WET Date Received: 08/01/2019 09:15

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Selenium	1.0	5.0	1.0	0.37	ug/L	J		1	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: SP-E11 Lab Sample ID: 280-126873-3

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG ID.:

Matrix: Water Date Sampled: 07/31/2019 08:56

Reporting Basis: WET Date Received: 08/01/2019 09:15

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Selenium	1.0	5.0	1.0	0.37	ug/L	J		1	6020A

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

ICV Source: ms 77 icv_02105 Concentration Units: ug/L

CCV Source: ms 77 ccv_02110

Analyte	ICV 280-467820/5 08/15/2019 12:04				CCV 280-467820/39 08/15/2019 14:19				CCV 280-467820/50 08/15/2019 14:58			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Selenium	40.9		40.0	102	51.7		50.0	103	51.7		50.0	103

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

ICV Source: ms 77 icv_02105 Concentration Units: ug/L

CCV Source: ms 77 ccv_02110

Analyte	CCV 280-467820/61 08/15/2019 15:37											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Selenium	53.9		50.0	108								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

ICV Source: MS 77 LLCCV_01912 Concentration Units: ug/L

CCV Source: MS 77 LLCCV_01912

Analyte	ICVL 280-467820/7 08/15/2019 12:14				CCVL 280-467820/41 08/15/2019 14:26				CCVL 280-467820/52 08/15/2019 15:05			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Selenium	5.11		5.00	102	5.04		5.00	101	5.06		5.00	101

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

ICV Source: MS 77 LLCCV_01912 Concentration Units: ug/L

CCV Source: MS 77 LLCCV_01912

Analyte	CCVL 280-467820/63 08/15/2019 15:44											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Selenium	5.11		5.00	102								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 280-467820/6 08/15/2019 12:07		CCB 280-467820/40 08/15/2019 14:23		CCB 280-467820/51 08/15/2019 15:02		CCB 280-467820/62 08/15/2019 15:40	
		Found	C	Found	C	Found	C	Found	C
Selenium	5.0	1.0	U	1.0	U	1.0	U	1.0	U

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Concentration Units: ug/L Lab Sample ID: MB 280-467486/1-A

Instrument Code: MT_078 Batch No.: 467820

CAS No.	Analyte	Concentration	C	Q	Method
7782-49-2	Selenium	1.0	U		6020A_DOD5

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICSA 280-467820/12 Instrument ID: MT_078

Lab File ID: 022ICSA.d ICS Source: ms 77 icsa_00436

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Selenium		**0.0400**	
Antimony		*0.0850*	
Arsenic		*0.0960*	
Barium		*0.852*	
Beryllium		*-0.0110*	
Cadmium		*0.536*	
Chromium		*1.42*	
Copper		*0.480*	
Lead		*0.258*	
Manganese		*0.709*	
Molybdenum	*2000*	*2182*	*109*
Nickel		*0.303*	
Silver		*0.0400*	
Thallium		*-0.0100*	
Vanadium		*1.60*	
Zn		*0.987*	

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

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Lab Sample ID: ICSAB 280-467820/13 Instrument ID: MT_078

Lab File ID: 023ICSB.d ICS Source: ms 77 icsab_00436

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Selenium	**100**	**104**	**104**
Antimony	*100*	*109*	*109*
Arsenic	*100*	*104*	*104*
Barium	*100*	*115*	*115*
Beryllium	*100*	*105*	*105*
Cadmium	*100*	*96.6*	*97*
Chromium	*100*	*99.3*	*99*
Cobalt	*100*	*98.8*	*99*
Copper	*100*	*93.7*	*94*
Lead	*100*	*98.7*	*99*
Manganese	*100*	*105*	*105*
Molybdenum	*2100*	*2257*	*107*
Nickel	*100*	*97.7*	*98*
Silver	*100*	*99.0*	*99*
Thallium	*100*	*101*	*101*
Vanadium	*100*	*101*	*101*
Zn	*100*	*95.2*	*95*

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

FORM IVA-IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 280-467486/2-A

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

Sample Matrix: Water LCS Source: ms spike 1_00002

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Selenium	40.0	38.3		96	80	120		6020A

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

FORM VIIA - IN

9-IN
DETECTION LIMITS
METALS

Lab Name: Eurofins TestAmerica, Denver Job Number: 280-126873-1

SDG Number:

Matrix: Water Instrument ID: MT_078

Method: 6020A DL Date: 07/14/2019 00:00

Prep Method: 3020A

Analyte	Wavelength/ Mass	LOQ (ug/L)	DL (ug/L)
Selenium	78	5	0.373

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: Eurofins TestAmerica, Denver Job Number: 280-126873-1

SDG Number:

Matrix: Water Instrument ID: MT_078

Method: 6020A XMDL Date: 07/14/2019 00:00

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Selenium		5	0.373

11-IN
LINEAR RANGES
METALS

Lab Name: Eurofins TestAmerica, Denver Job No: 280-126873-1

SDG No.:

Instrument ID: MT_078 Date: 07/10/2019 07:30

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Selenium			6020A

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Prep Method: 3020A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 280-467486/1-A	08/14/2019 14:30	467486		50	50
LCS 280-467486/2-A	08/14/2019 14:30	467486		50	50
280-126873-2	08/14/2019 14:30	467486		50	50
280-126873-3	08/14/2019 14:30	467486		50	50

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: MT_078 Analysis Method: 6020A

Start Date: 08/15/2019 11:49 End Date: 08/15/2019 19:49

Lab Sample Id	D/F	Type	Time	Analytes
				Se
RINSE 280-467820/1			11:49	
RINSE 280-467820/2			11:53	
ICIS 280-467820/3			11:56	X
IC 280-467820/4	1		12:00	X
ICV 280-467820/5	1		12:04	X
ICB 280-467820/6	1		12:07	X
ICVL 280-467820/7	1		12:14	X
ZZZZZZ			12:19	
CRI 280-467820/9			12:27	
CRI 280-467820/10			12:33	
ZZZZZZ			12:38	
ICSA 280-467820/12	1		12:41	X
ICSAB 280-467820/13	1		12:45	X
ZZZZZZ			12:48	
LRA 280-467820/15			12:52	
ZZZZZZ			12:55	
CCV 280-467820/17			12:59	
CCB 280-467820/18			13:02	
CCVL 280-467820/19			13:06	
ZZZZZZ			13:09	
ZZZZZZ			13:16	
ZZZZZZ			13:20	
ZZZZZZ			13:23	
ZZZZZZ			13:27	
ZZZZZZ			13:30	
ZZZZZZ			13:34	
ZZZZZZ			13:37	
CCV 280-467820/28			13:41	
CCB 280-467820/29			13:44	
ZZZZZZ			13:48	
ZZZZZZ			13:51	
ZZZZZZ			13:55	
ZZZZZZ			13:58	
ZZZZZZ			14:02	
ZZZZZZ			14:05	
ZZZZZZ			14:09	
ZZZZZZ			14:12	
ZZZZZZ			14:16	
CCV 280-467820/39	1		14:19	X
CCB 280-467820/40	1		14:23	X
CCVL 280-467820/41	1		14:26	X
MB 280-467486/1-A	1	T	14:30	X

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: MT_078 Analysis Method: 6020A

Start Date: 08/15/2019 11:49 End Date: 08/15/2019 19:49

Lab Sample Id	D/F	Type	Time	Analytes
				Se
LCS 280-467486/2-A	1	T	14:34	X
280-126873-2	1	T	14:37	X
280-126873-3	1	T	14:41	X
ZZZZZZ			14:44	
ZZZZZZ			14:48	
ZZZZZZ			14:51	
ZZZZZZ			14:55	
CCV 280-467820/50	1		14:58	X
CCB 280-467820/51	1		15:02	X
CCVL 280-467820/52	1		15:05	X
ZZZZZZ			15:09	
ZZZZZZ			15:12	
ZZZZZZ			15:16	
ZZZZZZ			15:19	
ZZZZZZ			15:23	
ZZZZZZ			15:26	
ZZZZZZ			15:30	
ZZZZZZ			15:33	
CCV 280-467820/61	1		15:37	X
CCB 280-467820/62	1		15:40	X
CCVL 280-467820/63	1		15:44	X
ZZZZZZ			15:48	
ZZZZZZ			15:51	
ZZZZZZ			15:55	
ZZZZZZ			15:58	
ZZZZZZ			16:02	
ZZZZZZ			16:05	
CCV 280-467820/70			16:09	
CCB 280-467820/71			16:12	
ZZZZZZ			16:16	
ZZZZZZ			16:21	
ZZZZZZ			16:24	
ZZZZZZ			16:28	
ZZZZZZ			16:31	
CCV 280-467820/77			16:35	
CCB 280-467820/78			16:38	
RINSE 280-467820/79			16:42	
RINSE 280-467820/80			16:45	
ICIS 280-467820/81			16:49	X
IC 280-467820/82			16:52	X
CCV 280-467820/83			16:56	
CCB 280-467820/84			17:00	

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: MT_078 Analysis Method: 6020A

Start Date: 08/15/2019 11:49 End Date: 08/15/2019 19:49

Lab Sample Id	D/F	Type	Time	Analytes
				Se
CCVL 280-467820/85			17:03	
ZZZZZZ			17:07	
ZZZZZZ			17:10	
ZZZZZZ			17:14	
ZZZZZZ			17:17	
ZZZZZZ			17:21	
ZZZZZZ			17:24	
ZZZZZZ			17:28	
ZZZZZZ			17:31	
ZZZZZZ			17:35	
CCV 280-467820/95			17:38	
CCB 280-467820/96			17:42	
ZZZZZZ			17:45	
ZZZZZZ			17:49	
ZZZZZZ			17:53	
ZZZZZZ			17:56	
ZZZZZZ			18:00	
ZZZZZZ			18:03	
ZZZZZZ			18:07	
ZZZZZZ			18:10	
CCV 280-467820/105			18:14	
CCB 280-467820/106			18:17	
ZZZZZZ			18:21	
ZZZZZZ			18:24	
ZZZZZZ			18:28	
ZZZZZZ			18:31	
ZZZZZZ			18:35	
ZZZZZZ			18:39	
ZZZZZZ			18:42	
ZZZZZZ			18:46	
ZZZZZZ			18:49	
CCV 280-467820/116			18:53	
CCB 280-467820/117			18:56	
ZZZZZZ			19:00	
ZZZZZZ			19:03	
ZZZZZZ			19:07	
ZZZZZZ			19:10	
ZZZZZZ			19:14	
ZZZZZZ			19:17	
CCV 280-467820/124			19:21	
CCB 280-467820/125			19:24	
ZZZZZZ			19:28	

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: MT_078 Analysis Method: 6020A

Start Date: 08/15/2019 11:49 End Date: 08/15/2019 19:49

Lab Sample Id	D/F	Type	Time	Analytes																								
				Se																								
ZZZZZZ			19:32																									
ZZZZZZ			19:35																									
ZZZZZZ			19:39																									
ZZZZZZ			19:42																									
CCV 280-467820/131			19:46																									
CCB 280-467820/132			19:49																									

Prep Types:
T = Total/NA

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

ICP-MS Instrument ID: MT_078 Start Date: 08/15/2019 End Date: 08/15/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc/1	Q	Element Sc/2	Q	Element Ge/1	Q	Element Ge/2	Q
IC 280-467820/4	12:00	102		98		97		100		98	
ICV 280-467820/5	12:04	98		95		96		95		97	
ICB 280-467820/6	12:07	98		97		96		98		97	
ICVL 280-467820/7	12:14	102		97		98		99		99	
ICSA 280-467820/12	12:41	91		87		92		86		86	
ICSAB 280-467820/13	12:45	86		89		91		88		89	
CCV 280-467820/39	14:19	93		95		96		93		98	
CCB 280-467820/40	14:23	92		93		94		90		99	
CCVL 280-467820/41	14:26	94		93		94		94		96	
MB 280-467486/1-A	14:30	93		96		98		93		98	
LCS 280-467486/2-A	14:34	91		98		98		93		98	
280-126873-2	14:37	90		94		98		92		95	
280-126873-3	14:41	91		93		97		92		100	
CCV 280-467820/50	14:58	94		97		96		95		96	
CCB 280-467820/51	15:02	90		93		96		93		96	
CCVL 280-467820/52	15:05	91		92		95		89		96	
CCV 280-467820/61	15:37	94		94		98		94		98	
CCB 280-467820/62	15:40	89		92		94		90		96	
CCVL 280-467820/63	15:44	89		93		93		91		96	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

ICP-MS Instrument ID: MT_078 Start Date: 08/15/2019 End Date: 08/15/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element In	Q	Element Ho-165	Q	Element	Q	Element	Q	Element	Q
IC 280-467820/4	12:00	98		100							
ICV 280-467820/5	12:04	97		98							
ICB 280-467820/6	12:07	95		100							
ICVL 280-467820/7	12:14	98		99							
ICSA 280-467820/12	12:41	89		98							
ICSAB 280-467820/13	12:45	90		97							
CCV 280-467820/39	14:19	97		96							
CCB 280-467820/40	14:23	92		97							
CCVL 280-467820/41	14:26	96		97							
MB 280-467486/1-A	14:30	95		98							
LCS 280-467486/2-A	14:34	98		100							
280-126873-2	14:37	97		99							
280-126873-3	14:41	96		99							
CCV 280-467820/50	14:58	95		96							
CCB 280-467820/51	15:02	95		98							
CCVL 280-467820/52	15:05	94		98							
CCV 280-467820/61	15:37	98		101							
CCB 280-467820/62	15:40	95		101							
CCVL 280-467820/63	15:44	97		100							

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 467486 Batch Start Date: 08/14/19 14:30 Batch Analyst: Lodl, Dagmara A

Batch Method: 3020A Batch End Date: 08/14/19 19:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	Initial pH	InitialAmount	FinalAmount	ms spike 1 00002	MS spike 2 00083	
MB 280-467486/1		3020A, 6020A			50 mL	50 mL			
LCS 280-467486/2		3020A, 6020A			50 mL	50 mL	0.1 mL	0.1 mL	
280-126873-C-2	SP-E1	3020A, 6020A	T	<2	50 mL	50 mL			
280-126873-A-3	SP-E11	3020A, 6020A	T	<2	50 mL	50 mL			

Batch Notes	
Temperature - Corrected - End	95 Degrees C
Temperature - Corrected - Start	94 Degrees C
Digestion End Time	1900
Digestion Start Time	14:43
Digestion Unit ID	11
Lot # of Nitric Acid	0000216908-07/20
Pipette/Syringe/Dispenser ID	MET-88
Thermometer ID	MT-2050
Digestion Tube/Cup ID	1902243
Temperature - Uncorrected - End	95 Degrees C
Temperature - Uncorrected - Start	94 Degrees C

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.

Current Signal

Operator Name	Denver Metals
Acq. Date-Time	2019-08-15 9:41:11 AM
Instrument Name	G3281A JP12422099
Batch Folder	D:\Agilent\ICPMH\1\DATA\081519.b

[No Gas]

Sensitivity



Ch	Mass	Range	Count	Avg Count	RSD%
1	7	50000	25536	26010	1.275
2	59	100000	22544	23240	2.882
3	63	10000	6101	5927	1.884
4	70	5000	881	871	5.042
5	80	5000000	1077789	1081282	0.500
6	89	100000	39183	39130	2.612
7	115	100000	32549	32399	1.675
8	118	1000	778	774	4.361
9	137	10000	3410	3467	1.760
10	140	100000	29638	29799	3.862
11	205	50000	10893	10905	1.973
12	6	5000	3962	3930	2.519
13	70/140	5	2.973 %	2.926 %	4.877
14	156/140	2	1.724 %	1.745 %	7.790

Integration Time [sec] 0.1

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	1.03 L/min	Dilution Gas	0.00 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching	1.20 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Q1 Entrance	---	Cell Exit	-50 V
Extract 2	-120.0 V	Q1 Exit	---	Deflect	14.3 V
Omega Bias	-55 V	Cell Focus	---	Plate Bias	-40 V
Omega Lens	7.6 V	Cell Entrance	-30 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Axial Acceleration	---
He Flow	0.0 mL/min	4th Gas Flow	---	OctP RF	170 V
H2 Flow	0.0 mL/min	OctP Bias	-8.0 V	Energy Discrimination	3.0 V

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-5.0 V
Mass Offset	135	Axis Offset	-0.08		

Torch

Current Signal

Torch H	0.6 mm	Torch V	0.5 mm		

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Meter

Name	Value	Unit
IF/BK Press	1.69E+2	Pa
Analyzer Press	1.03E-4	Pa
Water Temp	22.1	°C
Reflected Power	7	W
Forward Power	1551	W

Current Signal

Operator Name	Denver Metals
Acq. Date-Time	2019-08-15 9:41:41 AM
Instrument Name	G3281A JP12422099
Batch Folder	D:\Agilent\ICPMH\1\DATA\081519.b

[HMI He]

Sensitivity



Ch	Mass	Range	Count	Avg Count	RSD%
1	7	50	5	13	37.131
2	9	200	85	100	14.921
3	25	500	298	283	9.173
4	51	1000	150	183	12.083
5	70	1000	137	172	14.011
6	75	20	3	4	49.487
7	78	20	0	1	151.757
8	59	20000	4576	4587	3.139
9	118	200	134	134	12.907
10	137	5000	607	579	6.812
11	140	50000	9964	10078	2.178
12	205	20000	3548	3330	5.558
13	238	50000	6904	6878	1.909
14	70/140	5	1.375 %	1.704 %	14.516
15	156/140	1	0.452 %	0.443 %	9.407

Integration Time [sec] 0.1

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.75 L/min	Dilution Gas	0.28 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching	1.20 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Q1 Entrance	---	Cell Exit	-60 V
Extract 2	-120.0 V	Q1 Exit	---	Deflect	-0.5 V
Omega Bias	-55 V	Cell Focus	---	Plate Bias	-60 V
Omega Lens	7.6 V	Cell Entrance	-40 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Axial Acceleration	---
He Flow	5.0 mL/min	4th Gas Flow	---	OctP RF	200 V
H2 Flow	0.0 mL/min	OctP Bias	-18.0 V	Energy Discrimination	3.0 V

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-15.0 V
Mass Offset	135	Axis Offset	-0.08		

Current Signal

Torch

Torch H	0.6 mm	Torch V	0.5 mm

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Meter

Name	Value	Unit
IF/BK Press	1.69E+2	Pa
Analyzer Press	2.23E-4	Pa
Water Temp	22.2	°C
Reflected Power	6	W
Forward Power	1549	W

Current Signal

Operator Name	Denver Metals
Acq. Date-Time	2019-08-15 9:42:08 AM
Instrument Name	G3281A JP12422099
Batch Folder	D:\Agilent\ICPMH\1\DATA\081519.b

[HMI H2]

Sensitivity



Ch	Mass	Range	Count	Avg Count	RSD%
1	7	1000	518	453	26.125
2	9	5000	2008	1832	19.515
3	59	20000	6461	5995	12.523
4	63	2000	1039	946	12.041
5	70	2000	555	504	9.546
6	78	20	6	10	65.272
7	89	100000	26466	26193	4.424
8	115	100000	22803	22374	2.827
9	118	500	475	486	5.139
10	137	10000	2568	2503	4.526
11	140	100000	24324	23837	3.919
12	205	50000	5056	5191	7.828
13	238	50000	8051	7389	11.100
14	70/140	5	2.282 %	2.112 %	6.920
15	156/140	2	1.402 %	1.294 %	5.772

Integration Time [sec] 0.1

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.75 L/min	Dilution Gas	0.28 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching	1.20 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Q1 Entrance	---	Cell Exit	-60 V
Extract 2	-120.0 V	Q1 Exit	---	Deflect	-0.5 V
Omega Bias	-55 V	Cell Focus	---	Plate Bias	-60 V
Omega Lens	7.6 V	Cell Entrance	-40 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Axial Acceleration	---
He Flow	0.0 mL/min	4th Gas Flow	---	OctP RF	190 V
H2 Flow	4.0 mL/min	OctP Bias	-18.0 V	Energy Discrimination	3.0 V

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-15.0 V
Mass Offset	135	Axis Offset	-0.08		

Current Signal

Torch

Torch H	0.6 mm	Torch V	0.5 mm

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Meter

Name	Value	Unit
IF/BK Press	1.78E+2	Pa
Analyzer Press	7.23E-4	Pa
Water Temp	22.1	°C
Reflected Power	6	W
Forward Power	1550	W

US EPA Tune Check Report

Operator Name	Denver Metals
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\081519.b
Acq. Date-Time	2019-08-15 9:50:01 AM
Report Comment	---
Instrument Name	G3281A JP12422099

[HMI H2]

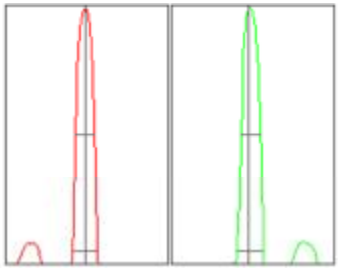
Sensitivity

Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7		143	1430.45	10.514	5.000	Fail
9		558	5583.61	10.478	5.000	Fail

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	166	151	135	131	133
9	657	566	532	516	521

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
7	423.55	7.00	6.90 - 7.10	
9	1619.23	8.95	8.90 - 9.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
7	0.35	0.442	0.750	
9	0.35	0.483	0.750	

Integration Time [sec] 0.1
Acquisition Time [sec] 51.09
Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas		Dilution Gas	0.28 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.6 V	Deflect	-0.5 V

US EPA Tune Check Report

Extract 2	-120.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-55 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	0.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	4.0 mL/min	OctP RF	190 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-15.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm

[HMI He]

Sensitivity

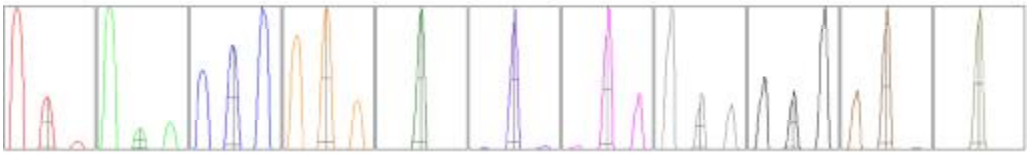
Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
24		675	6745.95	1.463	5.000	
25		94	942.76	4.126	5.000	
26		117	1174.20	3.453	5.000	
59		1505	15048.13	1.022	5.000	
103		3252	32516.81	1.362	5.000	
115		1074	10739.41	0.928	5.000	
205		1200	11998.72	3.245	5.000	
206		456	4556.80	3.757	5.000	
207		357	3572.55	3.715	5.000	
208		888	8875.32	4.953	5.000	
238		2086	20864.04	1.732	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
24	678	680	660	670	685
25	96	90	91	95	100
26	122	116	117	120	112
59	1504	1529	1494	1490	1507
103	3293	3278	3217	3277	3192
115	1076	1087	1073	1059	1075
205	1265	1194	1191	1159	1190
206	473	471	444	457	433
207	374	367	353	353	340
208	959	873	898	853	854
238	2135	2040	2099	2093	2065

US EPA Tune Check Report

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
24	1839.00	23.95	23.90 - 24.10	
25	260.72	24.95	24.90 - 25.10	
26	340.08	25.95	25.90 - 26.10	
59	4486.27	58.95	58.90 - 59.10	
103	11806.45	103.00	102.90 - 103.10	
115	4108.26	115.00	114.90 - 115.10	
205	3680.68	205.00	204.90 - 205.10	
206	1390.91	206.00	205.90 - 206.10	
207	1255.17	207.00	206.90 - 207.10	
208	2966.28	208.00	207.90 - 208.10	
238	6881.21	238.00	237.90 - 238.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
24	0.38	0.492	0.750	
25	0.37	0.477	0.750	
26	0.36	0.522	0.750	
59	0.34	0.519	0.750	
103	0.27	0.464	0.750	
115	0.25	0.432	0.750	
205	0.31	0.435	0.750	
206	0.31	0.417	0.750	
207	0.28	0.431	0.750	
208	0.29	0.435	0.750	
238	0.30	0.466	0.750	

Integration Time [sec] 0.1

Acquisition Time [sec] 235.339999999997

Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode --- Nebulizer Gas Dilution Gas 0.28 L/min

US EPA Tune Check Report

RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.6 V	Deflect	-0.5 V
Extract 2	-120.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-55 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	5.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-15.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm		

[No Gas]

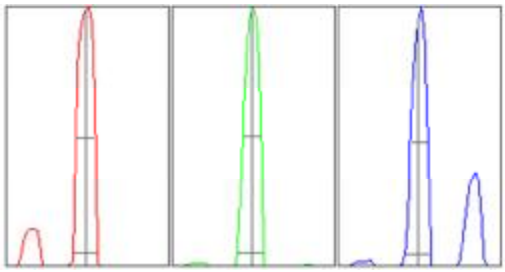
Sensitivity

Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	10.00	9121	91210.57	0.892	5.000	
89		12236	122359.66	0.683	5.000	
205		3136	31360.12	2.442	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	9215	9166	9079	9005	9142
89	12135	12195	12261	12360	12229
205	3032	3113	3115	3193	3228

Integration Time [sec] 0.1

Resolution/Axis



US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
7	25554.36	7.00	6.90 - 7.10	
89	37144.70	89.00	88.90 - 89.10	
205	10091.67	205.00	204.90 - 205.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
7	0.36	0.443	0.750	
89	0.33	0.484	0.750	
205	0.31	0.492	0.750	

Integration Time [sec]	0.1
Acquisition Time [sec]	92.3700000000001
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas		Dilution Gas	0.00 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.6 V	Deflect	14.3 V
Extract 2	-120.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-55 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	170 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-5.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm

US EPA Tune Check Report

Operator Name	Denver Metals
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\081519.b
Acq. Date-Time	2019-08-15 10:02:04 AM
Report Comment	---
Instrument Name	G3281A JP12422099

[HMI H2]

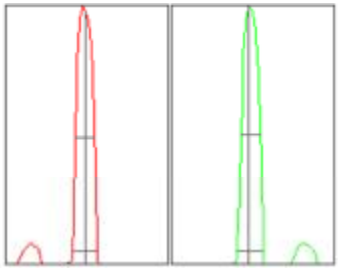
Sensitivity

Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7		141	1409.85	10.739	5.000	Fail
9		559	5585.62	13.412	5.000	Fail

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	166	145	132	131	131
9	683	573	523	507	506

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
7	403.10	7.00	6.90 - 7.10	
9	1622.69	8.95	8.90 - 9.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
7	0.35	0.442	0.750	
9	0.35	0.483	0.750	

Integration Time [sec] 0.1
Acquisition Time [sec] 51.09
Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas		Dilution Gas	0.28 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.6 V	Deflect	-0.5 V

US EPA Tune Check Report

Extract 2	-120.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-55 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	0.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	4.0 mL/min	OctP RF	190 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-15.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm

[HMI He]

Sensitivity

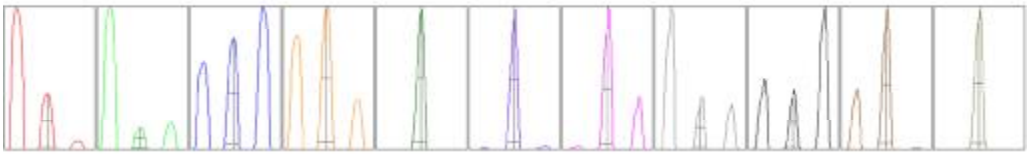
Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
24		638	6377.28	0.713	5.000	
25		92	920.66	0.778	5.000	
26		112	1117.29	3.016	5.000	
59		1481	14808.82	1.009	5.000	
103		3234	32340.43	1.702	5.000	
115		1060	10596.93	1.992	5.000	
205		1238	12384.18	2.366	5.000	
206		444	4435.18	2.993	5.000	
207		367	3665.22	2.844	5.000	
208		893	8934.67	2.449	5.000	
238		2065	20648.45	1.525	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
24	643	636	638	640	631
25	92	91	93	92	91
26	116	108	109	115	112
59	1474	1487	1475	1465	1503
103	3252	3240	3175	3314	3190
115	1037	1090	1048	1071	1052
205	1273	1256	1197	1242	1224
206	466	438	441	431	440
207	383	365	355	361	368
208	926	900	877	870	894
238	2107	2087	2059	2038	2034

US EPA Tune Check Report

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
24	1734.39	23.95	23.90 - 24.10	
25	254.17	24.95	24.90 - 25.10	
26	326.43	25.95	25.90 - 26.10	
59	4391.98	58.95	58.90 - 59.10	
103	11737.58	103.00	102.90 - 103.10	
115	4020.59	115.00	114.90 - 115.10	
205	3803.30	205.00	204.90 - 205.10	
206	1345.32	206.00	205.90 - 206.10	
207	1307.91	207.00	206.90 - 207.10	
208	3049.12	208.00	207.90 - 208.10	
238	6768.04	238.00	237.90 - 238.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
24	0.38	0.492	0.750	
25	0.37	0.478	0.750	
26	0.35	0.482	0.750	
59	0.34	0.520	0.750	
103	0.27	0.465	0.750	
115	0.26	0.432	0.750	
205	0.31	0.436	0.750	
206	0.31	0.419	0.750	
207	0.27	0.431	0.750	
208	0.28	0.435	0.750	
238	0.30	0.470	0.750	

Integration Time [sec] 0.1

Acquisition Time [sec] 235.339999999997

Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode --- Nebulizer Gas Dilution Gas 0.28 L/min

US EPA Tune Check Report

RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.6 V	Deflect	-0.5 V
Extract 2	-120.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-55 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	5.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-15.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm		

[No Gas]

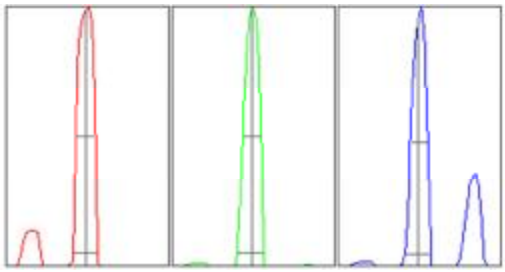
Sensitivity

Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	10.00	9141	91412.49	0.676	5.000	
89		12195	121952.69	0.978	5.000	
205		3187	31867.99	1.194	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	9101	9074	9230	9174	9126
89	12050	12183	12143	12227	12374
205	3139	3161	3217	3187	3231

Integration Time [sec] 0.1

Resolution/Axis



US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
7	25530.73	7.00	6.90 - 7.10	
89	36969.23	89.00	88.90 - 89.10	
205	10308.49	205.00	204.90 - 205.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
7	0.36	0.443	0.750	
89	0.33	0.484	0.750	
205	0.31	0.493	0.750	

Integration Time [sec]	0.1
Acquisition Time [sec]	92.3700000000001
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas		Dilution Gas	0.00 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.6 V	Deflect	14.3 V
Extract 2	-120.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-55 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	170 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-5.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm

US EPA Tune Check Report

Operator Name	Denver Metals
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\081519.b
Acq. Date-Time	2019-08-15 10:46:35 AM
Report Comment	---
Instrument Name	G3281A JP12422099

[HMI H2]

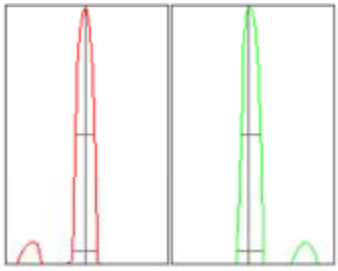
Sensitivity

Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7		130	1302.22	1.279	5.000	
9		497	4969.13	2.031	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	130	132	129	132	128
9	489	483	502	506	505

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
7	383.79	7.00	6.90 - 7.10	
9	1432.67	8.95	8.90 - 9.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
7	0.35	0.442	0.750	
9	0.36	0.483	0.750	

Integration Time [sec] 0.1
Acquisition Time [sec] 51.09
Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas		Dilution Gas	0.28 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.2 V	Deflect	-0.5 V

US EPA Tune Check Report

Extract 2	-125.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-55 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	0.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	4.0 mL/min	OctP RF	180 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-15.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm

[HMI He]

Sensitivity

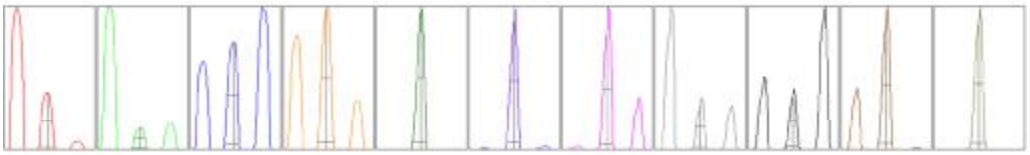
Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
24		572	5722.60	0.466	5.000	
25		83	830.55	2.476	5.000	
26		100	1000.27	1.597	5.000	
59		1449	14490.57	1.549	5.000	
103		3227	32272.89	1.692	5.000	
115		1072	10723.59	0.839	5.000	
205		1350	13502.22	3.051	5.000	
206		480	4796.00	1.921	5.000	
207		389	3892.00	1.847	5.000	
208		935	9348.42	3.014	5.000	
238		2152	21520.14	1.859	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
24	568	574	573	571	575
25	83	83	84	80	85
26	100	101	101	102	97
59	1460	1436	1482	1424	1444
103	3268	3251	3257	3228	3133
115	1079	1083	1065	1062	1073
205	1410	1325	1365	1302	1349
206	495	480	472	478	474
207	391	397	378	390	390
208	964	950	941	890	929
238	2185	2201	2145	2110	2119

US EPA Tune Check Report

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
24	1537.16	23.95	23.90 - 24.10	
25	230.72	24.95	24.90 - 25.10	
26	281.92	25.95	25.90 - 26.10	
59	4316.79	58.95	58.90 - 59.10	
103	11632.33	103.00	102.90 - 103.10	
115	4051.51	115.00	114.90 - 115.10	
205	4195.87	205.00	204.90 - 205.10	
206	1498.81	206.00	205.90 - 206.10	
207	1404.50	207.00	206.90 - 207.10	
208	3186.01	208.00	207.90 - 208.10	
238	7018.93	238.00	237.90 - 238.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
24	0.38	0.495	0.750	
25	0.37	0.480	0.750	
26	0.36	0.484	0.750	
59	0.34	0.520	0.750	
103	0.27	0.467	0.750	
115	0.26	0.433	0.750	
205	0.30	0.434	0.750	
206	0.30	0.414	0.750	
207	0.27	0.431	0.750	
208	0.28	0.434	0.750	
238	0.30	0.471	0.750	

Integration Time [sec] 0.1

Acquisition Time [sec] 235.339999999997

Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode --- Nebulizer Gas Dilution Gas 0.28 L/min

US EPA Tune Check Report

RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.2 V	Deflect	-0.5 V
Extract 2	-125.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-55 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	5.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-15.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm		

[No Gas]

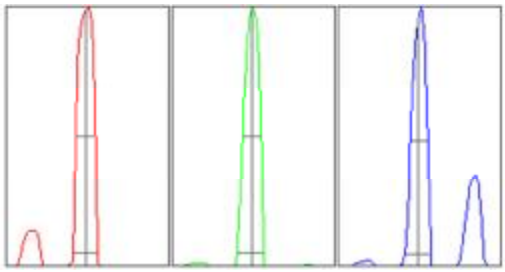
Sensitivity

Mass	Conc. [ug/l]	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	10.00	7764	77635.99	0.980	5.000	
89		12230	122297.64	0.961	5.000	
205		3517	35169.20	2.080	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	7664	7734	7741	7853	7826
89	12077	12200	12177	12330	12365
205	3434	3495	3502	3519	3634

Integration Time [sec] 0.1

Resolution/Axis



US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
7	21596.68	7.00	6.90 - 7.10	
89	36776.41	89.00	88.90 - 89.10	
205	11427.28	205.00	204.90 - 205.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
7	0.36	0.444	0.750	
89	0.33	0.484	0.750	
205	0.31	0.493	0.750	

Integration Time [sec]	0.1
Acquisition Time [sec]	92.3700000000001
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas		Dilution Gas	0.00 L/min
RF Power	1550 W	Option Gas	0.0 %	Auxiliary Gas	0.90 L/min
RF Matching		Nebulizer Pump		Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp			

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.2 V	Deflect	14.3 V
Extract 2	-125.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-55 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	170 V		

QP Parameters

Mass Gain	141	Axis Gain	1.0019	QP Bias	-5.0 V
Mass Offset	135	Axis Offset	-0.08		

Hardware Settings

EM

Discriminator	4.5 mV	Analog HV	1734 V	Pulse HV	1431 V

Torch

Torch H	0.6 mm	Torch V	0.5 mm

	Mass (Custom Setting)	Element Name	Current Value	Retain Mass for Startup
	6		0.094309	☑
	9		0.105878	☑
	23		0.114681	☑
	24		0.117991	☑
	27		0.120234	☑
	39		0.124720	☑
	45		0.123048	☑
	48		0.126561	☑
	51		0.128163	☑
	52		0.126332	☑
	55		0.127288	☑
	59		0.129278	☑
	60		0.129796	☑
	63		0.130317	☑
	66		0.130803	☑
	72		0.130165	☑
	75		0.130421	☑
	88		0.135057	☑
	98		0.131853	☑
	102		0.132614	☑
	106		0.132693	☑
	114		0.137400	☑
	115		0.137831	☑
	118		0.133865	☑
	121		0.133689	☑

	Mass (Custom Setting)	Element Name	Current Value	Retain Mass for Startup
	138		0.138567	☑
	175		0.139617	☑
	193		0.135032	☑
	205		0.139001	☑
	208		0.139648	☑
	209		0.134500	☑
	232		0.140570	☑
	238		0.140659	☑

Sample Report

Sample Table

Sample Name	rinse-5800667
Data File Name	001SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:14:12-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	TUNE
ISTD Ref FileName	
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	002SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:17:44-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

Sample Report

Sample Table

Sample Name	rinse-5819765
Data File Name	003SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:21:16-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	PA
ISTD Ref FileName	
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	004SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:24:48-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

Sample Report

Sample Table

Sample Name	rinse-5819765
Data File Name	005SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:28:19-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	PA
ISTD Ref FileName	
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	006SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:31:51-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	007SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:35:22-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

Calibration Blank Report

Sample Table

Sample Name2	icis-5833267
Data File Name	008CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Method	
Acq Date Time	2019-08-15T11:38:53-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	I.S	Tune Step	Tune Mode	CPS	%RSD
Li	7	45	1	HMI H2	114165	0.00
Li	7	45	3	No Gas	6843496	0.00
Be	9	6	1	HMI H2	5	2000.00
B	11	6	1	HMI H2	137	22.29
Na	23	45	2	HMI He	10693	0.02
Mg	24	45	2	HMI He	83	58.20
Al	27	45	2	HMI He	163	24.39
K	39	45	2	HMI He	48541	0.01
Ca	44	45	2	HMI He	87	27.71
V	51	72	2	HMI He	3360	0.10
Cr	52	72	2	HMI He	457	4.08
Mn	55	72	2	HMI He	120	25.04
Fe	57	72	2	HMI He	603	2.37
Co	59	72	2	HMI He	27	324.76
Ni	60	72	2	HMI He	153	12.99
Cu	63	72	2	HMI He	2310	0.55
Zn	66	72	2	HMI He	773	0.35
As	75	72	2	HMI He	52	21.90
Se	78	72	1	HMI H2	5	811.90
Sr	88	45	2	HMI He	73	28.40
Zr	90	72	2	HMI He	213	18.43
Zr	90	72	1	HMI H2	988	2.78
Nb	93	72	2	HMI He	30	111.11
Mo	95	115	2	HMI He	100	17.32
Pd	105	115	2	HMI He	30	333.33
Ag	107	115	2	HMI He	17	1039.23
Cd	111	115	2	HMI He	7	2598.08
Sn	120	115	2	HMI He	350	7.48
Sb	121	115	2	HMI He	7	1299.04
Ba	137	115	2	HMI He	43	30.75
W	182	165	2	HMI He	1227	0.19
Pt	195	165	2	HMI He	13	324.76
Tl	205	165	2	HMI He	283	5.89
Pb	208	165	2	HMI He	493	1.71
Th	232	165	2	HMI He	713	1.98
U	238	165	2	HMI He	213	16.20

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li-6 Internal Standard	6	1	HMI H2	1075825	1.57
Sc (IS)	45	2	HMI He	1637791	1.58
Sc IS)	45	3	No Gas	71296369	1.21
Ge Internal Standard	72	1	HMI H2	13198618	2.15
Ge Internal Standard	72	2	HMI He	2032544	1.07
In Internal standard	115	2	HMI He	5800742	3.07
Ho-165	165	2	HMI He	17261266	0.97

Calibration Standard Report

Sample Table

Sample Name	ic-5833268
Data File Name	009CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
method	
Acq Date Time	2019-08-15T11:42:24-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	008CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	IS	Tune Step	Tune Mode	CPS	%RSD
Li	7	45	1	HMI H2	183246	0.00
Li	7	45	3	No Gas	10542047	0.00
Be	9	6	1	HMI H2	30379	0.01
B	11	6	1	HMI H2	1180	1.51
Na	23	45	2	HMI He	643003	0.00
Mg	24	45	2	HMI He	264187	0.00
Al	27	45	2	HMI He	70707	0.00
K	39	45	2	HMI He	251638	0.00
Ca	44	45	2	HMI He	16228	0.01
V	51	72	2	HMI He	176406	0.00
Cr	52	72	2	HMI He	229703	0.00
Mn	55	72	2	HMI He	99385	0.00
Fe	57	72	2	HMI He	85657	0.00
Co	59	72	2	HMI He	370482	0.00
Ni	60	72	2	HMI He	101844	0.00
Cu	63	72	2	HMI He	277536	0.00
Zn	66	72	2	HMI He	38510	0.00
As	75	72	2	HMI He	29033	0.00
Se	78	72	1	HMI H2	30180	0.01
Sr	88	45	2	HMI He	218771	0.00
Zr	90	72	2	HMI He	1883	0.51
Zr	90	72	1	HMI H2	5660	0.06
Nb	93	72	2	HMI He	549144	0.00
Mo	95	115	2	HMI He	139419	0.00
Pd	105	115	2	HMI He	205627	0.00
Ag	107	115	2	HMI He	411917	0.00
Cd	111	115	2	HMI He	59815	0.00
Sn	120	115	2	HMI He	166402	0.00
Sb	121	115	2	HMI He	140771	0.00
Ba	137	115	2	HMI He	33716	0.01
W	182	165	2	HMI He	284857	0.00
Pt	195	165	2	HMI He	188512	0.00
Tl	205	165	2	HMI He	460333	0.00
Pb	208	165	2	HMI He	632643	0.00
Th	232	165	2	HMI He	638818	0.00
U	238	165	2	HMI He	688412	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1124330	4.26	1075825	104.51	60	125	
Sc (IS)	45	2	HMI He	1587883	3.01	1637791	96.95	60	125	
Sc IS)	45	3	No Gas	70692229	2.27	71296369	99.15	60	120	
Ge Internal Standard	72	1	HMI H2	13096584	2.87	13198618	99.23	60	125	
Ge Internal Standard	72	2	HMI He	2057562	3.07	2032544	101.23	60	125	
In Internal standard	115	2	HMI He	5905267	1.25	5800742	101.80	60	125	
Ho-165	165	2	HMI He	17532193	2.53	17261266	101.57	60	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	icv-5833270
Data File Name	010_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:45:53-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	008CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	45	62.081	ppb	10.952	136101	80	77.6	90	110	>+\-10%
Li	7	3	45	85.707	ppb	14.774	8305068	80	107.1	90	110	
Be	9	1	6	43.118	ppb	2.060	12634	40	107.8	90	110	
B	11	1	6	65.524	ppb	14.055	793	40	163.8	90	110	>+\-10%
Na	23	2	45	812.932	ppb	2.071	269772	800	101.6	90	110	
Mg	24	2	45	809.788	ppb	2.027	107942	800	101.2	90	110	
Al	27	2	45	774.428	ppb	1.178	27712	800	96.8	90	110	
K	39	2	45	762.964	ppb	2.134	126218	800	95.4	90	110	
Ca	44	2	45	793.664	ppb	7.301	6551	800	99.2	90	110	
V	51	2	72	39.523	ppb	4.336	71282	40	98.8	90	110	
Cr	52	2	72	40.292	ppb	2.313	92166	40	100.7	90	110	
Mn	55	2	72	39.520	ppb	3.873	39078	40	98.8	90	110	
Fe	57	2	72	820.768	ppb	1.010	35276	800	102.6	90	110	
Co	59	2	72	40.163	ppb	1.733	147888	40	100.4	90	110	
Ni	60	2	72	40.137	ppb	1.922	40718	40	100.3	90	110	
Cu	63	2	72	38.881	ppb	3.033	108619	40	97.2	90	110	
Zn	66	2	72	40.830	ppb	2.250	16084	40	102.1	90	110	
As	75	2	72	38.572	ppb	3.239	11157	40	96.4	90	110	
Se	78	1	72	38.023	ppb	1.842	11440	40	95.1	90	110	
Sr	88	2	45	79.883	ppb	1.150	88222	80	99.9	90	110	
Zr	90	2	72	16.067	ppb	23.192	480	40	40.2	90	110	>+\-10%
Zr	90	1	72	23.163	ppb	12.162	2056	40	57.9	90	110	>+\-10%
Nb	93	2	72	84.516	ppb	1.912	230454	80	105.6	90	110	
Mo	95	2	115	39.797	ppb	1.105	55799	40	99.5	90	110	
Pd	105	2	115	40.812	ppb	1.310	84319	40	102.0	90	110	
Ag	107	2	115	41.264	ppb	1.904	170706	40	103.2	90	110	
Cd	111	2	115	40.323	ppb	3.855	24231	40	100.8	90	110	
Sn	120	2	115	40.165	ppb	3.506	67348	40	100.4	90	110	
Sb	121	2	115	41.217	ppb	0.675	58283	40	103.0	90	110	
Ba	137	2	115	55.016	ppb	3.836	18644	40	137.5	90	110	>+\-10%
W	182	2	165	41.233	ppb	2.551	119127	40	103.1	90	110	
Pt	195	2	165	38.814	ppb	1.910	73776	40	97.0	90	110	
Tl	205	2	165	38.442	ppb	2.514	178706	40	96.1	90	110	
Pb	208	2	165	39.338	ppb	2.337	251165	40	98.3	90	110	
Th	232	2	165	39.071	ppb	2.978	252097	40	97.7	90	110	
U	238	2	165	38.271	ppb	2.024	265759	40	95.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1082382	5.01	1075825	100.61	60	125	
Sc (IS)	45	2	HMI He	1600889	1.12	1637791	97.75	60	125	
Sc IS)	45	3	No Gas	69929136	0.20	71296369	98.08	60	120	
Ge Internal Standard	72	1	HMI H2	13055377	3.46	13198618	98.91	60	125	
Ge Internal Standard	72	2	HMI He	2043136	1.35	2032544	100.52	60	125	
In Internal standard	115	2	HMI He	5930598	0.52	5800742	102.24	60	125	
Ho-165	165	2	HMI He	17673687	2.03	17261266	102.39	60	125	

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	011SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:49:55-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	008CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	1.858	ppb	1.858	379.88	6808848	40000	
Be	9	1	6	0.011	ppb	0.011	236.40	8	2000	
B	11	1	6	3.751	ppb	3.751	72.50	180	100	
Na	23	2	45	1.784	ppb	1.784	120.90	10920	400000	
Mg	24	2	45	0.825	ppb	0.825	29.45	190	400000	
Al	27	2	45	33.805	ppb	33.805	2.68	1350	400000	
K	39	2	45	-4.010	ppb	-4.010	-753.98	46595	400000	
Ca	44	2	45	2.001	ppb	2.001	75.96	100	400000	
V	51	2	72	0.372	ppb	0.372	8.01	4064	2000	
Cr	52	2	72	0.072	ppb	0.072	66.59	630	5000	
Mn	55	2	72	0.032	ppb	0.032	34.68	153	10000	
Fe	57	2	72	12.931	ppb	12.931	6.06	1167	400000	
Co	59	2	72	0.007	ppb	0.007	21.11	53	2000	
Ni	60	2	72	0.076	ppb	0.076	105.49	233	5000	
Cu	63	2	72	0.059	ppb	0.059	112.00	2514	5000	
Zn	66	2	72	0.247	ppb	0.247	86.57	880	5000	
As	75	2	72	-0.016	ppb	-0.016	-364.15	48	2000	
Se	78	1	72	0.035	ppb	0.035	198.76	16	2000	
Sr	88	2	45	0.002	ppb	0.002	1019.81	73	2000	
Zr	90	2	72	-2.644	ppb	-2.644	-183.13	173	1000	
Zr	90	1	72	3.154	ppb	3.154	63.29	1145	1000	
Nb	93	2	72	1.732	ppb	1.732	2.54	4807	200	
Mo	95	2	115	0.042	ppb	0.042	172.07	157	2000	
Pd	105	2	115	0.013	ppb	0.013	177.20	57	100	
Ag	107	2	115	0.014	ppb	0.014	85.86	73	100	
Cd	111	2	115	0.006	ppb	0.006	3.44	10	2000	
Sn	120	2	115	0.004	ppb	0.004	794.10	357	2000	
Sb	121	2	115	0.337	ppb	0.337	18.64	470	1000	
Ba	137	2	115	-0.030	ppb	-0.030	-154.70	33	5000	
W	182	2	165	0.052	ppb	0.052	75.41	1433	100	
Pt	195	2	165	0.001	ppb	0.001	922.07	17	100	
Tl	205	2	165	0.018	ppb	0.018	27.02	380	2000	
Pb	208	2	165	0.010	ppb	0.010	110.91	580	5000	
Th	232	2	165	0.125	ppb	0.125	18.97	1560	2000	
U	238	2	165	-0.002	ppb	-0.002	-642.55	203	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1114931	2.41	1075825	103.64	60	125	
Sc (IS)	45	2	HMI He	1587698	2.44	1637791	96.94	60	125	
Sc IS)	45	3	No Gas	70572324	0.88	71296369	98.98	60	120	
Ge Internal Standard	72	1	HMI H2	13292937	1.38	13198618	100.71	60	125	
Ge Internal Standard	72	2	HMI He	2066705	0.47	2032544	101.68	60	125	
In Internal standard	115	2	HMI He	5773065	1.22	5800742	99.52	60	125	
Ho-165	165	2	HMI He	17997723	5.16	17261266	104.27	60	125	

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	012SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T11:53:27-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	008CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	3.823	ppb	3.823	84.37	6786517	40000	
Be	9	1	6	0.011	ppb	0.011	322.28	8	2000	
B	11	1	6	5.298	ppb	5.298	86.72	193	100	
Na	23	2	45	2.152	ppb	2.152	66.30	10947	400000	
Mg	24	2	45	0.765	ppb	0.765	10.86	180	400000	
Al	27	2	45	33.367	ppb	33.367	3.03	1323	400000	
K	39	2	45	-9.563	ppb	-9.563	-234.66	45629	400000	
Ca	44	2	45	-1.305	ppb	-1.305	-384.96	73	400000	
V	51	2	72	0.351	ppb	0.351	30.45	3954	2000	
Cr	52	2	72	0.062	ppb	0.062	74.97	597	5000	
Mn	55	2	72	0.043	ppb	0.043	124.65	163	10000	
Fe	57	2	72	14.677	ppb	14.677	6.32	1220	400000	
Co	59	2	72	0.007	ppb	0.007	120.03	50	2000	
Ni	60	2	72	0.141	ppb	0.141	58.54	297	5000	
Cu	63	2	72	0.151	ppb	0.151	4.45	2720	5000	
Zn	66	2	72	0.060	ppb	0.060	489.69	797	5000	
As	75	2	72	-0.026	ppb	-0.026	-218.64	45	2000	
Se	78	1	72	0.031	ppb	0.031	122.76	15	2000	
Sr	88	2	45	0.011	ppb	0.011	455.85	83	2000	
Zr	90	2	72	2.273	ppb	2.273	97.49	250	1000	
Zr	90	1	72	3.390	ppb	3.390	34.90	1138	1000	
Nb	93	2	72	0.975	ppb	0.975	11.91	2667	200	
Mo	95	2	115	-0.009	ppb	-0.009	-3.97	90	2000	
Pd	105	2	115	0.006	ppb	0.006	124.71	43	100	
Ag	107	2	115	0.015	ppb	0.015	53.33	77	100	
Cd	111	2	115	0.000	ppb	0.000	17296.48	7	2000	
Sn	120	2	115	0.002	ppb	0.002	196.15	363	2000	
Sb	121	2	115	0.134	ppb	0.134	34.06	197	1000	
Ba	137	2	115	-0.032	ppb	-0.032	-231.71	33	5000	
W	182	2	165	0.008	ppb	0.008	491.25	1277	100	
Pt	195	2	165	0.003	ppb	0.003	410.87	20	100	
Tl	205	2	165	-0.007	ppb	-0.007	-251.11	257	2000	
Pb	208	2	165	0.008	ppb	0.008	298.97	553	5000	
Th	232	2	165	0.090	ppb	0.090	29.90	1310	2000	
U	238	2	165	-0.012	ppb	-0.012	-80.38	137	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1100205	2.23	1075825	102.27	60	125	
Sc (IS)	45	2	HMI He	1573744	2.65	1637791	96.09	60	125	
Sc IS)	45	3	No Gas	69958776	0.78	71296369	98.12	60	120	
Ge Internal Standard	72	1	HMI H2	13088999	1.52	13198618	99.17	60	125	
Ge Internal Standard	72	2	HMI He	2031646	4.34	2032544	99.96	60	125	
In Internal standard	115	2	HMI He	5936645	0.56	5800742	102.34	60	125	
Ho-165	165	2	HMI He	17654268	2.14	17261266	102.28	60	125	

Calibration Blank Report

Sample Table

Sample Name2	icis-5833267
Data File Name	013CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Method	
Acq Date Time	2019-08-15T11:56:58-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	I.S	Tune Step	Tune Mode	CPS	%RSD
Li	7	45	1	HMI H2	115678	0.00
Li	7	45	3	No Gas	6732776	0.00
Be	9	6	1	HMI H2	3	5196.15
B	11	6	1	HMI H2	107	20.30
Na	23	45	2	HMI He	10050	0.02
Mg	24	45	2	HMI He	137	34.00
Al	27	45	2	HMI He	207	19.50
K	39	45	2	HMI He	45619	0.01
Ca	44	45	2	HMI He	103	28.61
V	51	72	2	HMI He	4147	0.25
Cr	52	72	2	HMI He	587	2.04
Mn	55	72	2	HMI He	90	61.73
Fe	57	72	2	HMI He	567	2.36
Co	59	72	2	HMI He	37	214.72
Ni	60	72	2	HMI He	123	49.78
Cu	63	72	2	HMI He	2514	0.09
Zn	66	72	2	HMI He	597	1.17
As	75	72	2	HMI He	52	64.24
Se	78	72	1	HMI H2	16	156.25
Sr	88	45	2	HMI He	57	159.81
Zr	90	72	2	HMI He	173	18.33
Zr	90	72	1	HMI H2	1018	0.73
Nb	93	72	2	HMI He	1657	1.08
Mo	95	115	2	HMI He	93	17.54
Pd	105	115	2	HMI He	43	134.02
Ag	107	115	2	HMI He	30	111.11
Cd	111	115	2	HMI He	10	1732.05
Sn	120	115	2	HMI He	243	17.00
Sb	121	115	2	HMI He	97	69.63
Ba	137	115	2	HMI He	27	353.90
W	182	165	2	HMI He	1287	0.69
Pt	195	165	2	HMI He	7	1299.04
Tl	205	165	2	HMI He	250	5.77
Pb	208	165	2	HMI He	497	2.93
Th	232	165	2	HMI He	877	1.55
U	238	165	2	HMI He	163	32.75

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li-6 Internal Standard	6	1	HMI H2	1125531	4.68
Sc (IS)	45	2	HMI He	1611917	1.13
Sc IS)	45	3	No Gas	70470050	2.76
Ge Internal Standard	72	1	HMI H2	13334475	0.10
Ge Internal Standard	72	2	HMI He	2086994	2.47
In Internal standard	115	2	HMI He	6052368	1.69
Ho-165	165	2	HMI He	17767311	5.36

Calibration Standard Report

Sample Table

Sample Name	ic-5833268
Data File Name	014CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
method	
Acq Date Time	2019-08-15T12:00:29-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	IS	Tune Step	Tune Mode	CPS	%RSD
Li	7	45	1	HMI H2	184622	0.00
Li	7	45	3	No Gas	10418261	0.00
Be	9	6	1	HMI H2	30419	0.01
B	11	6	1	HMI H2	1220	0.52
Na	23	45	2	HMI He	658952	0.00
Mg	24	45	2	HMI He	268435	0.00
Al	27	45	2	HMI He	71955	0.00
K	39	45	2	HMI He	251952	0.00
Ca	44	45	2	HMI He	15057	0.01
V	51	72	2	HMI He	178781	0.00
Cr	52	72	2	HMI He	229391	0.00
Mn	55	72	2	HMI He	98374	0.00
Fe	57	72	2	HMI He	89262	0.00
Co	59	72	2	HMI He	371746	0.00
Ni	60	72	2	HMI He	100420	0.00
Cu	63	72	2	HMI He	278780	0.00
Zn	66	72	2	HMI He	40107	0.00
As	75	72	2	HMI He	28784	0.00
Se	78	72	1	HMI H2	29644	0.00
Sr	88	45	2	HMI He	220945	0.00
Zr	90	72	2	HMI He	1410	0.64
Zr	90	72	1	HMI H2	4912	0.10
Nb	93	72	2	HMI He	556341	0.00
Mo	95	115	2	HMI He	137702	0.00
Pd	105	115	2	HMI He	206103	0.00
Ag	107	115	2	HMI He	424011	0.00
Cd	111	115	2	HMI He	61213	0.00
Sn	120	115	2	HMI He	169242	0.00
Sb	121	115	2	HMI He	143142	0.00
Ba	137	115	2	HMI He	42945	0.01
W	182	165	2	HMI He	286964	0.00
Pt	195	165	2	HMI He	187350	0.00
Tl	205	165	2	HMI He	460292	0.00
Pb	208	165	2	HMI He	632172	0.00
Th	232	165	2	HMI He	647009	0.00
U	238	165	2	HMI He	700925	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1150772	7.04	1125531	102.24	60	125	
Sc (IS)	45	2	HMI He	1561082	3.35	1611917	96.85	60	125	
Sc IS)	45	3	No Gas	69174991	1.00	70470050	98.16	60	120	
Ge Internal Standard	72	1	HMI H2	13326977	1.20	13334475	99.94	60	125	
Ge Internal Standard	72	2	HMI He	2047698	1.21	2086994	98.12	60	125	
In Internal standard	115	2	HMI He	5913598	2.53	6052368	97.71	60	125	
Ho-165	165	2	HMI He	17845582	3.43	17767311	100.44	60	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	icv-5833270
Data File Name	015_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:04:00-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	45	95.824	ppb	13.425	143444	80	119.8	90	110	>+\-10%
Li	7	3	45	75.143	ppb	8.876	8082429	80	93.9	90	110	
Be	9	1	6	43.662	ppb	1.585	12756	40	109.2	90	110	
B	11	1	6	58.068	ppb	14.183	727	40	145.2	90	110	>+\-10%
Na	23	2	45	787.139	ppb	1.351	263586	800	98.4	90	110	
Mg	24	2	45	797.927	ppb	1.370	106502	800	99.7	90	110	
Al	27	2	45	804.981	ppb	2.773	28914	800	100.6	90	110	
K	39	2	45	803.510	ppb	4.802	126799	800	100.4	90	110	
Ca	44	2	45	778.259	ppb	1.676	5884	800	97.3	90	110	
V	51	2	72	39.437	ppb	2.808	71781	40	98.6	90	110	
Cr	52	2	72	39.107	ppb	2.011	88618	40	97.8	90	110	
Mn	55	2	72	40.767	ppb	3.757	39518	40	101.9	90	110	
Fe	57	2	72	809.797	ppb	4.388	35871	800	101.2	90	110	
Co	59	2	72	38.417	ppb	2.788	140516	40	96.0	90	110	
Ni	60	2	72	38.482	ppb	4.152	38092	40	96.2	90	110	
Cu	63	2	72	38.997	ppb	5.510	108379	40	97.5	90	110	
Zn	66	2	72	38.747	ppb	1.847	15644	40	96.9	90	110	
As	75	2	72	39.824	ppb	2.934	11306	40	99.6	90	110	
Se	78	1	72	40.917	ppb	3.495	11571	40	102.3	90	110	
Sr	88	2	45	79.738	ppb	3.857	87576	80	99.7	90	110	
Zr	90	2	72	24.798	ppb	41.849	473	40	62.0	90	110	>+\-10%
Zr	90	1	72	21.515	ppb	13.693	1769	40	53.8	90	110	>+\-10%
Nb	93	2	72	84.398	ppb	2.707	231863	80	105.5	90	110	
Mo	95	2	115	41.188	ppb	0.795	56077	40	103.0	90	110	
Pd	105	2	115	41.055	ppb	3.590	83522	40	102.6	90	110	
Ag	107	2	115	40.972	ppb	3.783	171490	40	102.4	90	110	
Cd	111	2	115	39.670	ppb	0.549	23998	40	99.2	90	110	
Sn	120	2	115	39.712	ppb	2.618	66451	40	99.3	90	110	
Sb	121	2	115	40.319	ppb	1.905	57036	40	100.8	90	110	
Ba	137	2	115	43.478	ppb	2.424	18441	40	108.7	90	110	
W	182	2	165	40.846	ppb	2.595	114619	40	102.1	90	110	
Pt	195	2	165	41.975	ppb	0.845	76403	40	104.9	90	110	
Tl	205	2	165	40.358	ppb	0.318	180684	40	100.9	90	110	
Pb	208	2	165	40.620	ppb	3.619	249734	40	101.5	90	110	
Th	232	2	165	41.230	ppb	1.447	259548	40	103.1	90	110	
U	238	2	165	40.756	ppb	1.895	277556	40	101.9	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1100502	4.46	1125531	97.78	60	125	
Sc (IS)	45	2	HMI He	1550543	1.85	1611917	96.19	60	125	
Sc IS)	45	3	No Gas	69540462	2.85	70470050	98.68	60	120	
Ge Internal Standard	72	1	HMI H2	12708315	1.81	13334475	95.30	60	125	
Ge Internal Standard	72	2	HMI He	2015525	3.42	2086994	96.58	60	125	
In Internal standard	115	2	HMI He	5837717	2.85	6052368	96.45	60	125	
Ho-165	165	2	HMI He	17327749	1.27	17767311	97.53	60	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	icb-5833267
Data File Name	016_ICB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:07:31-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	11.761	ppb	60.9	115812	0.1	>RL
Li	7	3	10.083	ppb	80.3	6748541	0.05	>RL
Be	9	1	0.046	ppb	56.3	17	0.5	
B	11	1	6.479	ppb	78.4	173	0.1	>RL
Na	23	2	0.537	ppb	435.2	9833	25	
Mg	24	2	0.031	ppb	1470.3	137	25	
Al	27	2	-1.027	ppb	-254.5	163	15	
K	39	2	17.250	ppb	118.8	45639	50	
Ca	44	2	-6.202	ppb	-70.5	53	25	
V	51	2	0.259	ppb	84.2	4467	1	
Cr	52	2	-0.045	ppb	-57.4	467	1	
Mn	55	2	0.034	ppb	48.3	120	0.5	
Fe	57	2	2.174	ppb	58.6	643	25	
Co	59	2	-0.002	ppb	-174.8	27	0.5	
Ni	60	2	0.056	ppb	153.3	173	1	
Cu	63	2	-0.094	ppb	-70.7	2177	1	
Zn	66	2	-0.294	ppb	-46.5	463	5	
As	75	2	-0.014	ppb	-430.2	46	1	
Se	78	1	-0.003	ppb	-805.8	15	1	
Sr	88	2	-0.016	ppb	-94.3	37	1	
Zr	90	2	0.703	ppb	505.0	177	1	
Zr	90	1	0.253	ppb	1951.1	1001	1	
Nb	93	2	1.243	ppb	3.6	5004	2	
Mo	95	2	0.089	ppb	49.7	207	0.5	
Pd	105	2	0.000	ppb	-2389.8	40	1	
Ag	107	2	0.013	ppb	109.7	83	1	
Cd	111	2	0.007	ppb	384.9	13	0.5	
Sn	120	2	0.091	ppb	45.7	377	1	
Sb	121	2	0.425	ppb	12.1	680	1	
Ba	137	2	0.004	ppb	1878.6	27	0.5	
W	182	2	-0.002	ppb	-2811.0	1273	1	
Pt	195	2	0.004	ppb	338.2	13	1	
Tl	205	2	0.009	ppb	45.5	290	0.1	
Pb	208	2	-0.003	ppb	-78.9	477	0.5	
Th	232	2	0.130	ppb	3.9	1710	1	
U	238	2	-0.005	ppb	-103.7	130	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1101170	1.39	1125531	97.84	60	125	
Sc (IS)	45	2	HMI He	1550404	2.84	1611917	96.18	60	125	
Sc IS)	45	3	No Gas	68651070	2.88	70470050	97.42	60	120	
Ge Internal Standard	72	1	HMI H2	13010169	1.67	13334475	97.57	60	125	
Ge Internal Standard	72	2	HMI He	2019732	1.78	2086994	96.78	60	125	
In Internal standard	115	2	HMI He	5716748	1.86	6052368	94.45	60	125	
Ho-165	165	2	HMI He	17681988	2.58	17767311	99.52	60	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	icvl-5833291
Data File Name	017LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:14:30-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	6	0.933	ppb	27.754	285	1	93.3	70	130	
Na	23	2	45	45.166	ppb	7.345	24661	50	90.3	70	130	
Mg	24	2	45	50.775	ppb	6.740	7038	50	101.6	70	130	
Al	27	2	45	46.285	ppb	4.016	1883	50	92.6	70	130	
K	39	2	45	112.070	ppb	9.483	56447	100	112.1	70	130	
Ca	44	2	45	28.724	ppb	54.067	317	50	57.4	70	130	>+/-30%
V	51	2	72	4.922	ppb	4.788	12835	5	98.4	70	130	
Cr	52	2	72	2.019	ppb	4.567	5261	2	101.0	70	130	
Mn	55	2	72	1.177	ppb	17.071	1257	1	117.7	70	130	
Fe	57	2	72	44.993	ppb	10.992	2580	50	90.0	70	130	
Co	59	2	72	0.975	ppb	3.620	3704	1	97.5	70	130	
Ni	60	2	72	1.599	ppb	11.329	1747	1.5	106.6	70	130	
Cu	63	2	72	1.842	ppb	10.760	7652	2	92.1	70	130	
Zn	66	2	72	9.160	ppb	6.656	4261	10	91.6	70	130	
As	75	2	72	4.912	ppb	3.582	1480	5	98.2	70	130	
Se	78	1	72	5.107	ppb	7.261	1511	5	102.1	70	130	
Sr	88	2	45	1.006	ppb	14.178	1177	1	100.6	70	130	
Zr	90	2	72	-2.854	ppb	-108.275	137	0.5	-570.7	70	130	>+/-30%
Zr	90	1	72	-3.478	ppb	-117.884	868	0.5	-695.6	70	130	>+/-30%
Nb	93	2	72	0.229	ppb	20.377	2294	2	11.4	70	130	>+/-30%
Mo	95	2	115	2.011	ppb	7.126	2850	2	100.5	70	130	
Pd	105	2	115	-0.001	ppb	-2456.118	40	1	-0.1	70	130	>+/-30%
Ag	107	2	115	5.105	ppb	2.587	21621	5	102.1	70	130	
Cd	111	2	115	0.925	ppb	20.127	577	1	92.5	70	130	
Sn	120	2	115	10.053	ppb	5.592	17169	10	100.5	70	130	
Sb	121	2	115	1.811	ppb	7.092	2677	2	90.5	70	130	
Ba	137	2	115	1.114	ppb	8.112	503	1	111.4	70	130	
W	182	2	165	5.103	ppb	3.664	15692	1	510.3	70	130	>+/-30%
Pt	195	2	165	0.000	ppb	-19739.232	7	1	0.0	70	130	>+/-30%
Tl	205	2	165	0.996	ppb	5.877	4777	1	99.6	70	130	
Pb	208	2	165	1.008	ppb	4.084	6784	1	100.8	70	130	
Th	232	2	165	1.834	ppb	6.551	12579	2	91.7	70	130	
U	238	2	165	0.978	ppb	4.204	6938	1	97.8	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1143132	2.81	1125531	101.56	60	125	
Sc (IS)	45	2	HMI He	1579135	3.79	1611917	97.97	60	125	
Sc IS)	45	3	No Gas	69258099	0.80	70470050	98.28	60	120	
Ge Internal Standard	72	1	HMI H2	13150346	2.49	13334475	98.62	60	125	
Ge Internal Standard	72	2	HMI He	2074133	3.16	2086994	99.38	60	125	
In Internal standard	115	2	HMI He	5899150	2.45	6052368	97.47	60	125	
Ho-165	165	2	HMI He	17644018	3.65	17767311	99.31	60	125	

CRI Report

Sample Table

Sample Name	cri-5833292
Data File Name	018RLST.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:19:25-06:00
Sample Type	CRI
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	3	45	8.964	ppb	76.745	6686247	10	89.6	50	150	
Be	9	1	6	0.589	ppb	21.688	173	1	58.9	80	120	>+\-20%
Na	23	2	45	22.782	ppb	7.826	16961	100	22.8	80	120	>+\-20%
Mg	24	2	45	12.712	ppb	6.605	1820	100	12.7	80	120	>+\-20%
Al	27	2	45	9.992	ppb	15.617	553	20	50.0	80	120	>+\-20%
K	39	2	45	25.040	ppb	49.285	46301	20	125.2	80	120	>+\-20%
Ca	44	2	45	13.181	ppb	40.669	197	20	65.9	80	120	>+\-20%
V	51	2	72	0.510	ppb	58.452	4934	1	51.0	80	120	>+\-20%
Cr	52	2	72	0.462	ppb	2.674	1623	1	46.2	80	120	>+\-20%
Mn	55	2	72	0.556	ppb	10.658	630	1	55.6	80	120	>+\-20%
Fe	57	2	72	10.622	ppb	13.466	1020	20	53.1	80	120	>+\-20%
Co	59	2	72	0.522	ppb	6.011	1963	1	52.2	80	120	>+\-20%
Ni	60	2	72	0.814	ppb	13.419	930	1	81.4	80	120	
Cu	63	2	72	1.470	ppb	7.995	6488	1	147.0	80	120	>+\-20%
Zn	66	2	72	1.053	ppb	65.698	997	1	105.3	80	120	
As	75	2	72	0.542	ppb	25.336	205	1	54.2	80	120	>+\-20%
Se	78	1	72	0.469	ppb	10.569	155	1	46.9	80	120	>+\-20%
Sr	88	2	45	0.920	ppb	6.920	1060	2	46.0	80	120	>+\-20%
Nb	93	2	72	1.013	ppb	7.558	4411	2	50.7	80	120	>+\-20%
Mo	95	2	115	0.551	ppb	6.855	827	1	55.1	80	120	>+\-20%
Pd	105	2	115	0.530	ppb	15.572	1103	1	53.0	80	120	>+\-20%
Ag	107	2	115	0.555	ppb	6.559	2320	1	55.5	80	120	>+\-20%
Cd	111	2	115	0.611	ppb	17.035	373	1	61.1	80	120	>+\-20%
Sn	120	2	115	0.885	ppb	18.133	1687	1	88.5	80	120	
Sb	121	2	115	0.527	ppb	13.702	827	1	52.7	80	120	>+\-20%
Ba	137	2	115	0.417	ppb	28.720	200	1	41.7	80	120	>+\-20%
W	182	2	165	0.401	ppb	8.266	2514	1	40.1	80	120	>+\-20%
Pt	195	2	165	0.495	ppb	5.648	963	1	49.5	80	120	>+\-20%
Tl	205	2	165	0.485	ppb	2.062	2560	1	48.5	80	120	>+\-20%
Pb	208	2	165	0.561	ppb	0.931	4174	1	56.1	80	120	>+\-20%
Th	232	2	165	0.476	ppb	7.325	4087	1	47.6	80	120	>+\-20%
U	238	2	165	0.489	ppb	1.692	3700	1	48.9	80	120	>+\-20%

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1092767	4.20	1125531	97.09	60	125	
Sc (IS)	45	2	HMI He	1545044	1.45	1611917	95.85	60	125	
Sc IS)	45	3	No Gas	68203501	0.63	70470050	96.78	60	120	
Ge Internal Standard	72	1	HMI H2	13316299	1.81	13334475	99.86	60	125	
Ge Internal Standard	72	2	HMI He	2034193	0.75	2086994	97.47	60	125	
In Internal standard	115	2	HMI He	5756712	1.61	6052368	95.12	60	125	
Ho-165	165	2	HMI He	18406290	1.45	17767311	103.60	60	125	

CRI Report

Sample Table

Sample Name	cri-5833292
Data File Name	019RLST.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:27:12-06:00
Sample Type	CRI
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	3	45	3.621	ppb	147.589	6611262	10	36.2	50	150	>+\-20%
Be	9	1	6	0.695	ppb	12.245	205	1	69.5	80	120	>+\-20%
Na	23	2	45	35.023	ppb	4.774	20986	100	35.0	80	120	>+\-20%
Mg	24	2	45	16.092	ppb	11.698	2280	100	16.1	80	120	>+\-20%
Al	27	2	45	22.032	ppb	11.937	987	20	110.2	80	120	
K	39	2	45	37.515	ppb	44.541	47828	20	187.6	80	120	>+\-20%
Ca	44	2	45	24.717	ppb	19.634	283	20	123.6	80	120	>+\-20%
V	51	2	72	0.808	ppb	18.484	5358	1	80.8	80	120	
Cr	52	2	72	0.769	ppb	11.696	2280	1	76.9	80	120	>+\-20%
Mn	55	2	72	1.046	ppb	15.764	1090	1	104.6	80	120	
Fe	57	2	72	25.659	ppb	2.791	1653	20	128.3	80	120	>+\-20%
Co	59	2	72	0.783	ppb	4.934	2880	1	78.3	80	120	>+\-20%
Ni	60	2	72	1.445	ppb	8.863	1530	1	144.5	80	120	>+\-20%
Cu	63	2	72	2.851	ppb	11.311	10086	1	285.1	80	120	>+\-20%
Zn	66	2	72	1.632	ppb	15.827	1200	1	163.2	80	120	>+\-20%
As	75	2	72	0.865	ppb	4.581	292	1	86.5	80	120	
Se	78	1	72	0.886	ppb	10.584	271	1	88.6	80	120	
Sr	88	2	45	1.738	ppb	3.031	1963	2	86.9	80	120	
Nb	93	2	72	1.352	ppb	16.036	5241	2	67.6	80	120	>+\-20%
Mo	95	2	115	0.927	ppb	3.556	1340	1	92.7	80	120	
Pd	105	2	115	0.801	ppb	16.006	1657	1	80.1	80	120	
Ag	107	2	115	0.761	ppb	9.115	3187	1	76.1	80	120	>+\-20%
Cd	111	2	115	0.807	ppb	2.546	493	1	80.7	80	120	
Sn	120	2	115	0.926	ppb	10.106	1763	1	92.6	80	120	
Sb	121	2	115	0.672	ppb	20.183	1033	1	67.2	80	120	>+\-20%
Ba	137	2	115	0.900	ppb	31.155	403	1	90.0	80	120	
W	182	2	165	0.748	ppb	11.783	3474	1	74.8	80	120	>+\-20%
Pt	195	2	165	0.673	ppb	14.313	1287	1	67.3	80	120	>+\-20%
Tl	205	2	165	0.728	ppb	10.769	3644	1	72.8	80	120	>+\-20%
Pb	208	2	165	0.822	ppb	2.581	5767	1	82.2	80	120	
Th	232	2	165	0.742	ppb	7.503	5758	1	74.2	80	120	>+\-20%
U	238	2	165	0.742	ppb	2.289	5434	1	74.2	80	120	>+\-20%

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1094677	2.39	1125531	97.26	60	125	
Sc (IS)	45	2	HMI He	1552505	1.84	1611917	96.31	60	125	
Sc IS)	45	3	No Gas	68472118	1.84	70470050	97.16	60	120	
Ge Internal Standard	72	1	HMI H2	12944920	1.08	13334475	97.08	60	125	
Ge Internal Standard	72	2	HMI He	2000015	3.30	2086994	95.83	60	125	
In Internal standard	115	2	HMI He	5790230	1.16	6052368	95.67	60	125	
Ho-165	165	2	HMI He	18081735	2.18	17767311	101.77	60	125	

CRI Report

Sample Table

Sample Name	cri-5833291
Data File Name	020RLST.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:33:37-06:00
Sample Type	CRI
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	3	45	15.928	ppb	18.394	6629103	10	159.3	50	150	>+\-20%
Be	9	1	6	1.067	ppb	22.696	305	1	106.7	80	120	
Na	23	2	45	43.070	ppb	4.446	24307	100	43.1	80	120	>+\-20%
Mg	24	2	45	48.138	ppb	3.272	6758	100	48.1	80	120	>+\-20%
Al	27	2	45	44.902	ppb	14.194	1857	20	224.5	80	120	>+\-20%
K	39	2	45	78.267	ppb	25.944	53585	20	391.3	80	120	>+\-20%
Ca	44	2	45	27.535	ppb	35.041	313	20	137.7	80	120	>+\-20%
V	51	2	72	5.339	ppb	7.053	13115	1	533.9	80	120	>+\-20%
Cr	52	2	72	2.017	ppb	9.024	5081	1	201.7	80	120	>+\-20%
Mn	55	2	72	0.971	ppb	5.578	1020	1	97.1	80	120	
Fe	57	2	72	53.769	ppb	7.349	2877	20	268.8	80	120	>+\-20%
Co	59	2	72	0.930	ppb	8.797	3420	1	93.0	80	120	
Ni	60	2	72	1.493	ppb	3.994	1583	1	149.3	80	120	>+\-20%
Cu	63	2	72	2.090	ppb	10.159	8065	1	209.0	80	120	>+\-20%
Zn	66	2	72	8.956	ppb	2.080	4037	1	895.6	80	120	>+\-20%
As	75	2	72	4.701	ppb	5.233	1372	1	470.1	80	120	>+\-20%
Se	78	1	72	5.005	ppb	3.849	1451	1	500.5	80	120	>+\-20%
Sr	88	2	45	1.095	ppb	14.130	1293	2	54.7	80	120	>+\-20%
Nb	93	2	72	-0.281	ppb	-14.715	830	2	-14.1	80	120	>+\-20%
Mo	95	2	115	2.132	ppb	11.551	2987	1	213.2	80	120	>+\-20%
Pd	105	2	115	-0.012	ppb	-82.715	17	1	-1.2	80	120	>+\-20%
Ag	107	2	115	4.972	ppb	6.432	20827	1	497.2	80	120	>+\-20%
Cd	111	2	115	1.083	ppb	9.341	663	1	108.3	80	120	
Sn	120	2	115	9.769	ppb	7.905	16518	1	976.9	80	120	>+\-20%
Sb	121	2	115	2.005	ppb	5.548	2927	1	200.5	80	120	>+\-20%
Ba	137	2	115	1.058	ppb	5.594	473	1	105.8	80	120	
W	182	2	165	4.890	ppb	5.281	15958	1	489.0	80	120	>+\-20%
Pt	195	2	165	-0.004	ppb	0.000	0	1	-0.4	80	120	>+\-20%
Tl	205	2	165	0.873	ppb	7.640	4464	1	87.3	80	120	
Pb	208	2	165	0.941	ppb	5.232	6734	1	94.1	80	120	
Th	232	2	165	1.560	ppb	2.562	11458	1	156.0	80	120	>+\-20%
U	238	2	165	0.926	ppb	4.554	6955	1	92.6	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1072664	5.71	1125531	95.30	60	125	
Sc (IS)	45	2	HMI He	1599501	1.53	1611917	99.23	60	125	
Sc IS)	45	3	No Gas	66323304	0.33	70470050	94.12	60	120	
Ge Internal Standard	72	1	HMI H2	12879946	5.62	13334475	96.59	60	125	
Ge Internal Standard	72	2	HMI He	2004096	1.42	2086994	96.03	60	125	
In Internal standard	115	2	HMI He	5836955	2.26	6052368	96.44	60	125	
Ho-165	165	2	HMI He	18647485	0.88	17767311	104.95	60	125	

CRI Report

Sample Table

Sample Name	cri5833294
Data File Name	021_CRI.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:38:07-06:00
Sample Type	AFCRI
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	6	0.098	ppb	86.259	32	0.2	49.2	80	120	AFCRI Main CR1 Failed
Na	23	2	45	0.134	ppb	1009.167	9756	20	0.7	80	120	AFCRI Main CR1 Failed
Mg	24	1	45	1.845	ppb	14.981	5244	20	9.2	80	120	AFCRI Main CR1 Failed
Mg	24	2	45	1.519	ppb	20.279	337	20	7.6	80	120	AFCRI Main CR1 Failed
Al	27	2	45	0.024	ppb	6638.002	200	20	0.1	80	120	AFCRI Main CR1 Failed
K	39	2	45	8.360	ppb	262.984	44961	20	41.8	80	120	AFCRI Main CR1 Failed
Ca	44	2	45	-0.947	ppb	-276.161	93	20	-4.7	80	120	AFCRI Main CR1 Failed
V	51	2	72	0.518	ppb	24.598	4827	0.2	259.2	80	120	AFCRI Main CR1 Failed
Cr	52	2	72	0.078	ppb	79.489	730	0.2	38.9	80	120	AFCRI Main CR1 Failed
(Cr)	53	2	72	0.671	ppb	25.132	1757	0.2	335.3	80	120	AFCRI Main CR1 Failed
Mn	55	2	72	0.131	ppb	43.266	210	0.2	65.7	80	120	AFCRI Main CR1 Failed
Fe	57	2	72	-1.118	ppb	-141.426	490	20	-5.6	80	120	AFCRI Main CR1 Failed
Co	59	2	72	0.082	ppb	20.713	330	0.2	40.9	80	120	AFCRI Main CR1 Failed
Ni	60	2	72	0.169	ppb	30.965	280	0.2	84.4	80	120	
Cu	63	2	72	0.004	ppb	1647.318	2400	0.2	1.9	80	120	AFCRI Main CR1 Failed
Zn	66	2	72	-0.022	ppb	-2405.277	557	0.2	-11.1	80	120	AFCRI Main CR1 Failed
As	75	2	72	0.110	ppb	79.811	80	0.2	54.9	80	120	AFCRI Main CR1 Failed
Se	78	1	72	0.051	ppb	32.558	29	0.2	25.5	80	120	AFCRI Main CR1 Failed
(Se)	82	1	72	0.170	ppb	186.611	300	0.2	85.0	80	120	
Sr	88	2	45	0.259	ppb	4.220	340	0.2	129.4	80	120	AFCRI Main CR1 Failed
Nb	93	2	72	-0.154	ppb	-20.716	1163	0.4	-38.4	80	120	AFCRI Main CR1 Failed
Mo	95	2	115	0.084	ppb	21.111	207	0.2	41.8	80	120	AFCRI Main CR1 Failed
Pd	105	2	115	0.106	ppb	27.315	260	0.2	52.8	80	120	AFCRI Main CR1 Failed
Ag	107	2	115	0.103	ppb	22.197	467	0.2	51.6	80	120	AFCRI Main CR1 Failed
Cd	111	2	115	0.109	ppb	66.561	77	0.2	54.5	80	120	AFCRI Main CR1 Failed
(Cd)	114	2	115	0.104	ppb	18.874	187	0.2	52.0	80	120	AFCRI Main CR1 Failed
Sn	120	2	115	0.221	ppb	22.452	610	0.2	110.3	80	120	
Sb	121	2	115	0.008	ppb	411.862	107	0.2	3.9	80	120	AFCRI Main CR1 Failed
Ba	137	2	115	0.095	ppb	36.943	67	0.2	47.4	80	120	AFCRI Main CR1 Failed
W	182	2	165	0.071	ppb	34.661	1487	0.2	35.5	80	120	AFCRI Main CR1 Failed
Pt	195	2	165	0.115	ppb	19.906	220	0.2	57.3	80	120	AFCRI Main CR1 Failed
Tl	205	2	165	0.065	ppb	30.767	547	0.2	32.6	80	120	AFCRI Main CR1 Failed
(Pb)	206	2	165	0.097	ppb	61.220	297	0.2	48.4	80	120	AFCRI Main CR1 Failed
(Pb)	207	2	165	0.159	ppb	32.636	323	0.2	79.5	80	120	AFCRI Main CR1 Failed
Pb	208	2	165	0.118	ppb	9.574	1237	0.2	58.9	80	120	AFCRI Main CR1 Failed
Th	232	2	165	0.093	ppb	27.599	1477	0.2	46.3	80	120	AFCRI Main CR1 Failed
U	238	2	165	0.086	ppb	12.133	763	0.2	43.2	80	120	AFCRI Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1092210	1.56	1125531	97.04	60	125	
Sc (IS)	45	2	HMI He	1559545	3.30	1611917	96.75	60	125	
Sc IS)	45	3	No Gas	66293474	0.88	70470050	94.07	60	120	
Ge Internal Standard	72	1	HMI H2	12577355	0.36	13334475	94.32	60	125	
Ge Internal Standard	72	2	HMI He	1983172	1.75	2086994	95.03	60	125	
In Internal standard	115	2	HMI He	5915406	0.84	6052368	97.74	60	125	
Ho-165	165	2	HMI He	17756405	1.48	17767311	99.94	60	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	icsa-5831053
Data File Name	022ICSA.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:41:38-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	13.395	ppb	26.4	104426	10	>RL or LOD
Li	7	3	45	-13.622	ppb	-8.7	5801161	10	
Be	9	1	6	-0.011	ppb	0.0	0	1	
B	11	1	6	14.738	ppb	36.3	243	10	>RL or LOD
Na	23	2	45	94386.736	ppb	4.7	29024570	100000	
Mg	24	2	45	94095.860	ppb	4.2	11954765	100000	
Al	27	2	45	94141.770	ppb	4.0	3200886	100000	
K	39	2	45	99822.539	ppb	4.1	9862524	100000	
V	51	2	72	1.595	ppb	24.8	6031	1	>RL or LOD
Cr	52	2	72	1.418	ppb	16.0	3354	1	>RL or LOD
Mn	55	2	72	0.709	ppb	22.8	690	1	
Co	59	2	72	0.287	ppb	12.3	967	1	
Ni	60	2	72	0.303	ppb	22.8	373	1	
Cu	63	2	72	0.480	ppb	19.1	3337	1	
Zn	66	2	72	0.987	ppb	15.4	860	1	
As	75	2	72	0.096	ppb	25.7	69	1	
Se	78	1	72	0.040	ppb	81.1	24	1	
Sr	88	2	45	1.662	ppb	13.5	1787	1	>RL or LOD
Nb	93	2	72	2.924	ppb	6.3	8562	1	>RL or LOD
Mo	95	2	115	2181.620	ppb	3.1	2735827	2000	>RL or LOD
Pd	105	2	115	-0.019	ppb	-16.2	3	1	
Ag	107	2	115	0.040	ppb	15.9	180	1	
Cd	111	2	115	0.536	ppb	36.3	307	1	
Sn	120	2	115	0.141	ppb	15.8	433	1	
Sb	121	2	115	0.085	ppb	55.8	197	1	
Ba	137	2	115	0.852	ppb	19.2	357	1	
W	182	2	165	0.377	ppb	19.7	2297	1	
Pt	195	2	165	0.009	ppb	89.8	23	1	
Tl	205	2	165	-0.010	ppb	-14.5	200	1	
Pb	208	2	165	0.258	ppb	28.5	2057	1	
Th	232	2	165	1.059	ppb	6.9	7512	1	>RL or LOD
U	238	2	165	-0.009	ppb	-83.8	97	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1025791	1.21	1125531	91.14	60	125	
Sc (IS)	45	2	HMI He	1478503	2.49	1611917	91.72	60	125	
Sc IS)	45	3	No Gas	63183315	2.25	70470050	89.66	60	120	
Ge Internal Standard	72	1	HMI H2	11520707	1.27	13334475	86.40	60	125	
Ge Internal Standard	72	2	HMI He	1802199	3.30	2086994	86.35	60	125	
In Internal standard	115	2	HMI He	5387048	2.24	6052368	89.01	60	125	
Ho-165	165	2	HMI He	17332425	3.07	17767311	97.55	60	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	icsab-5831054
Data File Name	023ICSB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:45:07-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	45	172.782	ppb	9.636	158255	100	172.8	80	120	>+\-20%
Li	7	3	45	161.662	ppb	1.249	8606369	100	161.7	80	120	>+\-20%
Be	9	1	6	105.080	ppb	4.949	26852	100	105.1	80	120	
B	11	1	6	22.835	ppb	36.269	303	100	22.8	80	120	>+\-20%
V	51	2	72	101.267	ppb	4.939	163129	100	101.3	80	120	
Cr	52	2	72	99.294	ppb	4.726	205292	100	99.3	80	120	
Mn	55	2	72	105.210	ppb	0.441	93349	100	105.2	80	120	
Co	59	2	72	98.782	ppb	5.552	330916	100	98.8	80	120	
Ni	60	2	72	97.679	ppb	7.693	88345	100	97.7	80	120	
Cu	63	2	72	93.724	ppb	4.645	235657	100	93.7	80	120	
Zn	66	2	72	95.239	ppb	4.645	34461	100	95.2	80	120	
As	75	2	72	104.389	ppb	5.700	27072	100	104.4	80	120	
Se	78	1	72	104.006	ppb	3.168	27160	100	104.0	80	120	
Sr	88	2	45	203.644	ppb	1.357	210314	100	203.6	80	120	>+\-20%
Zr	90	2	72	84.549	ppb	15.097	1097	100	84.5	80	120	>+\-20%
Zr	90	1	72	78.602	ppb	5.109	3594	100	78.6	80	120	>+\-20%
Nb	93	2	72	226.359	ppb	4.471	567267	100	226.4	80	120	
Mo	95	2	115	2256.815	ppb	3.357	2871692	100	2256.8	80	120	>+\-20%
Pd	105	2	115	98.691	ppb	2.745	188004	100	98.7	80	120	
Ag	107	2	115	98.987	ppb	1.171	388045	100	99.0	80	120	
Cd	111	2	115	96.615	ppb	4.044	54694	100	96.6	80	120	
Sn	120	2	115	103.215	ppb	1.020	161422	100	103.2	80	120	
Sb	121	2	115	108.573	ppb	0.600	143682	100	108.6	80	120	
Ba	137	2	115	115.254	ppb	3.058	45739	100	115.3	80	120	
W	182	2	165	105.702	ppb	1.211	293963	100	105.7	80	120	
Pt	195	2	165	101.508	ppb	1.576	184366	100	101.5	80	120	
Tl	205	2	165	101.169	ppb	1.529	451626	100	101.2	80	120	
Pb	208	2	165	98.722	ppb	1.643	604938	100	98.7	80	120	
Th	232	2	165	106.080	ppb	0.907	664842	100	106.1	80	120	
U	238	2	165	100.879	ppb	1.054	685097	100	100.9	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	962704	2.00	1125531	85.53	60	125	
Sc (IS)	45	2	HMI He	1458907	1.95	1611917	90.51	60	125	
Sc IS)	45	3	No Gas	61445836	0.94	70470050	87.19	60	120	
Ge Internal Standard	72	1	HMI H2	11747199	3.35	13334475	88.10	60	125	
Ge Internal Standard	72	2	HMI He	1847113	3.07	2086994	88.51	60	125	
In Internal standard	115	2	HMI He	5465275	1.09	6052368	90.30	60	125	
Ho-165	165	2	HMI He	17287814	3.21	17767311	97.30	60	125	

Sample Report

Sample Table

Sample Name	rinse-
Data File Name	024SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:48:36-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-11.919	ppb	-11.919	-4.17	5882513	40000	
Be	9	1	6	0.015	ppb	0.015	150.16	7	2000	
B	11	1	6	2.617	ppb	2.617	71.25	117	100	
Na	23	2	45	80.499	ppb	80.499	4.70	34026	400000	
Mg	24	2	45	3.742	ppb	3.742	13.24	603	400000	
Al	27	2	45	-0.517	ppb	-0.517	-527.85	173	400000	
K	39	2	45	19.030	ppb	19.030	130.97	43741	400000	
Ca	44	2	45	-0.222	ppb	-0.222	-585.01	93	400000	
V	51	2	72	0.791	ppb	0.791	29.39	5284	2000	
Cr	52	2	72	0.037	ppb	0.037	102.06	640	5000	
Mn	55	2	72	0.015	ppb	0.015	199.00	100	10000	
Fe	57	2	72	6.190	ppb	6.190	26.12	803	400000	
Co	59	2	72	0.006	ppb	0.006	160.29	57	2000	
Ni	60	2	72	-0.013	ppb	-0.013	-446.61	103	5000	
Cu	63	2	72	-0.131	ppb	-0.131	-51.00	2037	5000	
Zn	66	2	72	-0.192	ppb	-0.192	-138.42	493	5000	
As	75	2	72	0.003	ppb	0.003	2364.31	50	2000	
Se	78	1	72	0.025	ppb	0.025	210.38	21	2000	
Sr	88	2	45	-0.021	ppb	-0.021	-44.50	30	2000	
Zr	90	2	72	-2.959	ppb	-2.959	-72.89	130	1000	
Zr	90	1	72	-1.385	ppb	-1.385	-360.67	881	1000	
Nb	93	2	72	-0.441	ppb	-0.441	-5.25	393	200	
Mo	95	2	115	1.250	ppb	1.250	7.80	1733	2000	
Pd	105	2	115	0.013	ppb	0.013	82.38	67	100	
Ag	107	2	115	0.018	ppb	0.018	14.25	100	100	
Cd	111	2	115	0.019	ppb	0.019	243.15	20	2000	
Sn	120	2	115	0.078	ppb	0.078	19.16	353	2000	
Sb	121	2	115	0.046	ppb	0.046	70.16	153	1000	
Ba	137	2	115	-0.052	ppb	-0.052	-26.59	3	5000	
W	182	2	165	0.034	ppb	0.034	35.57	1347	100	
Pt	195	2	165	0.002	ppb	0.002	474.11	10	100	
Tl	205	2	165	0.012	ppb	0.012	217.04	300	2000	
Pb	208	2	165	0.013	ppb	0.013	136.43	563	5000	
Th	232	2	165	-0.105	ppb	-0.105	-6.11	200	2000	
U	238	2	165	-0.011	ppb	-0.011	-55.38	83	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	976971	2.42	1125531	86.80	60	125	
Sc (IS)	45	2	HMI He	1480439	3.53	1611917	91.84	60	125	
Sc IS)	45	3	No Gas	63741328	0.26	70470050	90.45	60	120	
Ge Internal Standard	72	1	HMI H2	12201164	0.82	13334475	91.50	60	125	
Ge Internal Standard	72	2	HMI He	1981789	0.77	2086994	94.96	60	125	
In Internal standard	115	2	HMI He	5649538	1.40	6052368	93.34	60	125	
Ho-165	165	2	HMI He	17290038	4.05	17767311	97.31	60	125	

Linear Range Sample (LRS) Report

Sample Table

Sample Name	lra-5830747
Data File Name	025_LR.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:52:08-06:00
Sample Type	LR
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	6	2214.229	ppb	4.371	574369	2000	110.7	90	110	LRS Main CR1 Failed
V	51	2	72	2040.647	ppb	3.248	3294485	2000	102.0	90	110	
Cr	52	2	72	4966.706	ppb	1.027	10494179	5000	99.3	90	110	
(Cr)	53	2	72	5098.854	ppb	4.257	1299964	5000	102.0	90	110	
Mn	55	2	72	10249.073	ppb	2.686	9297651	10000	102.5	90	110	
Co	59	2	72	2012.636	ppb	3.429	6904970	2000	100.6	90	110	
Ni	60	2	72	5167.677	ppb	2.648	4784240	5000	103.4	90	110	
Cu	63	2	72	4926.157	ppb	2.213	12570230	5000	98.5	90	110	
Zn	66	2	72	5106.908	ppb	0.242	1864321	5000	102.1	90	110	
As	75	2	72	1949.360	ppb	1.947	517088	2000	97.5	90	110	
Se	78	1	72	2059.640	ppb	1.178	556848	2000	103.0	90	110	
(Se)	82	1	72	1711.343	ppb	1.869	227025	2000	85.6	90	110	LRS Main CR1 Failed
Mo	95	2	115	2056.980	ppb	1.901	2696297	2000	102.8	90	110	
Cd	111	2	115	2102.295	ppb	5.273	1225014	2000	105.1	90	110	
(Cd)	114	2	115	2151.509	ppb	1.858	3157419	2000	107.6	90	110	
Sn	120	2	115	2096.406	ppb	3.358	3373929	2000	104.8	90	110	
Sb	121	2	115	1102.455	ppb	2.596	1501806	1000	110.2	90	110	LRS Main CR1 Failed
Ba	137	2	115	5904.195	ppb	0.936	2413076	5000	118.1	90	110	LRS Main CR1 Failed
Tl	205	2	165	1121.218	ppb	6.053	4927854	1000	112.1	90	110	LRS Main CR1 Failed
(Pb)	206	2	165	5206.654	ppb	8.712	7714196	5000	104.1	90	110	
(Pb)	207	2	165	5291.654	ppb	8.069	7370943	5000	105.8	90	110	
Pb	208	2	165	5306.352	ppb	8.465	32005838	5000	106.1	90	110	
Th	232	2	165	1095.842	ppb	3.583	6762977	1000	109.6	90	110	
U	238	2	165	2147.108	ppb	6.164	14368283	2000	107.4	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	977752	3.51	1125531	86.87	60	125	
Sc (IS)	45	2	HMI He	1405026	3.07	1611917	87.16	60	125	
Sc IS)	45	3	No Gas	61332006	0.36	70470050	87.03	60	120	
Ge Internal Standard	72	1	HMI H2	12159871	0.92	13334475	91.19	60	125	
Ge Internal Standard	72	2	HMI He	1890756	2.18	2086994	90.60	60	125	
In Internal standard	115	2	HMI He	5630323	2.41	6052368	93.03	60	125	
Ho-165	165	2	HMI He	17047213	2.08	17767311	95.95	60	125	

Sample Report

Sample Table

Sample Name	rinse-
Data File Name	026SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:55:34-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-1.894	ppb	-1.894	-323.14	5887981	40000	
Be	9	1	6	0.183	ppb	0.183	39.14	52	2000	
B	11	1	6	-1.924	ppb	-1.924	-224.49	77	100	
Na	23	2	45	20.662	ppb	20.662	8.09	14953	400000	
Mg	24	2	45	1.921	ppb	1.921	52.55	353	400000	
Al	27	2	45	-1.900	ppb	-1.900	-52.11	120	400000	
K	39	2	45	29.985	ppb	29.985	74.50	42999	400000	
Ca	44	2	45	-6.068	ppb	-6.068	-40.96	50	400000	
V	51	2	72	0.395	ppb	0.395	6.78	4407	2000	
Cr	52	2	72	0.091	ppb	0.091	108.90	727	5000	
Mn	55	2	72	0.364	ppb	0.364	31.44	413	10000	
Fe	57	2	72	2.035	ppb	2.035	25.15	597	400000	
Co	59	2	72	0.072	ppb	0.072	34.68	280	2000	
Ni	60	2	72	0.161	ppb	0.161	2.70	260	5000	
Cu	63	2	72	-0.051	ppb	-0.051	-200.70	2150	5000	
Zn	66	2	72	0.690	ppb	0.690	56.39	793	5000	
As	75	2	72	0.262	ppb	0.262	11.89	116	2000	
Se	78	1	72	0.365	ppb	0.365	18.52	115	2000	
Sr	88	2	45	-0.016	ppb	-0.016	-150.47	33	2000	
Zr	90	2	72	-5.338	ppb	-5.338	-39.34	97	1000	
Zr	90	1	72	-2.180	ppb	-2.180	-135.31	864	1000	
Nb	93	2	72	-0.531	ppb	-0.531	-3.57	143	200	
Mo	95	2	115	1.643	ppb	1.643	6.16	2207	2000	
Pd	105	2	115	-0.014	ppb	-0.014	-21.75	13	100	
Ag	107	2	115	0.004	ppb	0.004	191.87	43	100	
Cd	111	2	115	0.088	ppb	0.088	58.13	60	2000	
Sn	120	2	115	0.756	ppb	0.756	14.30	1420	2000	
Sb	121	2	115	4.169	ppb	4.169	4.26	5681	1000	
Ba	137	2	115	0.073	ppb	0.073	89.12	53	5000	
W	182	2	165	-0.012	ppb	-0.012	-452.38	1223	100	
Pt	195	2	165	-0.002	ppb	-0.002	-188.09	3	100	
Tl	205	2	165	0.162	ppb	0.162	34.88	973	2000	
Pb	208	2	165	0.443	ppb	0.443	10.46	3214	5000	
Th	232	2	165	1.684	ppb	1.684	7.61	11475	2000	
U	238	2	165	0.132	ppb	0.132	26.21	1060	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	998721	4.40	1125531	88.73	60	125	
Sc (IS)	45	2	HMI He	1419970	2.21	1611917	88.09	60	125	
Sc IS)	45	3	No Gas	61957271	1.76	70470050	87.92	60	120	
Ge Internal Standard	72	1	HMI H2	12331719	2.41	13334475	92.48	60	125	
Ge Internal Standard	72	2	HMI He	1893097	1.54	2086994	90.71	60	125	
In Internal standard	115	2	HMI He	5544710	1.58	6052368	91.61	60	125	
Ho-165	165	2	HMI He	17401391	2.03	17767311	97.94	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	027_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T12:59:07-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	99.004	ppb	14.555	134447	100	99.0	90	110	
Li	7	3	45	93.601	ppb	13.192	7642620	100	93.6	90	110	
Be	9	1	6	51.841	ppb	4.098	13869	50	103.7	90	110	
B	11	1	6	55.992	ppb	34.998	640	50	112.0	90	110	>+\-10%
Na	23	2	45	1005.980	ppb	0.728	313658	1000	100.6	90	110	
Mg	24	2	45	989.723	ppb	1.296	123962	1000	99.0	90	110	
Al	27	2	45	975.152	ppb	1.122	32837	1000	97.5	90	110	
K	39	2	45	996.282	ppb	3.135	137704	1000	99.6	90	110	
Ca	44	2	45	1042.946	ppb	6.000	7368	1000	104.3	90	110	
V	51	2	72	51.708	ppb	2.505	86397	50	103.4	90	110	
Cr	52	2	72	50.731	ppb	1.716	106762	50	101.5	90	110	
Mn	55	2	72	51.857	ppb	0.712	46719	50	103.7	90	110	
Fe	57	2	72	987.791	ppb	1.413	40608	1000	98.8	90	110	
Co	59	2	72	49.829	ppb	1.258	169531	50	99.7	90	110	
Ni	60	2	72	51.835	ppb	3.369	47682	50	103.7	90	110	
Cu	63	2	72	52.150	ppb	1.940	134154	50	104.3	90	110	
Zn	66	2	72	51.503	ppb	4.114	19164	50	103.0	90	110	
As	75	2	72	51.839	ppb	2.117	13677	50	103.7	90	110	
Se	78	1	72	52.614	ppb	3.585	14113	50	105.2	90	110	
Sr	88	2	45	103.829	ppb	3.532	106982	100	103.8	90	110	
Zr	90	2	72	10.625	ppb	56.256	277	50	21.3	90	110	>+\-10%
Zr	90	1	72	9.308	ppb	67.229	1248	50	18.6	90	110	>+\-10%
Nb	93	2	72	102.828	ppb	1.584	262471	100	102.8	90	110	
Mo	95	2	115	52.945	ppb	1.904	67421	50	105.9	90	110	
Pd	105	2	115	52.816	ppb	2.209	100592	50	105.6	90	110	
Ag	107	2	115	51.691	ppb	3.086	202551	50	103.4	90	110	
Cd	111	2	115	52.389	ppb	0.505	29643	50	104.8	90	110	
Sn	120	2	115	53.395	ppb	1.771	83552	50	106.8	90	110	
Sb	121	2	115	53.923	ppb	0.867	71351	50	107.8	90	110	
Ba	137	2	115	55.329	ppb	2.240	21955	50	110.7	90	110	>+\-10%
W	182	2	165	53.448	ppb	3.757	149437	50	106.9	90	110	
Pt	195	2	165	51.719	ppb	4.105	94026	50	103.4	90	110	
Tl	205	2	165	50.492	ppb	2.345	225921	50	101.0	90	110	
Pb	208	2	165	53.264	ppb	3.453	327027	50	106.5	90	110	
Th	232	2	165	57.088	ppb	3.296	358681	50	114.2	90	110	>+\-10%
U	238	2	165	51.624	ppb	4.093	351328	50	103.2	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1007757	2.54	1125531	89.54	60	125	
Sc (IS)	45	2	HMI He	1455088	0.27	1611917	90.27	60	125	
Sc IS)	45	3	No Gas	62999144	1.31	70470050	89.40	60	120	
Ge Internal Standard	72	1	HMI H2	12062692	3.54	13334475	90.46	60	125	
Ge Internal Standard	72	2	HMI He	1873895	0.44	2086994	89.79	60	125	
In Internal standard	115	2	HMI He	5461328	0.95	6052368	90.23	60	125	
Ho-165	165	2	HMI He	17319829	3.10	17767311	97.48	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	028_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:02:38-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-2.358	ppb	-105.5	104728	0.1	
Li	7	3	45	-0.032	ppb	-36852.8	5954227	0.05	
Be	9	1	6	0.098	ppb	31.6	30	0.5	
B	11	1	6	3.243	ppb	30.3	130	0.1	>RL
Na	23	2	45	5.627	ppb	27.0	10793	25	
Mg	24	2	45	0.396	ppb	12.1	173	25	
Al	27	2	45	0.974	ppb	79.5	220	15	
K	39	2	45	17.442	ppb	119.8	42936	50	
Ca	44	2	45	-7.171	ppb	-91.2	43	25	
V	51	2	72	0.672	ppb	33.4	4947	1	
Cr	52	2	72	-0.008	ppb	-474.4	527	1	
Mn	55	2	72	0.151	ppb	34.5	223	0.5	
Fe	57	2	72	0.927	ppb	300.6	563	25	
Co	59	2	72	0.018	ppb	58.4	97	0.5	
Ni	60	2	72	0.099	ppb	114.1	207	1	
Cu	63	2	72	-0.147	ppb	-43.1	1943	1	
Zn	66	2	72	0.199	ppb	52.7	627	5	
As	75	2	72	0.076	ppb	73.3	68	1	
Se	78	1	72	0.140	ppb	6.4	53	1	
Sr	88	2	45	-0.020	ppb	-83.0	30	1	
Zr	90	2	72	0.209	ppb	1311.8	163	1	
Zr	90	1	72	1.476	ppb	128.7	998	1	>RL
Nb	93	2	72	0.634	ppb	12.7	3194	2	
Mo	95	2	115	0.237	ppb	17.3	393	0.5	
Pd	105	2	115	0.007	ppb	295.2	53	1	
Ag	107	2	115	0.008	ppb	61.4	60	1	
Cd	111	2	115	0.002	ppb	19.3	10	0.5	
Sn	120	2	115	0.154	ppb	35.6	467	1	
Sb	121	2	115	0.609	ppb	31.7	910	1	
Ba	137	2	115	0.038	ppb	230.7	40	0.5	
W	182	2	165	-0.020	ppb	-73.9	1227	1	
Pt	195	2	165	-0.002	ppb	-181.9	3	1	
Tl	205	2	165	0.037	ppb	34.8	417	0.1	
Pb	208	2	165	0.157	ppb	9.5	1483	0.5	
Th	232	2	165	0.305	ppb	15.1	2830	1	
U	238	2	165	0.011	ppb	57.0	237	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1033531	0.75	1125531	91.83	60	125	
Sc (IS)	45	2	HMI He	1457843	1.22	1611917	90.44	60	125	
Sc IS)	45	3	No Gas	62310326	0.42	70470050	88.42	60	120	
Ge Internal Standard	72	1	HMI H2	12376133	1.28	13334475	92.81	60	125	
Ge Internal Standard	72	2	HMI He	1929919	1.91	2086994	92.47	60	125	
In Internal standard	115	2	HMI He	5556579	1.90	6052368	91.81	60	125	
Ho-165	165	2	HMI He	17713500	2.20	17767311	99.70	60	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Table

Sample Name	ccvl-5833291
Data File Name	029LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:06:10-06:00
Sample Type	LLCCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	4.406	ppb	59.387	6155621	50	8.8	70	130	>+/-30%
Be	9	1	6	1.096	ppb	12.573	313	1	109.6	70	130	
Na	23	2	45	50.675	ppb	3.016	25038	50	101.4	70	130	
Mg	24	2	45	45.938	ppb	9.152	6018	50	91.9	70	130	
Al	27	2	45	44.657	ppb	9.985	1723	50	89.3	70	130	
K	39	2	45	93.230	ppb	23.717	51472	100	93.2	70	130	
Ca	44	2	45	45.925	ppb	21.179	423	50	91.9	70	130	
V	51	2	72	5.334	ppb	5.405	12641	5	106.7	70	130	
Cr	52	2	72	1.900	ppb	5.064	4644	2	95.0	70	130	
Mn	55	2	72	0.975	ppb	4.034	987	1	97.5	70	130	
Fe	57	2	72	50.079	ppb	7.785	2620	50	100.2	70	130	
Co	59	2	72	1.069	ppb	3.575	3784	1	106.9	70	130	
Ni	60	2	72	1.555	ppb	15.340	1583	1.5	103.7	70	130	
Cu	63	2	72	1.785	ppb	9.217	6985	2	89.3	70	130	
Zn	66	2	72	9.618	ppb	10.751	4141	10	96.2	70	130	
As	75	2	72	4.665	ppb	2.941	1312	5	93.3	70	130	
Se	78	1	72	4.760	ppb	17.258	1319	5	95.2	70	130	
Sr	88	2	45	1.081	ppb	20.055	1193	1	108.1	70	130	
Zr	90	2	72	4.727	ppb	69.456	217	0.5	945.3	70	130	>+/-30%
Zr	90	1	72	-1.259	ppb	-500.101	894	0.5	-251.8	70	130	>+/-30%
Nb	93	2	72	0.103	ppb	93.431	1803	2	5.1	70	130	>+/-30%
Mo	95	2	115	2.109	ppb	2.611	2890	2	105.4	70	130	
Pd	105	2	115	0.001	ppb	1334.480	43	1	0.1	70	130	>+/-30%
Ag	107	2	115	5.115	ppb	4.137	20960	5	102.3	70	130	
Cd	111	2	115	0.810	ppb	25.535	487	1	81.0	70	130	
Sn	120	2	115	10.192	ppb	3.228	16852	10	101.9	70	130	
Sb	121	2	115	2.416	ppb	4.323	3427	2	120.8	70	130	
Ba	137	2	115	1.084	ppb	13.642	473	1	108.4	70	130	
W	182	2	165	5.049	ppb	2.840	15425	1	504.9	70	130	>+/-30%
Pt	195	2	165	-0.002	ppb	-193.174	3	1	-0.2	70	130	>+/-30%
Tl	205	2	165	0.956	ppb	7.265	4557	1	95.6	70	130	
Pb	208	2	165	1.142	ppb	7.837	7558	1	114.2	70	130	
Th	232	2	165	2.055	ppb	7.820	13880	2	102.8	70	130	
U	238	2	165	0.996	ppb	6.843	7005	1	99.6	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1067974	4.70	1125531	94.89	60	125	
Sc (IS)	45	2	HMI He	1492779	2.88	1611917	92.61	60	125	
Sc IS)	45	3	No Gas	63610727	2.58	70470050	90.27	60	120	
Ge Internal Standard	72	1	HMI H2	12325681	0.82	13334475	92.43	60	125	
Ge Internal Standard	72	2	HMI He	1931905	1.54	2086994	92.57	60	125	
In Internal standard	115	2	HMI He	5706254	1.44	6052368	94.28	60	125	
Ho-165	165	2	HMI He	17514708	3.65	17767311	98.58	60	125	

Blank Report

Sample Table

Sample Name	MB 280-467376/1-A
Data File Name	030_BLK.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:09:43-06:00
Sample Type	Blank
Dilution	1
Comment	467376 6020
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit
Li	7	1	45	-12.781	ppb	-61.36955009	108065	0.1
Li	7	3	45	-16.083	ppb	-53.19927206	6284677	0.05
Be	9	1	6	-0.005	ppb	-194.0545373	2	0.5
Na	23	2	45	4.275	ppb	43.82061461	11367	25
Mg	24	2	45	0.982	ppb	3.902776561	270	25
Al	27	2	45	12.109	ppb	13.32466223	650	15
K	39	2	45	-28.801	ppb	-39.8476941	42117	50
Ca	44	2	45	-4.251	ppb	-4.196144351	70	25
V	51	2	72	-0.662	ppb	-14.15263554	2844	1
Cr	52	2	72	0.157	ppb	28.55129506	913	1
Mn	55	2	72	0.122	ppb	19.17890103	203	0.5
Fe	57	2	72	2.024	ppb	55.16210058	627	25
Co	59	2	72	0.023	ppb	24.45563864	117	0.5
Ni	60	2	72	0.104	ppb	68.30508323	217	1
Cu	63	2	72	-0.173	ppb	-13.16691517	1937	1
Zn	66	2	72	4.715	ppb	7.847406471	2384	5
As	75	2	72	0.034	ppb	106.062458	59	1
Se	78	1	72	0.047	ppb	86.46827082	29	1
Sr	88	2	45	0.001	ppb	1179.599395	57	1
Zr	90	2	72	4.020	ppb	94.34253358	213	1
Zr	90	1	72	0.597	ppb	896.792992	1011	1
Nb	93	2	72	0.058	ppb	151.5677495	1737	2
Mo	95	2	115	0.200	ppb	19.4680417	370	0.5
Pd	105	2	115	-0.009	ppb	-29.87040201	23	1
Ag	107	2	115	0.010	ppb	35.98902893	73	1
Cd	111	2	115	0.006	ppb	422.8021951	13	0.5
Sn	120	2	115	0.165	ppb	63.40938365	520	1
Sb	121	2	115	0.393	ppb	9.36230157	663	1
Ba	137	2	115	0.132	ppb	55.39722715	83	0.5
W	182	2	165	0.047	ppb	58.29823294	1443	1
Pt	195	2	165	0.000	ppb	16793.38513	7	1
Tl	205	2	165	0.014	ppb	59.1284218	317	0.1
Pb	208	2	165	0.150	ppb	4.694724697	1463	0.5
Th	232	2	165	4.703	ppb	4.753037642	31624	1
U	238	2	165	-0.001	ppb	-564.3005718	157	0.5

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1059800	3.39	1125531	94.16	60	125	
Sc (IS)	45	2	HMI He	1595803	1.95	1611917	99.00	60	125	
Sc IS)	45	3	No Gas	68971318	1.41	70470050	97.87	60	120	
Ge Internal Standard	72	1	HMI H2	12980463	1.70	13334475	97.35	60	125	
Ge Internal Standard	72	2	HMI He	1991842	5.09	2086994	95.44	60	125	
In Internal standard	115	2	HMI He	5958077	0.70	6052368	98.44	60	125	
Ho-165	165	2	HMI He	18056804	2.66	17767311	101.63	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	LCS 280-467376/2-A
Data File Name	031_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:16:35-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	467376 6020
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	30.229	30.229	ppb	15.728	7071306	400	7.6	80	120	>+/-20%
Be	9	1	6	45.277	45.277	ppb	3.837	12601	40	113.2	80	120	
Na	23	2	45	794.614	794.614	ppb	2.203	272676	40	1986.5	80	120	>+/-20%
Mg	24	2	45	804.243	804.243	ppb	0.592	110020	40	2010.6	80	120	>+/-20%
Al	27	2	45	844.891	844.891	ppb	4.729	31087	40	2112.2	80	120	>+/-20%
K	39	2	45	792.021	792.021	ppb	2.283	128759	40	1980.1	80	120	>+/-20%
Ca	44	2	45	826.208	826.208	ppb	2.583	6395	40	2065.5	80	120	>+/-20%
V	51	2	72	39.557	39.557	ppb	2.890	72865	40	98.9	80	120	
Cr	52	2	72	41.586	41.586	ppb	4.403	95303	40	104.0	80	120	
Mn	55	2	72	40.703	40.703	ppb	1.465	39936	40	101.8	80	120	
Fe	57	2	72	794.218	794.218	ppb	2.989	35640	40	1985.5	80	120	>+/-20%
Co	59	2	72	40.799	40.799	ppb	2.287	151093	40	102.0	80	120	
Ni	60	2	72	41.444	41.444	ppb	1.332	41516	40	103.6	80	120	
Cu	63	2	72	40.141	40.141	ppb	4.520	112889	40	100.4	80	120	
Zn	66	2	72	46.268	46.268	ppb	4.475	18787	40	115.7	80	120	
As	75	2	72	38.546	38.546	ppb	0.724	11084	40	96.4	80	120	
Se	78	1	72	39.460	39.460	ppb	4.857	11201	40	98.7	80	120	
Sr	88	2	45	80.936	80.936	ppb	0.858	91081	40	202.3	80	120	>+/-20%
Nb	93	2	72	-0.073	-0.073	ppb	-97.497	1417	40	-0.2	80	120	>+/-20%
Mo	95	2	115	42.098	42.098	ppb	0.583	59181	40	105.2	80	120	
Pd	105	2	115	-0.012	-0.012	ppb	-45.650	17	40	0.0	80	120	>+/-20%
Ag	107	2	115	39.101	39.101	ppb	1.524	169077	40	97.8	80	120	
Cd	111	2	115	39.055	39.055	ppb	4.590	24378	40	97.6	80	120	
Sn	120	2	115	41.492	41.492	ppb	2.003	71690	40	103.7	80	120	
Sb	121	2	115	41.976	41.976	ppb	1.927	61331	40	104.9	80	120	
Ba	137	2	115	45.879	45.879	ppb	1.842	20103	40	114.7	80	120	
W	182	2	165	39.435	39.435	ppb	1.813	120956	40	98.6	80	120	
Pt	195	2	165	-0.002	-0.002	ppb	-151.300	3	40	0.0	80	120	>+/-20%
Tl	205	2	165	38.886	38.886	ppb	4.394	190094	40	97.2	80	120	
Pb	208	2	165	39.863	39.863	ppb	3.150	267693	40	99.7	80	120	
Th	232	2	165	43.544	43.544	ppb	3.797	299277	40	108.9	80	120	
U	238	2	165	39.690	39.690	ppb	3.677	295154	40	99.2	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1048299	1.67	1125531	93.14	60	125	
Sc (IS)	45	2	HMI He	1589006	1.03	1611917	98.58	60	125	
Sc IS)	45	3	No Gas	68078376	2.14	70470050	96.61	60	120	
Ge Internal Standard	72	1	HMI H2	12759621	2.38	13334475	95.69	60	125	
Ge Internal Standard	72	2	HMI He	2039783	2.41	2086994	97.74	60	125	
In Internal standard	115	2	HMI He	6027106	2.13	6052368	99.58	60	125	
Ho-165	165	2	HMI He	18928281	1.88	17767311	106.53	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-1-A
Data File Name	032SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:20:07-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	24.506	ppb	24.506	36.35	6716790	40000	
Be	9	1	6	0.062	ppb	0.062	76.22	20	2000	
B	11	1	6	12543.527	ppb	12543.527	5.17	125582	100	>LDR
Na	23	2	45	199635.804	ppb	199635.804	4.15	63530278	400000	
Mg	24	2	45	15019.956	ppb	15019.956	4.33	1975171	400000	
Al	27	2	45	112.835	ppb	112.835	4.88	4167	400000	
K	39	2	45	2817.755	ppb	2817.755	0.37	330315	400000	
Ca	44	2	45	81942.624	ppb	81942.624	0.85	600991	400000	
V	51	2	72	8.638	ppb	8.638	5.70	18196	2000	
Cr	52	2	72	0.910	ppb	0.910	7.18	2527	5000	
Mn	55	2	72	1.924	ppb	1.924	3.94	1880	10000	
Fe	57	2	72	70.545	ppb	70.545	6.06	3497	400000	
Co	59	2	72	0.023	ppb	0.023	37.18	117	2000	
Ni	60	2	72	0.289	ppb	0.289	37.15	390	5000	
Cu	63	2	72	0.506	ppb	0.506	11.89	3670	5000	
Zn	66	2	72	10.364	ppb	10.364	3.84	4444	5000	
As	75	2	72	2.091	ppb	2.091	3.88	618	2000	
Se	78	1	72	1.326	ppb	1.326	14.43	373	2000	
Sr	88	2	45	607.527	ppb	607.527	2.40	657749	2000	
Zr	90	2	72	2.617	ppb	2.617	116.66	193	1000	
Zr	90	1	72	5.852	ppb	5.852	36.48	1135	1000	
Nb	93	2	72	-0.317	ppb	-0.317	-18.75	713	200	
Mo	95	2	115	2.413	ppb	2.413	5.12	3297	2000	
Pd	105	2	115	0.018	ppb	0.018	59.28	77	100	
Ag	107	2	115	0.001	ppb	0.001	231.99	33	100	
Cd	111	2	115	0.035	ppb	0.035	97.04	30	2000	
Sn	120	2	115	0.276	ppb	0.276	17.85	680	2000	
Sb	121	2	115	0.493	ppb	0.493	4.30	773	1000	
Ba	137	2	115	55.398	ppb	55.398	0.81	22993	5000	
W	182	2	165	-0.008	ppb	-0.008	-937.69	1257	100	
Pt	195	2	165	-0.002	ppb	-0.002	-184.15	3	100	
Tl	205	2	165	0.029	ppb	0.029	22.14	380	2000	
Pb	208	2	165	0.306	ppb	0.306	12.01	2413	5000	
Th	232	2	165	1.580	ppb	1.580	1.77	11031	2000	
U	238	2	165	6.313	ppb	6.313	7.70	44092	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1030550	2.74	1125531	91.56	60	125	
Sc (IS)	45	2	HMI He	1529820	1.60	1611917	94.91	60	125	
Sc IS)	45	3	No Gas	65668794	1.89	70470050	93.19	60	120	
Ge Internal Standard	72	1	HMI H2	12156086	2.27	13334475	91.16	60	125	
Ge Internal Standard	72	2	HMI He	1944403	1.79	2086994	93.17	60	125	
In Internal standard	115	2	HMI He	5711436	1.46	6052368	94.37	60	125	
Ho-165	165	2	HMI He	17745668	3.34	17767311	99.88	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-1-Asd@5
Data File Name	033SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:23:40-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	1.900	ppb	1.900	387.56	6115626	40000	
Be	9	1	6	-0.011	ppb	-0.011	0.00	0	2000	
B	11	1	6	2786.853	ppb	2786.853	3.66	28650	100	>LDR
Na	23	2	45	39493.418	ppb	39493.418	0.77	12351651	400000	
Mg	24	2	45	2848.479	ppb	2848.479	0.80	367986	400000	
Al	27	2	45	9.003	ppb	9.003	26.37	503	400000	
K	39	2	45	532.107	ppb	532.107	4.25	95708	400000	
Ca	44	2	45	16015.572	ppb	16015.572	3.52	115356	400000	
V	51	2	72	1.874	ppb	1.874	3.23	7152	2000	
Cr	52	2	72	0.160	ppb	0.160	38.20	917	5000	
Mn	55	2	72	0.517	ppb	0.517	11.70	580	10000	
Fe	57	2	72	10.116	ppb	10.116	27.08	977	400000	
Co	59	2	72	0.010	ppb	0.010	49.33	70	2000	
Ni	60	2	72	0.061	ppb	0.061	61.69	177	5000	
Cu	63	2	72	0.106	ppb	0.106	75.03	2687	5000	
Zn	66	2	72	2.036	ppb	2.036	25.93	1353	5000	
As	75	2	72	0.392	ppb	0.392	40.16	159	2000	
Se	78	1	72	0.280	ppb	0.280	44.07	92	2000	
Sr	88	2	45	119.207	ppb	119.207	4.96	126724	2000	
Zr	90	2	72	-3.003	ppb	-3.003	-49.41	130	1000	
Zr	90	1	72	-2.083	ppb	-2.083	-125.45	871	1000	
Nb	93	2	72	-0.456	ppb	-0.456	-3.77	353	200	
Mo	95	2	115	0.533	ppb	0.533	16.44	810	2000	
Pd	105	2	115	-0.009	ppb	-0.009	-120.95	23	100	
Ag	107	2	115	0.009	ppb	0.009	150.83	67	100	
Cd	111	2	115	0.007	ppb	0.007	392.83	13	2000	
Sn	120	2	115	0.072	ppb	0.072	30.50	350	2000	
Sb	121	2	115	0.114	ppb	0.114	32.40	253	1000	
Ba	137	2	115	11.279	ppb	11.279	5.66	4764	5000	
W	182	2	165	-0.021	ppb	-0.021	-369.89	1243	100	
Pt	195	2	165	0.000	ppb	0.000	-5609.02	7	100	
Tl	205	2	165	-0.006	ppb	-0.006	-258.48	227	2000	
Pb	208	2	165	0.112	ppb	0.112	8.01	1220	5000	
Th	232	2	165	-0.002	ppb	-0.002	-347.35	880	2000	
U	238	2	165	1.242	ppb	1.242	0.85	8973	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1054827	1.94	1125531	93.72	60	125	
Sc (IS)	45	2	HMI He	1501951	1.53	1611917	93.18	60	125	
Sc IS)	45	3	No Gas	63635529	0.95	70470050	90.30	60	120	
Ge Internal Standard	72	1	HMI H2	12404381	0.68	13334475	93.02	60	125	
Ge Internal Standard	72	2	HMI He	1992057	0.48	2086994	95.45	60	125	
In Internal standard	115	2	HMI He	5787936	2.90	6052368	95.63	60	125	
Ho-165	165	2	HMI He	18047040	2.21	17767311	101.57	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-1-B MS
Data File Name	034SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:27:11-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	61.790	ppb	61.790	10.57	7159850	40000	
Be	9	1	6	44.306	ppb	44.306	0.23	11792	2000	
B	11	1	6	12863.011	ppb	12863.011	6.17	125300	100	>LDR
Na	23	2	45	192697.085	ppb	192697.085	3.33	61377321	400000	
Mg	24	2	45	15466.889	ppb	15466.889	2.92	2035875	400000	
Al	27	2	45	824.854	ppb	824.854	1.22	29271	400000	
K	39	2	45	3541.642	ppb	3541.642	2.58	404338	400000	
Ca	44	2	45	83540.957	ppb	83540.957	2.82	613069	400000	
V	51	2	72	48.210	ppb	48.210	3.33	85123	2000	
Cr	52	2	72	40.595	ppb	40.595	4.52	90092	5000	
Mn	55	2	72	41.452	ppb	41.452	2.74	39365	10000	
Fe	57	2	72	843.842	ppb	843.842	4.27	36615	400000	
Co	59	2	72	38.033	ppb	38.033	4.06	136308	2000	
Ni	60	2	72	38.039	ppb	38.039	2.07	36906	5000	
Cu	63	2	72	38.150	ppb	38.150	3.93	104014	5000	
Zn	66	2	72	44.206	ppb	44.206	1.65	17416	5000	
As	75	2	72	39.967	ppb	39.967	4.61	11118	2000	
Se	78	1	72	39.202	ppb	39.202	2.43	10474	2000	
Sr	88	2	45	679.418	ppb	679.418	2.26	736245	2000	
Zr	90	2	72	4.205	ppb	4.205	135.67	217	1000	
Zr	90	1	72	12.422	ppb	12.422	2.23	1351	1000	
Nb	93	2	72	-0.349	ppb	-0.349	-7.69	637	200	
Mo	95	2	115	46.157	ppb	46.157	7.11	59692	2000	
Pd	105	2	115	0.016	ppb	0.016	120.46	70	100	
Ag	107	2	115	39.756	ppb	39.756	5.67	158233	100	
Cd	111	2	115	39.081	ppb	39.081	6.72	22465	2000	
Sn	120	2	115	41.905	ppb	41.905	5.30	66668	2000	
Sb	121	2	115	43.502	ppb	43.502	4.74	58514	1000	
Ba	137	2	115	104.583	ppb	104.583	7.36	42119	5000	
W	182	2	165	40.160	ppb	40.160	2.11	114145	100	
Pt	195	2	165	-0.002	ppb	-0.002	-181.12	3	100	
Tl	205	2	165	39.697	ppb	39.697	1.97	179961	2000	
Pb	208	2	165	40.457	ppb	40.457	2.95	251987	5000	
Th	232	2	165	42.108	ppb	42.108	3.04	268422	2000	
U	238	2	165	46.631	ppb	46.631	3.78	321495	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1002086	1.38	1125531	89.03	60	125	
Sc (IS)	45	2	HMI He	1531587	3.17	1611917	95.02	60	125	
Sc IS)	45	3	No Gas	63614180	2.07	70470050	90.27	60	120	
Ge Internal Standard	72	1	HMI H2	12000377	1.57	13334475	90.00	60	125	
Ge Internal Standard	72	2	HMI He	1975572	3.40	2086994	94.66	60	125	
In Internal standard	115	2	HMI He	5558175	4.85	6052368	91.83	60	125	
Ho-165	165	2	HMI He	17547561	1.23	17767311	98.76	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-1-C MSD
Data File Name	035SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:30:42-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	64.686	ppb	64.686	9.87	7130152	40000	
Be	9	1	6	45.230	ppb	45.230	3.12	11939	2000	
B	11	1	6	13184.127	ppb	13184.127	3.20	127333	100	>LDR
Na	23	2	45	199224.690	ppb	199224.690	3.21	63292031	400000	
Mg	24	2	45	16109.172	ppb	16109.172	4.41	2114012	400000	
Al	27	2	45	856.196	ppb	856.196	2.89	30273	400000	
K	39	2	45	3603.894	ppb	3603.894	3.26	409564	400000	
Ca	44	2	45	83660.562	ppb	83660.562	2.72	612321	400000	
V	51	2	72	50.223	ppb	50.223	0.93	86393	2000	
Cr	52	2	72	41.718	ppb	41.718	3.05	90373	5000	
Mn	55	2	72	42.700	ppb	42.700	2.78	39572	10000	
Fe	57	2	72	875.953	ppb	875.953	3.13	37086	400000	
Co	59	2	72	39.912	ppb	39.912	0.96	139645	2000	
Ni	60	2	72	40.718	ppb	40.718	2.85	38540	5000	
Cu	63	2	72	101.446	ppb	101.446	3.21	266126	5000	
Zn	66	2	72	43.251	ppb	43.251	2.11	16638	5000	
As	75	2	72	41.409	ppb	41.409	1.60	11244	2000	
Se	78	1	72	40.154	ppb	40.154	1.16	10606	2000	
Sr	88	2	45	688.389	ppb	688.389	2.78	743899	2000	
Zr	90	2	72	17.356	ppb	17.356	40.61	363	1000	
Zr	90	1	72	20.763	ppb	20.763	20.95	1625	1000	
Nb	93	2	72	-0.392	ppb	-0.392	-12.34	510	200	
Mo	95	2	115	46.654	ppb	46.654	4.23	60813	2000	
Pd	105	2	115	0.013	ppb	0.013	239.58	67	100	
Ag	107	2	115	39.578	ppb	39.578	3.22	158742	100	
Cd	111	2	115	39.998	ppb	39.998	4.29	23163	2000	
Sn	120	2	115	42.296	ppb	42.296	1.44	67820	2000	
Sb	121	2	115	44.245	ppb	44.245	5.41	59912	1000	
Ba	137	2	115	104.512	ppb	104.512	4.74	42420	5000	
W	182	2	165	40.398	ppb	40.398	2.66	113818	100	
Pt	195	2	165	0.000	ppb	0.000	9067.53	7	100	
Tl	205	2	165	41.525	ppb	41.525	3.20	186592	2000	
Pb	208	2	165	42.188	ppb	42.188	1.38	260412	5000	
Th	232	2	165	43.015	ppb	43.015	1.69	271811	2000	
U	238	2	165	47.875	ppb	47.875	2.29	327261	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	993774	2.94	1125531	88.29	60	125	
Sc (IS)	45	2	HMI He	1527680	3.69	1611917	94.77	60	125	
Sc IS)	45	3	No Gas	62893580	0.47	70470050	89.25	60	120	
Ge Internal Standard	72	1	HMI H2	11865473	0.48	13334475	88.98	60	125	
Ge Internal Standard	72	2	HMI He	1926889	0.38	2086994	92.33	60	125	
In Internal standard	115	2	HMI He	5594141	3.52	6052368	92.43	60	125	
Ho-165	165	2	HMI He	17394415	0.67	17767311	97.90	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-1-A pds
Data File Name	036SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:34:14-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	22.022	ppb	22.022	27.93	6396199	40000	
Be	9	1	6	229.617	ppb	229.617	2.99	60446	2000	
B	11	1	6	13171.462	ppb	13171.462	3.53	126979	100	>LDR
Na	23	2	45	194130.917	ppb	194130.917	1.47	60276656	400000	
Mg	24	2	45	14809.723	ppb	14809.723	0.78	1900099	400000	
Al	27	2	45	2090.791	ppb	2090.791	1.86	71953	400000	
K	39	2	45	2815.825	ppb	2815.825	3.32	321849	400000	
Ca	44	2	45	82144.649	ppb	82144.649	2.71	587447	400000	
V	51	2	72	224.792	ppb	224.792	0.12	375317	2000	
Cr	52	2	72	219.479	ppb	219.479	1.61	475630	5000	
Mn	55	2	72	219.056	ppb	219.056	1.08	203699	10000	
Fe	57	2	72	2150.980	ppb	2150.980	5.80	90717	400000	
Co	59	2	72	206.161	ppb	206.161	4.45	724534	2000	
Ni	60	2	72	208.228	ppb	208.228	2.33	197608	5000	
Cu	63	2	72	207.598	ppb	207.598	3.15	544830	5000	
Zn	66	2	72	216.581	ppb	216.581	2.37	81512	5000	
As	75	2	72	207.003	ppb	207.003	2.38	56294	2000	
Se	78	1	72	210.697	ppb	210.697	0.70	54099	2000	
Sr	88	2	45	616.250	ppb	616.250	2.33	650638	2000	
Zr	90	2	72	48960.091	ppb	48960.091	2.16	573775	1000	>LDR
Zr	90	1	72	50983.936	ppb	50983.936	2.55	1720495	1000	>LDR
Nb	93	2	72	1.556	ppb	1.556	9.35	5621	200	
Mo	95	2	115	212.650	ppb	212.650	1.55	283666	2000	
Pd	105	2	115	0.260	ppb	0.260	7.41	560	100	
Ag	107	2	115	25.062	ppb	25.062	2.85	102984	100	
Cd	111	2	115	206.942	ppb	206.942	2.18	122734	2000	
Sn	120	2	115	214.459	ppb	214.459	2.50	351139	2000	
Sb	121	2	115	225.217	ppb	225.217	0.57	312225	1000	
Ba	137	2	115	307.770	ppb	307.770	1.85	127954	5000	
W	182	2	165	221.425	ppb	221.425	1.36	622061	100	
Pt	195	2	165	0.184	ppb	0.184	27.66	343	100	
Tl	205	2	165	221.646	ppb	221.646	2.55	1001430	2000	
Pb	208	2	165	223.576	ppb	223.576	1.24	1386621	5000	
Th	232	2	165	1.891	ppb	1.891	4.25	12856	2000	
U	238	2	165	248.695	ppb	248.695	2.12	1709658	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	991678	2.38	1125531	88.11	60	125	
Sc (IS)	45	2	HMI He	1491909	1.61	1611917	92.55	60	125	
Sc IS)	45	3	No Gas	62938148	1.12	70470050	89.31	60	120	
Ge Internal Standard	72	1	HMI H2	11546670	2.17	13334475	86.59	60	125	
Ge Internal Standard	72	2	HMI He	1936998	1.97	2086994	92.81	60	125	
In Internal standard	115	2	HMI He	5727252	1.82	6052368	94.63	60	125	
Ho-165	165	2	HMI He	17501427	1.77	17767311	98.50	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-2-A
Data File Name	037SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:37:45-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	18.465	ppb	18.465	18.03	6316526	40000	
Be	9	1	6	0.109	ppb	0.109	9.88	32	2000	
B	11	1	6	12640.815	ppb	12640.815	1.45	122792	100	>LDR
Na	23	2	45	132809.189	ppb	132809.189	1.52	42234642	400000	
Mg	24	2	45	6100.227	ppb	6100.227	1.87	801640	400000	
Al	27	2	45	27.649	ppb	27.649	10.98	1170	400000	
K	39	2	45	1589.410	ppb	1589.410	1.97	204970	400000	
Ca	44	2	45	20250.385	ppb	20250.385	2.91	148419	400000	
V	51	2	72	12.979	ppb	12.979	2.24	25265	2000	
Cr	52	2	72	0.376	ppb	0.376	7.37	1357	5000	
Mn	55	2	72	0.230	ppb	0.230	15.85	297	10000	
Fe	57	2	72	10.298	ppb	10.298	38.12	957	400000	
Co	59	2	72	0.032	ppb	0.032	82.12	147	2000	
Ni	60	2	72	0.233	ppb	0.233	24.90	333	5000	
Cu	63	2	72	25.969	ppb	25.969	0.79	70109	5000	
Zn	66	2	72	4.742	ppb	4.742	12.19	2324	5000	
As	75	2	72	5.885	ppb	5.885	4.44	1644	2000	
Se	78	1	72	0.401	ppb	0.401	12.21	123	2000	
Sr	88	2	45	243.946	ppb	243.946	2.82	263875	2000	
Zr	90	2	72	45.957	ppb	45.957	20.71	700	1000	
Zr	90	1	72	52.010	ppb	52.010	6.83	2766	1000	
Nb	93	2	72	-0.544	ppb	-0.544	-4.25	113	200	
Mo	95	2	115	17.667	ppb	17.667	3.54	23330	2000	
Pd	105	2	115	0.010	ppb	0.010	175.46	60	100	
Ag	107	2	115	0.001	ppb	0.001	772.35	33	100	
Cd	111	2	115	0.024	ppb	0.024	110.72	23	2000	
Sn	120	2	115	0.139	ppb	0.139	63.94	450	2000	
Sb	121	2	115	0.117	ppb	0.117	19.82	250	1000	
Ba	137	2	115	28.196	ppb	28.196	7.86	11591	5000	
W	182	2	165	0.067	ppb	0.067	196.11	1467	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	0.049	ppb	0.049	25.64	470	2000	
Pb	208	2	165	0.137	ppb	0.137	13.54	1343	5000	
Th	232	2	165	-0.087	ppb	-0.087	-6.45	320	2000	
U	238	2	165	5.868	ppb	5.868	5.25	40716	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	999035	0.68	1125531	88.76	60	125	
Sc (IS)	45	2	HMI He	1528269	1.97	1611917	94.81	60	125	
Sc IS)	45	3	No Gas	62757719	1.19	70470050	89.06	60	120	
Ge Internal Standard	72	1	HMI H2	12126236	2.54	13334475	90.94	60	125	
Ge Internal Standard	72	2	HMI He	1933831	1.69	2086994	92.66	60	125	
In Internal standard	115	2	HMI He	5651372	2.28	6052368	93.37	60	125	
Ho-165	165	2	HMI He	17605164	1.96	17767311	99.09	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	038_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:41:16-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	96.573	ppb	1.767	136943	100	96.6	90	110	
Li	7	3	45	112.054	ppb	13.131	7434418	100	112.1	90	110	>+\-10%
Be	9	1	6	51.284	ppb	0.091	14101	50	102.6	90	110	
B	11	1	6	576.875	ppb	7.494	5898	50	1153.8	90	110	>+\-10%
Na	23	2	45	1198.698	ppb	0.177	375544	1000	119.9	90	110	>+\-10%
Mg	24	2	45	986.076	ppb	3.201	124618	1000	98.6	90	110	
Al	27	2	45	1002.179	ppb	2.357	34046	1000	100.2	90	110	
K	39	2	45	980.782	ppb	6.348	137381	1000	98.1	90	110	
Ca	44	2	45	1043.250	ppb	2.571	7442	1000	104.3	90	110	
V	51	2	72	51.579	ppb	0.208	87009	50	103.2	90	110	
Cr	52	2	72	51.391	ppb	2.501	109163	50	102.8	90	110	
Mn	55	2	72	52.390	ppb	2.910	47642	50	104.8	90	110	
Fe	57	2	72	988.612	ppb	3.638	41032	1000	98.9	90	110	
Co	59	2	72	50.181	ppb	1.192	172359	50	100.4	90	110	
Ni	60	2	72	51.625	ppb	1.566	47946	50	103.3	90	110	
Cu	63	2	72	51.376	ppb	1.338	133468	50	102.8	90	110	
Zn	66	2	72	50.086	ppb	1.284	18830	50	100.2	90	110	
As	75	2	72	51.349	ppb	2.950	13677	50	102.7	90	110	
Se	78	1	72	51.680	ppb	1.749	13902	50	103.4	90	110	
Sr	88	2	45	102.930	ppb	4.293	106972	100	102.9	90	110	
Zr	90	2	72	47.914	ppb	12.745	707	50	95.8	90	110	
Zr	90	1	72	40.941	ppb	8.532	2369	50	81.9	90	110	>+\-10%
Nb	93	2	72	101.803	ppb	2.555	262327	100	101.8	90	110	
Mo	95	2	115	51.657	ppb	1.302	67833	50	103.3	90	110	
Pd	105	2	115	50.306	ppb	1.312	98787	50	100.6	90	110	
Ag	107	2	115	50.785	ppb	2.320	205129	50	101.6	90	110	
Cd	111	2	115	50.996	ppb	3.388	29744	50	102.0	90	110	
Sn	120	2	115	52.002	ppb	2.663	83896	50	104.0	90	110	
Sb	121	2	115	52.014	ppb	3.340	70966	50	104.0	90	110	
Ba	137	2	115	55.611	ppb	0.752	22760	50	111.2	90	110	>+\-10%
W	182	2	165	50.650	ppb	3.035	145984	50	101.3	90	110	
Pt	195	2	165	50.847	ppb	2.789	95252	50	101.7	90	110	
Tl	205	2	165	52.913	ppb	1.720	243730	50	105.8	90	110	
Pb	208	2	165	51.249	ppb	1.148	324254	50	102.5	90	110	
Th	232	2	165	49.110	ppb	0.970	318097	50	98.2	90	110	
U	238	2	165	49.966	ppb	0.909	350262	50	99.9	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1035242	0.93	1125531	91.98	60	125	
Sc (IS)	45	2	HMI He	1468918	3.14	1611917	91.13	60	125	
Sc IS)	45	3	No Gas	58824971	1.13	70470050	83.48	60	120	
Ge Internal Standard	72	1	HMI H2	12089248	1.63	13334475	90.66	60	125	
Ge Internal Standard	72	2	HMI He	1891806	0.98	2086994	90.65	60	125	
In Internal standard	115	2	HMI He	5631965	1.92	6052368	93.05	60	125	
Ho-165	165	2	HMI He	17836093	1.05	17767311	100.39	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	039_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:44:47-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-6.602	ppb	-174.7	102418	0.1	
Li	7	3	45	-0.018	ppb	-25105.7	5760089	0.05	
Be	9	1	6	0.034	ppb	30.1	12	0.5	
B	11	1	6	271.321	ppb	5.9	2680	0.1	>RL
Na	23	2	45	114.870	ppb	0.6	43463	25	>RL
Mg	24	2	45	0.494	ppb	69.3	183	25	
Al	27	2	45	-0.248	ppb	-831.4	177	15	
K	39	2	45	-13.974	ppb	-65.9	39478	50	
Ca	44	2	45	-7.122	ppb	-77.3	43	25	
V	51	2	72	1.730	ppb	15.9	6571	1	>RL
Cr	52	2	72	-0.054	ppb	-26.7	420	1	
Mn	55	2	72	0.054	ppb	83.3	130	0.5	
Fe	57	2	72	-1.138	ppb	-192.7	467	25	
Co	59	2	72	0.008	ppb	3.2	60	0.5	
Ni	60	2	72	0.031	ppb	54.5	140	1	
Cu	63	2	72	-0.065	ppb	-175.8	2120	1	
Zn	66	2	72	0.497	ppb	50.2	723	5	
As	75	2	72	0.073	ppb	55.9	66	1	
Se	78	1	72	0.046	ppb	24.5	27	1	
Sr	88	2	45	0.000	ppb	-11012.4	50	1	
Zr	90	2	72	-3.644	ppb	-56.4	117	1	
Zr	90	1	72	3.292	ppb	172.3	1034	1	>RL
Nb	93	2	72	0.729	ppb	6.0	3380	2	
Mo	95	2	115	0.039	ppb	57.3	137	0.5	
Pd	105	2	115	0.004	ppb	543.9	47	1	
Ag	107	2	115	0.006	ppb	162.2	50	1	
Cd	111	2	115	-0.010	ppb	-100.9	3	0.5	
Sn	120	2	115	0.092	ppb	60.6	370	1	
Sb	121	2	115	0.077	ppb	69.3	193	1	
Ba	137	2	115	-0.044	ppb	-32.4	7	0.5	
W	182	2	165	-0.033	ppb	-60.4	1157	1	
Pt	195	2	165	0.002	ppb	497.8	10	1	
Tl	205	2	165	0.004	ppb	380.4	260	0.1	
Pb	208	2	165	0.034	ppb	51.2	690	0.5	
Th	232	2	165	0.036	ppb	38.0	1080	1	
U	238	2	165	-0.011	ppb	-49.4	83	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	981717	2.96	1125531	87.22	60	125	
Sc (IS)	45	2	HMI He	1442226	1.02	1611917	89.47	60	125	
Sc IS)	45	3	No Gas	60279807	0.85	70470050	85.54	60	120	
Ge Internal Standard	72	1	HMI H2	12065134	2.77	13334475	90.48	60	125	
Ge Internal Standard	72	2	HMI He	1896195	1.40	2086994	90.86	60	125	
In Internal standard	115	2	HMI He	5577708	0.62	6052368	92.16	60	125	
Ho-165	165	2	HMI He	17234156	1.26	17767311	97.00	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-3-A
Data File Name	040SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:48:19-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	28.046	ppb	28.046	17.50	6460974	40000	
Be	9	1	6	0.035	ppb	0.035	65.17	12	2000	
B	11	1	6	13008.449	ppb	13008.449	1.91	122172	100	>LDR
Na	23	2	45	237855.471	ppb	237855.471	0.93	72517635	400000	
Mg	24	2	45	19164.671	ppb	19164.671	2.27	2415976	400000	
Al	27	2	45	53.483	ppb	53.483	3.59	1990	400000	
K	39	2	45	3562.179	ppb	3562.179	2.24	388860	400000	
Ca	44	2	45	75746.729	ppb	75746.729	1.21	531971	400000	
V	51	2	72	7.308	ppb	7.308	4.85	15851	2000	
Cr	52	2	72	0.601	ppb	0.601	13.95	1833	5000	
Mn	55	2	72	0.194	ppb	0.194	28.69	263	10000	
Fe	57	2	72	24.899	ppb	24.899	11.13	1563	400000	
Co	59	2	72	0.020	ppb	0.020	44.21	103	2000	
Ni	60	2	72	0.174	ppb	0.174	26.61	277	5000	
Cu	63	2	72	0.025	ppb	0.025	196.46	2387	5000	
Zn	66	2	72	4.299	ppb	4.299	16.15	2153	5000	
As	75	2	72	1.892	ppb	1.892	5.09	559	2000	
Se	78	1	72	3.201	ppb	3.201	10.44	844	2000	
Sr	88	2	45	791.667	ppb	791.667	5.12	820396	2000	
Zr	90	2	72	7.963	ppb	7.963	47.30	253	1000	
Zr	90	1	72	4.174	ppb	4.174	104.24	1031	1000	
Nb	93	2	72	0.508	ppb	0.508	10.57	2860	200	
Mo	95	2	115	2.315	ppb	2.315	8.97	3107	2000	
Pd	105	2	115	0.019	ppb	0.019	115.95	77	100	
Ag	107	2	115	0.005	ppb	0.005	58.60	47	100	
Cd	111	2	115	0.013	ppb	0.013	72.49	17	2000	
Sn	120	2	115	0.060	ppb	0.060	105.33	320	2000	
Sb	121	2	115	0.074	ppb	0.074	25.11	190	1000	
Ba	137	2	115	90.455	ppb	90.455	5.16	36835	5000	
W	182	2	165	0.011	ppb	0.011	228.20	1293	100	
Pt	195	2	165	-0.002	ppb	-0.002	-174.18	3	100	
Tl	205	2	165	0.009	ppb	0.009	100.78	287	2000	
Pb	208	2	165	0.220	ppb	0.220	7.08	1847	5000	
Th	232	2	165	1.003	ppb	1.003	6.15	7202	2000	
U	238	2	165	8.959	ppb	8.959	0.98	61580	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	965966	1.38	1125531	85.82	60	125	
Sc (IS)	45	2	HMI He	1465259	3.28	1611917	90.90	60	125	
Sc IS)	45	3	No Gas	62557790	0.85	70470050	88.77	60	120	
Ge Internal Standard	72	1	HMI H2	11657301	0.85	13334475	87.42	60	125	
Ge Internal Standard	72	2	HMI He	1927109	2.55	2086994	92.34	60	125	
In Internal standard	115	2	HMI He	5610877	2.77	6052368	92.71	60	125	
Ho-165	165	2	HMI He	17455322	1.53	17767311	98.24	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-4-A
Data File Name	041SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:51:51-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	38.336	ppb	38.336	12.67	6653399	40000	
Be	9	1	6	0.021	ppb	0.021	138.15	8	2000	
B	11	1	6	12860.252	ppb	12860.252	1.47	123823	100	>LDR
Na	23	2	45	249638.129	ppb	249638.129	3.32	81227970	400000	
Mg	24	2	45	26210.412	ppb	26210.412	4.41	3523733	400000	
Al	27	2	45	2.297	ppb	2.297	26.88	283	400000	
K	39	2	45	3927.070	ppb	3927.070	2.98	453148	400000	
Ca	44	2	45	93707.101	ppb	93707.101	2.40	702496	400000	
V	51	2	72	6.365	ppb	6.365	13.43	14756	2000	
Cr	52	2	72	0.949	ppb	0.949	16.79	2670	5000	
Mn	55	2	72	1.565	ppb	1.565	23.18	1583	10000	
Fe	57	2	72	22.660	ppb	22.660	7.47	1517	400000	
Co	59	2	72	0.076	ppb	0.076	42.52	307	2000	
Ni	60	2	72	0.404	ppb	0.404	12.10	510	5000	
Cu	63	2	72	0.170	ppb	0.170	39.06	2854	5000	
Zn	66	2	72	5.329	ppb	5.329	0.86	2617	5000	
As	75	2	72	1.670	ppb	1.670	1.67	516	2000	
Se	78	1	72	2.212	ppb	2.212	9.84	604	2000	
Sr	88	2	45	1042.608	ppb	1042.608	1.60	1154227	2000	
Zr	90	2	72	2.572	ppb	2.572	124.91	197	1000	
Zr	90	1	72	6.848	ppb	6.848	12.05	1155	1000	
Nb	93	2	72	-0.066	ppb	-0.066	-82.20	1407	200	
Mo	95	2	115	1.335	ppb	1.335	5.50	1917	2000	
Pd	105	2	115	0.020	ppb	0.020	109.62	83	100	
Ag	107	2	115	-0.002	ppb	-0.002	-105.45	20	100	
Cd	111	2	115	0.017	ppb	0.017	2.62	20	2000	
Sn	120	2	115	0.038	ppb	0.038	43.42	300	2000	
Sb	121	2	115	0.034	ppb	0.034	109.66	143	1000	
Ba	137	2	115	134.923	ppb	134.923	1.67	57499	5000	
W	182	2	165	-0.056	ppb	-0.056	-95.98	1137	100	
Pt	195	2	165	0.000	ppb	0.000	7835.18	7	100	
Tl	205	2	165	0.002	ppb	0.002	370.96	260	2000	
Pb	208	2	165	0.136	ppb	0.136	6.02	1360	5000	
Th	232	2	165	0.362	ppb	0.362	18.03	3224	2000	
U	238	2	165	6.280	ppb	6.280	5.63	44230	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	990340	1.78	1125531	87.99	60	125	
Sc (IS)	45	2	HMI He	1564407	2.50	1611917	97.05	60	125	
Sc IS)	45	3	No Gas	62688662	1.95	70470050	88.96	60	120	
Ge Internal Standard	72	1	HMI H2	11987041	1.97	13334475	89.90	60	125	
Ge Internal Standard	72	2	HMI He	1990802	1.87	2086994	95.39	60	125	
In Internal standard	115	2	HMI He	5869220	1.38	6052368	96.97	60	125	
Ho-165	165	2	HMI He	17891671	4.67	17767311	100.70	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-5-A
Data File Name	042SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:55:22-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	17.621	ppb	17.621	8.38	6499564	40000	
Be	9	1	6	-0.005	ppb	-0.005	-218.40	2	2000	
B	11	1	6	12025.483	ppb	12025.483	1.23	118530	100	>LDR
Na	23	2	45	114695.546	ppb	114695.546	1.27	37939890	400000	
Mg	24	2	45	7520.699	ppb	7520.699	1.54	1027935	400000	
Al	27	2	45	87.297	ppb	87.297	9.43	3397	400000	
K	39	2	45	1672.816	ppb	1672.816	0.42	222001	400000	
Ca	44	2	45	30109.090	ppb	30109.090	0.22	229465	400000	
V	51	2	72	10.602	ppb	10.602	2.62	22371	2000	
Cr	52	2	72	0.498	ppb	0.498	8.61	1700	5000	
Mn	55	2	72	24.256	ppb	24.256	3.93	23683	10000	
Fe	57	2	72	268.198	ppb	268.198	2.05	12328	400000	
Co	59	2	72	0.299	ppb	0.299	2.64	1137	2000	
Ni	60	2	72	0.720	ppb	0.720	5.90	833	5000	
Cu	63	2	72	5.752	ppb	5.752	9.45	18183	5000	
Zn	66	2	72	21.765	ppb	21.765	0.83	9096	5000	
As	75	2	72	4.410	ppb	4.410	6.04	1305	2000	
Se	78	1	72	0.194	ppb	0.194	81.20	68	2000	
Sr	88	2	45	311.402	ppb	311.402	0.66	350336	2000	
Zr	90	2	72	63.395	ppb	63.395	3.94	947	1000	
Zr	90	1	72	57.607	ppb	57.607	3.92	3030	1000	
Nb	93	2	72	-0.088	ppb	-0.088	-78.64	1370	200	
Mo	95	2	115	20.723	ppb	20.723	0.77	28985	2000	
Pd	105	2	115	-0.006	ppb	-0.006	-204.77	30	100	
Ag	107	2	115	0.001	ppb	0.001	426.99	33	100	
Cd	111	2	115	0.000	ppb	0.000	7145.89	10	2000	
Sn	120	2	115	0.288	ppb	0.288	7.53	733	2000	
Sb	121	2	115	0.115	ppb	0.115	28.61	263	1000	
Ba	137	2	115	35.943	ppb	35.943	2.09	15648	5000	
W	182	2	165	0.069	ppb	0.069	30.29	1520	100	
Pt	195	2	165	-0.002	ppb	-0.002	-155.06	3	100	
Tl	205	2	165	0.008	ppb	0.008	91.02	293	2000	
Pb	208	2	165	0.910	ppb	0.910	6.99	6391	5000	
Th	232	2	165	0.343	ppb	0.343	14.28	3174	2000	
U	238	2	165	6.800	ppb	6.800	4.28	48851	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1013803	2.59	1125531	90.07	60	125	
Sc (IS)	45	2	HMI He	1589251	0.65	1611917	98.59	60	125	
Sc IS)	45	3	No Gas	64726819	1.05	70470050	91.85	60	120	
Ge Internal Standard	72	1	HMI H2	12387808	1.50	13334475	92.90	60	125	
Ge Internal Standard	72	2	HMI He	2027101	0.41	2086994	97.13	60	125	
In Internal standard	115	2	HMI He	5986975	0.99	6052368	98.92	60	125	
Ho-165	165	2	HMI He	18235004	2.49	17767311	102.63	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-6-A
Data File Name	043SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T13:58:53-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	31.817	ppb	31.817	20.80	6794685	40000	
Be	9	1	6	0.008	ppb	0.008	233.42	5	2000	
B	11	1	6	16394.064	ppb	16394.064	2.45	161092	100	>LDR
Na	23	2	45	232961.845	ppb	232961.845	2.31	77058174	400000	
Mg	24	2	45	28404.250	ppb	28404.250	3.52	3881778	400000	
Al	27	2	45	6.279	ppb	6.279	42.19	433	400000	
K	39	2	45	2512.258	ppb	2512.258	2.55	310933	400000	
Ca	44	2	45	83117.725	ppb	83117.725	1.21	633554	400000	
V	51	2	72	8.973	ppb	8.973	1.44	19271	2000	
Cr	52	2	72	1.431	ppb	1.431	4.09	3757	5000	
Mn	55	2	72	0.559	ppb	0.559	22.46	623	10000	
Fe	57	2	72	27.654	ppb	27.654	12.23	1737	400000	
Co	59	2	72	0.031	ppb	0.031	52.40	147	2000	
Ni	60	2	72	0.292	ppb	0.292	13.36	403	5000	
Cu	63	2	72	1.210	ppb	1.210	5.96	5674	5000	
Zn	66	2	72	7.574	ppb	7.574	6.88	3490	5000	
As	75	2	72	2.327	ppb	2.327	4.39	701	2000	
Se	78	1	72	1.117	ppb	1.117	11.54	323	2000	
Sr	88	2	45	1232.151	ppb	1232.151	8.61	1385281	2000	
Zr	90	2	72	9.985	ppb	9.985	101.38	287	1000	
Zr	90	1	72	9.496	ppb	9.496	47.82	1288	1000	
Nb	93	2	72	-0.304	ppb	-0.304	-12.44	767	200	
Mo	95	2	115	1.453	ppb	1.453	9.57	2113	2000	
Pd	105	2	115	0.026	ppb	0.026	121.04	97	100	
Ag	107	2	115	0.002	ppb	0.002	170.46	40	100	
Cd	111	2	115	0.001	ppb	0.001	2480.75	10	2000	
Sn	120	2	115	0.050	ppb	0.050	76.26	327	2000	
Sb	121	2	115	0.028	ppb	0.028	69.11	137	1000	
Ba	137	2	115	133.233	ppb	133.233	1.65	57870	5000	
W	182	2	165	0.201	ppb	0.201	28.92	1917	100	
Pt	195	2	165	-0.002	ppb	-0.002	-154.70	3	100	
Tl	205	2	165	0.005	ppb	0.005	456.82	283	2000	
Pb	208	2	165	0.368	ppb	0.368	10.82	2900	5000	
Th	232	2	165	0.052	ppb	0.052	48.06	1253	2000	
U	238	2	165	11.898	ppb	11.898	4.37	85823	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1011101	2.79	1125531	89.83	60	125	
Sc (IS)	45	2	HMI He	1589877	1.74	1611917	98.63	60	125	
Sc IS)	45	3	No Gas	65137663	1.08	70470050	92.43	60	120	
Ge Internal Standard	72	1	HMI H2	12399482	2.29	13334475	92.99	60	125	
Ge Internal Standard	72	2	HMI He	1998033	2.12	2086994	95.74	60	125	
In Internal standard	115	2	HMI He	5982373	2.01	6052368	98.84	60	125	
Ho-165	165	2	HMI He	18346783	4.04	17767311	103.26	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-7-A
Data File Name	044SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:02:24-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	38.332	ppb	38.332	16.42	6889772	40000	
Be	9	1	6	0.002	ppb	0.002	1128.16	3	2000	
B	11	1	6	17986.553	ppb	17986.553	4.85	175319	100	>LDR
Na	23	2	45	255725.422	ppb	255725.422	2.33	84267763	400000	
Mg	24	2	45	27299.446	ppb	27299.446	1.86	3717608	400000	
Al	27	2	45	16.609	ppb	16.609	29.03	807	400000	
K	39	2	45	2519.753	ppb	2519.753	2.96	310480	400000	
Ca	44	2	45	90186.575	ppb	90186.575	2.03	684640	400000	
V	51	2	72	7.237	ppb	7.237	6.61	16515	2000	
Cr	52	2	72	0.276	ppb	0.276	5.12	1193	5000	
Mn	55	2	72	37.445	ppb	37.445	0.69	36442	10000	
Fe	57	2	72	73.652	ppb	73.652	9.62	3777	400000	
Co	59	2	72	0.612	ppb	0.612	16.34	2280	2000	
Ni	60	2	72	0.748	ppb	0.748	11.36	860	5000	
Cu	63	2	72	4.091	ppb	4.091	2.07	13609	5000	
Zn	66	2	72	28.540	ppb	28.540	5.70	11719	5000	
As	75	2	72	2.250	ppb	2.250	11.25	689	2000	
Se	78	1	72	1.261	ppb	1.261	14.29	351	2000	
Sr	88	2	45	1196.742	ppb	1196.742	2.24	1341478	2000	
Zr	90	2	72	12.028	ppb	12.028	103.53	317	1000	
Zr	90	1	72	9.446	ppb	9.446	32.98	1248	1000	
Nb	93	2	72	-0.398	ppb	-0.398	-9.79	517	200	
Mo	95	2	115	1.336	ppb	1.336	2.81	1887	2000	
Pd	105	2	115	0.046	ppb	0.046	24.88	133	100	
Ag	107	2	115	0.001	ppb	0.001	741.92	33	100	
Cd	111	2	115	0.006	ppb	0.006	394.96	13	2000	
Sn	120	2	115	0.393	ppb	0.393	16.25	880	2000	
Sb	121	2	115	0.045	ppb	0.045	136.82	157	1000	
Ba	137	2	115	106.803	ppb	106.803	3.49	44829	5000	
W	182	2	165	-0.013	ppb	-0.013	-362.39	1287	100	
Pt	195	2	165	0.000	ppb	0.000	-3037.02	7	100	
Tl	205	2	165	0.000	ppb	0.000	-5367.29	257	2000	
Pb	208	2	165	1.001	ppb	1.001	1.19	7004	5000	
Th	232	2	165	0.001	ppb	0.001	1525.42	920	2000	
U	238	2	165	12.274	ppb	12.274	3.16	88494	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1003402	2.43	1125531	89.15	60	125	
Sc (IS)	45	2	HMI He	1583922	1.89	1611917	98.26	60	125	
Sc IS)	45	3	No Gas	64936040	1.56	70470050	92.15	60	120	
Ge Internal Standard	72	1	HMI H2	12032105	3.39	13334475	90.23	60	125	
Ge Internal Standard	72	2	HMI He	2023047	1.17	2086994	96.94	60	125	
In Internal standard	115	2	HMI He	5781823	1.97	6052368	95.53	60	125	
Ho-165	165	2	HMI He	18314920	2.20	17767311	103.08	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-8-A
Data File Name	045SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:05:55-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	21.158	ppb	21.158	34.71	6654222	40000	
Be	9	1	6	0.050	ppb	0.050	210.53	17	2000	
B	11	1	6	13381.425	ppb	13381.425	1.07	132387	100	>LDR
Na	23	2	45	196959.808	ppb	196959.808	3.80	66034232	400000	
Mg	24	2	45	15035.870	ppb	15035.870	2.38	2083535	400000	
Al	27	2	45	21.929	ppb	21.929	9.54	1020	400000	
K	39	2	45	2811.371	ppb	2811.371	2.57	347290	400000	
Ca	44	2	45	94149.580	ppb	94149.580	0.65	727521	400000	
V	51	2	72	8.491	ppb	8.491	3.89	18543	2000	
Cr	52	2	72	0.784	ppb	0.784	14.74	2324	5000	
Mn	55	2	72	2.172	ppb	2.172	4.64	2180	10000	
Fe	57	2	72	41.704	ppb	41.704	3.23	2360	400000	
Co	59	2	72	0.022	ppb	0.022	71.46	117	2000	
Ni	60	2	72	0.477	ppb	0.477	26.13	587	5000	
Cu	63	2	72	0.438	ppb	0.438	3.80	3607	5000	
Zn	66	2	72	5.350	ppb	5.350	14.03	2650	5000	
As	75	2	72	2.208	ppb	2.208	4.54	672	2000	
Se	78	1	72	1.050	ppb	1.050	20.38	303	2000	
Sr	88	2	45	628.840	ppb	628.840	3.78	717118	2000	
Zr	90	2	72	8.168	ppb	8.168	40.52	267	1000	
Zr	90	1	72	6.457	ppb	6.457	59.13	1175	1000	
Nb	93	2	72	-0.464	ppb	-0.464	-12.68	333	200	
Mo	95	2	115	2.504	ppb	2.504	8.81	3517	2000	
Pd	105	2	115	0.020	ppb	0.020	50.33	83	100	
Ag	107	2	115	0.006	ppb	0.006	137.05	57	100	
Cd	111	2	115	-0.010	ppb	-0.010	-93.15	3	2000	
Sn	120	2	115	0.104	ppb	0.104	54.79	410	2000	
Sb	121	2	115	0.006	ppb	0.006	475.45	103	1000	
Ba	137	2	115	57.390	ppb	57.390	0.92	24509	5000	
W	182	2	165	-0.029	ppb	-0.029	-32.63	1213	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	0.013	ppb	0.013	154.29	313	2000	
Pb	208	2	165	0.299	ppb	0.299	8.32	2393	5000	
Th	232	2	165	-0.034	ppb	-0.034	-60.50	667	2000	
U	238	2	165	6.458	ppb	6.458	2.83	45587	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1017603	2.60	1125531	90.41	60	125	
Sc (IS)	45	2	HMI He	1612018	2.50	1611917	100.01	60	125	
Sc IS)	45	3	No Gas	65641233	1.55	70470050	93.15	60	120	
Ge Internal Standard	72	1	HMI H2	12336877	0.23	13334475	92.52	60	125	
Ge Internal Standard	72	2	HMI He	2008653	1.93	2086994	96.25	60	125	
In Internal standard	115	2	HMI He	5876977	0.48	6052368	97.10	60	125	
Ho-165	165	2	HMI He	17908196	2.51	17767311	100.79	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-10-A
Data File Name	046SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:09:27-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	19.084	ppb	19.084	52.21	6667946	40000	
Be	9	1	6	0.027	ppb	0.027	138.18	10	2000	
B	11	1	6	13676.958	ppb	13676.958	2.73	132840	100	>LDR
Na	23	2	45	220889.694	ppb	220889.694	2.21	73997339	400000	
Mg	24	2	45	22887.186	ppb	22887.186	3.57	3167835	400000	
Al	27	2	45	6.665	ppb	6.665	24.95	453	400000	
K	39	2	45	3291.192	ppb	3291.192	1.98	398342	400000	
Ca	44	2	45	81986.951	ppb	81986.951	1.67	632778	400000	
V	51	2	72	6.777	ppb	6.777	2.43	15884	2000	
Cr	52	2	72	0.702	ppb	0.702	11.24	2180	5000	
Mn	55	2	72	1.034	ppb	1.034	19.71	1103	10000	
Fe	57	2	72	18.259	ppb	18.259	25.34	1363	400000	
Co	59	2	72	0.026	ppb	0.026	63.16	133	2000	
Ni	60	2	72	0.672	ppb	0.672	20.09	793	5000	
Cu	63	2	72	0.476	ppb	0.476	5.22	3777	5000	
Zn	66	2	72	7.858	ppb	7.858	11.72	3684	5000	
As	75	2	72	1.800	ppb	1.800	2.87	567	2000	
Se	78	1	72	3.079	ppb	3.079	1.05	860	2000	
Sr	88	2	45	944.281	ppb	944.281	1.48	1076097	2000	
Zr	90	2	72	8.853	ppb	8.853	3.66	280	1000	
Zr	90	1	72	1.822	ppb	1.822	316.51	1008	1000	
Nb	93	2	72	-0.452	ppb	-0.452	-10.28	373	200	
Mo	95	2	115	1.559	ppb	1.559	3.97	2210	2000	
Pd	105	2	115	0.025	ppb	0.025	29.47	93	100	
Ag	107	2	115	-0.001	ppb	-0.001	-110.50	23	100	
Cd	111	2	115	0.006	ppb	0.006	397.51	13	2000	
Sn	120	2	115	0.103	ppb	0.103	51.77	407	2000	
Sb	121	2	115	0.004	ppb	0.004	684.92	100	1000	
Ba	137	2	115	87.805	ppb	87.805	1.77	37240	5000	
W	182	2	165	0.176	ppb	0.176	27.31	1803	100	
Pt	195	2	165	0.000	ppb	0.000	-3771.72	7	100	
Tl	205	2	165	0.011	ppb	0.011	161.65	300	2000	
Pb	208	2	165	0.296	ppb	0.296	4.11	2383	5000	
Th	232	2	165	-0.047	ppb	-0.047	-16.58	587	2000	
U	238	2	165	7.245	ppb	7.245	4.93	51202	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	999151	2.59	1125531	88.77	60	125	
Sc (IS)	45	2	HMI He	1610043	1.33	1611917	99.88	60	125	
Sc IS)	45	3	No Gas	66152971	1.69	70470050	93.87	60	120	
Ge Internal Standard	72	1	HMI H2	12348335	0.66	13334475	92.60	60	125	
Ge Internal Standard	72	2	HMI He	2043845	1.44	2086994	97.93	60	125	
In Internal standard	115	2	HMI He	5839507	1.60	6052368	96.48	60	125	
Ho-165	165	2	HMI He	17949822	2.81	17767311	101.03	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-12-A
Data File Name	047SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:12:58-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	46.905	ppb	46.905	11.89	6934027	40000	
Be	9	1	6	0.021	ppb	0.021	104.98	8	2000	
B	11	1	6	22554.354	ppb	22554.354	1.10	219070	100	>LDR
Na	23	2	45	297985.064	ppb	297985.064	1.72	98477998	400000	
Mg	24	2	45	27560.927	ppb	27560.927	1.90	3763853	400000	
Al	27	2	45	67.401	ppb	67.401	4.15	2667	400000	
K	39	2	45	3732.240	ppb	3732.240	1.94	439606	400000	
Ca	44	2	45	128437.539	ppb	128437.539	1.45	977990	400000	
V	51	2	72	9.347	ppb	9.347	7.73	20212	2000	
Cr	52	2	72	2.109	ppb	2.109	8.55	5351	5000	
Mn	55	2	72	2425.180	ppb	2425.180	1.95	2362172	10000	
Fe	57	2	72	1124.235	ppb	1124.235	2.91	49965	400000	
Co	59	2	72	7.760	ppb	7.760	3.24	28617	2000	
Ni	60	2	72	4.199	ppb	4.199	4.90	4291	5000	
Cu	63	2	72	1.819	ppb	1.819	8.41	7428	5000	
Zn	66	2	72	5.679	ppb	5.679	9.46	2804	5000	
As	75	2	72	4.160	ppb	4.160	3.67	1235	2000	
Se	78	1	72	0.609	ppb	0.609	3.38	176	2000	
Sr	88	2	45	1090.097	ppb	1090.097	1.71	1225416	2000	
Zr	90	2	72	30.750	ppb	30.750	9.67	547	1000	
Zr	90	1	72	30.516	ppb	30.516	8.03	1975	1000	
Nb	93	2	72	-0.443	ppb	-0.443	-7.72	397	200	
Mo	95	2	115	0.965	ppb	0.965	9.15	1363	2000	
Pd	105	2	115	0.012	ppb	0.012	134.28	63	100	
Ag	107	2	115	0.018	ppb	0.018	31.90	103	100	
Cd	111	2	115	0.097	ppb	0.097	24.53	67	2000	
Sn	120	2	115	0.290	ppb	0.290	6.84	700	2000	
Sb	121	2	115	0.067	ppb	0.067	40.61	183	1000	
Ba	137	2	115	271.794	ppb	271.794	1.63	112124	5000	
W	182	2	165	0.441	ppb	0.441	17.23	2477	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	0.034	ppb	0.034	78.60	393	2000	
Pb	208	2	165	2.609	ppb	2.609	5.29	16470	5000	
Th	232	2	165	0.004	ppb	0.004	735.60	883	2000	
U	238	2	165	10.984	ppb	10.984	3.40	74824	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	999258	0.70	1125531	88.78	60	125	
Sc (IS)	45	2	HMI He	1588284	1.14	1611917	98.53	60	125	
Sc IS)	45	3	No Gas	63915129	0.93	70470050	90.70	60	120	
Ge Internal Standard	72	1	HMI H2	11931877	1.45	13334475	89.48	60	125	
Ge Internal Standard	72	2	HMI He	2029578	1.59	2086994	97.25	60	125	
In Internal standard	115	2	HMI He	5683240	1.98	6052368	93.90	60	125	
Ho-165	165	2	HMI He	17319204	3.51	17767311	97.48	60	125	

Sample Report

Sample Table

Sample Name	280-127024-A-13-A
Data File Name	048SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:16:28-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467376 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	4.449	ppb	4.449	123.04	6403851	40000	
Be	9	1	6	0.001	ppb	0.001	1153.96	3	2000	
B	11	1	6	10314.909	ppb	10314.909	5.88	105786	100	>LDR
Na	23	2	45	73835.609	ppb	73835.609	1.54	24767994	400000	
Mg	24	2	45	4619.332	ppb	4619.332	1.04	640243	400000	
Al	27	2	45	117.136	ppb	117.136	3.12	4551	400000	
K	39	2	45	833.930	ppb	833.930	0.85	135100	400000	
Ca	44	2	45	16736.308	ppb	16736.308	1.40	129378	400000	
V	51	2	72	16.331	ppb	16.331	5.00	33085	2000	
Cr	52	2	72	1.008	ppb	1.008	10.46	2927	5000	
Mn	55	2	72	6.121	ppb	6.121	1.36	6195	10000	
Fe	57	2	72	83.922	ppb	83.922	3.05	4344	400000	
Co	59	2	72	8.187	ppb	8.187	2.42	30918	2000	
Ni	60	2	72	1.762	ppb	1.762	4.03	1917	5000	
Cu	63	2	72	2.834	ppb	2.834	2.16	10453	5000	
Zn	66	2	72	14.331	ppb	14.331	5.47	6345	5000	
As	75	2	72	3.165	ppb	3.165	9.44	973	2000	
Se	78	1	72	0.848	ppb	0.848	4.16	252	2000	
Sr	88	2	45	184.519	ppb	184.519	2.84	210509	2000	
Zr	90	2	72	48.165	ppb	48.165	10.30	780	1000	
Zr	90	1	72	57.481	ppb	57.481	15.58	3067	1000	
Nb	93	2	72	-0.397	ppb	-0.397	-10.30	533	200	
Mo	95	2	115	7.643	ppb	7.643	4.13	10573	2000	
Pd	105	2	115	-0.011	ppb	-0.011	-44.66	20	100	
Ag	107	2	115	0.003	ppb	0.003	248.58	40	100	
Cd	111	2	115	0.060	ppb	0.060	38.88	47	2000	
Sn	120	2	115	0.353	ppb	0.353	13.59	830	2000	
Sb	121	2	115	0.415	ppb	0.415	7.62	687	1000	
Ba	137	2	115	192.731	ppb	192.731	1.71	82414	5000	
W	182	2	165	0.085	ppb	0.085	77.11	1550	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	0.035	ppb	0.035	42.77	413	2000	
Pb	208	2	165	1.574	ppb	1.574	0.66	10532	5000	
Th	232	2	165	-0.032	ppb	-0.032	-18.77	687	2000	
U	238	2	165	3.825	ppb	3.825	2.56	27192	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1055966	3.73	1125531	93.82	60	125	
Sc (IS)	45	2	HMI He	1611571	0.74	1611917	99.98	60	125	
Sc IS)	45	3	No Gas	66165659	0.89	70470050	93.89	60	120	
Ge Internal Standard	72	1	HMI H2	12561448	0.86	13334475	94.20	60	125	
Ge Internal Standard	72	2	HMI He	2078515	2.10	2086994	99.59	60	125	
In Internal standard	115	2	HMI He	5890665	2.40	6052368	97.33	60	125	
Ho-165	165	2	HMI He	17991402	1.66	17767311	101.26	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	049_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:19:58-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	91.444	ppb	6.502	140833	100	91.4	90	110	
Li	7	3	45	99.838	ppb	4.720	7761498	100	99.8	90	110	
Be	9	1	6	52.580	ppb	3.216	14609	50	105.2	90	110	
B	11	1	6	715.479	ppb	6.288	7368	50	1431.0	90	110	>+\-10%
Na	23	2	45	1244.643	ppb	2.231	411390	1000	124.5	90	110	>+\-10%
Mg	24	2	45	977.276	ppb	4.950	130417	1000	97.7	90	110	
Al	27	2	45	999.374	ppb	2.508	35876	1000	99.9	90	110	
K	39	2	45	998.368	ppb	0.192	147065	1000	99.8	90	110	
Ca	44	2	45	1103.439	ppb	5.209	8309	1000	110.3	90	110	>+\-10%
V	51	2	72	50.157	ppb	2.789	91328	50	100.3	90	110	
Cr	52	2	72	49.633	ppb	0.183	113699	50	99.3	90	110	
Mn	55	2	72	50.860	ppb	3.384	49875	50	101.7	90	110	
Fe	57	2	72	972.037	ppb	1.583	43501	1000	97.2	90	110	
Co	59	2	72	48.193	ppb	1.278	178465	50	96.4	90	110	
Ni	60	2	72	48.668	ppb	3.715	48732	50	97.3	90	110	
Cu	63	2	72	48.576	ppb	2.190	136166	50	97.2	90	110	
Zn	66	2	72	51.340	ppb	2.122	20793	50	102.7	90	110	
As	75	2	72	48.977	ppb	1.641	14067	50	98.0	90	110	
Se	78	1	72	51.688	ppb	0.863	14305	50	103.4	90	110	
Sr	88	2	45	102.201	ppb	1.556	112284	100	102.2	90	110	
Zr	90	2	72	35.656	ppb	15.412	610	50	71.3	90	110	>+\-10%
Zr	90	1	72	25.612	ppb	25.375	1879	50	51.2	90	110	>+\-10%
Nb	93	2	72	94.500	ppb	1.149	262671	100	94.5	90	110	
Mo	95	2	115	50.524	ppb	2.573	69336	50	101.0	90	110	
Pd	105	2	115	49.467	ppb	3.763	101504	50	98.9	90	110	
Ag	107	2	115	49.764	ppb	1.145	210110	50	99.5	90	110	
Cd	111	2	115	49.312	ppb	2.342	30068	50	98.6	90	110	
Sn	120	2	115	50.651	ppb	1.800	85421	50	101.3	90	110	
Sb	121	2	115	50.281	ppb	1.732	71713	50	100.6	90	110	
Ba	137	2	115	52.221	ppb	5.226	22329	50	104.4	90	110	
W	182	2	165	51.972	ppb	2.860	142836	50	103.9	90	110	
Pt	195	2	165	50.799	ppb	5.169	90731	50	101.6	90	110	
Tl	205	2	165	52.606	ppb	2.048	231176	50	105.2	90	110	
Pb	208	2	165	52.636	ppb	1.501	317629	50	105.3	90	110	
Th	232	2	165	49.949	ppb	2.707	308478	50	99.9	90	110	
U	238	2	165	51.627	ppb	2.204	345133	50	103.3	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1046171	1.19	1125531	92.95	60	125	
Sc (IS)	45	2	HMI He	1551704	2.78	1611917	96.26	60	125	
Sc IS)	45	3	No Gas	63078187	0.49	70470050	89.51	60	120	
Ge Internal Standard	72	1	HMI H2	12436022	1.03	13334475	93.26	60	125	
Ge Internal Standard	72	2	HMI He	2039504	0.37	2086994	97.72	60	125	
In Internal standard	115	2	HMI He	5885906	1.10	6052368	97.25	60	125	
Ho-165	165	2	HMI He	17013735	2.03	17767311	95.76	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	050_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:23:29-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	5.496	ppb	157.6	109124	0.1	>RL
Li	7	3	45	3.731	ppb	111.1	6013886	0.05	>RL
Be	9	1	6	0.019	ppb	105.7	8	0.5	
B	11	1	6	380.825	ppb	2.6	3934	0.1	>RL
Na	23	2	45	172.009	ppb	1.6	63336	25	>RL
Mg	24	2	45	0.946	ppb	37.8	250	25	
Al	27	2	45	0.182	ppb	724.8	200	15	
K	39	2	45	2.331	ppb	475.8	42889	50	
Ca	44	2	45	-1.359	ppb	-565.9	87	25	
V	51	2	72	1.151	ppb	18.1	6114	1	>RL
Cr	52	2	72	-0.057	ppb	-65.8	447	1	
Mn	55	2	72	0.066	ppb	19.2	153	0.5	
Fe	57	2	72	0.961	ppb	230.9	600	25	
Co	59	2	72	0.000	ppb	5009.8	37	0.5	
Ni	60	2	72	0.003	ppb	1618.6	123	1	
Cu	63	2	72	-0.170	ppb	-19.3	2007	1	
Zn	66	2	72	0.500	ppb	21.2	787	5	
As	75	2	72	0.006	ppb	274.6	52	1	
Se	78	1	72	0.040	ppb	105.5	25	1	
Sr	88	2	45	0.029	ppb	78.7	83	1	
Zr	90	2	72	-0.666	ppb	-56.8	163	1	
Zr	90	1	72	0.251	ppb	826.4	928	1	
Nb	93	2	72	0.685	ppb	7.2	3544	2	
Mo	95	2	115	0.024	ppb	75.2	117	0.5	
Pd	105	2	115	0.003	ppb	216.6	47	1	
Ag	107	2	115	0.004	ppb	194.1	43	1	
Cd	111	2	115	0.018	ppb	182.9	20	0.5	
Sn	120	2	115	0.029	ppb	13.0	270	1	
Sb	121	2	115	0.057	ppb	38.8	167	1	
Ba	137	2	115	-0.020	ppb	-194.5	17	0.5	
W	182	2	165	-0.024	ppb	-112.6	1177	1	
Pt	195	2	165	-0.002	ppb	-198.4	3	1	
Tl	205	2	165	-0.023	ppb	-24.4	137	0.1	
Pb	208	2	165	0.026	ppb	39.8	640	0.5	
Th	232	2	165	0.055	ppb	46.2	1190	1	
U	238	2	165	-0.012	ppb	-76.9	77	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1036716	1.36	1125531	92.11	60	125	
Sc (IS)	45	2	HMI He	1507202	1.35	1611917	93.50	60	125	
Sc IS)	45	3	No Gas	62256650	0.44	70470050	88.34	60	120	
Ge Internal Standard	72	1	HMI H2	12044834	1.67	13334475	90.33	60	125	
Ge Internal Standard	72	2	HMI He	2056144	0.64	2086994	98.52	60	125	
In Internal standard	115	2	HMI He	5587042	2.50	6052368	92.31	60	125	
Ho-165	165	2	HMI He	17174055	3.04	17767311	96.66	60	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Table

Sample Name	ccvl-5833291
Data File Name	051LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:26:59-06:00
Sample Type	LLCCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	20.051	ppb	22.374	6301815	50	40.1	70	130	>+/-30%
Be	9	1	6	0.952	ppb	17.343	270	1	95.2	70	130	
Na	23	2	45	165.522	ppb	1.986	61717	50	331.0	70	130	>+/-30%
Mg	24	2	45	48.555	ppb	3.903	6465	50	97.1	70	130	
Al	27	2	45	68.714	ppb	6.789	2594	50	137.4	70	130	>+/-30%
K	39	2	45	105.341	ppb	4.134	53592	100	105.3	70	130	
Ca	44	2	45	33.419	ppb	33.997	340	50	66.8	70	130	>+/-30%
V	51	2	72	5.773	ppb	5.776	13796	5	115.5	70	130	
Cr	52	2	72	1.887	ppb	8.328	4771	2	94.4	70	130	
Mn	55	2	72	1.040	ppb	15.155	1080	1	104.0	70	130	
Fe	57	2	72	47.071	ppb	12.462	2580	50	94.1	70	130	
Co	59	2	72	0.989	ppb	6.250	3620	1	98.9	70	130	
Ni	60	2	72	1.474	ppb	7.121	1557	1.5	98.3	70	130	
Cu	63	2	72	1.692	ppb	6.669	6958	2	84.6	70	130	
Zn	66	2	72	9.379	ppb	0.853	4184	10	93.8	70	130	
As	75	2	72	4.773	ppb	4.908	1385	5	95.5	70	130	
Se	78	1	72	5.040	ppb	4.020	1415	5	100.8	70	130	
Sr	88	2	45	1.154	ppb	11.335	1293	1	115.4	70	130	
Zr	90	2	72	-2.446	ppb	-94.708	137	0.5	-489.2	70	130	>+/-30%
Zr	90	1	72	0.623	ppb	296.236	978	0.5	124.6	70	130	
Nb	93	2	72	0.042	ppb	117.163	1700	2	2.1	70	130	>+/-30%
Mo	95	2	115	1.972	ppb	11.861	2764	2	98.6	70	130	
Pd	105	2	115	-0.007	ppb	-75.162	27	1	-0.7	70	130	>+/-30%
Ag	107	2	115	4.962	ppb	2.002	20770	5	99.2	70	130	
Cd	111	2	115	1.199	ppb	5.490	733	1	119.9	70	130	
Sn	120	2	115	9.840	ppb	3.296	16619	10	98.4	70	130	
Sb	121	2	115	2.077	ppb	12.153	3020	2	103.8	70	130	
Ba	137	2	115	1.288	ppb	19.931	570	1	128.8	70	130	
W	182	2	165	4.869	ppb	0.745	14701	1	486.9	70	130	>+/-30%
Pt	195	2	165	-0.004	ppb	0.000	0	1	-0.4	70	130	>+/-30%
Tl	205	2	165	0.914	ppb	9.972	4307	1	91.4	70	130	
Pb	208	2	165	1.001	ppb	4.167	6594	1	100.1	70	130	
Th	232	2	165	1.660	ppb	1.443	11224	2	83.0	70	130	
U	238	2	165	0.970	ppb	5.211	6738	1	97.0	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1060880	3.90	1125531	94.26	60	125	
Sc (IS)	45	2	HMI He	1517438	1.24	1611917	94.14	60	125	
Sc IS)	45	3	No Gas	62335801	0.95	70470050	88.46	60	120	
Ge Internal Standard	72	1	HMI H2	12496026	2.77	13334475	93.71	60	125	
Ge Internal Standard	72	2	HMI He	1995877	2.28	2086994	95.63	60	125	
In Internal standard	115	2	HMI He	5828165	1.06	6052368	96.30	60	125	
Ho-165	165	2	HMI He	17247635	2.88	17767311	97.08	60	125	

Blank Report

Sample Table

Sample Name	MB 280-467486/1-A
Data File Name	052_BLK.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:30:32-06:00
Sample Type	Blank
Dilution	1
Comment	467486 6020a
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit
Li	7	1	45	-2.823	ppb	-144.6365607	109533	0.1
Li	7	3	45	5.019	ppb	214.3530231	6362516	0.05
Be	9	1	6	0.020	ppb	143.3578186	8	0.5
Na	23	2	45	140.252	ppb	0.805752355	55907	25
Mg	24	2	45	1.737	ppb	12.66895657	370	25
Al	27	2	45	-0.717	ppb	-32.67051926	177	15
K	39	2	45	-21.381	ppb	-21.75983653	42425	50
Ca	44	2	45	2.110	ppb	450.6450563	117	25
V	51	2	72	-0.182	ppb	-55.2049174	3747	1
Cr	52	2	72	0.116	ppb	44.26342535	840	1
Mn	55	2	72	0.189	ppb	22.74818038	273	0.5
Fe	57	2	72	4.211	ppb	13.29784529	740	25
Co	59	2	72	0.029	ppb	7.233001038	143	0.5
Ni	60	2	72	0.074	ppb	18.20270153	193	1
Cu	63	2	72	-0.194	ppb	-47.19472772	1927	1
Zn	66	2	72	2.760	ppb	17.1545898	1673	5
As	75	2	72	-0.023	ppb	-39.89796274	44	1
Se	78	1	72	-0.006	ppb	-528.8984851	13	1
Sr	88	2	45	0.067	ppb	36.56005712	130	1
Zr	90	2	72	1.518	ppb	515.5945633	190	1
Zr	90	1	72	-0.105	ppb	-4345.37792	941	1
Nb	93	2	72	0.076	ppb	101.1637159	1833	2
Mo	95	2	115	-0.009	ppb	-221.2137165	77	0.5
Pd	105	2	115	-0.012	ppb	-22.39137891	17	1
Ag	107	2	115	0.016	ppb	71.59285561	93	1
Cd	111	2	115	0.013	ppb	281.384419	17	0.5
Sn	120	2	115	0.040	ppb	84.27532819	297	1
Sb	121	2	115	0.010	ppb	162.8584439	107	1
Ba	137	2	115	0.044	ppb	37.57144304	43	0.5
W	182	2	165	0.003	ppb	522.3026437	1270	1
Pt	195	2	165	0.006	ppb	150.5807242	17	1
Tl	205	2	165	0.003	ppb	159.3116906	260	0.1
Pb	208	2	165	0.025	ppb	36.4268819	640	0.5
Th	232	2	165	0.970	ppb	6.078971119	6992	1
U	238	2	165	0.008	ppb	73.51097957	217	0.5

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1048760	4.09	1125531	93.18	60	125	
Sc (IS)	45	2	HMI He	1578610	1.62	1611917	97.93	60	125	
Sc IS)	45	3	No Gas	65656503	2.21	70470050	93.17	60	120	
Ge Internal Standard	72	1	HMI H2	12364951	1.70	13334475	92.73	60	125	
Ge Internal Standard	72	2	HMI He	2041865	1.35	2086994	97.84	60	125	
In Internal standard	115	2	HMI He	5752533	2.28	6052368	95.05	60	125	
Ho-165	165	2	HMI He	17447616	1.04	17767311	98.20	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	LCS 280-467486/2-A
Data File Name	053_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:34:05-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	467486 6020a
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	39.171	39.171	ppb	15.944	7012943	400	9.8	80	120	>+/-20%
Be	9	1	6	43.688	43.688	ppb	1.737	11881	40	109.2	80	120	
Na	23	2	45	886.859	886.859	ppb	3.899	301625	40	2217.1	80	120	>+/-20%
Mg	24	2	45	825.627	825.627	ppb	2.341	112422	40	2064.1	80	120	>+/-20%
Al	27	2	45	826.578	826.578	ppb	4.671	30269	40	2066.4	80	120	>+/-20%
K	39	2	45	813.321	813.321	ppb	3.620	130412	40	2033.3	80	120	>+/-20%
Ca	44	2	45	848.249	848.249	ppb	6.008	6528	40	2120.6	80	120	>+/-20%
V	51	2	72	39.559	39.559	ppb	1.600	73106	40	98.9	80	120	
Cr	52	2	72	40.634	40.634	ppb	0.554	93473	40	101.6	80	120	
Mn	55	2	72	42.746	42.746	ppb	1.245	42054	40	106.9	80	120	
Fe	57	2	72	809.727	809.727	ppb	2.066	36442	40	2024.3	80	120	>+/-20%
Co	59	2	72	40.048	40.048	ppb	2.409	148743	40	100.1	80	120	
Ni	60	2	72	39.950	39.950	ppb	3.050	40147	40	99.9	80	120	
Cu	63	2	72	38.815	38.815	ppb	0.496	109635	40	97.0	80	120	
Zn	66	2	72	40.753	40.753	ppb	6.334	16675	40	101.9	80	120	
As	75	2	72	37.614	37.614	ppb	4.424	10845	40	94.0	80	120	
Se	78	1	72	38.321	38.321	ppb	1.734	10613	40	95.8	80	120	
Sr	88	2	45	80.547	80.547	ppb	2.468	90225	40	201.4	80	120	>+/-20%
Nb	93	2	72	0.094	0.094	ppb	74.959	1887	40	0.2	80	120	>+/-20%
Mo	95	2	115	42.163	42.163	ppb	4.872	58388	40	105.4	80	120	
Pd	105	2	115	-0.009	-0.009	ppb	-78.003	23	40	0.0	80	120	>+/-20%
Ag	107	2	115	40.601	40.601	ppb	1.630	172908	40	101.5	80	120	
Cd	111	2	115	40.151	40.151	ppb	5.674	24692	40	100.4	80	120	
Sn	120	2	115	40.628	40.628	ppb	2.731	69162	40	101.6	80	120	
Sb	121	2	115	41.206	41.206	ppb	3.990	59280	40	103.0	80	120	
Ba	137	2	115	47.021	47.021	ppb	5.562	20286	40	117.6	80	120	
W	182	2	165	40.277	40.277	ppb	2.282	116387	40	100.7	80	120	
Pt	195	2	165	0.000	0.000	ppb	-7988.243	7	40	0.0	80	120	>+/-20%
Tl	205	2	165	40.048	40.048	ppb	3.340	184545	40	100.1	80	120	
Pb	208	2	165	40.352	40.352	ppb	1.988	255464	40	100.9	80	120	
Th	232	2	165	40.031	40.031	ppb	1.274	259520	40	100.1	80	120	
U	238	2	165	39.266	39.266	ppb	2.967	275266	40	98.2	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1024061	1.55	1125531	90.98	60	125	
Sc (IS)	45	2	HMI He	1582381	3.27	1611917	98.17	60	125	
Sc IS)	45	3	No Gas	65941662	0.57	70470050	93.57	60	120	
Ge Internal Standard	72	1	HMI H2	12441758	1.81	13334475	93.31	60	125	
Ge Internal Standard	72	2	HMI He	2045755	0.89	2086994	98.02	60	125	
In Internal standard	115	2	HMI He	5937004	1.23	6052368	98.09	60	125	
Ho-165	165	2	HMI He	17844120	2.53	17767311	100.43	60	125	

Sample Report

Sample Table

Sample Name	280-126873-C-2-A
Data File Name	054SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:37:38-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	21.000	ppb	21.000	27.28	6576174	40000	
Be	9	1	6	0.033	ppb	0.033	32.79	12	2000	
B	11	1	6	3849.083	ppb	3849.083	1.40	38014	100	>LDR
Na	23	2	45	37520.728	ppb	37520.728	1.28	12292980	400000	
Mg	24	2	45	20719.002	ppb	20719.002	1.33	2803464	400000	
Al	27	2	45	2.891	ppb	2.891	14.60	307	400000	
K	39	2	45	16922.489	ppb	16922.489	1.02	1817317	400000	
Ca	44	2	45	96842.976	ppb	96842.976	2.03	730348	400000	
V	51	2	72	3.009	ppb	3.009	7.24	9066	2000	
Cr	52	2	72	0.234	ppb	0.234	28.66	1080	5000	
Mn	55	2	72	198.047	ppb	198.047	1.29	189143	10000	
Fe	57	2	72	278.093	ppb	278.093	5.20	12521	400000	
Co	59	2	72	2.048	ppb	2.048	4.88	7428	2000	
Ni	60	2	72	5.185	ppb	5.185	2.49	5168	5000	
Cu	63	2	72	2.360	ppb	2.360	6.15	8732	5000	
Zn	66	2	72	3.537	ppb	3.537	24.80	1927	5000	
As	75	2	72	3.270	ppb	3.270	7.46	961	2000	
Se	78	1	72	1.032	ppb	1.032	8.34	296	2000	
Sr	88	2	45	628.971	ppb	628.971	4.44	700223	2000	
Zr	90	2	72	4.767	ppb	4.767	89.91	223	1000	
Zr	90	1	72	7.180	ppb	7.180	61.68	1191	1000	
Nb	93	2	72	-0.280	ppb	-0.280	-16.91	827	200	
Mo	95	2	115	2.620	ppb	2.620	0.53	3657	2000	
Pd	105	2	115	0.006	ppb	0.006	197.50	53	100	
Ag	107	2	115	0.012	ppb	0.012	141.07	80	100	
Cd	111	2	115	0.078	ppb	0.078	68.45	57	2000	
Sn	120	2	115	0.107	ppb	0.107	63.27	413	2000	
Sb	121	2	115	0.786	ppb	0.786	2.67	1207	1000	
Ba	137	2	115	402.755	ppb	402.755	1.45	170921	5000	
W	182	2	165	0.069	ppb	0.069	76.36	1473	100	
Pt	195	2	165	0.000	ppb	0.000	8040.34	7	100	
Tl	205	2	165	0.012	ppb	0.012	43.21	303	2000	
Pb	208	2	165	0.580	ppb	0.580	8.74	4130	5000	
Th	232	2	165	0.687	ppb	0.687	7.90	5281	2000	
U	238	2	165	43.456	ppb	43.456	3.37	301577	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1013842	0.52	1125531	90.08	60	125	
Sc (IS)	45	2	HMI He	1573388	1.47	1611917	97.61	60	125	
Sc IS)	45	3	No Gas	64890010	1.27	70470050	92.08	60	120	
Ge Internal Standard	72	1	HMI H2	12281151	3.54	13334475	92.10	60	125	
Ge Internal Standard	72	2	HMI He	1989003	0.32	2086994	95.30	60	125	
In Internal standard	115	2	HMI He	5845797	0.64	6052368	96.59	60	125	
Ho-165	165	2	HMI He	17667549	3.19	17767311	99.44	60	125	

Sample Report

Sample Table

Sample Name	280-126873-A-3-A
Data File Name	055SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:41:09-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	26.270	ppb	26.270	25.27	6604599	40000	
Be	9	1	6	0.002	ppb	0.002	1327.24	3	2000	
B	11	1	6	3747.256	ppb	3747.256	4.28	37245	100	>LDR
Na	23	2	45	36760.730	ppb	36760.730	2.05	11996278	400000	
Mg	24	2	45	19789.895	ppb	19789.895	4.05	2666037	400000	
Al	27	2	45	1.345	ppb	1.345	26.97	250	400000	
K	39	2	45	16076.907	ppb	16076.907	2.81	1721557	400000	
Ca	44	2	45	94785.879	ppb	94785.879	1.57	711996	400000	
V	51	2	72	2.196	ppb	2.196	7.64	8029	2000	
Cr	52	2	72	0.131	ppb	0.131	50.26	887	5000	
Mn	55	2	72	117.944	ppb	117.944	2.74	117693	10000	
Fe	57	2	72	104.091	ppb	104.091	11.10	5251	400000	
Co	59	2	72	0.796	ppb	0.796	7.00	3040	2000	
Ni	60	2	72	4.511	ppb	4.511	1.46	4714	5000	
Cu	63	2	72	1.356	ppb	1.356	8.37	6305	5000	
Zn	66	2	72	5.042	ppb	5.042	5.39	2617	5000	
As	75	2	72	2.966	ppb	2.966	12.01	916	2000	
Se	78	1	72	1.014	ppb	1.014	5.34	291	2000	
Sr	88	2	45	601.865	ppb	601.865	3.29	667393	2000	
Zr	90	2	72	-0.124	ppb	-0.124	-7446.62	173	1000	
Zr	90	1	72	6.797	ppb	6.797	31.49	1178	1000	
Nb	93	2	72	-0.382	ppb	-0.382	-3.70	577	200	
Mo	95	2	115	2.443	ppb	2.443	3.75	3400	2000	
Pd	105	2	115	0.022	ppb	0.022	31.27	87	100	
Ag	107	2	115	0.002	ppb	0.002	194.86	37	100	
Cd	111	2	115	0.072	ppb	0.072	46.16	53	2000	
Sn	120	2	115	0.044	ppb	0.044	50.53	307	2000	
Sb	121	2	115	0.588	ppb	0.588	7.73	920	1000	
Ba	137	2	115	401.781	ppb	401.781	1.37	169624	5000	
W	182	2	165	-0.006	ppb	-0.006	-189.62	1260	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	0.020	ppb	0.020	80.32	337	2000	
Pb	208	2	165	0.126	ppb	0.126	18.04	1277	5000	
Th	232	2	165	0.287	ppb	0.287	14.99	2714	2000	
U	238	2	165	41.163	ppb	41.163	2.80	285195	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1020505	1.16	1125531	90.67	60	125	
Sc (IS)	45	2	HMI He	1567226	2.13	1611917	97.23	60	125	
Sc IS)	45	3	No Gas	64264250	2.30	70470050	91.19	60	120	
Ge Internal Standard	72	1	HMI H2	12244770	0.75	13334475	91.83	60	125	
Ge Internal Standard	72	2	HMI He	2078383	2.16	2086994	99.59	60	125	
In Internal standard	115	2	HMI He	5816240	1.90	6052368	96.10	60	125	
Ho-165	165	2	HMI He	17633646	1.92	17767311	99.25	60	125	

Sample Report

Sample Table

Sample Name	280-126957-F-1-C
Data File Name	056SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:44:40-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-1.654	ppb	-1.654	-577.24	6144017	40000	
Be	9	1	6	0.008	ppb	0.008	242.82	5	2000	
B	11	1	6	7429.067	ppb	7429.067	1.57	73651	100	>LDR
Na	23	2	45	18649.545	ppb	18649.545	2.06	6053220	400000	
Mg	24	2	45	9080.435	ppb	9080.435	4.07	1216132	400000	
Al	27	2	45	3.698	ppb	3.698	52.83	333	400000	
K	39	2	45	10349.914	ppb	10349.914	4.49	1116946	400000	
Ca	44	2	45	36783.044	ppb	36783.044	3.63	274610	400000	
V	51	2	72	0.543	ppb	0.543	35.96	5057	2000	
Cr	52	2	72	1.106	ppb	1.106	4.86	3124	5000	
Mn	55	2	72	191.942	ppb	191.942	1.56	189731	10000	
Fe	57	2	72	23707.659	ppb	23707.659	2.81	1057570	400000	
Co	59	2	72	4.684	ppb	4.684	3.03	17536	2000	
Ni	60	2	72	5.752	ppb	5.752	6.59	5918	5000	
Cu	63	2	72	-0.273	ppb	-0.273	-7.91	1723	5000	
Zn	66	2	72	10.275	ppb	10.275	10.57	4667	5000	
As	75	2	72	15.915	ppb	15.915	1.71	4648	2000	
Se	78	1	72	0.218	ppb	0.218	76.15	72	2000	
Sr	88	2	45	261.163	ppb	261.163	2.98	287893	2000	
Zr	90	2	72	23.347	ppb	23.347	15.58	463	1000	
Zr	90	1	72	19.681	ppb	19.681	44.29	1602	1000	
Nb	93	2	72	-0.402	ppb	-0.402	-5.51	517	200	
Mo	95	2	115	0.654	ppb	0.654	17.20	997	2000	
Pd	105	2	115	0.001	ppb	0.001	1336.32	43	100	
Ag	107	2	115	-0.001	ppb	-0.001	-243.83	23	100	
Cd	111	2	115	0.017	ppb	0.017	94.48	20	2000	
Sn	120	2	115	0.592	ppb	0.592	13.89	1240	2000	
Sb	121	2	115	0.076	ppb	0.076	50.74	203	1000	
Ba	137	2	115	86.166	ppb	86.166	4.45	37116	5000	
W	182	2	165	-0.028	ppb	-0.028	-489.25	1187	100	
Pt	195	2	165	0.025	ppb	0.025	88.48	53	100	
Tl	205	2	165	-0.008	ppb	-0.008	-207.97	207	2000	
Pb	208	2	165	0.040	ppb	0.040	34.16	737	5000	
Th	232	2	165	0.186	ppb	0.186	9.50	2043	2000	
U	238	2	165	0.144	ppb	0.144	6.50	1150	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1018866	1.41	1125531	90.52	60	125	
Sc (IS)	45	2	HMI He	1557886	2.45	1611917	96.65	60	125	
Sc IS)	45	3	No Gas	64609932	1.07	70470050	91.68	60	120	
Ge Internal Standard	72	1	HMI H2	11995276	2.51	13334475	89.96	60	125	
Ge Internal Standard	72	2	HMI He	2058951	2.26	2086994	98.66	60	125	
In Internal standard	115	2	HMI He	5931647	1.66	6052368	98.01	60	125	
Ho-165	165	2	HMI He	17474636	1.72	17767311	98.35	60	125	

Sample Report

Sample Table

Sample Name	280-126957-F-2-C
Data File Name	057SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:48:11-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-0.324	ppb	-0.324	-2864.29	6220078	40000	
Be	9	1	6	0.051	ppb	0.051	127.18	17	2000	
B	11	1	6	2362.960	ppb	2362.960	2.28	23963	100	>LDR
Na	23	2	45	29733.162	ppb	29733.162	3.12	9791549	400000	
Mg	24	2	45	5381.866	ppb	5381.866	3.02	731784	400000	
Al	27	2	45	25.366	ppb	25.366	3.04	1127	400000	
K	39	2	45	4798.031	ppb	4798.031	1.53	549989	400000	
Ca	44	2	45	5137.429	ppb	5137.429	1.71	39047	400000	
V	51	2	72	-0.467	ppb	-0.467	-31.84	3300	2000	
Cr	52	2	72	0.293	ppb	0.293	17.43	1263	5000	
Mn	55	2	72	94.072	ppb	94.072	1.07	93749	10000	
Fe	57	2	72	17344.299	ppb	17344.299	3.87	779436	400000	
Co	59	2	72	2.643	ppb	2.643	1.74	9993	2000	
Ni	60	2	72	10.040	ppb	10.040	6.22	10310	5000	
Cu	63	2	72	-0.113	ppb	-0.113	-60.18	2180	5000	
Zn	66	2	72	7.735	ppb	7.735	5.45	3687	5000	
As	75	2	72	15.147	ppb	15.147	4.58	4456	2000	
Se	78	1	72	0.228	ppb	0.228	21.46	79	2000	
Sr	88	2	45	61.869	ppb	61.869	3.32	69285	2000	
Zr	90	2	72	-1.151	ppb	-1.151	-530.45	160	1000	
Zr	90	1	72	3.305	ppb	3.305	148.59	1084	1000	
Nb	93	2	72	-0.456	ppb	-0.456	-5.05	370	200	
Mo	95	2	115	0.300	ppb	0.300	17.93	510	2000	
Pd	105	2	115	-0.011	ppb	-0.011	-44.95	20	100	
Ag	107	2	115	-0.002	ppb	-0.002	-105.16	20	100	
Cd	111	2	115	0.098	ppb	0.098	34.89	70	2000	
Sn	120	2	115	0.095	ppb	0.095	71.07	403	2000	
Sb	121	2	115	0.025	ppb	0.025	131.54	133	1000	
Ba	137	2	115	227.393	ppb	227.393	0.64	98633	5000	
W	182	2	165	-0.050	ppb	-0.050	-92.24	1180	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	0.021	ppb	0.021	64.83	357	2000	
Pb	208	2	165	0.061	ppb	0.061	9.21	907	5000	
Th	232	2	165	0.059	ppb	0.059	20.85	1303	2000	
U	238	2	165	0.003	ppb	0.003	269.91	190	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1039815	3.46	1125531	92.38	60	125	
Sc (IS)	45	2	HMI He	1581802	2.67	1611917	98.13	60	125	
Sc IS)	45	3	No Gas	65150760	0.84	70470050	92.45	60	120	
Ge Internal Standard	72	1	HMI H2	12583712	2.18	13334475	94.37	60	125	
Ge Internal Standard	72	2	HMI He	2074362	2.84	2086994	99.39	60	125	
In Internal standard	115	2	HMI He	5974048	1.90	6052368	98.71	60	125	
Ho-165	165	2	HMI He	18332847	1.70	17767311	103.18	60	125	

Sample Report

Sample Table

Sample Name	280-126957-A-11-G
Data File Name	058SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:51:42-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-5.201	ppb	-5.201	-72.44	6292681	40000	
Be	9	1	6	-0.011	ppb	-0.011	0.00	0	2000	
B	11	1	6	4715.234	ppb	4715.234	0.08	46851	100	>LDR
Na	23	2	45	68864.989	ppb	68864.989	4.93	23570621	400000	
Mg	24	2	45	6802.083	ppb	6802.083	3.01	961995	400000	
Al	27	2	45	0.837	ppb	0.837	229.53	243	400000	
K	39	2	45	7365.305	ppb	7365.305	0.78	853289	400000	
Ca	44	2	45	18756.464	ppb	18756.464	1.22	147973	400000	
V	51	2	72	0.210	ppb	0.210	68.24	4504	2000	
Cr	52	2	72	0.492	ppb	0.492	15.12	1723	5000	
Mn	55	2	72	4.483	ppb	4.483	6.80	4551	10000	
Fe	57	2	72	89.083	ppb	89.083	14.12	4561	400000	
Co	59	2	72	1.003	ppb	1.003	3.60	3814	2000	
Ni	60	2	72	5.533	ppb	5.533	6.66	5741	5000	
Cu	63	2	72	0.433	ppb	0.433	27.99	3710	5000	
Zn	66	2	72	8.078	ppb	8.078	6.25	3827	5000	
As	75	2	72	2.490	ppb	2.490	7.29	776	2000	
Se	78	1	72	0.222	ppb	0.222	13.32	77	2000	
Sr	88	2	45	139.151	ppb	139.151	1.94	162037	2000	
Zr	90	2	72	8.820	ppb	8.820	50.32	283	1000	
Zr	90	1	72	3.171	ppb	3.171	126.18	1078	1000	
Nb	93	2	72	-0.462	ppb	-0.462	-5.41	350	200	
Mo	95	2	115	0.625	ppb	0.625	3.17	987	2000	
Pd	105	2	115	-0.008	ppb	-0.008	-113.81	27	100	
Ag	107	2	115	-0.001	ppb	-0.001	-409.15	23	100	
Cd	111	2	115	0.000	ppb	0.000	-462137.62	10	2000	
Sn	120	2	115	0.364	ppb	0.364	4.44	883	2000	
Sb	121	2	115	0.104	ppb	0.104	43.12	253	1000	
Ba	137	2	115	104.266	ppb	104.266	5.36	46313	5000	
W	182	2	165	-0.036	ppb	-0.036	-79.40	1180	100	
Pt	195	2	165	0.002	ppb	0.002	297.86	10	100	
Tl	205	2	165	-0.011	ppb	-0.011	-83.87	197	2000	
Pb	208	2	165	0.002	ppb	0.002	542.30	507	5000	
Th	232	2	165	-0.022	ppb	-0.022	-28.53	737	2000	
U	238	2	165	-0.002	ppb	-0.002	-357.02	147	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1020498	1.22	1125531	90.67	60	125	
Sc (IS)	45	2	HMI He	1644932	1.69	1611917	102.05	60	125	
Sc IS)	45	3	No Gas	66850227	1.38	70470050	94.86	60	120	
Ge Internal Standard	72	1	HMI H2	12569755	2.41	13334475	94.27	60	125	
Ge Internal Standard	72	2	HMI He	2075110	1.79	2086994	99.43	60	125	
In Internal standard	115	2	HMI He	6123796	3.72	6052368	101.18	60	125	
Ho-165	165	2	HMI He	17701956	1.88	17767311	99.63	60	125	

Sample Report

Sample Table

Sample Name	280-126957-A-11-Gsd@5
Data File Name	059SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:55:13-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-4.230	ppb	-4.230	-111.81	6018475	40000	
Be	9	1	6	-0.011	ppb	-0.011	0.00	0	2000	
B	11	1	6	1160.741	ppb	1160.741	7.51	12338	100	>LDR
Na	23	2	45	14510.132	ppb	14510.132	4.45	4810976	400000	
Mg	24	2	45	1414.434	ppb	1414.434	1.70	193561	400000	
Al	27	2	45	-0.842	ppb	-0.842	-98.93	173	400000	
K	39	2	45	1497.236	ppb	1497.236	1.96	203606	400000	
Ca	44	2	45	3904.144	ppb	3904.144	2.85	29872	400000	
V	51	2	72	1.428	ppb	1.428	4.77	6651	2000	
Cr	52	2	72	0.083	ppb	0.083	76.70	773	5000	
Mn	55	2	72	1.115	ppb	1.115	16.97	1200	10000	
Fe	57	2	72	19.651	ppb	19.651	14.47	1443	400000	
Co	59	2	72	0.200	ppb	0.200	18.68	787	2000	
Ni	60	2	72	1.204	ppb	1.204	9.82	1343	5000	
Cu	63	2	72	0.035	ppb	0.035	248.31	2594	5000	
Zn	66	2	72	1.554	ppb	1.554	17.43	1213	5000	
As	75	2	72	0.526	ppb	0.526	1.15	204	2000	
Se	78	1	72	0.027	ppb	0.027	36.42	23	2000	
Sr	88	2	45	28.520	ppb	28.520	0.21	32164	2000	
Zr	90	2	72	-2.920	ppb	-2.920	-123.01	137	1000	
Zr	90	1	72	-4.728	ppb	-4.728	-48.38	791	1000	
Nb	93	2	72	-0.541	ppb	-0.541	-4.03	130	200	
Mo	95	2	115	0.138	ppb	0.138	32.63	280	2000	
Pd	105	2	115	-0.006	ppb	-0.006	-222.19	30	100	
Ag	107	2	115	-0.003	ppb	-0.003	-167.99	17	100	
Cd	111	2	115	-0.016	ppb	-0.016	0.00	0	2000	
Sn	120	2	115	0.049	ppb	0.049	70.58	320	2000	
Sb	121	2	115	-0.010	ppb	-0.010	-317.14	80	1000	
Ba	137	2	115	22.013	ppb	22.013	0.54	9450	5000	
W	182	2	165	-0.068	ppb	-0.068	-85.78	1100	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	-0.019	ppb	-0.019	-37.38	163	2000	
Pb	208	2	165	-0.017	ppb	-0.017	-19.18	393	5000	
Th	232	2	165	-0.107	ppb	-0.107	-7.79	193	2000	
U	238	2	165	-0.017	ppb	-0.017	-8.09	40	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1087664	5.23	1125531	96.64	60	125	
Sc (IS)	45	2	HMI He	1590543	1.21	1611917	98.67	60	125	
Sc IS)	45	3	No Gas	63751720	0.30	70470050	90.47	60	120	
Ge Internal Standard	72	1	HMI H2	12652963	2.68	13334475	94.89	60	125	
Ge Internal Standard	72	2	HMI He	2071974	2.25	2086994	99.28	60	125	
In Internal standard	115	2	HMI He	5897479	0.79	6052368	97.44	60	125	
Ho-165	165	2	HMI He	17903582	1.66	17767311	100.77	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	060_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T14:58:43-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	72.334	ppb	18.735	137355	100	72.3	90	110	>+\-10%
Li	7	3	45	91.465	ppb	6.945	7583092	100	91.5	90	110	
Be	9	1	6	50.258	ppb	3.614	14146	50	100.5	90	110	
B	11	1	6	212.111	ppb	9.007	2283	50	424.2	90	110	>+\-10%
Na	23	2	45	1034.079	ppb	1.927	341036	1000	103.4	90	110	
Mg	24	2	45	981.754	ppb	2.920	130179	1000	98.2	90	110	
Al	27	2	45	993.899	ppb	4.496	35429	1000	99.4	90	110	
K	39	2	45	1010.754	ppb	0.611	147273	1000	101.1	90	110	
Ca	44	2	45	1052.901	ppb	4.886	7875	1000	105.3	90	110	
V	51	2	72	51.576	ppb	2.898	91667	50	103.2	90	110	
Cr	52	2	72	50.700	ppb	4.962	113444	50	101.4	90	110	
Mn	55	2	72	52.021	ppb	1.820	49868	50	104.0	90	110	
Fe	57	2	72	981.766	ppb	2.563	42933	1000	98.2	90	110	
Co	59	2	72	48.714	ppb	2.193	176310	50	97.4	90	110	
Ni	60	2	72	48.861	ppb	4.816	47799	50	97.7	90	110	
Cu	63	2	72	49.096	ppb	3.755	134449	50	98.2	90	110	
Zn	66	2	72	50.428	ppb	3.563	19968	50	100.9	90	110	
As	75	2	72	49.234	ppb	1.976	13821	50	98.5	90	110	
Se	78	1	72	51.663	ppb	1.754	14597	50	103.3	90	110	
Sr	88	2	45	102.220	ppb	2.290	111498	100	102.2	90	110	
Zr	90	2	72	23.376	ppb	34.697	450	50	46.8	90	110	>+\-10%
Zr	90	1	72	16.857	ppb	28.441	1595	50	33.7	90	110	>+\-10%
Nb	93	2	72	99.490	ppb	5.148	270055	100	99.5	90	110	
Mo	95	2	115	51.524	ppb	3.634	68847	50	103.0	90	110	
Pd	105	2	115	50.839	ppb	3.601	101612	50	101.7	90	110	
Ag	107	2	115	49.578	ppb	2.425	203857	50	99.2	90	110	
Cd	111	2	115	49.526	ppb	2.052	29410	50	99.1	90	110	
Sn	120	2	115	51.798	ppb	2.037	85073	50	103.6	90	110	
Sb	121	2	115	50.121	ppb	1.926	69604	50	100.2	90	110	
Ba	137	2	115	52.399	ppb	1.658	21825	50	104.8	90	110	
W	182	2	165	50.885	ppb	1.126	140065	50	101.8	90	110	
Pt	195	2	165	50.211	ppb	0.509	89838	50	100.4	90	110	
Tl	205	2	165	53.177	ppb	2.237	233858	50	106.4	90	110	
Pb	208	2	165	52.582	ppb	1.262	317685	50	105.2	90	110	
Th	232	2	165	50.110	ppb	3.126	309904	50	100.2	90	110	
U	238	2	165	50.948	ppb	3.035	340886	50	101.9	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1060917	4.60	1125531	94.26	60	125	
Sc (IS)	45	2	HMI He	1540460	0.69	1611917	95.57	60	125	
Sc IS)	45	3	No Gas	62802875	0.39	70470050	89.12	60	120	
Ge Internal Standard	72	1	HMI H2	12697161	1.46	13334475	95.22	60	125	
Ge Internal Standard	72	2	HMI He	1994082	2.67	2086994	95.55	60	125	
In Internal standard	115	2	HMI He	5731327	0.58	6052368	94.70	60	125	
Ho-165	165	2	HMI He	17031829	2.13	17767311	95.86	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	061_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:02:14-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-8.196	ppb	-27.8	104493	0.1	
Li	7	3	45	-4.866	ppb	-33.4	5909401	0.05	
Be	9	1	6	0.008	ppb	234.2	5	0.5	
B	11	1	6	130.942	ppb	13.2	1383	0.1	>RL
Na	23	2	45	38.684	ppb	4.3	22040	25	>RL
Mg	24	2	45	0.298	ppb	188.3	170	25	
Al	27	2	45	-0.484	ppb	-477.6	180	15	
K	39	2	45	-0.804	ppb	-668.1	43601	50	
Ca	44	2	45	-6.622	ppb	-37.1	50	25	
V	51	2	72	1.717	ppb	22.7	6901	1	>RL
Cr	52	2	72	-0.073	ppb	-81.3	397	1	
Mn	55	2	72	-0.003	ppb	-1072.8	83	0.5	
Fe	57	2	72	3.024	ppb	97.0	670	25	
Co	59	2	72	-0.002	ppb	-365.2	27	0.5	
Ni	60	2	72	0.025	ppb	271.7	140	1	
Cu	63	2	72	-0.332	ppb	-5.7	1510	1	
Zn	66	2	72	0.568	ppb	81.2	787	5	
As	75	2	72	0.025	ppb	139.7	56	1	
Se	78	1	72	0.034	ppb	116.6	24	1	
Sr	88	2	45	-0.004	ppb	-27.5	50	1	
Zr	90	2	72	-0.472	ppb	-1490.8	160	1	
Zr	90	1	72	1.876	ppb	212.5	1008	1	>RL
Nb	93	2	72	0.660	ppb	22.8	3370	2	
Mo	95	2	115	0.055	ppb	85.3	163	0.5	
Pd	105	2	115	-0.006	ppb	-87.3	30	1	
Ag	107	2	115	0.008	ppb	46.1	63	1	
Cd	111	2	115	0.001	ppb	1486.1	10	0.5	
Sn	120	2	115	0.037	ppb	246.4	293	1	
Sb	121	2	115	0.020	ppb	169.5	120	1	
Ba	137	2	115	-0.045	ppb	-60.9	7	0.5	
W	182	2	165	-0.053	ppb	-123.4	1117	1	
Pt	195	2	165	-0.004	ppb	0.0	0	1	
Tl	205	2	165	-0.019	ppb	-9.5	160	0.1	
Pb	208	2	165	0.003	ppb	962.7	507	0.5	
Th	232	2	165	0.024	ppb	86.8	1020	1	
U	238	2	165	-0.013	ppb	-76.4	70	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1013465	2.29	1125531	90.04	60	125	
Sc (IS)	45	2	HMI He	1543357	2.16	1611917	95.75	60	125	
Sc IS)	45	3	No Gas	62713972	0.64	70470050	88.99	60	120	
Ge Internal Standard	72	1	HMI H2	12331358	1.08	13334475	92.48	60	125	
Ge Internal Standard	72	2	HMI He	1993860	2.47	2086994	95.54	60	125	
In Internal standard	115	2	HMI He	5769439	1.37	6052368	95.33	60	125	
Ho-165	165	2	HMI He	17476935	1.20	17767311	98.37	60	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Table

Sample Name	ccvl-5833291
Data File Name	062LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:05:45-06:00
Sample Type	LLCCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	3.284	ppb	253.373	6098005	50	6.6	70	130	>+/-30%
Be	9	1	6	1.001	ppb	22.799	277	1	100.1	70	130	
Na	23	2	45	78.461	ppb	6.207	34517	50	156.9	70	130	>+/-30%
Mg	24	2	45	48.549	ppb	8.978	6525	50	97.1	70	130	
Al	27	2	45	72.876	ppb	15.488	2760	50	145.8	70	130	>+/-30%
K	39	2	45	78.506	ppb	1.381	51318	100	78.5	70	130	
Ca	44	2	45	49.236	ppb	15.059	460	50	98.5	70	130	
V	51	2	72	6.229	ppb	4.822	14670	5	124.6	70	130	
Cr	52	2	72	1.984	ppb	5.680	5014	2	99.2	70	130	
Mn	55	2	72	1.070	ppb	11.016	1117	1	107.0	70	130	
Fe	57	2	72	51.901	ppb	9.872	2800	50	103.8	70	130	
Co	59	2	72	0.930	ppb	4.690	3427	1	93.0	70	130	
Ni	60	2	72	1.686	ppb	4.296	1777	1.5	112.4	70	130	
Cu	63	2	72	1.557	ppb	7.262	6638	2	77.9	70	130	
Zn	66	2	72	8.840	ppb	5.512	4001	10	88.4	70	130	
As	75	2	72	4.807	ppb	2.876	1405	5	96.1	70	130	
Se	78	1	72	5.062	ppb	4.669	1351	5	101.2	70	130	
Sr	88	2	45	0.979	ppb	5.602	1113	1	97.9	70	130	
Zr	90	2	72	0.758	ppb	525.527	177	0.5	151.7	70	130	>+/-30%
Zr	90	1	72	2.164	ppb	49.121	981	0.5	432.7	70	130	>+/-30%
Nb	93	2	72	0.078	ppb	117.393	1810	2	3.9	70	130	>+/-30%
Mo	95	2	115	1.968	ppb	11.115	2697	2	98.4	70	130	
Pd	105	2	115	-0.012	ppb	-24.596	17	1	-1.2	70	130	>+/-30%
Ag	107	2	115	5.081	ppb	2.000	20813	5	101.6	70	130	
Cd	111	2	115	0.928	ppb	13.333	557	1	92.8	70	130	
Sn	120	2	115	10.535	ppb	5.070	17389	10	105.3	70	130	
Sb	121	2	115	2.114	ppb	12.558	3004	2	105.7	70	130	
Ba	137	2	115	1.086	ppb	18.436	473	1	108.6	70	130	
W	182	2	165	4.974	ppb	1.607	15154	1	497.4	70	130	>+/-30%
Pt	195	2	165	-0.002	ppb	-191.691	3	1	-0.2	70	130	>+/-30%
Tl	205	2	165	0.923	ppb	1.438	4397	1	92.3	70	130	
Pb	208	2	165	0.949	ppb	3.464	6344	1	94.9	70	130	
Th	232	2	165	1.749	ppb	3.982	11912	2	87.5	70	130	
U	238	2	165	0.973	ppb	6.317	6815	1	97.3	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1028086	1.12	1125531	91.34	60	125	
Sc (IS)	45	2	HMI He	1530577	1.32	1611917	94.95	60	125	
Sc IS)	45	3	No Gas	63218251	1.09	70470050	89.71	60	120	
Ge Internal Standard	72	1	HMI H2	11871613	1.63	13334475	89.03	60	125	
Ge Internal Standard	72	2	HMI He	2008379	1.91	2086994	96.23	60	125	
In Internal standard	115	2	HMI He	5703490	2.39	6052368	94.24	60	125	
Ho-165	165	2	HMI He	17432629	3.16	17767311	98.12	60	125	

Sample Report

Sample Table

Sample Name	280-126957-A-11-H MS
Data File Name	063SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:09:18-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	38.756	ppb	38.756	10.12	6741054	40000	
Be	9	1	6	43.581	ppb	43.581	2.25	11869	2000	
B	11	1	6	4467.652	ppb	4467.652	1.73	44612	100	>LDR
Na	23	2	45	70811.712	ppb	70811.712	1.63	22965406	400000	
Mg	24	2	45	7812.972	ppb	7812.972	1.25	1046854	400000	
Al	27	2	45	812.934	ppb	812.934	1.48	29341	400000	
K	39	2	45	8154.721	ppb	8154.721	2.87	889813	400000	
Ca	44	2	45	19711.589	ppb	19711.589	3.62	147246	400000	
V	51	2	72	41.972	ppb	41.972	3.56	75543	2000	
Cr	52	2	72	40.702	ppb	40.702	3.37	91473	5000	
Mn	55	2	72	46.460	ppb	46.460	1.70	44667	10000	
Fe	57	2	72	921.530	ppb	921.530	4.25	40440	400000	
Co	59	2	72	41.610	ppb	41.610	2.57	151019	2000	
Ni	60	2	72	46.130	ppb	46.130	3.78	45272	5000	
Cu	63	2	72	40.067	ppb	40.067	3.62	110488	5000	
Zn	66	2	72	43.531	ppb	43.531	3.07	17366	5000	
As	75	2	72	41.078	ppb	41.078	2.72	11571	2000	
Se	78	1	72	39.381	ppb	39.381	4.71	10681	2000	
Sr	88	2	45	227.904	ppb	227.904	1.61	251358	2000	
Zr	90	2	72	23.480	ppb	23.480	27.26	450	1000	
Zr	90	1	72	18.545	ppb	18.545	31.13	1592	1000	
Nb	93	2	72	0.433	ppb	0.433	28.29	2760	200	
Mo	95	2	115	43.646	ppb	43.646	1.82	59103	2000	
Pd	105	2	115	-0.011	ppb	-0.011	-45.07	20	100	
Ag	107	2	115	40.225	ppb	40.225	2.76	167576	100	
Cd	111	2	115	40.624	ppb	40.624	6.80	24431	2000	
Sn	120	2	115	42.235	ppb	42.235	5.60	70283	2000	
Sb	121	2	115	43.217	ppb	43.217	3.10	60809	1000	
Ba	137	2	115	157.774	ppb	157.774	2.46	66523	5000	
W	182	2	165	40.616	ppb	40.616	2.18	117781	100	
Pt	195	2	165	0.002	ppb	0.002	544.96	10	100	
Tl	205	2	165	42.464	ppb	42.464	6.43	196345	2000	
Pb	208	2	165	41.689	ppb	41.689	1.62	264876	5000	
Th	232	2	165	42.507	ppb	42.507	0.51	276501	2000	
U	238	2	165	41.158	ppb	41.158	1.68	289637	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1025490	0.97	1125531	91.11	60	125	
Sc (IS)	45	2	HMI He	1557848	1.29	1611917	96.65	60	125	
Sc IS)	45	3	No Gas	63456565	1.25	70470050	90.05	60	120	
Ge Internal Standard	72	1	HMI H2	12186499	1.17	13334475	91.39	60	125	
Ge Internal Standard	72	2	HMI He	1999544	2.07	2086994	95.81	60	125	
In Internal standard	115	2	HMI He	5806914	1.49	6052368	95.94	60	125	
Ho-165	165	2	HMI He	17905470	1.07	17767311	100.78	60	125	

Sample Report

Sample Table

Sample Name	280-126957-A-11-I MSD
Data File Name	064SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:12:48-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	36.315	ppb	36.315	8.00	6979666	40000	
Be	9	1	6	43.336	ppb	43.336	4.08	12031	2000	
B	11	1	6	4455.953	ppb	4455.953	1.38	45364	100	>LDR
Na	23	2	45	71196.783	ppb	71196.783	1.53	23925013	400000	
Mg	24	2	45	7750.633	ppb	7750.633	0.89	1076014	400000	
Al	27	2	45	817.603	ppb	817.603	2.46	30580	400000	
K	39	2	45	8193.119	ppb	8193.119	0.95	926399	400000	
Ca	44	2	45	19621.767	ppb	19621.767	0.37	151935	400000	
V	51	2	72	40.419	ppb	40.419	1.54	76135	2000	
Cr	52	2	72	40.442	ppb	40.442	3.53	94921	5000	
Mn	55	2	72	46.042	ppb	46.042	4.07	46215	10000	
Fe	57	2	72	889.983	ppb	889.983	3.70	40822	400000	
Co	59	2	72	39.230	ppb	39.230	0.78	148703	2000	
Ni	60	2	72	44.622	ppb	44.622	3.62	45761	5000	
Cu	63	2	72	39.028	ppb	39.028	2.56	112494	5000	
Zn	66	2	72	40.970	ppb	40.970	2.34	17109	5000	
As	75	2	72	39.634	ppb	39.634	0.65	11661	2000	
Se	78	1	72	40.063	ppb	40.063	3.23	11192	2000	
Sr	88	2	45	217.975	ppb	217.975	0.21	249119	2000	
Zr	90	2	72	10.250	ppb	10.250	69.26	303	1000	
Zr	90	1	72	15.493	ppb	15.493	13.60	1525	1000	
Nb	93	2	72	-0.045	ppb	-0.045	-67.29	1533	200	
Mo	95	2	115	41.049	ppb	41.049	2.53	58143	2000	
Pd	105	2	115	-0.009	ppb	-0.009	-26.16	23	100	
Ag	107	2	115	39.444	ppb	39.444	1.47	171857	100	
Cd	111	2	115	38.601	ppb	38.601	4.17	24281	2000	
Sn	120	2	115	41.213	ppb	41.213	2.49	71769	2000	
Sb	121	2	115	42.725	ppb	42.725	2.65	62887	1000	
Ba	137	2	115	149.964	ppb	149.964	5.02	66101	5000	
W	182	2	165	40.285	ppb	40.285	3.62	119112	100	
Pt	195	2	165	0.009	ppb	0.009	151.39	23	100	
Tl	205	2	165	40.372	ppb	40.372	3.73	190396	2000	
Pb	208	2	165	40.686	ppb	40.686	3.86	263535	5000	
Th	232	2	165	40.798	ppb	40.798	4.89	270497	2000	
U	238	2	165	40.231	ppb	40.231	4.33	288587	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1045605	1.35	1125531	92.90	60	125	
Sc (IS)	45	2	HMI He	1614320	0.40	1611917	100.15	60	125	
Sc IS)	45	3	No Gas	66115395	1.45	70470050	93.82	60	120	
Ge Internal Standard	72	1	HMI H2	12545742	1.04	13334475	94.09	60	125	
Ge Internal Standard	72	2	HMI He	2087674	0.96	2086994	100.03	60	125	
In Internal standard	115	2	HMI He	6074469	2.21	6052368	100.37	60	125	
Ho-165	165	2	HMI He	18267263	3.48	17767311	102.81	60	125	

Sample Report

Sample Table

Sample Name	280-126957-A-11-G pds
Data File Name	065SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:16:19-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	1.188	ppb	1.188	377.88	6242705	40000	
Be	9	1	6	221.024	ppb	221.024	3.20	62178	2000	
B	11	1	6	4418.904	ppb	4418.904	3.09	45581	100	>LDR
Na	23	2	45	68830.667	ppb	68830.667	2.26	23082785	400000	
Mg	24	2	45	6865.884	ppb	6865.884	2.51	951190	400000	
Al	27	2	45	1994.425	ppb	1994.425	1.85	74141	400000	
K	39	2	45	7297.412	ppb	7297.412	3.87	828366	400000	
Ca	44	2	45	18550.204	ppb	18550.204	1.79	143351	400000	
V	51	2	72	213.637	ppb	213.637	1.72	374701	2000	
Cr	52	2	72	217.579	ppb	217.579	1.15	495151	5000	
Mn	55	2	72	220.743	ppb	220.743	2.89	215516	10000	
Fe	57	2	72	2133.888	ppb	2133.888	2.93	94556	400000	
Co	59	2	72	211.981	ppb	211.981	1.82	782662	2000	
Ni	60	2	72	217.727	ppb	217.727	1.65	217031	5000	
Cu	63	2	72	209.364	ppb	209.364	3.60	576995	5000	
Zn	66	2	72	219.631	ppb	219.631	5.70	86757	5000	
As	75	2	72	204.236	ppb	204.236	2.74	58327	2000	
Se	78	1	72	202.541	ppb	202.541	2.18	56314	2000	
Sr	88	2	45	143.261	ppb	143.261	0.14	163454	2000	
Zr	90	2	72	47162.602	ppb	47162.602	2.83	580423	1000	>LDR
Zr	90	1	72	48260.810	ppb	48260.810	2.13	1764094	1000	>LDR
Nb	93	2	72	2.551	ppb	2.551	14.41	8636	200	
Mo	95	2	115	215.811	ppb	215.811	2.10	295555	2000	
Pd	105	2	115	0.276	ppb	0.276	9.43	607	100	
Ag	107	2	115	23.087	ppb	23.087	3.20	97409	100	
Cd	111	2	115	210.524	ppb	210.524	2.55	128198	2000	
Sn	120	2	115	212.433	ppb	212.433	3.15	357098	2000	
Sb	121	2	115	218.769	ppb	218.769	2.29	311338	1000	
Ba	137	2	115	360.798	ppb	360.798	4.42	153960	5000	
W	182	2	165	213.677	ppb	213.677	2.55	616265	100	
Pt	195	2	165	0.193	ppb	0.193	21.53	370	100	
Tl	205	2	165	224.551	ppb	224.551	10.23	1039251	2000	
Pb	208	2	165	219.113	ppb	219.113	4.22	1394365	5000	
Th	232	2	165	1.463	ppb	1.463	6.12	10402	2000	
U	238	2	165	226.019	ppb	226.019	0.85	1595927	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1059126	1.24	1125531	94.10	60	125	
Sc (IS)	45	2	HMI He	1611429	2.04	1611917	99.97	60	125	
Sc IS)	45	3	No Gas	65098941	0.81	70470050	92.38	60	120	
Ge Internal Standard	72	1	HMI H2	12505677	1.95	13334475	93.78	60	125	
Ge Internal Standard	72	2	HMI He	2034077	1.67	2086994	97.46	60	125	
In Internal standard	115	2	HMI He	5880431	1.68	6052368	97.16	60	125	
Ho-165	165	2	HMI He	17976126	3.55	17767311	101.18	60	125	

Sample Report

Sample Table

Sample Name	280-127105-A-2-A
Data File Name	066SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:19:50-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	41.200	ppb	41.200	19.53	6864071	40000	
Be	9	1	6	0.262	ppb	0.262	8.44	72	2000	
B	11	1	6	502.049	ppb	502.049	6.59	4921	100	>LDR
Na	23	2	45	134036.273	ppb	134036.273	3.20	42576459	400000	
Mg	24	2	45	52253.576	ppb	52253.576	2.01	6858240	400000	
Al	27	2	45	206.283	ppb	206.283	1.64	7442	400000	
K	39	2	45	2501.061	ppb	2501.061	2.58	297385	400000	
Ca	44	2	45	54677.122	ppb	54677.122	2.02	400136	400000	
V	51	2	72	0.627	ppb	0.627	39.11	5024	2000	
Cr	52	2	72	3.284	ppb	3.284	5.92	7862	5000	
Mn	55	2	72	2276.679	ppb	2276.679	3.10	2174244	10000	
Fe	57	2	72	495.276	ppb	495.276	6.60	21881	400000	
Co	59	2	72	69.886	ppb	69.886	1.45	252535	2000	
Ni	60	2	72	914.380	ppb	914.380	1.14	891433	5000	
Cu	63	2	72	1.766	ppb	1.766	4.73	7142	5000	
Zn	66	2	72	42.118	ppb	42.118	2.57	16752	5000	
As	75	2	72	1.810	ppb	1.810	8.67	554	2000	
Se	78	1	72	6.651	ppb	6.651	10.12	1792	2000	
Sr	88	2	45	396.676	ppb	396.676	0.74	428625	2000	
Zr	90	2	72	101.992	ppb	101.992	30.65	1390	1000	
Zr	90	1	72	79.648	ppb	79.648	11.86	3728	1000	
Nb	93	2	72	-0.520	ppb	-0.520	-4.50	180	200	
Mo	95	2	115	0.660	ppb	0.660	5.56	977	2000	
Pd	105	2	115	0.011	ppb	0.011	132.00	63	100	
Ag	107	2	115	0.292	ppb	0.292	7.24	1237	100	
Cd	111	2	115	3.566	ppb	3.566	14.39	2133	2000	
Sn	120	2	115	0.238	ppb	0.238	13.22	623	2000	
Sb	121	2	115	0.144	ppb	0.144	23.70	293	1000	
Ba	137	2	115	15.289	ppb	15.289	2.25	6425	5000	
W	182	2	165	0.085	ppb	0.085	56.95	1517	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	0.284	ppb	0.284	6.81	1540	2000	
Pb	208	2	165	0.374	ppb	0.374	14.62	2823	5000	
Th	232	2	165	-0.011	ppb	-0.011	-169.27	807	2000	
U	238	2	165	0.202	ppb	0.202	2.81	1557	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	989324	0.92	1125531	87.90	60	125	
Sc (IS)	45	2	HMI He	1526440	0.64	1611917	94.70	60	125	
Sc IS)	45	3	No Gas	64195700	1.31	70470050	91.10	60	120	
Ge Internal Standard	72	1	HMI H2	12038102	3.82	13334475	90.28	60	125	
Ge Internal Standard	72	2	HMI He	1990411	1.67	2086994	95.37	60	125	
In Internal standard	115	2	HMI He	5766928	2.94	6052368	95.28	60	125	
Ho-165	165	2	HMI He	17630934	2.25	17767311	99.23	60	125	

Sample Report

Sample Table

Sample Name	280-127105-A-18-A
Data File Name	067SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:23:21-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	40.126	ppb	40.126	25.46	6750418	40000	
Be	9	1	6	0.257	ppb	0.257	32.83	72	2000	
B	11	1	6	369.259	ppb	369.259	10.53	3710	100	
Na	23	2	45	174226.410	ppb	174226.410	0.57	56551528	400000	
Mg	24	2	45	66983.543	ppb	66983.543	1.10	8983149	400000	
Al	27	2	45	79.791	ppb	79.791	3.20	3064	400000	
K	39	2	45	2593.459	ppb	2593.459	0.52	313467	400000	
Ca	44	2	45	69006.230	ppb	69006.230	1.69	515995	400000	
V	51	2	72	-0.386	ppb	-0.386	-41.05	3300	2000	
Cr	52	2	72	0.406	ppb	0.406	14.85	1460	5000	
Mn	55	2	72	1020.361	ppb	1020.361	4.55	972513	10000	
Fe	57	2	72	21.512	ppb	21.512	10.45	1463	400000	
Co	59	2	72	26.969	ppb	26.969	2.21	97288	2000	
Ni	60	2	72	111.463	ppb	111.463	3.59	108542	5000	
Cu	63	2	72	0.378	ppb	0.378	15.00	3410	5000	
Zn	66	2	72	99.653	ppb	99.653	3.77	38770	5000	
As	75	2	72	1.263	ppb	1.263	9.32	401	2000	
Se	78	1	72	8.346	ppb	8.346	4.49	2245	2000	
Sr	88	2	45	484.350	ppb	484.350	0.85	534739	2000	
Zr	90	2	72	15.838	ppb	15.838	17.32	357	1000	
Zr	90	1	72	11.504	ppb	11.504	7.84	1321	1000	
Nb	93	2	72	-0.537	ppb	-0.537	-3.34	137	200	
Mo	95	2	115	0.073	ppb	0.073	34.11	183	2000	
Pd	105	2	115	0.007	ppb	0.007	114.27	53	100	
Ag	107	2	115	0.004	ppb	0.004	42.15	43	100	
Cd	111	2	115	4.656	ppb	4.656	0.99	2734	2000	
Sn	120	2	115	0.072	ppb	0.072	62.04	343	2000	
Sb	121	2	115	0.006	ppb	0.006	383.41	100	1000	
Ba	137	2	115	15.270	ppb	15.270	3.23	6288	5000	
W	182	2	165	-0.061	ppb	-0.061	-24.70	1113	100	
Pt	195	2	165	0.003	ppb	0.003	81.43	13	100	
Tl	205	2	165	0.074	ppb	0.074	32.26	590	2000	
Pb	208	2	165	0.239	ppb	0.239	23.34	2003	5000	
Th	232	2	165	-0.093	ppb	-0.093	-7.33	283	2000	
U	238	2	165	0.200	ppb	0.200	16.77	1553	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1007642	0.47	1125531	89.53	60	125	
Sc (IS)	45	2	HMI He	1559638	0.50	1611917	96.76	60	125	
Sc IS)	45	3	No Gas	63334073	1.52	70470050	89.87	60	120	
Ge Internal Standard	72	1	HMI H2	12021139	0.88	13334475	90.15	60	125	
Ge Internal Standard	72	2	HMI He	1987137	2.37	2086994	95.22	60	125	
In Internal standard	115	2	HMI He	5650166	1.47	6052368	93.35	60	125	
Ho-165	165	2	HMI He	17804108	3.12	17767311	100.21	60	125	

Sample Report

Sample Table

Sample Name	280-127105-A-18-B MS
Data File Name	068SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:26:53-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	34.430	ppb	34.430	3.52	6863532	40000	
Be	9	1	6	0.135	ppb	0.135	53.01	38	2000	
B	11	1	6	351.186	ppb	351.186	4.76	3474	100	
Na	23	2	45	173056.918	ppb	173056.918	1.03	56515616	400000	
Mg	24	2	45	65127.700	ppb	65127.700	1.25	8787899	400000	
Al	27	2	45	79.350	ppb	79.350	7.74	3067	400000	
K	39	2	45	2604.706	ppb	2604.706	1.64	316556	400000	
Ca	44	2	45	69577.665	ppb	69577.665	2.39	523380	400000	
V	51	2	72	-0.703	ppb	-0.703	-27.15	2774	2000	
Cr	52	2	72	0.575	ppb	0.575	22.23	1843	5000	
Mn	55	2	72	999.933	ppb	999.933	0.82	957365	10000	
Fe	57	2	72	21.612	ppb	21.612	25.00	1477	400000	
Co	59	2	72	27.122	ppb	27.122	0.42	98254	2000	
Ni	60	2	72	113.834	ppb	113.834	2.44	111319	5000	
Cu	63	2	72	0.353	ppb	0.353	24.67	3354	5000	
Zn	66	2	72	136.763	ppb	136.763	2.60	53219	5000	
As	75	2	72	1.063	ppb	1.063	18.78	347	2000	
Se	78	1	72	8.147	ppb	8.147	7.30	2235	2000	
Sr	88	2	45	528.661	ppb	528.661	1.47	587265	2000	
Zr	90	2	72	18.243	ppb	18.243	49.01	387	1000	
Zr	90	1	72	14.717	ppb	14.717	32.89	1462	1000	
Nb	93	2	72	-0.543	ppb	-0.543	-0.10	120	200	
Mo	95	2	115	0.041	ppb	0.041	11.81	143	2000	
Pd	105	2	115	0.033	ppb	0.033	36.82	107	100	
Ag	107	2	115	38.889	ppb	38.889	2.40	159289	100	
Cd	111	2	115	4.782	ppb	4.782	4.35	2837	2000	
Sn	120	2	115	0.068	ppb	0.068	100.86	340	2000	
Sb	121	2	115	-0.006	ppb	-0.006	-234.17	83	1000	
Ba	137	2	115	14.344	ppb	14.344	6.64	5971	5000	
W	182	2	165	40.470	ppb	40.470	0.82	114125	100	
Pt	195	2	165	0.011	ppb	0.011	104.01	27	100	
Tl	205	2	165	0.069	ppb	0.069	25.95	553	2000	
Pb	208	2	165	0.276	ppb	0.276	8.79	2183	5000	
Th	232	2	165	40.420	ppb	40.420	2.90	255611	2000	
U	238	2	165	40.887	ppb	40.887	1.23	279753	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	990647	0.36	1125531	88.02	60	125	
Sc (IS)	45	2	HMI He	1569314	1.23	1611917	97.36	60	125	
Sc IS)	45	3	No Gas	65339394	0.35	70470050	92.72	60	120	
Ge Internal Standard	72	1	HMI H2	12254941	0.68	13334475	91.90	60	125	
Ge Internal Standard	72	2	HMI He	1994820	1.16	2086994	95.58	60	125	
In Internal standard	115	2	HMI He	5710645	1.32	6052368	94.35	60	125	
Ho-165	165	2	HMI He	17410605	2.02	17767311	97.99	60	125	

Sample Report

Sample Table

Sample Name	280-127105-A-18-C MSD
Data File Name	069SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:30:24-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	28.549	ppb	28.549	23.70	6732106	40000	
Be	9	1	6	0.189	ppb	0.189	12.25	53	2000	
B	11	1	6	303.321	ppb	303.321	3.76	3057	100	
Na	23	2	45	175382.680	ppb	175382.680	3.32	56369696	400000	
Mg	24	2	45	66847.724	ppb	66847.724	4.14	8876068	400000	
Al	27	2	45	78.240	ppb	78.240	7.73	2984	400000	
K	39	2	45	2595.929	ppb	2595.929	3.17	310687	400000	
Ca	44	2	45	67730.558	ppb	67730.558	1.46	501669	400000	
V	51	2	72	-0.759	ppb	-0.759	-25.19	2770	2000	
Cr	52	2	72	0.466	ppb	0.466	4.54	1653	5000	
Mn	55	2	72	940.583	ppb	940.583	2.76	929523	10000	
Fe	57	2	72	18.000	ppb	18.000	29.27	1360	400000	
Co	59	2	72	25.834	ppb	25.834	3.74	96597	2000	
Ni	60	2	72	108.550	ppb	108.550	2.00	109598	5000	
Cu	63	2	72	0.345	ppb	0.345	5.12	3440	5000	
Zn	66	2	72	128.179	ppb	128.179	3.29	51524	5000	
As	75	2	72	1.064	ppb	1.064	10.68	358	2000	
Se	78	1	72	8.563	ppb	8.563	6.06	2295	2000	
Sr	88	2	45	523.232	ppb	523.232	3.71	572014	2000	
Zr	90	2	72	0.821	ppb	0.821	880.75	183	1000	
Zr	90	1	72	8.705	ppb	8.705	74.86	1218	1000	
Nb	93	2	72	-0.533	ppb	-0.533	-3.68	150	200	
Mo	95	2	115	0.010	ppb	0.010	357.69	100	2000	
Pd	105	2	115	0.030	ppb	0.030	101.51	100	100	
Ag	107	2	115	38.725	ppb	38.725	2.37	157801	100	
Cd	111	2	115	4.345	ppb	4.345	8.78	2564	2000	
Sn	120	2	115	0.030	ppb	0.030	142.19	277	2000	
Sb	121	2	115	-0.008	ppb	-0.008	-350.14	80	1000	
Ba	137	2	115	13.402	ppb	13.402	6.50	5548	5000	
W	182	2	165	39.839	ppb	39.839	2.94	113234	100	
Pt	195	2	165	0.007	ppb	0.007	74.66	20	100	
Tl	205	2	165	0.056	ppb	0.056	29.43	500	2000	
Pb	208	2	165	0.221	ppb	0.221	7.39	1863	5000	
Th	232	2	165	41.434	ppb	41.434	2.79	264095	2000	
U	238	2	165	41.090	ppb	41.090	0.64	283418	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1004779	1.31	1125531	89.27	60	125	
Sc (IS)	45	2	HMI He	1545293	2.75	1611917	95.87	60	125	
Sc IS)	45	3	No Gas	65110646	2.53	70470050	92.39	60	120	
Ge Internal Standard	72	1	HMI H2	11983284	0.98	13334475	89.87	60	125	
Ge Internal Standard	72	2	HMI He	2059646	2.04	2086994	98.69	60	125	
In Internal standard	115	2	HMI He	5681484	1.75	6052368	93.87	60	125	
Ho-165	165	2	HMI He	17548642	1.94	17767311	98.77	60	125	

Sample Report

Sample Table

Sample Name	280-127105-A-23-A
Data File Name	070SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:33:56-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467486 6020a
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	18.744	ppb	18.744	52.18	6691287	40000	
Be	9	1	6	0.206	ppb	0.206	36.19	57	2000	
B	11	1	6	304.970	ppb	304.970	10.41	3010	100	
Na	23	2	45	181881.963	ppb	181881.963	0.77	59552366	400000	
Mg	24	2	45	69568.372	ppb	69568.372	1.89	9411473	400000	
Al	27	2	45	84.294	ppb	84.294	9.48	3254	400000	
K	39	2	45	2750.595	ppb	2750.595	2.17	332659	400000	
Ca	44	2	45	72006.272	ppb	72006.272	1.38	543125	400000	
V	51	2	72	-0.861	ppb	-0.861	-5.65	2534	2000	
Cr	52	2	72	0.509	ppb	0.509	2.57	1713	5000	
Mn	55	2	72	1056.803	ppb	1056.803	1.64	1022245	10000	
Fe	57	2	72	21.227	ppb	21.227	2.91	1473	400000	
Co	59	2	72	27.459	ppb	27.459	4.62	100460	2000	
Ni	60	2	72	116.276	ppb	116.276	3.38	114875	5000	
Cu	63	2	72	0.405	ppb	0.405	20.60	3530	5000	
Zn	66	2	72	105.373	ppb	105.373	2.12	41567	5000	
As	75	2	72	1.148	ppb	1.148	7.01	375	2000	
Se	78	1	72	8.948	ppb	8.948	4.33	2402	2000	
Sr	88	2	45	508.297	ppb	508.297	1.14	566075	2000	
Zr	90	2	72	2.360	ppb	2.360	146.79	197	1000	
Zr	90	1	72	14.527	ppb	14.527	40.99	1425	1000	
Nb	93	2	72	-0.535	ppb	-0.535	-1.62	143	200	
Mo	95	2	115	0.004	ppb	0.004	539.85	93	2000	
Pd	105	2	115	0.036	ppb	0.036	24.25	113	100	
Ag	107	2	115	0.012	ppb	0.012	47.57	80	100	
Cd	111	2	115	5.214	ppb	5.214	5.18	3087	2000	
Sn	120	2	115	0.081	ppb	0.081	62.26	360	2000	
Sb	121	2	115	-0.018	ppb	-0.018	-177.47	67	1000	
Ba	137	2	115	15.750	ppb	15.750	4.44	6541	5000	
W	182	2	165	0.026	ppb	0.026	155.96	1370	100	
Pt	195	2	165	0.003	ppb	0.003	233.39	13	100	
Tl	205	2	165	0.063	ppb	0.063	9.35	543	2000	
Pb	208	2	165	0.225	ppb	0.225	13.38	1927	5000	
Th	232	2	165	0.946	ppb	0.946	8.18	7018	2000	
U	238	2	165	0.183	ppb	0.183	18.50	1447	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	985523	1.46	1125531	87.56	60	125	
Sc (IS)	45	2	HMI He	1573264	0.39	1611917	97.60	60	125	
Sc IS)	45	3	No Gas	66449805	1.69	70470050	94.30	60	120	
Ge Internal Standard	72	1	HMI H2	12000116	0.33	13334475	89.99	60	125	
Ge Internal Standard	72	2	HMI He	2015295	1.08	2086994	96.56	60	125	
In Internal standard	115	2	HMI He	5705334	3.27	6052368	94.27	60	125	
Ho-165	165	2	HMI He	17906963	1.23	17767311	100.79	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	071_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:37:26-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	85.563	ppb	1.853	138553	100	85.6	90	110	>+\-10%
Li	7	3	45	90.273	ppb	14.053	7642915	100	90.3	90	110	
Be	9	1	6	51.470	ppb	1.099	14464	50	102.9	90	110	
B	11	1	6	127.242	ppb	4.814	1407	50	254.5	90	110	>+\-10%
Na	23	2	45	1165.627	ppb	0.789	392895	1000	116.6	90	110	>+\-10%
Mg	24	2	45	997.342	ppb	1.274	135601	1000	99.7	90	110	
Al	27	2	45	982.440	ppb	1.022	35910	1000	98.2	90	110	
K	39	2	45	963.189	ppb	3.280	145961	1000	96.3	90	110	
Ca	44	2	45	1084.653	ppb	7.381	8305	1000	108.5	90	110	
V	51	2	72	50.352	ppb	1.985	91657	50	100.7	90	110	
Cr	52	2	72	50.277	ppb	2.205	115168	50	100.6	90	110	
Mn	55	2	72	52.319	ppb	2.632	51286	50	104.6	90	110	
Fe	57	2	72	967.592	ppb	4.920	43324	1000	96.8	90	110	
Co	59	2	72	47.588	ppb	0.260	176248	50	95.2	90	110	
Ni	60	2	72	48.669	ppb	0.654	48752	50	97.3	90	110	
Cu	63	2	72	48.819	ppb	3.290	136787	50	97.6	90	110	
Zn	66	2	72	49.589	ppb	1.042	20112	50	99.2	90	110	
As	75	2	72	49.313	ppb	0.905	14163	50	98.6	90	110	
Se	78	1	72	53.850	ppb	3.281	14975	50	107.7	90	110	
Sr	88	2	45	102.777	ppb	2.680	114914	100	102.8	90	110	
Zr	90	2	72	36.166	ppb	5.539	617	50	72.3	90	110	>+\-10%
Zr	90	1	72	30.682	ppb	15.459	2076	50	61.4	90	110	>+\-10%
Nb	93	2	72	98.589	ppb	6.556	273707	100	98.6	90	110	
Mo	95	2	115	49.917	ppb	3.067	69232	50	99.8	90	110	
Pd	105	2	115	50.251	ppb	1.057	104251	50	100.5	90	110	
Ag	107	2	115	49.745	ppb	4.485	212222	50	99.5	90	110	
Cd	111	2	115	49.348	ppb	1.546	30418	50	98.7	90	110	
Sn	120	2	115	51.065	ppb	3.372	87030	50	102.1	90	110	
Sb	121	2	115	50.052	ppb	2.249	72148	50	100.1	90	110	
Ba	137	2	115	54.775	ppb	5.074	23671	50	109.5	90	110	
W	182	2	165	50.553	ppb	1.494	146602	50	101.1	90	110	
Pt	195	2	165	49.061	ppb	2.807	92471	50	98.1	90	110	
Tl	205	2	165	52.224	ppb	2.867	241992	50	104.4	90	110	
Pb	208	2	165	52.376	ppb	1.453	333343	50	104.8	90	110	
Th	232	2	165	49.435	ppb	3.247	322077	50	98.9	90	110	
U	238	2	165	50.263	ppb	0.751	354398	50	100.5	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1057925	2.28	1125531	93.99	60	125	
Sc (IS)	45	2	HMI He	1579471	2.02	1611917	97.99	60	125	
Sc IS)	45	3	No Gas	63487144	1.39	70470050	90.09	60	120	
Ge Internal Standard	72	1	HMI H2	12501068	1.98	13334475	93.75	60	125	
Ge Internal Standard	72	2	HMI He	2039880	2.66	2086994	97.74	60	125	
In Internal standard	115	2	HMI He	5950589	2.25	6052368	98.32	60	125	
Ho-165	165	2	HMI He	17940623	0.81	17767311	100.98	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	072_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:40:57-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-8.553	ppb	-80.6	103923	0.1	
Li	7	3	45	-7.175	ppb	-159.2	5772221	0.05	
Be	9	1	6	0.002	ppb	1221.1	3	0.5	
B	11	1	6	59.683	ppb	12.8	677	0.1	>RL
Na	23	2	45	126.507	ppb	6.9	49134	25	>RL
Mg	24	2	45	5.373	ppb	15.6	827	25	
Al	27	2	45	1.889	ppb	64.9	260	15	
K	39	2	45	-13.962	ppb	-79.2	41322	50	
Ca	44	2	45	0.855	ppb	489.1	103	25	
V	51	2	72	0.287	ppb	34.1	4467	1	
Cr	52	2	72	-0.045	ppb	-86.9	463	1	
Mn	55	2	72	0.145	ppb	53.8	223	0.5	
Fe	57	2	72	1.358	ppb	146.6	600	25	
Co	59	2	72	0.002	ppb	254.9	43	0.5	
Ni	60	2	72	0.041	ppb	126.9	157	1	
Cu	63	2	72	-0.248	ppb	-20.4	1737	1	
Zn	66	2	72	0.343	ppb	27.8	703	5	
As	75	2	72	0.044	ppb	123.8	61	1	
Se	78	1	72	0.026	ppb	69.4	21	1	
Sr	88	2	45	0.026	ppb	218.1	80	1	
Zr	90	2	72	1.898	ppb	345.7	190	1	>RL
Zr	90	1	72	3.188	ppb	116.1	1028	1	>RL
Nb	93	2	72	0.641	ppb	9.5	3320	2	
Mo	95	2	115	0.026	ppb	50.5	123	0.5	
Pd	105	2	115	0.010	ppb	139.2	60	1	
Ag	107	2	115	0.024	ppb	40.9	127	1	
Cd	111	2	115	0.001	ppb	1277.8	10	0.5	
Sn	120	2	115	0.055	ppb	54.9	320	1	
Sb	121	2	115	0.023	ppb	177.1	123	1	
Ba	137	2	115	0.036	ppb	71.9	40	0.5	
W	182	2	165	-0.010	ppb	-70.3	1270	1	
Pt	195	2	165	-0.002	ppb	-185.6	3	1	
Tl	205	2	165	-0.009	ppb	-198.9	210	0.1	
Pb	208	2	165	0.014	ppb	53.6	590	0.5	
Th	232	2	165	0.050	ppb	42.9	1217	1	
U	238	2	165	-0.010	ppb	-34.2	93	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1003153	1.74	1125531	89.13	60	125	
Sc (IS)	45	2	HMI He	1510205	1.98	1611917	93.69	60	125	
Sc IS)	45	3	No Gas	61707749	2.81	70470050	87.57	60	120	
Ge Internal Standard	72	1	HMI H2	12013943	1.38	13334475	90.10	60	125	
Ge Internal Standard	72	2	HMI He	1998272	3.05	2086994	95.75	60	125	
In Internal standard	115	2	HMI He	5724612	2.06	6052368	94.58	60	125	
Ho-165	165	2	HMI He	17962647	4.15	17767311	101.10	60	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Table

Sample Name	ccvl-5833291
Data File Name	073LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:44:28-06:00
Sample Type	LLCCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	6.150	ppb	131.267	5971453	50	12.3	70	130	>+/-30%
Be	9	1	6	0.985	ppb	11.931	265	1	98.5	70	130	
Na	23	2	45	152.295	ppb	1.989	56717	50	304.6	70	130	>+/-30%
Mg	24	2	45	54.472	ppb	9.540	7132	50	108.9	70	130	
Al	27	2	45	78.985	ppb	2.083	2910	50	158.0	70	130	>+/-30%
K	39	2	45	81.661	ppb	5.094	50459	100	81.7	70	130	
Ca	44	2	45	36.353	ppb	13.566	357	50	72.7	70	130	
V	51	2	72	5.025	ppb	6.852	12551	5	100.5	70	130	
Cr	52	2	72	1.876	ppb	6.069	4754	2	93.8	70	130	
Mn	55	2	72	1.036	ppb	7.743	1080	1	103.6	70	130	
Fe	57	2	72	52.286	ppb	5.023	2807	50	104.6	70	130	
Co	59	2	72	0.925	ppb	3.406	3397	1	92.5	70	130	
Ni	60	2	72	1.530	ppb	18.693	1613	1.5	102.0	70	130	
Cu	63	2	72	1.459	ppb	3.485	6348	2	72.9	70	130	
Zn	66	2	72	9.581	ppb	9.822	4271	10	95.8	70	130	
As	75	2	72	4.594	ppb	6.938	1340	5	91.9	70	130	
Se	78	1	72	5.112	ppb	8.935	1397	5	102.2	70	130	
Sr	88	2	45	1.170	ppb	13.983	1290	1	117.0	70	130	
Zr	90	2	72	-2.182	ppb	-195.952	140	0.5	-436.4	70	130	>+/-30%
Zr	90	1	72	3.790	ppb	62.344	1064	0.5	757.9	70	130	>+/-30%
Nb	93	2	72	0.060	ppb	61.536	1753	2	3.0	70	130	>+/-30%
Mo	95	2	115	2.019	ppb	2.252	2860	2	100.9	70	130	
Pd	105	2	115	-0.003	ppb	-597.556	37	1	-0.3	70	130	>+/-30%
Ag	107	2	115	4.794	ppb	1.817	20286	5	95.9	70	130	
Cd	111	2	115	1.011	ppb	4.987	627	1	101.1	70	130	
Sn	120	2	115	10.444	ppb	1.110	17820	10	104.4	70	130	
Sb	121	2	115	1.977	ppb	7.286	2914	2	98.9	70	130	
Ba	137	2	115	1.101	ppb	8.142	497	1	110.1	70	130	
W	182	2	165	5.135	ppb	2.687	15909	1	513.5	70	130	>+/-30%
Pt	195	2	165	-0.004	ppb	0.000	0	1	-0.4	70	130	>+/-30%
Tl	205	2	165	0.977	ppb	9.645	4724	1	97.7	70	130	
Pb	208	2	165	1.012	ppb	5.583	6854	1	101.2	70	130	
Th	232	2	165	1.727	ppb	5.794	11980	2	86.4	70	130	
U	238	2	165	0.946	ppb	3.553	6762	1	94.6	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1002396	2.47	1125531	89.06	60	125	
Sc (IS)	45	2	HMI He	1495577	0.21	1611917	92.78	60	125	
Sc IS)	45	3	No Gas	61416335	2.19	70470050	87.15	60	120	
Ge Internal Standard	72	1	HMI H2	12183855	2.53	13334475	91.37	60	125	
Ge Internal Standard	72	2	HMI He	2000491	2.08	2086994	95.86	60	125	
In Internal standard	115	2	HMI He	5891167	0.11	6052368	97.34	60	125	
Ho-165	165	2	HMI He	17766107	3.16	17767311	99.99	60	125	

Blank Report

Sample Table

Sample Name	MB 280-467490/1-A
Data File Name	074_BLK.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:48:01-06:00
Sample Type	Blank
Dilution	1
Comment	467490 6020
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit
Li	7	1	45	-3.668	ppb	-442.6092322	106103	0.1
Li	7	3	45	-6.839	ppb	-127.9696021	6131534	0.05
Be	9	1	6	0.015	ppb	203.9482218	7	0.5
Na	23	2	45	73.205	ppb	4.704991025	33682	25
Mg	24	2	45	3.950	ppb	9.606681591	667	25
Al	27	2	45	-0.069	ppb	-3065.340861	200	15
K	39	2	45	-24.578	ppb	-30.75872259	41853	50
Ca	44	2	45	4.723	ppb	200.0024045	137	25
V	51	2	72	-0.596	ppb	-18.74141509	3024	1
Cr	52	2	72	0.012	ppb	296.1491514	603	1
Mn	55	2	72	0.071	ppb	67.86707212	157	0.5
Fe	57	2	72	-1.355	ppb	-87.41089658	493	25
Co	59	2	72	-0.002	ppb	-10.73430666	30	0.5
Ni	60	2	72	0.063	ppb	100.4519128	183	1
Cu	63	2	72	-0.065	ppb	-202.164661	2277	1
Zn	66	2	72	3.147	ppb	6.430033378	1823	5
As	75	2	72	-0.071	ppb	-26.78346229	30	1
Se	78	1	72	-0.019	ppb	-164.6566552	9	1
Sr	88	2	45	0.049	ppb	44.81828651	110	1
Zr	90	2	72	0.758	ppb	280.8936887	180	1
Zr	90	1	72	-0.079	ppb	-7518.107221	924	1
Nb	93	2	72	-0.132	ppb	-20.47355654	1260	2
Mo	95	2	115	0.000	ppb	6908.813187	93	0.5
Pd	105	2	115	-0.014	ppb	-50.87818702	13	1
Ag	107	2	115	0.097	ppb	13.52185528	450	1
Cd	111	2	115	-0.010	ppb	-88.20741733	3	0.5
Sn	120	2	115	0.003	ppb	2244.866533	247	1
Sb	121	2	115	-0.021	ppb	-180.5377612	67	1
Ba	137	2	115	0.015	ppb	474.7351048	33	0.5
W	182	2	165	-0.038	ppb	-184.963646	1180	1
Pt	195	2	165	-0.004	ppb	0	0	1
Tl	205	2	165	-0.020	ppb	-35.95501322	160	0.1
Pb	208	2	165	0.016	ppb	103.4611406	600	0.5
Th	232	2	165	0.330	ppb	4.811429769	3020	1
U	238	2	165	-0.016	ppb	-30.80313065	50	0.5

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1015593	3.42	1125531	90.23	60	125	
Sc (IS)	45	2	HMI He	1569781	2.10	1611917	97.39	60	125	
Sc IS)	45	3	No Gas	65492330	3.95	70470050	92.94	60	120	
Ge Internal Standard	72	1	HMI H2	12213880	3.72	13334475	91.60	60	125	
Ge Internal Standard	72	2	HMI He	2040415	2.12	2086994	97.77	60	125	
In Internal standard	115	2	HMI He	6033857	0.85	6052368	99.69	60	125	
Ho-165	165	2	HMI He	17860220	2.32	17767311	100.52	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	LCS 280-467490/2-A
Data File Name	075_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:51:33-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	467490 6020
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	32.810	32.810	ppb	13.864	6863719	400	8.2	80	120	>+/-20%
Be	9	1	6	41.404	41.404	ppb	2.083	11605	40	103.5	80	120	
Na	23	2	45	848.541	848.541	ppb	4.567	289154	40	2121.4	80	120	>+/-20%
Mg	24	2	45	796.599	796.599	ppb	3.229	108518	40	1991.5	80	120	>+/-20%
Al	27	2	45	811.706	811.706	ppb	2.561	29762	40	2029.3	80	120	>+/-20%
K	39	2	45	787.463	787.463	ppb	4.002	127752	40	1968.7	80	120	>+/-20%
Ca	44	2	45	860.671	860.671	ppb	6.216	6635	40	2151.7	80	120	>+/-20%
V	51	2	72	39.487	39.487	ppb	1.447	72490	40	98.7	80	120	
Cr	52	2	72	39.895	39.895	ppb	2.611	91157	40	99.7	80	120	
Mn	55	2	72	40.913	40.913	ppb	1.169	39983	40	102.3	80	120	
Fe	57	2	72	777.997	777.997	ppb	0.483	34795	40	1945.0	80	120	>+/-20%
Co	59	2	72	38.926	38.926	ppb	0.414	143613	40	97.3	80	120	
Ni	60	2	72	39.115	39.115	ppb	1.900	39044	40	97.8	80	120	
Cu	63	2	72	38.994	38.994	ppb	1.223	109377	40	97.5	80	120	
Zn	66	2	72	40.559	40.559	ppb	4.052	16488	40	101.4	80	120	
As	75	2	72	37.359	37.359	ppb	1.267	10701	40	93.4	80	120	
Se	78	1	72	39.246	39.246	ppb	3.689	10805	40	98.1	80	120	
Sr	88	2	45	82.004	82.004	ppb	3.914	91885	40	205.0	80	120	>+/-20%
Nb	93	2	72	-0.053	-0.053	ppb	-174.110	1470	40	-0.1	80	120	>+/-20%
Mo	95	2	115	41.806	41.806	ppb	4.116	57816	40	104.5	80	120	
Pd	105	2	115	-0.006	-0.006	ppb	-74.653	30	40	0.0	80	120	>+/-20%
Ag	107	2	115	39.432	39.432	ppb	3.266	167734	40	98.6	80	120	
Cd	111	2	115	39.275	39.275	ppb	1.902	24145	40	98.2	80	120	
Sn	120	2	115	40.692	40.692	ppb	4.257	69182	40	101.7	80	120	
Sb	121	2	115	42.380	42.380	ppb	3.597	60933	40	105.9	80	120	
Ba	137	2	115	47.085	47.085	ppb	5.659	20283	40	117.7	80	120	
W	182	2	165	40.248	40.248	ppb	2.270	117114	40	100.6	80	120	
Pt	195	2	165	-0.004	-0.004	ppb	0.000	0	40	0.0	80	120	>+/-20%
Tl	205	2	165	41.922	41.922	ppb	3.147	194447	40	104.8	80	120	
Pb	208	2	165	41.493	41.493	ppb	1.271	264422	40	103.7	80	120	
Th	232	2	165	40.221	40.221	ppb	1.177	262445	40	100.6	80	120	
U	238	2	165	39.326	39.326	ppb	2.204	277535	40	98.3	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1055316	2.27	1125531	93.76	60	125	
Sc (IS)	45	2	HMI He	1583171	2.95	1611917	98.22	60	125	
Sc IS)	45	3	No Gas	65625278	2.11	70470050	93.13	60	120	
Ge Internal Standard	72	1	HMI H2	12364532	1.22	13334475	92.73	60	125	
Ge Internal Standard	72	2	HMI He	2031806	0.22	2086994	97.36	60	125	
In Internal standard	115	2	HMI He	5932004	2.36	6052368	98.01	60	125	
Ho-165	165	2	HMI He	17959844	1.87	17767311	101.08	60	125	

Sample Report

Sample Table

Sample Name	280-126898-R-7-B
Data File Name	076SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:55:05-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	0.231	ppb	0.231	2967.85	6191764	40000	
Be	9	1	6	0.242	ppb	0.242	20.46	67	2000	
B	11	1	6	3324.895	ppb	3324.895	2.51	32312	100	>LDR
Na	23	2	45	189865.658	ppb	189865.658	2.79	61268775	400000	
Mg	24	2	45	13443.879	ppb	13443.879	2.89	1792462	400000	
Al	27	2	45	54.644	ppb	54.644	5.63	2150	400000	
K	39	2	45	2107.012	ppb	2107.012	4.43	261372	400000	
Ca	44	2	45	65433.102	ppb	65433.102	2.05	486509	400000	
V	51	2	72	1.383	ppb	1.383	15.00	6471	2000	
Cr	52	2	72	0.872	ppb	0.872	5.23	2564	5000	
Mn	55	2	72	23.611	ppb	23.611	4.92	23206	10000	
Fe	57	2	72	52.479	ppb	52.479	13.46	2874	400000	
Co	59	2	72	0.329	ppb	0.329	7.44	1257	2000	
Ni	60	2	72	3.657	ppb	3.657	7.40	3777	5000	
Cu	63	2	72	0.555	ppb	0.555	8.69	3987	5000	
Zn	66	2	72	6.115	ppb	6.115	7.82	2994	5000	
As	75	2	72	1.230	ppb	1.230	18.89	403	2000	
Se	78	1	72	0.239	ppb	0.239	30.16	77	2000	
Sr	88	2	45	319.715	ppb	319.715	1.82	350970	2000	
Zr	90	2	72	14.810	ppb	14.810	46.30	353	1000	
Zr	90	1	72	16.275	ppb	16.275	15.06	1475	1000	
Nb	93	2	72	-0.250	ppb	-0.250	-23.85	930	200	
Mo	95	2	115	2.519	ppb	2.519	7.16	3404	2000	
Pd	105	2	115	-0.002	ppb	-0.002	-535.66	37	100	
Ag	107	2	115	0.019	ppb	0.019	121.49	107	100	
Cd	111	2	115	0.070	ppb	0.070	74.96	50	2000	
Sn	120	2	115	0.068	ppb	0.068	79.35	337	2000	
Sb	121	2	115	0.538	ppb	0.538	19.40	827	1000	
Ba	137	2	115	64.169	ppb	64.169	1.66	26368	5000	
W	182	2	165	-0.008	ppb	-0.008	-727.46	1243	100	
Pt	195	2	165	-0.002	ppb	-0.002	-185.10	3	100	
Tl	205	2	165	-0.011	ppb	-0.011	-78.02	197	2000	
Pb	208	2	165	0.011	ppb	0.011	80.94	553	5000	
Th	232	2	165	1.360	ppb	1.360	3.56	9465	2000	
U	238	2	165	4.472	ppb	4.472	2.55	30818	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	997399	2.29	1125531	88.62	60	125	
Sc (IS)	45	2	HMI He	1551176	2.64	1611917	96.23	60	125	
Sc IS)	45	3	No Gas	64740669	1.30	70470050	91.87	60	120	
Ge Internal Standard	72	1	HMI H2	11900452	2.55	13334475	89.25	60	125	
Ge Internal Standard	72	2	HMI He	2040955	1.58	2086994	97.79	60	125	
In Internal standard	115	2	HMI He	5656668	1.55	6052368	93.46	60	125	
Ho-165	165	2	HMI He	17454652	2.50	17767311	98.24	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-7-A
Data File Name	077SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T15:58:36-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	71.711	ppb	71.711	5.70	7612472	40000	
Be	9	1	6	-0.011	ppb	-0.011	0.00	0	2000	
B	11	1	6	5502.880	ppb	5502.880	3.03	51567	100	>LDR
Na	23	2	45	263066.133	ppb	263066.133	2.32	89848534	400000	
Mg	24	2	45	67288.822	ppb	67288.822	3.16	9495071	400000	
Al	27	2	45	37.877	ppb	37.877	9.00	1643	400000	
K	39	2	45	2910.459	ppb	2910.459	2.88	364495	400000	
Ca	44	2	45	104712.806	ppb	104712.806	0.93	824084	400000	
V	51	2	72	2.081	ppb	2.081	6.85	7548	2000	
Cr	52	2	72	0.110	ppb	0.110	36.69	810	5000	
Mn	55	2	72	131.777	ppb	131.777	2.65	126840	10000	
Fe	57	2	72	28.350	ppb	28.350	8.82	1773	400000	
Co	59	2	72	1.636	ppb	1.636	6.25	5988	2000	
Ni	60	2	72	2.058	ppb	2.058	6.92	2137	5000	
Cu	63	2	72	0.216	ppb	0.216	32.13	3000	5000	
Zn	66	2	72	5.486	ppb	5.486	11.69	2694	5000	
As	75	2	72	1.043	ppb	1.043	10.78	343	2000	
Se	78	1	72	0.154	ppb	0.154	10.91	56	2000	
Sr	88	2	45	1384.395	ppb	1384.395	1.78	1608504	2000	
Zr	90	2	72	3087.919	ppb	3087.919	3.02	37602	1000	
Zr	90	1	72	3193.358	ppb	3193.358	0.94	114019	1000	
Nb	93	2	72	-0.400	ppb	-0.400	-3.41	507	200	
Mo	95	2	115	1.033	ppb	1.033	23.09	1493	2000	
Pd	105	2	115	0.019	ppb	0.019	93.20	80	100	
Ag	107	2	115	0.007	ppb	0.007	95.21	60	100	
Cd	111	2	115	-0.016	ppb	-0.016	0.00	0	2000	
Sn	120	2	115	0.069	ppb	0.069	71.67	350	2000	
Sb	121	2	115	0.548	ppb	0.548	11.37	870	1000	
Ba	137	2	115	65.251	ppb	65.251	4.27	27777	5000	
W	182	2	165	0.208	ppb	0.208	29.57	1847	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	-0.019	ppb	-0.019	-47.21	160	2000	
Pb	208	2	165	0.055	ppb	0.055	19.88	827	5000	
Th	232	2	165	0.252	ppb	0.252	9.68	2467	2000	
U	238	2	165	6.822	ppb	6.822	1.42	47038	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	963556	4.28	1125531	85.61	60	125	
Sc (IS)	45	2	HMI He	1641834	2.56	1611917	101.86	60	125	
Sc IS)	45	3	No Gas	66015391	1.38	70470050	93.68	60	120	
Ge Internal Standard	72	1	HMI H2	12118823	1.52	13334475	90.88	60	125	
Ge Internal Standard	72	2	HMI He	2004182	1.35	2086994	96.03	60	125	
In Internal standard	115	2	HMI He	5864585	3.64	6052368	96.90	60	125	
Ho-165	165	2	HMI He	17489881	1.71	17767311	98.44	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-10-A
Data File Name	078SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:02:07-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	72.909	ppb	72.909	4.96	7577921	40000	
Be	9	1	6	0.002	ppb	0.002	1089.10	3	2000	
B	11	1	6	5817.816	ppb	5817.816	4.31	54135	100	>LDR
Na	23	2	45	285988.285	ppb	285988.285	2.84	95022200	400000	
Mg	24	2	45	72248.528	ppb	72248.528	2.39	9920199	400000	
Al	27	2	45	97.690	ppb	97.690	10.69	3790	400000	
K	39	2	45	4841.987	ppb	4841.987	5.27	559780	400000	
Ca	44	2	45	106784.635	ppb	106784.635	2.98	817364	400000	
V	51	2	72	2.728	ppb	2.728	8.64	8716	2000	
Cr	52	2	72	0.216	ppb	0.216	21.25	1057	5000	
Mn	55	2	72	577.552	ppb	577.552	2.16	559682	10000	
Fe	57	2	72	36.342	ppb	36.342	6.92	2140	400000	
Co	59	2	72	1.562	ppb	1.562	1.75	5764	2000	
Ni	60	2	72	2.005	ppb	2.005	9.60	2097	5000	
Cu	63	2	72	0.157	ppb	0.157	91.02	2864	5000	
Zn	66	2	72	3.813	ppb	3.813	4.28	2063	5000	
As	75	2	72	1.426	ppb	1.426	7.93	454	2000	
Se	78	1	72	0.162	ppb	0.162	7.10	57	2000	
Sr	88	2	45	1458.618	ppb	1458.618	2.17	1648602	2000	
Zr	90	2	72	85.016	ppb	85.016	20.58	1203	1000	
Zr	90	1	72	82.124	ppb	82.124	7.98	3778	1000	
Nb	93	2	72	-0.434	ppb	-0.434	-7.03	420	200	
Mo	95	2	115	1.841	ppb	1.841	9.42	2527	2000	
Pd	105	2	115	0.028	ppb	0.028	67.97	97	100	
Ag	107	2	115	0.009	ppb	0.009	83.35	67	100	
Cd	111	2	115	-0.010	ppb	-0.010	-98.07	3	2000	
Sn	120	2	115	0.032	ppb	0.032	188.10	280	2000	
Sb	121	2	115	0.677	ppb	0.677	8.69	1023	1000	
Ba	137	2	115	81.610	ppb	81.610	1.20	33732	5000	
W	182	2	165	0.172	ppb	0.172	26.27	1783	100	
Pt	195	2	165	0.000	ppb	0.000	-6419.78	7	100	
Tl	205	2	165	-0.018	ppb	-0.018	-51.18	167	2000	
Pb	208	2	165	0.033	ppb	0.033	24.06	707	5000	
Th	232	2	165	0.173	ppb	0.173	13.82	2003	2000	
U	238	2	165	9.890	ppb	9.890	3.86	69432	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	956384	2.53	1125531	84.97	60	125	
Sc (IS)	45	2	HMI He	1597309	2.30	1611917	99.09	60	125	
Sc IS)	45	3	No Gas	65533167	0.20	70470050	92.99	60	120	
Ge Internal Standard	72	1	HMI H2	11947033	1.26	13334475	89.60	60	125	
Ge Internal Standard	72	2	HMI He	2019829	3.73	2086994	96.78	60	125	
In Internal standard	115	2	HMI He	5690174	0.49	6052368	94.02	60	125	
Ho-165	165	2	HMI He	17837023	1.45	17767311	100.39	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-13-A
Data File Name	079SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:05:37-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	61.363	ppb	61.363	13.15	7406191	40000	
Be	9	1	6	-0.005	ppb	-0.005	-237.13	2	2000	
B	11	1	6	5364.049	ppb	5364.049	2.68	51176	100	>LDR
Na	23	2	45	221878.001	ppb	221878.001	2.38	75431877	400000	
Mg	24	2	45	57337.700	ppb	57337.700	0.60	8055436	400000	
Al	27	2	45	11.824	ppb	11.824	32.13	653	400000	
K	39	2	45	1809.907	ppb	1809.907	3.08	243095	400000	
Ca	44	2	45	98784.563	ppb	98784.563	1.91	773652	400000	
V	51	2	72	0.707	ppb	0.707	12.46	5194	2000	
Cr	52	2	72	0.116	ppb	0.116	43.43	827	5000	
Mn	55	2	72	430.068	ppb	430.068	5.95	412824	10000	
Fe	57	2	72	48.046	ppb	48.046	14.66	2620	400000	
Co	59	2	72	1.590	ppb	1.590	6.38	5818	2000	
Ni	60	2	72	2.067	ppb	2.067	9.15	2140	5000	
Cu	63	2	72	-0.104	ppb	-0.104	-111.08	2130	5000	
Zn	66	2	72	3.382	ppb	3.382	10.97	1883	5000	
As	75	2	72	0.527	ppb	0.527	7.68	197	2000	
Se	78	1	72	0.085	ppb	0.085	44.22	37	2000	
Sr	88	2	45	1251.874	ppb	1251.874	5.75	1447261	2000	
Zr	90	2	72	33.195	ppb	33.195	25.22	567	1000	
Zr	90	1	72	27.973	ppb	27.973	33.81	1909	1000	
Nb	93	2	72	-0.448	ppb	-0.448	-7.46	377	200	
Mo	95	2	115	6.232	ppb	6.232	2.72	8609	2000	
Pd	105	2	115	0.014	ppb	0.014	155.34	70	100	
Ag	107	2	115	0.003	ppb	0.003	184.61	40	100	
Cd	111	2	115	-0.010	ppb	-0.010	-91.47	3	2000	
Sn	120	2	115	0.022	ppb	0.022	62.09	273	2000	
Sb	121	2	115	0.267	ppb	0.267	6.40	473	1000	
Ba	137	2	115	36.938	ppb	36.938	3.06	15761	5000	
W	182	2	165	-0.051	ppb	-0.051	-70.99	1140	100	
Pt	195	2	165	0.000	ppb	0.000	5357.66	7	100	
Tl	205	2	165	-0.022	ppb	-0.022	-51.53	150	2000	
Pb	208	2	165	0.024	ppb	0.024	140.35	643	5000	
Th	232	2	165	0.124	ppb	0.124	15.19	1683	2000	
U	238	2	165	39.659	ppb	39.659	2.47	276906	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	980524	2.34	1125531	87.12	60	125	
Sc (IS)	45	2	HMI He	1633834	1.12	1611917	101.36	60	125	
Sc IS)	45	3	No Gas	65866213	1.04	70470050	93.47	60	120	
Ge Internal Standard	72	1	HMI H2	12066247	0.81	13334475	90.49	60	125	
Ge Internal Standard	72	2	HMI He	2002980	4.29	2086994	95.97	60	125	
In Internal standard	115	2	HMI He	5870200	1.18	6052368	96.99	60	125	
Ho-165	165	2	HMI He	17771484	3.18	17767311	100.02	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	080_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:09:08-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	73.685	ppb	10.565	135903	100	73.7	90	110	>+\-10%
Li	7	3	45	77.275	ppb	2.278	7578152	100	77.3	90	110	>+\-10%
Be	9	1	6	52.081	ppb	2.681	14279	50	104.2	90	110	
B	11	1	6	296.975	ppb	11.526	3077	50	594.0	90	110	>+\-10%
Na	23	2	45	1233.299	ppb	2.092	411339	1000	123.3	90	110	>+\-10%
Mg	24	2	45	1002.807	ppb	1.231	135111	1000	100.3	90	110	
Al	27	2	45	1013.615	ppb	2.278	36698	1000	101.4	90	110	
K	39	2	45	984.701	ppb	2.380	146904	1000	98.5	90	110	
Ca	44	2	45	1029.896	ppb	2.493	7828	1000	103.0	90	110	
V	51	2	72	49.905	ppb	1.900	92045	50	99.8	90	110	
Cr	52	2	72	49.876	ppb	0.416	115725	50	99.8	90	110	
Mn	55	2	72	52.495	ppb	3.960	52115	50	105.0	90	110	
Fe	57	2	72	950.974	ppb	1.624	43110	1000	95.1	90	110	
Co	59	2	72	49.050	ppb	0.910	183961	50	98.1	90	110	
Ni	60	2	72	49.789	ppb	3.469	50481	50	99.6	90	110	
Cu	63	2	72	48.562	ppb	1.899	137859	50	97.1	90	110	
Zn	66	2	72	51.524	ppb	1.048	21136	50	103.0	90	110	
As	75	2	72	48.699	ppb	1.671	14165	50	97.4	90	110	
Se	78	1	72	51.289	ppb	0.977	14513	50	102.6	90	110	
Sr	88	2	45	101.564	ppb	4.938	112505	100	101.6	90	110	
Zr	90	2	72	48.922	ppb	17.788	783	50	97.8	90	110	
Zr	90	1	72	43.203	ppb	12.121	2576	50	86.4	90	110	>+\-10%
Nb	93	2	72	95.330	ppb	1.865	268324	100	95.3	90	110	
Mo	95	2	115	50.740	ppb	3.837	69650	50	101.5	90	110	
Pd	105	2	115	50.498	ppb	5.024	103629	50	101.0	90	110	
Ag	107	2	115	50.171	ppb	4.123	211899	50	100.3	90	110	
Cd	111	2	115	51.686	ppb	5.832	31517	50	103.4	90	110	
Sn	120	2	115	52.436	ppb	4.554	88433	50	104.9	90	110	
Sb	121	2	115	50.970	ppb	6.375	72667	50	101.9	90	110	
Ba	137	2	115	55.417	ppb	3.224	23711	50	110.8	90	110	>+\-10%
W	182	2	165	49.627	ppb	4.700	146657	50	99.3	90	110	
Pt	195	2	165	49.439	ppb	5.242	94916	50	98.9	90	110	
Tl	205	2	165	50.974	ppb	0.864	240702	50	101.9	90	110	
Pb	208	2	165	50.775	ppb	4.080	329046	50	101.6	90	110	
Th	232	2	165	49.185	ppb	5.049	326190	50	98.4	90	110	
U	238	2	165	49.527	ppb	4.867	355551	50	99.1	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1032834	3.09	1125531	91.76	60	125	
Sc (IS)	45	2	HMI He	1565536	3.12	1611917	97.12	60	125	
Sc IS)	45	3	No Gas	64860889	0.50	70470050	92.04	60	120	
Ge Internal Standard	72	1	HMI H2	12714542	0.55	13334475	95.35	60	125	
Ge Internal Standard	72	2	HMI He	2065723	1.46	2086994	98.98	60	125	
In Internal standard	115	2	HMI He	5892034	3.46	6052368	97.35	60	125	
Ho-165	165	2	HMI He	18282676	3.28	17767311	102.90	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	081_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:12:39-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	2.371	ppb	143.9	106553	0.1	>RL
Li	7	3	45	-9.536	ppb	-111.4	5864486	0.05	
Be	9	1	6	0.008	ppb	398.2	5	0.5	
B	11	1	6	118.210	ppb	13.0	1250	0.1	>RL
Na	23	2	45	177.466	ppb	1.6	65460	25	>RL
Mg	24	2	45	4.516	ppb	14.7	717	25	
Al	27	2	45	0.804	ppb	134.6	223	15	
K	39	2	45	-10.058	ppb	-62.4	41907	50	
Ca	44	2	45	-1.410	ppb	-509.5	87	25	
V	51	2	72	0.312	ppb	29.8	4567	1	
Cr	52	2	72	-0.034	ppb	-80.2	493	1	
Mn	55	2	72	0.065	ppb	32.2	150	0.5	
Fe	57	2	72	0.345	ppb	758.6	563	25	
Co	59	2	72	0.012	ppb	22.3	80	0.5	
Ni	60	2	72	-0.015	ppb	-142.0	103	1	
Cu	63	2	72	-0.325	ppb	-19.3	1550	1	
Zn	66	2	72	0.397	ppb	68.8	733	5	
As	75	2	72	0.022	ppb	238.6	56	1	
Se	78	1	72	0.025	ppb	263.4	21	1	
Sr	88	2	45	0.094	ppb	52.1	153	1	
Zr	90	2	72	1.714	ppb	293.6	190	1	>RL
Zr	90	1	72	1.757	ppb	69.1	981	1	>RL
Nb	93	2	72	0.731	ppb	6.2	3610	2	
Mo	95	2	115	0.032	ppb	151.2	133	0.5	
Pd	105	2	115	0.001	ppb	319.4	43	1	
Ag	107	2	115	0.009	ppb	30.9	67	1	
Cd	111	2	115	-0.010	ppb	-95.4	3	0.5	
Sn	120	2	115	0.050	ppb	14.7	317	1	
Sb	121	2	115	0.024	ppb	107.1	127	1	
Ba	137	2	115	0.011	ppb	440.6	30	0.5	
W	182	2	165	-0.016	ppb	-432.6	1233	1	
Pt	195	2	165	0.000	ppb	6701.2	7	1	
Tl	205	2	165	-0.021	ppb	-23.6	153	0.1	
Pb	208	2	165	0.000	ppb	-3296.3	490	0.5	
Th	232	2	165	0.047	ppb	15.3	1177	1	
U	238	2	165	-0.008	ppb	-80.1	103	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1006105	1.93	1125531	89.39	60	125	
Sc (IS)	45	2	HMI He	1516864	1.73	1611917	94.10	60	125	
Sc IS)	45	3	No Gas	63114287	1.30	70470050	89.56	60	120	
Ge Internal Standard	72	1	HMI H2	12044632	0.80	13334475	90.33	60	125	
Ge Internal Standard	72	2	HMI He	2022863	0.56	2086994	96.93	60	125	
In Internal standard	115	2	HMI He	5813714	0.74	6052368	96.06	60	125	
Ho-165	165	2	HMI He	17660984	2.38	17767311	99.40	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-A
Data File Name	082SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:16:12-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	1.805	ppb	1.805	326.40	6186680	40000	
Be	9	1	6	0.020	ppb	0.020	190.67	8	2000	
B	11	1	6	593.429	ppb	593.429	4.71	5821	100	>LDR
Na	23	2	45	30540.366	ppb	30540.366	0.71	9824875	400000	
Mg	24	2	45	6615.424	ppb	6615.424	1.11	878728	400000	
Al	27	2	45	5.295	ppb	5.295	12.69	387	400000	
K	39	2	45	1422.626	ppb	1422.626	2.07	190014	400000	
Ca	44	2	45	26035.233	ppb	26035.233	1.41	192847	400000	
V	51	2	72	0.100	ppb	0.100	43.52	4154	2000	
Cr	52	2	72	0.128	ppb	0.128	53.60	850	5000	
Mn	55	2	72	33.293	ppb	33.293	2.29	32056	10000	
Fe	57	2	72	17.787	ppb	17.787	34.00	1310	400000	
Co	59	2	72	0.594	ppb	0.594	7.86	2190	2000	
Ni	60	2	72	0.580	ppb	0.580	10.07	687	5000	
Cu	63	2	72	1.657	ppb	1.657	10.64	6878	5000	
Zn	66	2	72	13.075	ppb	13.075	4.23	5624	5000	
As	75	2	72	0.338	ppb	0.338	30.22	144	2000	
Se	78	1	72	0.292	ppb	0.292	26.53	93	2000	
Sr	88	2	45	215.381	ppb	215.381	2.28	235514	2000	
Zr	90	2	72	10.677	ppb	10.677	27.85	297	1000	
Zr	90	1	72	5.405	ppb	5.405	63.97	1121	1000	
Nb	93	2	72	0.368	ppb	0.368	30.94	2587	200	
Mo	95	2	115	2.704	ppb	2.704	2.95	3677	2000	
Pd	105	2	115	-0.004	ppb	-0.004	-167.83	33	100	
Ag	107	2	115	0.006	ppb	0.006	94.98	53	100	
Cd	111	2	115	0.007	ppb	0.007	288.37	13	2000	
Sn	120	2	115	0.049	ppb	0.049	103.71	310	2000	
Sb	121	2	115	0.446	ppb	0.446	17.01	707	1000	
Ba	137	2	115	34.080	ppb	34.080	3.86	14123	5000	
W	182	2	165	0.046	ppb	0.046	39.65	1397	100	
Pt	195	2	165	0.009	ppb	0.009	33.00	23	100	
Tl	205	2	165	-0.001	ppb	-0.001	-1098.30	240	2000	
Pb	208	2	165	0.446	ppb	0.446	6.50	3257	5000	
Th	232	2	165	0.620	ppb	0.620	0.74	4798	2000	
U	238	2	165	3.323	ppb	3.323	4.00	22998	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	994214	3.34	1125531	88.33	60	125	
Sc (IS)	45	2	HMI He	1544536	0.39	1611917	95.82	60	125	
Sc IS)	45	3	No Gas	64403225	0.31	70470050	91.39	60	120	
Ge Internal Standard	72	1	HMI H2	12157820	1.56	13334475	91.18	60	125	
Ge Internal Standard	72	2	HMI He	2000681	2.32	2086994	95.86	60	125	
In Internal standard	115	2	HMI He	5701526	1.93	6052368	94.20	60	125	
Ho-165	165	2	HMI He	17500528	1.23	17767311	98.50	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-Asd@5
Data File Name	083SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:21:09-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-5.085	ppb	-5.085	-162.32	5894689	40000	
Be	9	1	6	0.008	ppb	0.008	234.22	5	2000	
B	11	1	6	184.064	ppb	184.064	20.69	1893	100	
Na	23	2	45	6819.407	ppb	6819.407	4.47	2201878	400000	
Mg	24	2	45	1423.057	ppb	1423.057	3.59	189181	400000	
Al	27	2	45	1.711	ppb	1.711	61.98	260	400000	
K	39	2	45	276.774	ppb	276.774	0.30	72254	400000	
Ca	44	2	45	5456.525	ppb	5456.525	5.86	40484	400000	
V	51	2	72	0.294	ppb	0.294	123.90	4481	2000	
Cr	52	2	72	0.018	ppb	0.018	128.61	603	5000	
Mn	55	2	72	7.285	ppb	7.285	7.47	7078	10000	
Fe	57	2	72	1.258	ppb	1.258	226.13	600	400000	
Co	59	2	72	0.145	ppb	0.145	17.49	560	2000	
Ni	60	2	72	0.218	ppb	0.218	51.18	330	5000	
Cu	63	2	72	0.154	ppb	0.154	81.73	2827	5000	
Zn	66	2	72	2.942	ppb	2.942	0.87	1710	5000	
As	75	2	72	0.052	ppb	0.052	55.42	64	2000	
Se	78	1	72	0.102	ppb	0.102	30.61	41	2000	
Sr	88	2	45	46.146	ppb	46.146	4.33	50505	2000	
Zr	90	2	72	4.681	ppb	4.681	51.49	223	1000	
Zr	90	1	72	10.985	ppb	10.985	54.15	1291	1000	
Nb	93	2	72	-0.199	ppb	-0.199	-42.55	1057	200	
Mo	95	2	115	0.715	ppb	0.715	23.23	1023	2000	
Pd	105	2	115	-0.003	ppb	-0.003	-446.14	33	100	
Ag	107	2	115	0.016	ppb	0.016	62.21	93	100	
Cd	111	2	115	0.013	ppb	0.013	201.34	17	2000	
Sn	120	2	115	0.095	ppb	0.095	45.37	380	2000	
Sb	121	2	115	0.089	ppb	0.089	30.43	213	1000	
Ba	137	2	115	7.156	ppb	7.156	2.95	2954	5000	
W	182	2	165	-0.054	ppb	-0.054	-202.04	1127	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	-0.027	ppb	-0.027	-46.42	127	2000	
Pb	208	2	165	0.099	ppb	0.099	11.54	1113	5000	
Th	232	2	165	0.001	ppb	0.001	4247.11	883	2000	
U	238	2	165	0.657	ppb	0.657	3.74	4717	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1010274	3.57	1125531	89.76	60	125	
Sc (IS)	45	2	HMI He	1546166	3.58	1611917	95.92	60	125	
Sc IS)	45	3	No Gas	62599378	0.82	70470050	88.83	60	120	
Ge Internal Standard	72	1	HMI H2	11918411	0.70	13334475	89.38	60	125	
Ge Internal Standard	72	2	HMI He	2002504	2.88	2086994	95.95	60	125	
In Internal standard	115	2	HMI He	5640129	1.81	6052368	93.19	60	125	
Ho-165	165	2	HMI He	17646622	1.64	17767311	99.32	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-B MS
Data File Name	084SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:24:41-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	36.039	ppb	36.039	9.71	6744457	40000	
Be	9	1	6	43.459	ppb	43.459	3.90	11244	2000	
B	11	1	6	567.957	ppb	567.957	2.04	5468	100	>LDR
Na	23	2	45	32405.413	ppb	32405.413	2.78	10433605	400000	
Mg	24	2	45	7492.136	ppb	7492.136	0.46	996113	400000	
Al	27	2	45	791.801	ppb	791.801	3.37	28366	400000	
K	39	2	45	2213.198	ppb	2213.198	1.37	271577	400000	
Ca	44	2	45	27606.024	ppb	27606.024	2.59	204674	400000	
V	51	2	72	38.619	ppb	38.619	2.70	70833	2000	
Cr	52	2	72	38.832	ppb	38.832	3.41	88544	5000	
Mn	55	2	72	72.715	ppb	72.715	2.31	70844	10000	
Fe	57	2	72	768.943	ppb	768.943	2.43	34324	400000	
Co	59	2	72	38.958	ppb	38.958	4.74	143383	2000	
Ni	60	2	72	38.605	ppb	38.605	4.14	38453	5000	
Cu	63	2	72	38.785	ppb	38.785	1.73	108586	5000	
Zn	66	2	72	54.423	ppb	54.423	3.51	21877	5000	
As	75	2	72	37.097	ppb	37.097	3.30	10603	2000	
Se	78	1	72	39.911	ppb	39.911	2.57	10791	2000	
Sr	88	2	45	296.599	ppb	296.599	1.26	324607	2000	
Zr	90	2	72	21.251	ppb	21.251	16.46	430	1000	
Zr	90	1	72	22.449	ppb	22.449	15.58	1725	1000	
Nb	93	2	72	0.019	ppb	0.019	120.73	1663	200	
Mo	95	2	115	44.108	ppb	44.108	0.70	59422	2000	
Pd	105	2	115	0.004	ppb	0.004	189.99	50	100	
Ag	107	2	115	38.472	ppb	38.472	3.70	159427	100	
Cd	111	2	115	39.813	ppb	39.813	2.31	23824	2000	
Sn	120	2	115	41.024	ppb	41.024	2.93	67937	2000	
Sb	121	2	115	42.549	ppb	42.549	1.01	59568	1000	
Ba	137	2	115	81.607	ppb	81.607	3.45	34246	5000	
W	182	2	165	39.558	ppb	39.558	4.71	111976	100	
Pt	195	2	165	-0.002	ppb	-0.002	-196.52	3	100	
Tl	205	2	165	39.570	ppb	39.570	6.80	178508	2000	
Pb	208	2	165	40.991	ppb	40.991	3.70	254222	5000	
Th	232	2	165	39.678	ppb	39.678	4.88	251874	2000	
U	238	2	165	43.169	ppb	43.169	6.84	296243	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	974293	1.37	1125531	86.56	60	125	
Sc (IS)	45	2	HMI He	1545973	0.21	1611917	95.91	60	125	
Sc IS)	45	3	No Gas	63939386	1.22	70470050	90.73	60	120	
Ge Internal Standard	72	1	HMI H2	12149743	2.11	13334475	91.12	60	125	
Ge Internal Standard	72	2	HMI He	2028159	2.14	2086994	97.18	60	125	
In Internal standard	115	2	HMI He	5776556	1.87	6052368	95.44	60	125	
Ho-165	165	2	HMI He	17493812	4.36	17767311	98.46	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-C MSD
Data File Name	085SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:28:13-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	39.380	ppb	39.380	11.17	6777679	40000	
Be	9	1	6	42.896	ppb	42.896	2.97	11349	2000	
B	11	1	6	569.154	ppb	569.154	4.09	5601	100	>LDR
Na	23	2	45	32899.217	ppb	32899.217	3.28	10398993	400000	
Mg	24	2	45	7588.037	ppb	7588.037	3.31	990391	400000	
Al	27	2	45	811.016	ppb	811.016	2.15	28523	400000	
K	39	2	45	2293.522	ppb	2293.522	3.62	274745	400000	
Ca	44	2	45	27834.958	ppb	27834.958	2.09	202631	400000	
V	51	2	72	41.113	ppb	41.113	2.16	73826	2000	
Cr	52	2	72	40.005	ppb	40.005	1.14	89616	5000	
Mn	55	2	72	77.407	ppb	77.407	2.20	74080	10000	
Fe	57	2	72	842.796	ppb	842.796	1.12	36909	400000	
Co	59	2	72	40.353	ppb	40.353	2.90	145949	2000	
Ni	60	2	72	40.139	ppb	40.139	4.80	39265	5000	
Cu	63	2	72	39.674	ppb	39.674	2.41	109049	5000	
Zn	66	2	72	50.540	ppb	50.540	1.86	20002	5000	
As	75	2	72	38.484	ppb	38.484	1.62	10805	2000	
Se	78	1	72	39.591	ppb	39.591	5.61	10613	2000	
Sr	88	2	45	300.643	ppb	300.643	3.01	323023	2000	
Zr	90	2	72	38.760	ppb	38.760	26.06	633	1000	
Zr	90	1	72	37.113	ppb	37.113	12.77	2226	1000	
Nb	93	2	72	-0.209	ppb	-0.209	-30.17	1020	200	
Mo	95	2	115	44.253	ppb	44.253	4.68	60268	2000	
Pd	105	2	115	-0.016	ppb	-0.016	-30.79	10	100	
Ag	107	2	115	39.583	ppb	39.583	7.88	165649	100	
Cd	111	2	115	39.308	ppb	39.308	9.72	23741	2000	
Sn	120	2	115	41.512	ppb	41.512	7.08	69447	2000	
Sb	121	2	115	41.913	ppb	41.913	5.49	59300	1000	
Ba	137	2	115	80.664	ppb	80.664	4.41	34216	5000	
W	182	2	165	40.079	ppb	40.079	0.58	117302	100	
Pt	195	2	165	-0.004	ppb	-0.004	0.00	0	100	
Tl	205	2	165	38.359	ppb	38.359	3.59	178993	2000	
Pb	208	2	165	40.066	ppb	40.066	3.45	256801	5000	
Th	232	2	165	40.409	ppb	40.409	3.30	265176	2000	
U	238	2	165	42.498	ppb	42.498	3.78	301644	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	996556	3.14	1125531	88.54	60	125	
Sc (IS)	45	2	HMI He	1518547	2.70	1611917	94.21	60	125	
Sc IS)	45	3	No Gas	63690108	1.12	70470050	90.38	60	120	
Ge Internal Standard	72	1	HMI H2	12049024	2.04	13334475	90.36	60	125	
Ge Internal Standard	72	2	HMI He	1992142	1.42	2086994	95.46	60	125	
In Internal standard	115	2	HMI He	5848015	5.05	6052368	96.62	60	125	
Ho-165	165	2	HMI He	18067069	1.84	17767311	101.69	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-A pds
Data File Name	086SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:31:46-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-0.434	ppb	-0.434	-1578.80	6085676	40000	
Be	9	1	6	226.812	ppb	226.812	2.61	59810	2000	
B	11	1	6	555.029	ppb	555.029	7.75	5454	100	>LDR
Na	23	2	45	29293.212	ppb	29293.212	1.70	9674857	400000	
Mg	24	2	45	6393.733	ppb	6393.733	0.44	872026	400000	
Al	27	2	45	2010.153	ppb	2010.153	1.18	73559	400000	
K	39	2	45	1349.089	ppb	1349.089	1.40	187325	400000	
Ca	44	2	45	25248.881	ppb	25248.881	1.33	192010	400000	
V	51	2	72	211.509	ppb	211.509	4.67	372153	2000	
Cr	52	2	72	207.994	ppb	207.994	2.84	474895	5000	
Mn	55	2	72	249.101	ppb	249.101	3.62	244014	10000	
Fe	57	2	72	2016.527	ppb	2016.527	4.70	89677	400000	
Co	59	2	72	204.373	ppb	204.373	3.54	757070	2000	
Ni	60	2	72	207.009	ppb	207.009	2.19	207053	5000	
Cu	63	2	72	205.224	ppb	205.224	0.37	567960	5000	
Zn	66	2	72	226.762	ppb	226.762	3.04	89944	5000	
As	75	2	72	196.972	ppb	196.972	2.65	56454	2000	
Se	78	1	72	210.283	ppb	210.283	2.86	57872	2000	
Sr	88	2	45	208.787	ppb	208.787	2.55	234368	2000	
Zr	90	2	72	45874.237	ppb	45874.237	4.86	566310	1000	>LDR
Zr	90	1	72	48318.717	ppb	48318.717	3.89	1748223	1000	>LDR
Nb	93	2	72	2.138	ppb	2.138	10.04	7538	200	
Mo	95	2	115	213.999	ppb	213.999	6.07	293476	2000	
Pd	105	2	115	0.199	ppb	0.199	20.90	450	100	
Ag	107	2	115	23.884	ppb	23.884	3.23	100947	100	
Cd	111	2	115	210.854	ppb	210.854	4.78	128613	2000	
Sn	120	2	115	209.752	ppb	209.752	3.28	353332	2000	
Sb	121	2	115	218.851	ppb	218.851	2.92	312115	1000	
Ba	137	2	115	275.628	ppb	275.628	4.27	117854	5000	
W	182	2	165	219.038	ppb	219.038	0.97	620661	100	
Pt	195	2	165	0.180	ppb	0.180	26.68	340	100	
Tl	205	2	165	215.126	ppb	215.126	1.52	979918	2000	
Pb	208	2	165	218.270	ppb	218.270	2.82	1364731	5000	
Th	232	2	165	2.156	ppb	2.156	4.02	14647	2000	
U	238	2	165	224.902	ppb	224.902	2.25	1560477	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	993280	1.41	1125531	88.25	60	125	
Sc (IS)	45	2	HMI He	1585883	1.37	1611917	98.38	60	125	
Sc IS)	45	3	No Gas	63761282	1.17	70470050	90.48	60	120	
Ge Internal Standard	72	1	HMI H2	12378287	1.04	13334475	92.83	60	125	
Ge Internal Standard	72	2	HMI He	2041775	3.00	2086994	97.83	60	125	
In Internal standard	115	2	HMI He	5895280	3.66	6052368	97.40	60	125	
Ho-165	165	2	HMI He	17654237	2.67	17767311	99.36	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	087_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:35:18-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	78.419	ppb	17.751	131383	100	78.4	90	110	>+\-10%
Li	7	3	45	73.264	ppb	13.869	7143250	100	73.3	90	110	>+\-10%
Be	9	1	6	50.923	ppb	0.910	13363	50	101.8	90	110	
B	11	1	6	118.754	ppb	5.862	1233	50	237.5	90	110	>+\-10%
Na	23	2	45	1052.636	ppb	2.895	336590	1000	105.3	90	110	
Mg	24	2	45	956.040	ppb	3.544	122945	1000	95.6	90	110	
Al	27	2	45	967.749	ppb	1.939	33472	1000	96.8	90	110	
K	39	2	45	936.885	ppb	3.449	135513	1000	93.7	90	110	
Ca	44	2	45	986.148	ppb	4.300	7165	1000	98.6	90	110	
V	51	2	72	46.697	ppb	2.863	84571	50	93.4	90	110	
Cr	52	2	72	46.182	ppb	3.207	104908	50	92.4	90	110	
Mn	55	2	72	47.874	ppb	4.471	46536	50	95.7	90	110	
Fe	57	2	72	917.172	ppb	2.585	40725	1000	91.7	90	110	
Co	59	2	72	46.395	ppb	2.282	170336	50	92.8	90	110	
Ni	60	2	72	47.584	ppb	2.754	47241	50	95.2	90	110	
Cu	63	2	72	45.775	ppb	3.059	127349	50	91.5	90	110	
Zn	66	2	72	45.175	ppb	2.811	18210	50	90.3	90	110	
As	75	2	72	46.118	ppb	3.264	13134	50	92.2	90	110	
Se	78	1	72	51.687	ppb	0.892	13975	50	103.4	90	110	
Sr	88	2	45	99.043	ppb	3.388	104796	100	99.0	90	110	
Zr	90	2	72	59.785	ppb	4.189	900	50	119.6	90	110	>+\-10%
Zr	90	1	72	90.314	ppb	9.542	4138	50	180.6	90	110	>+\-10%
Nb	93	2	72	92.249	ppb	1.213	254289	100	92.2	90	110	
Mo	95	2	115	48.094	ppb	1.908	64540	50	96.2	90	110	
Pd	105	2	115	48.812	ppb	0.274	97976	50	97.6	90	110	
Ag	107	2	115	47.642	ppb	1.773	196732	50	95.3	90	110	
Cd	111	2	115	48.779	ppb	2.035	29082	50	97.6	90	110	
Sn	120	2	115	49.913	ppb	2.100	82329	50	99.8	90	110	
Sb	121	2	115	48.651	ppb	1.399	67849	50	97.3	90	110	
Ba	137	2	115	54.591	ppb	3.027	22826	50	109.2	90	110	
W	182	2	165	49.255	ppb	2.442	135067	50	98.5	90	110	
Pt	195	2	165	47.960	ppb	2.789	85450	50	95.9	90	110	
Tl	205	2	165	48.474	ppb	0.618	212500	50	96.9	90	110	
Pb	208	2	165	49.628	ppb	3.476	298579	50	99.3	90	110	
Th	232	2	165	47.918	ppb	2.020	295192	50	95.8	90	110	
U	238	2	165	48.855	ppb	2.333	325803	50	97.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	988078	1.36	1125531	87.79	60	125	
Sc (IS)	45	2	HMI He	1494949	2.82	1611917	92.74	60	125	
Sc IS)	45	3	No Gas	61726800	1.26	70470050	87.59	60	120	
Ge Internal Standard	72	1	HMI H2	12150451	2.26	13334475	91.12	60	125	
Ge Internal Standard	72	2	HMI He	2022545	2.11	2086994	96.91	60	125	
In Internal standard	115	2	HMI He	5756258	2.33	6052368	95.11	60	125	
Ho-165	165	2	HMI He	16969535	2.93	17767311	95.51	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	088_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:38:49-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-10.820	ppb	-30.4	102710	0.1	
Li	7	3	45	-16.417	ppb	-42.6	5626017	0.05	
Be	9	1	6	0.027	ppb	69.3	10	0.5	
B	11	1	6	60.131	ppb	3.6	670	0.1	>RL
Na	23	2	45	70.609	ppb	3.6	30363	25	>RL
Mg	24	2	45	1.173	ppb	19.7	270	25	
Al	27	2	45	0.513	ppb	214.3	203	15	
K	39	2	45	-2.944	ppb	-228.9	40784	50	
Ca	44	2	45	-5.752	ppb	-74.9	53	25	
V	51	2	72	0.955	ppb	16.3	5478	1	
Cr	52	2	72	0.006	ppb	796.3	563	1	
Mn	55	2	72	0.049	ppb	24.5	130	0.5	
Fe	57	2	72	1.833	ppb	25.5	607	25	
Co	59	2	72	0.014	ppb	59.0	83	0.5	
Ni	60	2	72	0.125	ppb	34.0	233	1	
Cu	63	2	72	0.010	ppb	303.7	2380	1	
Zn	66	2	72	0.226	ppb	179.4	643	5	
As	75	2	72	0.011	ppb	250.5	51	1	
Se	78	1	72	0.055	ppb	43.2	29	1	
Sr	88	2	45	0.044	ppb	86.8	97	1	
Zr	90	2	72	6.532	ppb	67.4	240	1	>RL
Zr	90	1	72	9.507	ppb	45.6	1258	1	>RL
Nb	93	2	72	0.600	ppb	13.6	3137	2	
Mo	95	2	115	0.078	ppb	82.4	190	0.5	
Pd	105	2	115	0.008	ppb	175.4	57	1	
Ag	107	2	115	0.027	ppb	34.5	137	1	
Cd	111	2	115	0.001	ppb	1294.0	10	0.5	
Sn	120	2	115	0.052	ppb	129.4	310	1	
Sb	121	2	115	0.116	ppb	44.4	250	1	
Ba	137	2	115	-0.004	ppb	-1027.3	23	0.5	
W	182	2	165	-0.020	ppb	-484.6	1163	1	
Pt	195	2	165	0.006	ppb	200.7	17	1	
Tl	205	2	165	0.005	ppb	384.2	260	0.1	
Pb	208	2	165	0.025	ppb	33.1	617	0.5	
Th	232	2	165	0.083	ppb	7.1	1340	1	
U	238	2	165	0.008	ppb	126.6	207	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	988442	5.18	1125531	87.82	60	125	
Sc (IS)	45	2	HMI He	1451538	2.57	1611917	90.05	60	125	
Sc IS)	45	3	No Gas	61803833	1.66	70470050	87.70	60	120	
Ge Internal Standard	72	1	HMI H2	12091141	0.99	13334475	90.68	60	125	
Ge Internal Standard	72	2	HMI He	1951730	1.03	2086994	93.52	60	125	
In Internal standard	115	2	HMI He	5653180	0.88	6052368	93.40	60	125	
Ho-165	165	2	HMI He	16837986	1.73	17767311	94.77	60	125	

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	089SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:42:22-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-13.493	ppb	-13.493	-61.99	5632373	40000	
Be	9	1	6	0.008	ppb	0.008	228.58	5	2000	
B	11	1	6	41.742	ppb	41.742	24.28	497	100	
Na	23	2	45	62.314	ppb	62.314	6.59	27762	400000	
Mg	24	2	45	0.729	ppb	0.729	10.22	213	400000	
Al	27	2	45	25.136	ppb	25.136	27.76	1020	400000	
K	39	2	45	-1.965	ppb	-1.965	-210.66	40747	400000	
Ca	44	2	45	-6.644	ppb	-6.644	-76.39	47	400000	
V	51	2	72	0.875	ppb	0.875	11.91	5378	2000	
Cr	52	2	72	-0.066	ppb	-0.066	-34.72	407	5000	
Mn	55	2	72	0.141	ppb	0.141	52.22	217	10000	
Fe	57	2	72	15.525	ppb	15.525	23.09	1190	400000	
Co	59	2	72	0.010	ppb	0.010	124.91	70	2000	
Ni	60	2	72	0.039	ppb	0.039	106.08	153	5000	
Cu	63	2	72	-0.235	ppb	-0.235	-26.86	1743	5000	
Zn	66	2	72	0.279	ppb	0.279	173.05	663	5000	
As	75	2	72	0.035	ppb	0.035	77.70	58	2000	
Se	78	1	72	-0.013	ppb	-0.013	-67.56	11	2000	
Sr	88	2	45	0.025	ppb	0.025	17.90	77	2000	
Zr	90	2	72	1.136	ppb	1.136	333.42	177	1000	
Zr	90	1	72	2.065	ppb	2.065	155.47	974	1000	
Nb	93	2	72	0.055	ppb	0.055	85.84	1707	200	
Mo	95	2	115	0.044	ppb	0.044	21.70	143	2000	
Pd	105	2	115	-0.012	ppb	-0.012	-89.46	17	100	
Ag	107	2	115	0.021	ppb	0.021	70.45	113	100	
Cd	111	2	115	-0.004	ppb	-0.004	-511.43	7	2000	
Sn	120	2	115	0.046	ppb	0.046	61.17	297	2000	
Sb	121	2	115	0.023	ppb	0.023	146.67	120	1000	
Ba	137	2	115	0.055	ppb	0.055	54.26	47	5000	
W	182	2	165	-0.043	ppb	-0.043	-40.53	1140	100	
Pt	195	2	165	-0.002	ppb	-0.002	-187.86	3	100	
Tl	205	2	165	-0.016	ppb	-0.016	-84.31	173	2000	
Pb	208	2	165	0.008	ppb	0.008	294.29	537	5000	
Th	232	2	165	-0.040	ppb	-0.040	-27.01	613	2000	
U	238	2	165	-0.010	ppb	-0.010	-22.85	93	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	998197	3.85	1125531	88.69	60	125	
Sc (IS)	45	2	HMI He	1446633	1.72	1611917	89.75	60	125	
Sc IS)	45	3	No Gas	61311013	0.79	70470050	87.00	60	120	
Ge Internal Standard	72	1	HMI H2	11830378	0.80	13334475	88.72	60	125	
Ge Internal Standard	72	2	HMI He	1966055	4.28	2086994	94.21	60	125	
In Internal standard	115	2	HMI He	5563068	1.08	6052368	91.92	60	125	
Ho-165	165	2	HMI He	17388946	2.23	17767311	97.87	60	125	

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	090SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:45:56-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-11.122	ppb	-11.122	-110.85	5563745	40000	
Be	9	1	6	-0.011	ppb	-0.011	0.00	0	2000	
B	11	1	6	45.018	ppb	45.018	10.84	510	100	
Na	23	2	45	50.536	ppb	50.536	3.18	24781	400000	
Mg	24	2	45	0.723	ppb	0.723	97.29	217	400000	
Al	27	2	45	22.241	ppb	22.241	10.20	947	400000	
K	39	2	45	-1.702	ppb	-1.702	-653.14	41703	400000	
Ca	44	2	45	1.211	ppb	1.211	426.18	103	400000	
V	51	2	72	1.171	ppb	1.171	8.86	5644	2000	
Cr	52	2	72	-0.001	ppb	-0.001	-3178.06	530	5000	
Mn	55	2	72	0.083	ppb	0.083	30.50	157	10000	
Fe	57	2	72	14.556	ppb	14.556	39.66	1107	400000	
Co	59	2	72	0.004	ppb	0.004	215.87	47	2000	
Ni	60	2	72	0.166	ppb	0.166	16.41	263	5000	
Cu	63	2	72	-0.263	ppb	-0.263	-14.35	1607	5000	
Zn	66	2	72	0.544	ppb	0.544	76.32	737	5000	
As	75	2	72	-0.042	ppb	-0.042	-123.49	35	2000	
Se	78	1	72	-0.018	ppb	-0.018	-128.65	9	2000	
Sr	88	2	45	0.052	ppb	0.052	35.37	107	2000	
Zr	90	2	72	2.907	ppb	2.907	218.53	190	1000	
Zr	90	1	72	5.712	ppb	5.712	62.71	1104	1000	
Nb	93	2	72	-0.155	ppb	-0.155	-23.57	1107	200	
Mo	95	2	115	0.040	ppb	0.040	17.55	140	2000	
Pd	105	2	115	-0.009	ppb	-0.009	-147.93	23	100	
Ag	107	2	115	0.015	ppb	0.015	41.91	90	100	
Cd	111	2	115	0.030	ppb	0.030	32.10	27	2000	
Sn	120	2	115	0.074	ppb	0.074	101.56	347	2000	
Sb	121	2	115	-0.015	ppb	-0.015	-48.45	70	1000	
Ba	137	2	115	0.021	ppb	0.021	478.76	33	5000	
W	182	2	165	-0.049	ppb	-0.049	-108.69	1120	100	
Pt	195	2	165	0.000	ppb	0.000	11033.48	7	100	
Tl	205	2	165	-0.015	ppb	-0.015	-52.16	177	2000	
Pb	208	2	165	0.002	ppb	0.002	563.86	493	5000	
Th	232	2	165	-0.056	ppb	-0.056	-20.13	510	2000	
U	238	2	165	-0.010	ppb	-0.010	-121.29	90	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	958723	3.63	1125531	85.18	60	125	
Sc (IS)	45	2	HMI He	1479714	1.37	1611917	91.80	60	125	
Sc IS)	45	3	No Gas	60174977	2.21	70470050	85.39	60	120	
Ge Internal Standard	72	1	HMI H2	11885844	1.35	13334475	89.14	60	125	
Ge Internal Standard	72	2	HMI He	1887726	1.76	2086994	90.45	60	125	
In Internal standard	115	2	HMI He	5638339	0.70	6052368	93.16	60	125	
Ho-165	165	2	HMI He	17324231	2.01	17767311	97.51	60	125	

Calibration Blank Report

Sample Table

Sample Name2	icis-5833267
Data File Name	091CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Method	
Acq Date Time	2019-08-15T16:49:27-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	I.S	Tune Step	Tune Mode	CPS	%RSD
Li	7	45	1	HMI H2	104443	0.00
Li	7	45	3	No Gas	5526395	0.00
Be	9	6	1	HMI H2	2	10392.30
B	11	6	1	HMI H2	430	3.79
Na	23	45	2	HMI He	21443	0.02
Mg	24	45	2	HMI He	233	4.62
Al	27	45	2	HMI He	183	12.02
K	39	45	2	HMI He	39498	0.01
Ca	44	45	2	HMI He	57	78.37
V	51	72	2	HMI He	5081	0.12
Cr	52	72	2	HMI He	503	3.54
Mn	55	72	2	HMI He	187	20.16
Fe	57	72	2	HMI He	640	1.71
Co	59	72	2	HMI He	73	28.40
Ni	60	72	2	HMI He	123	15.18
Cu	63	72	2	HMI He	1443	0.32
Zn	66	72	2	HMI He	580	3.02
As	75	72	2	HMI He	39	20.17
Se	78	72	1	HMI H2	7	519.62
Sr	88	45	2	HMI He	70	53.99
Zr	90	72	2	HMI He	180	19.28
Zr	90	72	1	HMI H2	841	2.06
Nb	93	72	2	HMI He	570	2.02
Mo	95	115	2	HMI He	117	29.69
Pd	105	115	2	HMI He	13	649.52
Ag	107	115	2	HMI He	77	76.72
Sn	120	115	2	HMI He	370	8.98
Sb	121	115	2	HMI He	77	39.29
Ba	137	115	2	HMI He	20	500.00
W	182	165	2	HMI He	860	2.27
Pt	195	165	2	HMI He	10	1000.00
Tl	205	165	2	HMI He	127	21.89
Pb	208	165	2	HMI He	410	5.86
Th	232	165	2	HMI He	443	8.24
U	238	165	2	HMI He	40	125.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li-6 Internal Standard	6	1	HMI H2	963428	1.85
Sc (IS)	45	2	HMI He	1482478	1.75
Sc IS)	45	3	No Gas	60395536	1.48
Ge Internal Standard	72	1	HMI H2	11879546	2.74
Ge Internal Standard	72	2	HMI He	1923324	1.35
In Internal standard	115	2	HMI He	5599328	0.69
Ho-165	165	2	HMI He	17108014	3.93

Calibration Standard Report

Sample Table

Sample Name	ic-5833268
Data File Name	092CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
method	
Acq Date Time	2019-08-15T16:52:58-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	IS	Tune Step	Tune Mode	CPS	%RSD
Li	7	45	1	HMI H2	157625	0.00
Li	7	45	3	No Gas	8689577	0.00
Be	9	6	1	HMI H2	26777	0.00
B	11	6	1	HMI H2	1307	0.76
Na	23	45	2	HMI He	602625	0.00
Mg	24	45	2	HMI He	245585	0.00
Al	27	45	2	HMI He	68087	0.00
K	39	45	2	HMI He	236228	0.00
Ca	44	45	2	HMI He	14670	0.03
V	51	72	2	HMI He	168748	0.00
Cr	52	72	2	HMI He	216760	0.00
Mn	55	72	2	HMI He	94460	0.00
Fe	57	72	2	HMI He	80620	0.00
Co	59	72	2	HMI He	343864	0.00
Ni	60	72	2	HMI He	95103	0.00
Cu	63	72	2	HMI He	262957	0.00
Zn	66	72	2	HMI He	36886	0.01
As	75	72	2	HMI He	26880	0.00
Se	78	72	1	HMI H2	27661	0.00
Sr	88	45	2	HMI He	213752	0.00
Zr	90	72	2	HMI He	1210	1.13
Zr	90	72	1	HMI H2	3674	0.17
Nb	93	72	2	HMI He	525250	0.00
Mo	95	115	2	HMI He	135480	0.00
Pd	105	115	2	HMI He	198462	0.00
Ag	107	115	2	HMI He	412164	0.00
Cd	111	115	2	HMI He	58102	0.00
Sn	120	115	2	HMI He	167826	0.00
Sb	121	115	2	HMI He	137379	0.00
Ba	137	115	2	HMI He	47797	0.00
W	182	165	2	HMI He	288264	0.00
Pt	195	165	2	HMI He	184556	0.00
Tl	205	165	2	HMI He	453379	0.00
Pb	208	165	2	HMI He	640970	0.00
Th	232	165	2	HMI He	639643	0.00
U	238	165	2	HMI He	688154	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	951610	2.34	963428	98.77	60	125	
Sc (IS)	45	2	HMI He	1500068	1.83	1482478	101.19	60	125	
Sc IS)	45	3	No Gas	60299722	2.05	60395536	99.84	60	120	
Ge Internal Standard	72	1	HMI H2	11977895	1.90	11879546	100.83	60	125	
Ge Internal Standard	72	2	HMI He	1923856	0.64	1923324	100.03	60	125	
In Internal standard	115	2	HMI He	5682672	0.81	5599328	101.49	60	125	
Ho-165	165	2	HMI He	17305359	1.34	17108014	101.15	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	093_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T16:56:30-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	92.850	ppb	19.125	127828	100	92.8	90	110	
Li	7	3	45	91.438	ppb	13.420	7016544	100	91.4	90	110	
Be	9	1	6	46.588	ppb	3.415	12770	50	93.2	90	110	
B	11	1	6	46.326	ppb	35.005	857	50	92.7	90	110	
Na	23	2	45	997.567	ppb	2.262	310465	1000	99.8	90	110	
Mg	24	2	45	978.107	ppb	3.542	119816	1000	97.8	90	110	
Al	27	2	45	983.296	ppb	2.712	33458	1000	98.3	90	110	
K	39	2	45	977.358	ppb	3.427	135428	1000	97.7	90	110	
Ca	44	2	45	980.526	ppb	6.622	7192	1000	98.1	90	110	
V	51	2	72	45.878	ppb	1.771	82474	50	91.8	90	110	
Cr	52	2	72	45.860	ppb	1.042	102536	50	91.7	90	110	
Mn	55	2	72	44.988	ppb	4.754	43819	50	90.0	90	110	>+\-10%
Fe	57	2	72	962.774	ppb	2.227	40260	1000	96.3	90	110	
Co	59	2	72	46.857	ppb	0.539	165779	50	93.7	90	110	
Ni	60	2	72	46.652	ppb	1.310	45707	50	93.3	90	110	
Cu	63	2	72	46.365	ppb	0.973	126214	50	92.7	90	110	
Zn	66	2	72	46.721	ppb	5.249	18050	50	93.4	90	110	
As	75	2	72	47.039	ppb	1.649	13028	50	94.1	90	110	
Se	78	1	72	48.600	ppb	4.480	13447	50	97.2	90	110	
Sr	88	2	45	98.262	ppb	0.575	104735	100	98.3	90	110	
Zr	90	2	72	31.014	ppb	33.115	513	50	62.0	90	110	>+\-10%
Zr	90	1	72	46.226	ppb	21.753	2149	50	92.5	90	110	
Nb	93	2	72	97.191	ppb	0.584	262847	100	97.2	90	110	
Mo	95	2	115	47.482	ppb	2.275	64815	50	95.0	90	110	
Pd	105	2	115	49.880	ppb	3.412	99618	50	99.8	90	110	
Ag	107	2	115	47.406	ppb	2.185	196682	50	94.8	90	110	
Cd	111	2	115	48.823	ppb	1.698	28551	50	97.6	90	110	
Sn	120	2	115	46.707	ppb	4.281	79076	50	93.4	90	110	
Sb	121	2	115	48.713	ppb	1.804	67385	50	97.4	90	110	
Ba	137	2	115	46.995	ppb	1.509	22616	50	94.0	90	110	
W	182	2	165	47.075	ppb	2.904	138169	50	94.1	90	110	
Pt	195	2	165	46.625	ppb	1.455	87361	50	93.2	90	110	
Tl	205	2	165	47.554	ppb	0.484	218859	50	95.1	90	110	
Pb	208	2	165	47.045	ppb	3.255	306183	50	94.1	90	110	
Th	232	2	165	47.394	ppb	1.348	307873	50	94.8	90	110	
U	238	2	165	46.476	ppb	1.329	324678	50	93.0	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	973936	2.50	963428	101.09	60	125	
Sc (IS)	45	2	HMI He	1495238	1.87	1482478	100.86	60	125	
Sc IS)	45	3	No Gas	60730982	1.27	60395536	100.56	60	120	
Ge Internal Standard	72	1	HMI H2	11989771	4.29	11879546	100.93	60	125	
Ge Internal Standard	72	2	HMI He	1978871	0.70	1923324	102.89	60	125	
In Internal standard	115	2	HMI He	5719558	1.29	5599328	102.15	60	125	
Ho-165	165	2	HMI He	17560476	1.33	17108014	102.64	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	094_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:00:01-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-11.063	ppb	-133.1	101805	0.1	
Li	7	3	45	-6.231	ppb	-122.0	5490516	0.05	
Be	9	1	6	0.023	ppb	87.3	8	0.5	
B	11	1	6	-8.615	ppb	-124.8	367	0.1	
Na	23	2	45	-4.263	ppb	-27.1	20122	25	
Mg	24	2	45	-0.482	ppb	-116.9	173	25	
Al	27	2	45	1.217	ppb	259.0	223	15	
K	39	2	45	10.426	ppb	116.1	40293	50	
Ca	44	2	45	5.585	ppb	58.6	97	25	
V	51	2	72	0.460	ppb	28.6	5994	1	
Cr	52	2	72	-0.020	ppb	-292.4	473	1	
Mn	55	2	72	-0.115	ppb	-13.5	80	0.5	
Fe	57	2	72	-1.818	ppb	-57.6	583	25	
Co	59	2	72	0.010	ppb	83.9	110	0.5	
Ni	60	2	72	0.079	ppb	57.0	203	1	
Cu	63	2	72	0.234	ppb	39.0	2110	1	
Zn	66	2	72	1.009	ppb	51.0	970	5	
As	75	2	72	0.038	ppb	72.4	50	1	
Se	78	1	72	0.058	ppb	143.3	23	1	
Sr	88	2	45	0.000	ppb	4295.0	70	1	
Zr	90	2	72	1.369	ppb	143.2	200	1	>RL
Zr	90	1	72	6.685	ppb	24.8	1034	1	>RL
Nb	93	2	72	1.707	ppb	6.3	5181	2	
Mo	95	2	115	0.052	ppb	122.9	190	0.5	
Pd	105	2	115	0.032	ppb	46.3	77	1	
Ag	107	2	115	0.001	ppb	387.0	83	1	
Cd	111	2	115	0.011	ppb	173.2	7	0.5	
Sn	120	2	115	-0.009	ppb	-641.4	360	1	
Sb	121	2	115	0.059	ppb	70.8	160	1	
Ba	137	2	115	-0.029	ppb	-85.9	7	0.5	
W	182	2	165	0.107	ppb	1.2	1163	1	
Pt	195	2	165	0.002	ppb	320.5	13	1	
Tl	205	2	165	0.005	ppb	295.4	150	0.1	
Pb	208	2	165	0.029	ppb	88.6	597	0.5	
Th	232	2	165	0.216	ppb	6.4	1810	1	
U	238	2	165	0.015	ppb	58.3	143	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1001762	1.79	963428	103.98	60	125	
Sc (IS)	45	2	HMI He	1474350	1.93	1482478	99.45	60	125	
Sc IS)	45	3	No Gas	61107066	1.08	60395536	101.18	60	120	
Ge Internal Standard	72	1	HMI H2	11961033	1.71	11879546	100.69	60	125	
Ge Internal Standard	72	2	HMI He	1976626	2.80	1923324	102.77	60	125	
In Internal standard	115	2	HMI He	5693233	1.78	5599328	101.68	60	125	
Ho-165	165	2	HMI He	17123078	0.72	17108014	100.09	60	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Table

Sample Name	ccvl-5833291
Data File Name	095LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:03:32-06:00
Sample Type	LLCCV
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	9.064	ppb	49.178	5759200	50	18.1	70	130	>+/-30%
Be	9	1	6	0.942	ppb	8.275	253	1	94.2	70	130	
Na	23	2	45	39.757	ppb	4.120	32954	50	79.5	70	130	
Mg	24	2	45	48.098	ppb	3.839	6081	50	96.2	70	130	
Al	27	2	45	79.973	ppb	12.934	2870	50	159.9	70	130	>+/-30%
K	39	2	45	107.519	ppb	22.624	50021	100	107.5	70	130	
Ca	44	2	45	33.475	ppb	27.962	300	50	67.0	70	130	>+/-30%
V	51	2	72	5.101	ppb	7.511	13826	5	102.0	70	130	
Cr	52	2	72	2.043	ppb	2.594	5071	2	102.2	70	130	
Mn	55	2	72	0.991	ppb	22.876	1157	1	99.1	70	130	
Fe	57	2	72	44.838	ppb	6.941	2504	50	89.7	70	130	
Co	59	2	72	0.940	ppb	5.874	3404	1	94.0	70	130	
Ni	60	2	72	1.562	ppb	8.761	1653	1.5	104.2	70	130	
Cu	63	2	72	1.829	ppb	5.397	6411	2	91.4	70	130	
Zn	66	2	72	9.103	ppb	6.907	4001	10	91.0	70	130	
As	75	2	72	4.653	ppb	5.242	1326	5	93.1	70	130	
Se	78	1	72	4.822	ppb	2.117	1339	5	96.4	70	130	
Sr	88	2	45	1.002	ppb	6.905	1130	1	100.2	70	130	
Zr	90	2	72	-4.633	ppb	-74.141	137	0.5	-926.7	70	130	>+/-30%
Zr	90	1	72	4.787	ppb	75.164	981	0.5	957.4	70	130	>+/-30%
Nb	93	2	72	0.770	ppb	7.412	2667	2	38.5	70	130	>+/-30%
Mo	95	2	115	1.877	ppb	7.542	2720	2	93.9	70	130	
Pd	105	2	115	0.003	ppb	430.335	20	1	0.3	70	130	>+/-30%
Ag	107	2	115	4.992	ppb	1.536	21120	5	99.8	70	130	
Cd	111	2	115	1.071	ppb	1.521	637	1	107.1	70	130	
Sn	120	2	115	9.875	ppb	3.872	17293	10	98.7	70	130	
Sb	121	2	115	2.045	ppb	5.827	2954	2	102.2	70	130	
Ba	137	2	115	1.053	ppb	18.198	537	1	105.3	70	130	
W	182	2	165	4.860	ppb	3.239	14674	1	486.0	70	130	>+/-30%
Pt	195	2	165	0.000	ppb	5175.946	10	1	0.0	70	130	>+/-30%
Tl	205	2	165	1.048	ppb	4.567	4821	1	104.8	70	130	
Pb	208	2	165	0.964	ppb	2.381	6521	1	96.4	70	130	
Th	232	2	165	1.878	ppb	6.021	12312	2	93.9	70	130	
U	238	2	165	0.999	ppb	4.470	6838	1	99.9	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	949019	0.65	963428	98.50	60	125	
Sc (IS)	45	2	HMI He	1486364	3.31	1482478	100.26	60	125	
Sc IS)	45	3	No Gas	61341061	0.37	60395536	101.57	60	120	
Ge Internal Standard	72	1	HMI H2	11960788	0.54	11879546	100.68	60	125	
Ge Internal Standard	72	2	HMI He	1981073	2.38	1923324	103.00	60	125	
In Internal standard	115	2	HMI He	5813578	1.74	5599328	103.83	60	125	
Ho-165	165	2	HMI He	17115782	1.81	17108014	100.05	60	125	

Sample Report

Sample Table

Sample Name	Ba 1000
Data File Name	096SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:07:04-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-3.483	ppb	-3.483	-179.68	5503274	40000	
Be	9	1	6	0.020	ppb	0.020	114.14	7	2000	
B	11	1	6	-0.481	ppb	-0.481	-2394.28	417	100	
Na	23	2	45	-8.062	ppb	-8.062	-33.85	19060	400000	
Mg	24	2	45	-0.326	ppb	-0.326	-147.18	193	400000	
Al	27	2	45	-0.591	ppb	-0.591	-144.99	163	400000	
K	39	2	45	16.775	ppb	16.775	75.09	40998	400000	
Ca	44	2	45	2.434	ppb	2.434	160.74	73	400000	
V	51	2	72	0.479	ppb	0.479	5.37	6028	2000	
Cr	52	2	72	-0.075	ppb	-0.075	-28.79	350	5000	
Mn	55	2	72	-0.046	ppb	-0.046	-83.70	147	10000	
Fe	57	2	72	-2.769	ppb	-2.769	-102.96	543	400000	
Co	59	2	72	-0.012	ppb	-0.012	-36.25	33	2000	
Ni	60	2	72	0.037	ppb	0.037	221.89	163	5000	
Cu	63	2	72	0.024	ppb	0.024	176.89	1547	5000	
Zn	66	2	72	0.267	ppb	0.267	135.80	697	5000	
As	75	2	72	0.022	ppb	0.022	233.02	46	2000	
Se	78	1	72	0.038	ppb	0.038	56.75	17	2000	
Sr	88	2	45	-0.006	ppb	-0.006	-341.58	63	2000	
Zr	90	2	72	-3.015	ppb	-3.015	-96.84	153	1000	
Zr	90	1	72	1.978	ppb	1.978	237.93	901	1000	
Nb	93	2	72	0.486	ppb	0.486	17.54	1897	200	
Mo	95	2	115	-0.021	ppb	-0.021	-161.38	90	2000	
Pd	105	2	115	0.000	ppb	0.000	-5723.65	13	100	
Ag	107	2	115	0.004	ppb	0.004	277.63	97	100	
Cd	111	2	115	0.011	ppb	0.011	173.21	7	2000	
Sn	120	2	115	-0.059	ppb	-0.059	-129.96	277	2000	
Sb	121	2	115	0.025	ppb	0.025	45.44	113	1000	
Ba	137	2	115	945.633	ppb	945.633	1.36	453953	5000	
W	182	2	165	0.016	ppb	0.016	303.46	917	100	
Pt	195	2	165	-0.004	ppb	-0.004	-89.81	3	100	
Tl	205	2	165	-0.011	ppb	-0.011	-57.99	80	2000	
Pb	208	2	165	0.001	ppb	0.001	884.07	423	5000	
Th	232	2	165	0.079	ppb	0.079	18.03	953	2000	
U	238	2	165	-0.001	ppb	-0.001	-161.23	37	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	939109	4.44	963428	97.48	60	125	
Sc (IS)	45	2	HMI He	1477879	4.15	1482478	99.69	60	125	
Sc IS)	45	3	No Gas	60764723	2.23	60395536	100.61	60	120	
Ge Internal Standard	72	1	HMI H2	11983110	2.58	11879546	100.87	60	125	
Ge Internal Standard	72	2	HMI He	1975838	1.16	1923324	102.73	60	125	
In Internal standard	115	2	HMI He	5709268	0.59	5599328	101.96	60	125	
Ho-165	165	2	HMI He	17347686	2.77	17108014	101.40	60	125	

Blank Report

Sample Table

Sample Name	MB 280-467497/1-A
Data File Name	097_BLK.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:10:37-06:00
Sample Type	Blank
Dilution	1
Comment	467497 200.8
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit
Li	7	1	45	-11.408	ppb	-130.7233039	103296	0.1
Li	7	3	45	1.056	ppb	240.6000233	5406101	0.05
Be	9	1	6	0.000	ppb	3986.955146	2	0.5
Na	23	2	45	-9.843	ppb	-36.80280671	18263	25
Mg	24	2	45	-0.107	ppb	-482.9495224	217	25
Al	27	2	45	-0.657	ppb	-261.8164591	157	15
K	39	2	45	1.474	ppb	895.1132725	38903	50
Ca	44	2	45	4.856	ppb	48.76446538	90	25
V	51	2	72	0.896	ppb	16.43354328	6635	1
Cr	52	2	72	0.098	ppb	51.33669125	727	1
Mn	55	2	72	-0.027	ppb	-106.250728	163	0.5
Fe	57	2	72	-1.585	ppb	-117.0107947	583	25
Co	59	2	72	-0.010	ppb	-79.41914692	40	0.5
Ni	60	2	72	0.125	ppb	38.31509941	247	1
Cu	63	2	72	-0.038	ppb	-67.79922595	1363	1
Zn	66	2	72	2.215	ppb	7.598243634	1403	5
As	75	2	72	0.010	ppb	149.5235025	42	1
Se	78	1	72	0.020	ppb	75.06631805	12	1
Sr	88	2	45	-0.005	ppb	-246.493693	63	1
Zr	90	2	72	-3.133	ppb	-77.53085536	150	1
Zr	90	1	72	-0.792	ppb	-428.6520475	811	1
Nb	93	2	72	0.298	ppb	22.45990324	1367	2
Mo	95	2	115	-0.030	ppb	-34.6351764	77	0.5
Pd	105	2	115	0.020	ppb	119.2645177	53	1
Ag	107	2	115	0.010	ppb	43.4428082	120	1
Cd	111	2	115	0.018	ppb	100.9809916	10	0.5
Sn	120	2	115	0.001	ppb	1762.442492	373	1
Sb	121	2	115	0.016	ppb	79.13039134	100	1
Ba	137	2	115	0.070	ppb	148.2467442	53	0.5
W	182	2	165	0.057	ppb	37.76450622	1043	1
Pt	195	2	165	0.000	ppb	-43226.57319	10	1
Tl	205	2	165	0.007	ppb	204.0262319	160	0.1
Pb	208	2	165	-0.004	ppb	-122.0660168	393	0.5
Th	232	2	165	0.201	ppb	27.58666321	1747	1
U	238	2	165	-0.001	ppb	-340.2130247	37	0.5

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	930986	1.17	963428	96.63	60	125	
Sc (IS)	45	2	HMI He	1455548	4.20	1482478	98.18	60	125	
Sc IS)	45	3	No Gas	58906542	1.42	60395536	97.53	60	120	
Ge Internal Standard	72	1	HMI H2	11797349	2.06	11879546	99.31	60	125	
Ge Internal Standard	72	2	HMI He	1948868	3.28	1923324	101.33	60	125	
In Internal standard	115	2	HMI He	5637651	2.30	5599328	100.68	60	125	
Ho-165	165	2	HMI He	17490993	0.64	17108014	102.24	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	LCS 280-467497/2-A
Data File Name	098_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:14:10-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	467497 200.8
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	26.559	26.559	ppb	33.052	5810174	400	6.6	80	120	>+/-20%
Be	9	1	6	32.765	32.765	ppb	3.250	8806	40	81.9	80	120	
Na	23	2	45	649.319	649.319	ppb	3.632	207118	40	1623.3	80	120	>+/-20%
Mg	24	2	45	660.221	660.221	ppb	2.320	79995	40	1650.6	80	120	>+/-20%
Al	27	2	45	649.152	649.152	ppb	0.636	21890	40	1622.9	80	120	>+/-20%
K	39	2	45	626.346	626.346	ppb	0.761	99905	40	1565.9	80	120	>+/-20%
Ca	44	2	45	664.727	664.727	ppb	4.598	4837	40	1661.8	80	120	>+/-20%
V	51	2	72	31.732	31.732	ppb	6.143	57759	40	79.3	80	120	>+/-20%
Cr	52	2	72	31.142	31.142	ppb	3.317	68765	40	77.9	80	120	>+/-20%
Mn	55	2	72	31.672	31.672	ppb	3.743	30444	40	79.2	80	120	>+/-20%
Fe	57	2	72	639.988	639.988	ppb	0.806	26597	40	1600.0	80	120	>+/-20%
Co	59	2	72	31.674	31.674	ppb	0.722	110487	40	79.2	80	120	>+/-20%
Ni	60	2	72	31.575	31.575	ppb	1.409	30530	40	78.9	80	120	>+/-20%
Cu	63	2	72	30.277	30.277	ppb	1.530	81729	40	75.7	80	120	>+/-20%
Zn	66	2	72	33.523	33.523	ppb	5.124	12918	40	83.8	80	120	
As	75	2	72	30.090	30.090	ppb	2.864	8224	40	75.2	80	120	>+/-20%
Se	78	1	72	31.193	31.193	ppb	2.501	8463	40	78.0	80	120	>+/-20%
Sr	88	2	45	64.903	64.903	ppb	2.627	68361	40	162.3	80	120	>+/-20%
Nb	93	2	72	0.562	0.562	ppb	27.891	2067	40	1.4	80	120	>+/-20%
Mo	95	2	115	32.383	32.383	ppb	6.294	43727	40	81.0	80	120	
Pd	105	2	115	0.009	0.009	ppb	126.175	30	40	0.0	80	120	>+/-20%
Ag	107	2	115	31.628	31.628	ppb	5.490	129766	40	79.1	80	120	>+/-20%
Cd	111	2	115	32.019	32.019	ppb	3.587	18524	40	80.0	80	120	
Sn	120	2	115	31.413	31.413	ppb	6.441	52694	40	78.5	80	120	>+/-20%
Sb	121	2	115	33.713	33.713	ppb	4.378	46151	40	84.3	80	120	
Ba	137	2	115	32.311	32.311	ppb	4.666	15384	40	80.8	80	120	
W	182	2	165	32.010	32.010	ppb	2.494	92543	40	80.0	80	120	
Pt	195	2	165	-0.004	-0.004	ppb	-90.519	3	40	0.0	80	120	>+/-20%
Tl	205	2	165	31.945	31.945	ppb	0.518	144413	40	79.9	80	120	>+/-20%
Pb	208	2	165	32.217	32.217	ppb	1.253	206079	40	80.5	80	120	
Th	232	2	165	32.465	32.465	ppb	1.684	207251	40	81.2	80	120	
U	238	2	165	31.943	31.943	ppb	2.830	219104	40	79.9	80	120	>+/-20%

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	954816	1.82	963428	99.11	60	125	
Sc (IS)	45	2	HMI He	1477159	0.86	1482478	99.64	60	125	
Sc IS)	45	3	No Gas	59001699	1.35	60395536	97.69	60	120	
Ge Internal Standard	72	1	HMI H2	11739353	0.31	11879546	98.82	60	125	
Ge Internal Standard	72	2	HMI He	1950535	2.52	1923324	101.41	60	125	
In Internal standard	115	2	HMI He	5663482	4.54	5599328	101.15	60	125	
Ho-165	165	2	HMI He	17244955	1.58	17108014	100.80	60	125	

Sample Report

Sample Table

Sample Name	280-126996-B-1-G
Data File Name	099SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:17:42-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467497 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	7.014	ppb	7.014	75.50	5532862	40000	
Be	9	1	6	0.020	ppb	0.020	225.65	7	2000	
B	11	1	6	4298.375	ppb	4298.375	3.49	36444	100	>LDR
Na	23	2	45	46172.871	ppb	46172.871	4.96	13009937	400000	
Mg	24	2	45	23485.795	ppb	23485.795	6.90	2787970	400000	
Al	27	2	45	0.236	ppb	0.236	209.83	187	400000	
K	39	2	45	2642.609	ppb	2642.609	8.24	289553	400000	
Ca	44	2	45	37862.636	ppb	37862.636	4.41	267925	400000	
V	51	2	72	1.193	ppb	1.193	12.30	6968	2000	
Cr	52	2	72	0.254	ppb	0.254	11.04	1043	5000	
Mn	55	2	72	46.487	ppb	46.487	1.61	43575	10000	
Fe	57	2	72	2.693	ppb	2.693	109.89	740	400000	
Co	59	2	72	0.492	ppb	0.492	3.57	1747	2000	
Ni	60	2	72	1.089	ppb	1.089	7.33	1147	5000	
Cu	63	2	72	0.680	ppb	0.680	8.61	3190	5000	
Zn	66	2	72	2.797	ppb	2.797	2.43	1580	5000	
As	75	2	72	0.277	ppb	0.277	34.16	112	2000	
Se	78	1	72	1.883	ppb	1.883	10.15	507	2000	
Sr	88	2	45	509.271	ppb	509.271	4.68	527050	2000	
Zr	90	2	72	0.796	ppb	0.796	484.60	187	1000	
Zr	90	1	72	8.604	ppb	8.604	59.21	1048	1000	
Nb	93	2	72	0.157	ppb	0.157	31.97	970	200	
Mo	95	2	115	7.957	ppb	7.957	2.03	10663	2000	
Pd	105	2	115	0.026	ppb	0.026	44.34	63	100	
Ag	107	2	115	0.006	ppb	0.006	110.40	100	100	
Cd	111	2	115	0.035	ppb	0.035	1.49	20	2000	
Sn	120	2	115	-0.013	ppb	-0.013	-270.39	347	2000	
Sb	121	2	115	0.184	ppb	0.184	41.87	323	1000	
Ba	137	2	115	63.542	ppb	63.542	1.60	29754	5000	
W	182	2	165	0.085	ppb	0.085	15.43	1097	100	
Pt	195	2	165	-0.002	ppb	-0.002	-397.66	7	100	
Tl	205	2	165	0.012	ppb	0.012	31.35	180	2000	
Pb	208	2	165	0.013	ppb	0.013	74.04	490	5000	
Th	232	2	165	0.713	ppb	0.713	0.90	4941	2000	
U	238	2	165	4.984	ppb	4.984	2.77	33885	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	902968	1.55	963428	93.72	60	125	
Sc (IS)	45	2	HMI He	1455251	6.16	1482478	98.16	60	125	
Sc IS)	45	3	No Gas	59273554	0.87	60395536	98.14	60	120	
Ge Internal Standard	72	1	HMI H2	11506533	1.31	11879546	96.86	60	125	
Ge Internal Standard	72	2	HMI He	1904918	0.91	1923324	99.04	60	125	
In Internal standard	115	2	HMI He	5565928	1.49	5599328	99.40	60	125	
Ho-165	165	2	HMI He	17077263	1.81	17108014	99.82	60	125	

Sample Report

Sample Table

Sample Name	280-126996-B-2-C
Data File Name	100SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:21:14-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467497 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-16.827	ppb	-16.827	-11.41	5271918	40000	
Be	9	1	6	0.000	ppb	0.000	-21962.04	2	2000	
B	11	1	6	109.356	ppb	109.356	6.08	1423	100	
Na	23	2	45	32.648	ppb	32.648	8.32	30383	400000	
Mg	24	2	45	1.527	ppb	1.527	42.01	413	400000	
Al	27	2	45	-0.112	ppb	-0.112	-512.12	177	400000	
K	39	2	45	26.670	ppb	26.670	72.10	41486	400000	
Ca	44	2	45	16.061	ppb	16.061	40.07	170	400000	
V	51	2	72	0.638	ppb	0.638	59.34	6331	2000	
Cr	52	2	72	0.111	ppb	0.111	28.13	770	5000	
Mn	55	2	72	0.878	ppb	0.878	19.88	1050	10000	
Fe	57	2	72	284.595	ppb	284.595	4.46	12425	400000	
Co	59	2	72	-0.003	ppb	-0.003	-46.56	67	2000	
Ni	60	2	72	0.180	ppb	0.180	67.96	303	5000	
Cu	63	2	72	0.124	ppb	0.124	43.72	1830	5000	
Zn	66	2	72	15.956	ppb	15.956	3.40	6591	5000	
As	75	2	72	0.049	ppb	0.049	65.82	54	2000	
Se	78	1	72	0.034	ppb	0.034	86.60	16	2000	
Sr	88	2	45	0.042	ppb	0.042	89.91	113	2000	
Zr	90	2	72	-5.250	ppb	-5.250	-53.39	130	1000	
Zr	90	1	72	9.648	ppb	9.648	19.47	1118	1000	
Nb	93	2	72	0.061	ppb	0.061	106.48	753	200	
Mo	95	2	115	-0.010	ppb	-0.010	-481.59	103	2000	
Pd	105	2	115	0.007	ppb	0.007	188.57	27	100	
Ag	107	2	115	0.008	ppb	0.008	186.56	107	100	
Cd	111	2	115	0.035	ppb	0.035	49.33	20	2000	
Sn	120	2	115	0.047	ppb	0.047	40.52	447	2000	
Sb	121	2	115	0.061	ppb	0.061	72.97	160	1000	
Ba	137	2	115	0.029	ppb	0.029	191.39	33	5000	
W	182	2	165	0.071	ppb	0.071	88.83	1087	100	
Pt	195	2	165	-0.004	ppb	-0.004	-86.41	3	100	
Tl	205	2	165	0.001	ppb	0.001	1804.73	133	2000	
Pb	208	2	165	0.028	ppb	0.028	55.11	603	5000	
Th	232	2	165	0.196	ppb	0.196	7.55	1723	2000	
U	238	2	165	-0.001	ppb	-0.001	-312.81	33	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	972840	1.07	963428	100.98	60	125	
Sc (IS)	45	2	HMI He	1461036	1.34	1482478	98.55	60	125	
Sc IS)	45	3	No Gas	60544521	0.38	60395536	100.25	60	120	
Ge Internal Standard	72	1	HMI H2	11961611	0.36	11879546	100.69	60	125	
Ge Internal Standard	72	2	HMI He	1989669	2.36	1923324	103.45	60	125	
In Internal standard	115	2	HMI He	5598055	1.49	5599328	99.98	60	125	
Ho-165	165	2	HMI He	17539305	0.18	17108014	102.52	60	125	

Sample Report

Sample Table

Sample Name	280-126996-B-3-C
Data File Name	101SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:24:48-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467497 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	5.698	ppb	5.698	42.96	5501858	40000	
Be	9	1	6	0.007	ppb	0.007	334.55	3	2000	
B	11	1	6	5172.923	ppb	5172.923	1.01	44057	100	>LDR
Na	23	2	45	94041.883	ppb	94041.883	2.24	26551093	400000	
Mg	24	2	45	19607.747	ppb	19607.747	2.47	2335914	400000	
Al	27	2	45	2.053	ppb	2.053	87.37	247	400000	
K	39	2	45	2886.844	ppb	2886.844	4.10	313821	400000	
Ca	44	2	45	38735.519	ppb	38735.519	3.69	274706	400000	
V	51	2	72	1.183	ppb	1.183	37.04	6971	2000	
Cr	52	2	72	0.221	ppb	0.221	23.24	973	5000	
Mn	55	2	72	23.518	ppb	23.518	2.55	22238	10000	
Fe	57	2	72	2.796	ppb	2.796	129.76	750	400000	
Co	59	2	72	0.461	ppb	0.461	15.27	1643	2000	
Ni	60	2	72	1.119	ppb	1.119	3.73	1180	5000	
Cu	63	2	72	1.020	ppb	1.020	2.58	4091	5000	
Zn	66	2	72	2.801	ppb	2.801	17.10	1593	5000	
As	75	2	72	0.670	ppb	0.670	9.91	217	2000	
Se	78	1	72	2.224	ppb	2.224	13.15	593	2000	
Sr	88	2	45	435.569	ppb	435.569	3.02	452099	2000	
Zr	90	2	72	0.574	ppb	0.574	1079.35	183	1000	
Zr	90	1	72	13.191	ppb	13.191	18.41	1165	1000	
Nb	93	2	72	0.109	ppb	0.109	56.26	847	200	
Mo	95	2	115	6.022	ppb	6.022	0.41	8015	2000	
Pd	105	2	115	0.018	ppb	0.018	46.84	47	100	
Ag	107	2	115	0.002	ppb	0.002	574.46	83	100	
Cd	111	2	115	0.018	ppb	0.018	99.88	10	2000	
Sn	120	2	115	-0.006	ppb	-0.006	-432.82	353	2000	
Sb	121	2	115	0.098	ppb	0.098	67.16	207	1000	
Ba	137	2	115	79.663	ppb	79.663	1.65	36916	5000	
W	182	2	165	0.090	ppb	0.090	20.45	1140	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	0.009	ppb	0.009	164.62	170	2000	
Pb	208	2	165	-0.003	ppb	-0.003	-336.22	403	5000	
Th	232	2	165	0.300	ppb	0.300	6.51	2387	2000	
U	238	2	165	3.467	ppb	3.467	4.12	24133	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	908748	1.68	963428	94.32	60	125	
Sc (IS)	45	2	HMI He	1456878	2.48	1482478	98.27	60	125	
Sc IS)	45	3	No Gas	59162593	1.44	60395536	97.96	60	120	
Ge Internal Standard	72	1	HMI H2	11436213	0.95	11879546	96.27	60	125	
Ge Internal Standard	72	2	HMI He	1915033	4.62	1923324	99.57	60	125	
In Internal standard	115	2	HMI He	5508181	1.25	5599328	98.37	60	125	
Ho-165	165	2	HMI He	17483119	3.00	17108014	102.19	60	125	

Sample Report

Sample Table

Sample Name	280-126996-B-4-C
Data File Name	102SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:28:19-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467497 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	12.732	ppb	12.732	59.74	5578072	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	4580.766	ppb	4580.766	2.40	39908	100	>LDR
Na	23	2	45	37452.176	ppb	37452.176	2.93	10956830	400000	
Mg	24	2	45	12650.719	ppb	12650.719	0.45	1559675	400000	
Al	27	2	45	-0.746	ppb	-0.746	-215.18	160	400000	
K	39	2	45	1610.974	ppb	1610.974	2.77	198973	400000	
Ca	44	2	45	23588.649	ppb	23588.649	1.56	173152	400000	
V	51	2	72	1.073	ppb	1.073	13.84	6611	2000	
Cr	52	2	72	0.265	ppb	0.265	23.89	1040	5000	
Mn	55	2	72	1.033	ppb	1.033	5.10	1120	10000	
Fe	57	2	72	5.432	ppb	5.432	49.16	827	400000	
Co	59	2	72	0.539	ppb	0.539	8.61	1860	2000	
Ni	60	2	72	0.871	ppb	0.871	16.77	917	5000	
Cu	63	2	72	1.081	ppb	1.081	6.24	4124	5000	
Zn	66	2	72	3.107	ppb	3.107	7.42	1650	5000	
As	75	2	72	0.306	ppb	0.306	27.92	117	2000	
Se	78	1	72	2.636	ppb	2.636	14.12	731	2000	
Sr	88	2	45	284.216	ppb	284.216	1.16	305229	2000	
Zr	90	2	72	1.360	ppb	1.360	463.92	187	1000	
Zr	90	1	72	3.328	ppb	3.328	97.35	934	1000	
Nb	93	2	72	0.045	ppb	0.045	55.03	667	200	
Mo	95	2	115	9.053	ppb	9.053	6.31	12301	2000	
Pd	105	2	115	0.015	ppb	0.015	116.28	43	100	
Ag	107	2	115	0.003	ppb	0.003	341.35	90	100	
Cd	111	2	115	0.023	ppb	0.023	86.67	13	2000	
Sn	120	2	115	-0.067	ppb	-0.067	-66.96	263	2000	
Sb	121	2	115	0.202	ppb	0.202	14.92	353	1000	
Ba	137	2	115	68.056	ppb	68.056	4.57	32349	5000	
W	182	2	165	0.108	ppb	0.108	11.63	1200	100	
Pt	195	2	165	-0.004	ppb	-0.004	-86.21	3	100	
Tl	205	2	165	0.006	ppb	0.006	139.80	157	2000	
Pb	208	2	165	0.001	ppb	0.001	413.85	430	5000	
Th	232	2	165	0.287	ppb	0.287	13.39	2324	2000	
U	238	2	165	1.265	ppb	1.265	0.92	8899	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	928372	0.63	963428	96.36	60	125	
Sc (IS)	45	2	HMI He	1507033	1.38	1482478	101.66	60	125	
Sc IS)	45	3	No Gas	58816369	1.21	60395536	97.39	60	120	
Ge Internal Standard	72	1	HMI H2	11881236	1.69	11879546	100.01	60	125	
Ge Internal Standard	72	2	HMI He	1859119	3.16	1923324	96.66	60	125	
In Internal standard	115	2	HMI He	5653670	2.44	5599328	100.97	60	125	
Ho-165	165	2	HMI He	17610495	2.49	17108014	102.94	60	125	

Sample Report

Sample Table

Sample Name	280-126996-B-4-D MS
Data File Name	103SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:31:50-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467497 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	37.143	ppb	37.143	33.16	6060831	40000	
Be	9	1	6	33.580	ppb	33.580	4.11	8839	2000	
B	11	1	6	4758.091	ppb	4758.091	1.64	41752	100	>LDR
Na	23	2	45	41862.133	ppb	41862.133	2.42	11889273	400000	
Mg	24	2	45	15146.716	ppb	15146.716	3.77	1813702	400000	
Al	27	2	45	676.838	ppb	676.838	0.46	22611	400000	
K	39	2	45	2450.796	ppb	2450.796	1.32	273747	400000	
Ca	44	2	45	26630.774	ppb	26630.774	2.13	189890	400000	
V	51	2	72	34.291	ppb	34.291	0.92	60254	2000	
Cr	52	2	72	33.498	ppb	33.498	2.01	71801	5000	
Mn	55	2	72	35.135	ppb	35.135	1.40	32791	10000	
Fe	57	2	72	680.832	ppb	680.832	2.90	27432	400000	
Co	59	2	72	33.548	ppb	33.548	0.63	113610	2000	
Ni	60	2	72	33.031	ppb	33.031	1.65	31008	5000	
Cu	63	2	72	31.761	ppb	31.761	3.47	83173	5000	
Zn	66	2	72	35.688	ppb	35.688	3.59	13329	5000	
As	75	2	72	32.676	ppb	32.676	1.83	8672	2000	
Se	78	1	72	34.797	ppb	34.797	7.21	9469	2000	
Sr	88	2	45	378.049	ppb	378.049	0.71	394305	2000	
Zr	90	2	72	9.166	ppb	9.166	51.96	270	1000	
Zr	90	1	72	14.091	ppb	14.091	32.12	1225	1000	
Nb	93	2	72	0.089	ppb	0.089	25.40	790	200	
Mo	95	2	115	43.941	ppb	43.941	1.83	58608	2000	
Pd	105	2	115	0.007	ppb	0.007	228.00	27	100	
Ag	107	2	115	33.103	ppb	33.103	1.15	134244	100	
Cd	111	2	115	33.537	ppb	33.537	4.49	19165	2000	
Sn	120	2	115	34.128	ppb	34.128	5.10	56564	2000	
Sb	121	2	115	36.271	ppb	36.271	2.06	49056	1000	
Ba	137	2	115	110.256	ppb	110.256	1.15	51823	5000	
W	182	2	165	32.174	ppb	32.174	3.10	95482	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	33.281	ppb	33.281	4.05	154382	2000	
Pb	208	2	165	32.880	ppb	32.880	3.54	215839	5000	
Th	232	2	165	33.796	ppb	33.796	3.58	221438	2000	
U	238	2	165	35.047	ppb	35.047	4.56	246697	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	935827	3.98	963428	97.14	60	125	
Sc (IS)	45	2	HMI He	1463847	0.57	1482478	98.74	60	125	
Sc IS)	45	3	No Gas	59864731	1.58	60395536	99.12	60	120	
Ge Internal Standard	72	1	HMI H2	11782987	1.34	11879546	99.19	60	125	
Ge Internal Standard	72	2	HMI He	1893763	0.85	1923324	98.46	60	125	
In Internal standard	115	2	HMI He	5588656	0.69	5599328	99.81	60	125	
Ho-165	165	2	HMI He	17709617	3.17	17108014	103.52	60	125	

Sample Report

Sample Table

Sample Name	280-126996-B-4-E MSD
Data File Name	104SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:35:22-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467497 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	34.511	ppb	34.511	24.46	5969455	40000	
Be	9	1	6	31.993	ppb	31.993	3.98	8480	2000	
B	11	1	6	4618.880	ppb	4618.880	2.81	40806	100	>LDR
Na	23	2	45	38638.092	ppb	38638.092	1.51	11203835	400000	
Mg	24	2	45	13685.835	ppb	13685.835	2.16	1672791	400000	
Al	27	2	45	633.613	ppb	633.613	2.23	21617	400000	
K	39	2	45	2313.896	ppb	2313.896	3.29	266001	400000	
Ca	44	2	45	24771.974	ppb	24771.974	2.54	180285	400000	
V	51	2	72	33.513	ppb	33.513	1.05	59602	2000	
Cr	52	2	72	32.540	ppb	32.540	1.86	70482	5000	
Mn	55	2	72	34.398	ppb	34.398	1.57	32431	10000	
Fe	57	2	72	669.586	ppb	669.586	0.45	27265	400000	
Co	59	2	72	33.113	ppb	33.113	2.69	113257	2000	
Ni	60	2	72	33.114	ppb	33.114	0.77	31402	5000	
Cu	63	2	72	32.220	ppb	32.220	2.29	85223	5000	
Zn	66	2	72	35.819	ppb	35.819	8.26	13502	5000	
As	75	2	72	32.447	ppb	32.447	4.07	8696	2000	
Se	78	1	72	34.770	ppb	34.770	5.21	9384	2000	
Sr	88	2	45	358.274	ppb	358.274	2.96	381356	2000	
Zr	90	2	72	7.616	ppb	7.616	98.40	257	1000	
Zr	90	1	72	17.745	ppb	17.745	14.56	1315	1000	
Nb	93	2	72	0.044	ppb	0.044	103.71	680	200	
Mo	95	2	115	43.187	ppb	43.187	1.02	58271	2000	
Pd	105	2	115	0.015	ppb	0.015	126.98	43	100	
Ag	107	2	115	31.810	ppb	31.810	1.73	130468	100	
Cd	111	2	115	33.215	ppb	33.215	2.02	19198	2000	
Sn	120	2	115	32.673	ppb	32.673	0.90	54792	2000	
Sb	121	2	115	35.690	ppb	35.690	1.90	48816	1000	
Ba	137	2	115	105.412	ppb	105.412	0.08	50118	5000	
W	182	2	165	32.851	ppb	32.851	3.42	96974	100	
Pt	195	2	165	-0.004	ppb	-0.004	-86.97	3	100	
Tl	205	2	165	32.769	ppb	32.769	1.01	151283	2000	
Pb	208	2	165	31.922	ppb	31.922	2.77	208545	5000	
Th	232	2	165	33.211	ppb	33.211	0.28	216515	2000	
U	238	2	165	34.311	ppb	34.311	1.81	240403	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	941874	1.78	963428	97.76	60	125	
Sc (IS)	45	2	HMI He	1494480	1.92	1482478	100.81	60	125	
Sc IS)	45	3	No Gas	59352705	0.48	60395536	98.27	60	120	
Ge Internal Standard	72	1	HMI H2	11678743	0.45	11879546	98.31	60	125	
Ge Internal Standard	72	2	HMI He	1913236	1.91	1923324	99.48	60	125	
In Internal standard	115	2	HMI He	5652756	0.97	5599328	100.95	60	125	
Ho-165	165	2	HMI He	17610815	0.79	17108014	102.94	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	105_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:38:52-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	79.513	ppb	3.734	126324	100	79.5	90	110	>+\-10%
Li	7	3	45	84.708	ppb	17.029	6945445	100	84.7	90	110	>+\-10%
Be	9	1	6	47.717	ppb	1.499	12586	50	95.4	90	110	
B	11	1	6	226.943	ppb	8.030	2394	50	453.9	90	110	>+\-10%
Na	23	2	45	1006.064	ppb	0.796	311870	1000	100.6	90	110	
Mg	24	2	45	979.751	ppb	0.865	119636	1000	98.0	90	110	
Al	27	2	45	966.540	ppb	0.352	32784	1000	96.7	90	110	
K	39	2	45	988.614	ppb	3.841	136074	1000	98.9	90	110	
Ca	44	2	45	946.700	ppb	3.377	6925	1000	94.7	90	110	
V	51	2	72	49.282	ppb	5.047	86185	50	98.6	90	110	
Cr	52	2	72	48.334	ppb	3.191	105601	50	96.7	90	110	
Mn	55	2	72	49.243	ppb	5.379	46847	50	98.5	90	110	
Fe	57	2	72	1028.993	ppb	3.351	42011	1000	102.9	90	110	
Co	59	2	72	48.546	ppb	3.158	167886	50	97.1	90	110	
Ni	60	2	72	47.358	ppb	3.970	45346	50	94.7	90	110	
Cu	63	2	72	48.096	ppb	3.217	127917	50	96.2	90	110	
Zn	66	2	72	47.305	ppb	0.163	17859	50	94.6	90	110	
As	75	2	72	48.280	ppb	0.268	13074	50	96.6	90	110	
Se	78	1	72	48.017	ppb	0.545	13432	50	96.0	90	110	
Sr	88	2	45	99.278	ppb	3.033	105419	100	99.3	90	110	
Zr	90	2	72	31.506	ppb	19.607	507	50	63.0	90	110	>+\-10%
Zr	90	1	72	37.689	ppb	4.906	1932	50	75.4	90	110	>+\-10%
Nb	93	2	72	95.208	ppb	2.317	251715	100	95.2	90	110	
Mo	95	2	115	47.710	ppb	0.684	65792	50	95.4	90	110	
Pd	105	2	115	48.075	ppb	0.667	97026	50	96.1	90	110	
Ag	107	2	115	46.592	ppb	1.220	195332	50	93.2	90	110	
Cd	111	2	115	48.348	ppb	5.876	28562	50	96.7	90	110	
Sn	120	2	115	49.477	ppb	3.228	84617	50	99.0	90	110	
Sb	121	2	115	48.468	ppb	1.277	67742	50	96.9	90	110	
Ba	137	2	115	48.995	ppb	1.861	23821	50	98.0	90	110	
W	182	2	165	46.240	ppb	0.615	138743	50	92.5	90	110	
Pt	195	2	165	45.592	ppb	1.368	87295	50	91.2	90	110	
Tl	205	2	165	48.184	ppb	0.602	226623	50	96.4	90	110	
Pb	208	2	165	46.542	ppb	1.160	309636	50	93.1	90	110	
Th	232	2	165	47.704	ppb	0.710	316727	50	95.4	90	110	
U	238	2	165	47.251	ppb	1.588	337296	50	94.5	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	937109	2.61	963428	97.27	60	125	
Sc (IS)	45	2	HMI He	1489821	0.85	1482478	100.50	60	125	
Sc IS)	45	3	No Gas	61066706	2.21	60395536	101.11	60	120	
Ge Internal Standard	72	1	HMI H2	12106948	0.54	11879546	101.91	60	125	
Ge Internal Standard	72	2	HMI He	1935105	2.32	1923324	100.61	60	125	
In Internal standard	115	2	HMI He	5778326	0.67	5599328	103.20	60	125	
Ho-165	165	2	HMI He	17945756	0.72	17108014	104.90	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	106_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:42:23-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-18.203	ppb	-49.2	101607	0.1	
Li	7	3	45	1.117	ppb	614.8	5528097	0.05	>RL
Be	9	1	6	0.000	ppb	9794.1	2	0.5	
B	11	1	6	62.721	ppb	16.1	997	0.1	>RL
Na	23	2	45	3.913	ppb	136.9	23038	25	
Mg	24	2	45	0.202	ppb	76.7	263	25	
Al	27	2	45	1.188	ppb	188.7	227	15	
K	39	2	45	-1.400	ppb	-271.6	40226	50	
Ca	44	2	45	0.734	ppb	200.0	63	25	
V	51	2	72	0.638	ppb	22.5	6198	1	
Cr	52	2	72	0.010	ppb	368.9	530	1	
Mn	55	2	72	-0.016	ppb	-302.3	173	0.5	
Fe	57	2	72	-2.355	ppb	-172.7	550	25	
Co	59	2	72	-0.013	ppb	-44.0	30	0.5	
Ni	60	2	72	0.110	ppb	44.3	230	1	
Cu	63	2	72	0.414	ppb	4.8	2554	1	
Zn	66	2	72	0.125	ppb	99.6	633	5	
As	75	2	72	0.050	ppb	188.2	52	1	
Se	78	1	72	0.057	ppb	28.7	23	1	
Sr	88	2	45	-0.020	ppb	-99.7	50	1	
Zr	90	2	72	1.041	ppb	417.1	193	1	>RL
Zr	90	1	72	4.427	ppb	149.7	981	1	>RL
Nb	93	2	72	1.149	ppb	6.8	3620	2	
Mo	95	2	115	-0.006	ppb	-397.7	113	0.5	
Pd	105	2	115	0.031	ppb	36.6	77	1	
Ag	107	2	115	0.001	ppb	578.6	83	1	
Cd	111	2	115	0.022	ppb	86.7	13	0.5	
Sn	120	2	115	-0.038	ppb	-57.4	320	1	
Sb	121	2	115	0.031	ppb	60.3	123	1	
Ba	137	2	115	0.018	ppb	302.2	30	0.5	
W	182	2	165	0.098	ppb	36.4	1187	1	
Pt	195	2	165	-0.004	ppb	-89.4	3	1	
Tl	205	2	165	0.013	ppb	66.6	190	0.1	
Pb	208	2	165	0.022	ppb	56.2	570	0.5	
Th	232	2	165	0.210	ppb	10.7	1843	1	
U	238	2	165	0.016	ppb	69.0	157	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	968825	2.82	963428	100.56	60	125	
Sc (IS)	45	2	HMI He	1514704	3.04	1482478	102.17	60	125	
Sc IS)	45	3	No Gas	60227864	1.07	60395536	99.72	60	120	
Ge Internal Standard	72	1	HMI H2	12115977	2.25	11879546	101.99	60	125	
Ge Internal Standard	72	2	HMI He	1944841	1.57	1923324	101.12	60	125	
In Internal standard	115	2	HMI He	5827775	2.83	5599328	104.08	60	125	
Ho-165	165	2	HMI He	17854615	4.01	17108014	104.36	60	125	

Blank Report

Sample Table

Sample Name	MB 280-467248/1-B
Data File Name	107_BLK.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:45:57-06:00
Sample Type	Blank
Dilution	1
Comment	467551 200.8
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit
Li	7	1	45	-14.234	ppb	-127.7748177	102663	0.1
Li	7	3	45	-0.392	ppb	-1505.572047	5450685	0.05
Be	9	1	6	0.000	ppb	11113.73785	2	0.5
Na	23	2	45	-1.517	ppb	-120.5487334	21306	25
Mg	24	2	45	1.078	ppb	37.27792468	370	25
Al	27	2	45	20.116	ppb	24.56448783	870	15
K	39	2	45	12.377	ppb	113.7424359	41269	50
Ca	44	2	45	16.838	ppb	45.1640057	180	25
V	51	2	72	1.194	ppb	6.531539962	7088	1
Cr	52	2	72	0.123	ppb	74.56308605	773	1
Mn	55	2	72	0.102	ppb	99.721462	283	0.5
Fe	57	2	72	12.193	ppb	11.96034347	1137	25
Co	59	2	72	0.001	ppb	222.3336577	77	0.5
Ni	60	2	72	0.104	ppb	41.83403033	223	1
Cu	63	2	72	0.653	ppb	2.931382551	3174	1
Zn	66	2	72	3.010	ppb	25.37686648	1680	5
As	75	2	72	0.087	ppb	91.65557815	63	1
Se	78	1	72	0.038	ppb	143.489068	17	1
Sr	88	2	45	0.008	ppb	217.4170545	80	1
Zr	90	2	72	-1.733	ppb	-56.82892834	163	1
Zr	90	1	72	5.840	ppb	66.5706247	1021	1
Nb	93	2	72	0.541	ppb	27.64409387	1997	2
Mo	95	2	115	-0.009	ppb	-261.5920869	110	0.5
Pd	105	2	115	0.006	ppb	165.5617486	27	1
Ag	107	2	115	0.008	ppb	97.18307988	113	1
Cd	111	2	115	0.011	ppb	173.2050808	7	0.5
Sn	120	2	115	0.051	ppb	94.30224627	477	1
Sb	121	2	115	-0.003	ppb	-1167.806226	77	1
Ba	137	2	115	0.094	ppb	70.1620445	67	0.5
W	182	2	165	0.118	ppb	70.62191765	1260	1
Pt	195	2	165	0.000	ppb	-4044.036167	10	1
Tl	205	2	165	0.010	ppb	200.2681338	183	0.1
Pb	208	2	165	0.012	ppb	14.99648636	517	0.5
Th	232	2	165	0.194	ppb	6.633896347	1757	1
U	238	2	165	0.004	ppb	31.86299522	70	0.5

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	975890	3.72	963428	101.29	60	125	
Sc (IS)	45	2	HMI He	1503088	1.79	1482478	101.39	60	125	
Sc IS)	45	3	No Gas	59650974	2.37	60395536	98.77	60	120	
Ge Internal Standard	72	1	HMI H2	12085463	0.49	11879546	101.73	60	125	
Ge Internal Standard	72	2	HMI He	1937651	2.93	1923324	100.74	60	125	
In Internal standard	115	2	HMI He	5869282	3.13	5599328	104.82	60	125	
Ho-165	165	2	HMI He	18032525	2.03	17108014	105.40	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	LCS 280-467248/2-B
Data File Name	108_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:49:30-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	467551 200.8
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	23.505	23.505	ppb	22.575	5851290	400	5.9	80	120	>+/-20%
Be	9	1	6	33.026	33.026	ppb	3.621	8986	40	82.6	80	120	
Na	23	2	45	691.237	691.237	ppb	3.178	216257	40	1728.1	80	120	>+/-20%
Mg	24	2	45	693.915	693.915	ppb	2.632	82969	40	1734.8	80	120	>+/-20%
Al	27	2	45	707.414	707.414	ppb	2.236	23526	40	1768.5	80	120	>+/-20%
K	39	2	45	687.978	687.978	ppb	5.261	104449	40	1719.9	80	120	>+/-20%
Ca	44	2	45	698.452	698.452	ppb	4.479	5014	40	1746.1	80	120	>+/-20%
V	51	2	72	33.422	33.422	ppb	3.412	61037	40	83.6	80	120	
Cr	52	2	72	32.826	32.826	ppb	1.402	72985	40	82.1	80	120	
Mn	55	2	72	32.573	32.573	ppb	1.404	31536	40	81.4	80	120	
Fe	57	2	72	666.833	666.833	ppb	3.331	27876	40	1667.1	80	120	>+/-20%
Co	59	2	72	32.314	32.314	ppb	1.243	113476	40	80.8	80	120	
Ni	60	2	72	32.533	32.533	ppb	2.400	31669	40	81.3	80	120	
Cu	63	2	72	31.677	31.677	ppb	1.333	86043	40	79.2	80	120	>+/-20%
Zn	66	2	72	33.464	33.464	ppb	3.124	12995	40	83.7	80	120	
As	75	2	72	31.169	31.169	ppb	1.306	8580	40	77.9	80	120	>+/-20%
Se	78	1	72	31.782	31.782	ppb	3.922	8900	40	79.5	80	120	>+/-20%
Sr	88	2	45	68.203	68.203	ppb	1.875	70894	40	170.5	80	120	>+/-20%
Nb	93	2	72	0.537	0.537	ppb	8.253	2020	40	1.3	80	120	>+/-20%
Mo	95	2	115	33.334	33.334	ppb	1.641	45140	40	83.3	80	120	
Pd	105	2	115	0.015	0.015	ppb	53.446	43	40	0.0	80	120	>+/-20%
Ag	107	2	115	33.082	33.082	ppb	4.250	136035	40	82.7	80	120	
Cd	111	2	115	34.191	34.191	ppb	6.354	19809	40	85.5	80	120	
Sn	120	2	115	32.997	32.997	ppb	3.362	55480	40	82.5	80	120	
Sb	121	2	115	35.373	35.373	ppb	0.603	48532	40	88.4	80	120	
Ba	137	2	115	34.529	34.529	ppb	3.814	16487	40	86.3	80	120	
W	182	2	165	31.395	31.395	ppb	2.119	93572	40	78.5	80	120	>+/-20%
Pt	195	2	165	-0.004	-0.004	ppb	-88.197	3	40	0.0	80	120	>+/-20%
Tl	205	2	165	32.360	32.360	ppb	3.197	150666	40	80.9	80	120	
Pb	208	2	165	31.942	31.942	ppb	1.598	210497	40	79.9	80	120	>+/-20%
Th	232	2	165	31.884	31.884	ppb	0.728	209715	40	79.7	80	120	>+/-20%
U	238	2	165	32.372	32.372	ppb	0.936	228845	40	80.9	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	966631	2.60	963428	100.33	60	125	
Sc (IS)	45	2	HMI He	1458030	1.91	1482478	98.35	60	125	
Sc IS)	45	3	No Gas	59897931	0.30	60395536	99.18	60	120	
Ge Internal Standard	72	1	HMI H2	12124920	2.89	11879546	102.07	60	125	
Ge Internal Standard	72	2	HMI He	1963832	0.56	1923324	102.11	60	125	
In Internal standard	115	2	HMI He	5669843	1.78	5599328	101.26	60	125	
Ho-165	165	2	HMI He	17767814	2.10	17108014	103.86	60	125	

Sample Report

Sample Table

Sample Name	280-126900-B-1-B
Data File Name	109SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:53:03-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467551 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-7.148	ppb	-7.148	-57.11	5304108	40000	
Be	9	1	6	0.007	ppb	0.007	330.35	3	2000	
B	11	1	6	6058.102	ppb	6058.102	3.03	50578	100	>LDR
Na	23	2	45	116006.439	ppb	116006.439	4.62	32389260	400000	
Mg	24	2	45	16616.958	ppb	16616.958	6.29	1957765	400000	
Al	27	2	45	31.150	ppb	31.150	10.02	1193	400000	
K	39	2	45	19292.197	ppb	19292.197	4.36	1857150	400000	
Ca	44	2	45	36471.145	ppb	36471.145	0.90	256143	400000	
V	51	2	72	6.537	ppb	6.537	1.97	15500	2000	
Cr	52	2	72	0.393	ppb	0.393	1.92	1330	5000	
Mn	55	2	72	18.146	ppb	18.146	2.47	16985	10000	
Fe	57	2	72	30.172	ppb	30.172	2.47	1813	400000	
Co	59	2	72	0.177	ppb	0.177	25.93	670	2000	
Ni	60	2	72	1.031	ppb	1.031	24.27	1083	5000	
Cu	63	2	72	0.888	ppb	0.888	10.89	3697	5000	
Zn	66	2	72	43.369	ppb	43.369	3.92	16028	5000	
As	75	2	72	2.837	ppb	2.837	8.87	786	2000	
Se	78	1	72	0.277	ppb	0.277	29.33	81	2000	
Sr	88	2	45	241.718	ppb	241.718	3.78	248206	2000	
Zr	90	2	72	23.777	ppb	23.777	37.94	417	1000	
Zr	90	1	72	26.638	ppb	26.638	10.11	1558	1000	
Nb	93	2	72	0.140	ppb	0.140	33.97	920	200	
Mo	95	2	115	3.000	ppb	3.000	9.50	4041	2000	
Pd	105	2	115	-0.002	ppb	-0.002	-1.58	10	100	
Ag	107	2	115	-0.005	ppb	-0.005	-111.09	57	100	
Cd	111	2	115	0.036	ppb	0.036	173.21	20	2000	
Sn	120	2	115	0.245	ppb	0.245	10.16	760	2000	
Sb	121	2	115	0.453	ppb	0.453	16.51	677	1000	
Ba	137	2	115	26.044	ppb	26.044	4.19	12055	5000	
W	182	2	165	0.244	ppb	0.244	37.12	1560	100	
Pt	195	2	165	0.004	ppb	0.004	217.44	17	100	
Tl	205	2	165	0.006	ppb	0.006	72.64	153	2000	
Pb	208	2	165	0.068	ppb	0.068	16.88	847	5000	
Th	232	2	165	0.684	ppb	0.684	5.75	4804	2000	
U	238	2	165	4.119	ppb	4.119	3.15	28271	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	892296	2.30	963428	92.62	60	125	
Sc (IS)	45	2	HMI He	1442055	3.34	1482478	97.27	60	125	
Sc IS)	45	3	No Gas	59184392	0.18	60395536	97.99	60	120	
Ge Internal Standard	72	1	HMI H2	11669583	1.30	11879546	98.23	60	125	
Ge Internal Standard	72	2	HMI He	1889169	1.22	1923324	98.22	60	125	
In Internal standard	115	2	HMI He	5495914	0.49	5599328	98.15	60	125	
Ho-165	165	2	HMI He	17240004	3.50	17108014	100.77	60	125	

Sample Report

Sample Table

Sample Name	280-126900-B-1-C MS
Data File Name	110SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T17:56:36-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467551 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	39.734	ppb	39.734	24.78	5917953	40000	
Be	9	1	6	37.386	ppb	37.386	1.95	9638	2000	
B	11	1	6	6145.648	ppb	6145.648	2.66	52650	100	>LDR
Na	23	2	45	122786.142	ppb	122786.142	1.51	34961647	400000	
Mg	24	2	45	18066.261	ppb	18066.261	3.64	2171128	400000	
Al	27	2	45	734.160	ppb	734.160	2.78	24601	400000	
K	39	2	45	20665.881	ppb	20665.881	1.65	2025607	400000	
Ca	44	2	45	39524.458	ppb	39524.458	0.54	282869	400000	
V	51	2	72	41.994	ppb	41.994	3.09	74465	2000	
Cr	52	2	72	34.250	ppb	34.250	1.67	75242	5000	
Mn	55	2	72	54.493	ppb	54.493	4.08	52001	10000	
Fe	57	2	72	735.859	ppb	735.859	3.09	30353	400000	
Co	59	2	72	33.654	ppb	33.654	1.18	116815	2000	
Ni	60	2	72	34.027	ppb	34.027	3.57	32728	5000	
Cu	63	2	72	33.016	ppb	33.016	2.71	88562	5000	
Zn	66	2	72	78.581	ppb	78.581	3.35	29385	5000	
As	75	2	72	36.071	ppb	36.071	3.32	9805	2000	
Se	78	1	72	34.406	ppb	34.406	2.73	9163	2000	
Sr	88	2	45	323.151	ppb	323.151	2.84	338217	2000	
Zr	90	2	72	37.343	ppb	37.343	3.81	570	1000	
Zr	90	1	72	48.973	ppb	48.973	10.38	2146	1000	
Nb	93	2	72	0.193	ppb	0.193	43.84	1087	200	
Mo	95	2	115	38.180	ppb	38.180	2.81	52385	2000	
Pd	105	2	115	0.031	ppb	0.031	63.54	77	100	
Ag	107	2	115	32.440	ppb	32.440	1.39	135279	100	
Cd	111	2	115	33.702	ppb	33.702	1.47	19805	2000	
Sn	120	2	115	34.820	ppb	34.820	4.29	59337	2000	
Sb	121	2	115	37.877	ppb	37.877	1.69	52671	1000	
Ba	137	2	115	62.910	ppb	62.910	1.86	30416	5000	
W	182	2	165	34.341	ppb	34.341	1.83	103030	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	33.942	ppb	33.942	1.87	159310	2000	
Pb	208	2	165	32.800	ppb	32.800	1.76	217837	5000	
Th	232	2	165	33.935	ppb	33.935	0.54	224931	2000	
U	238	2	165	38.830	ppb	38.830	0.84	276597	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	915378	1.71	963428	95.01	60	125	
Sc (IS)	45	2	HMI He	1469439	1.96	1482478	99.12	60	125	
Sc IS)	45	3	No Gas	58059379	1.64	60395536	96.13	60	120	
Ge Internal Standard	72	1	HMI H2	11523279	0.18	11879546	97.00	60	125	
Ge Internal Standard	72	2	HMI He	1941429	2.10	1923324	100.94	60	125	
In Internal standard	115	2	HMI He	5747128	0.61	5599328	102.64	60	125	
Ho-165	165	2	HMI He	17906429	1.37	17108014	104.67	60	125	

Sample Report

Sample Table

Sample Name	280-126900-B-1-D MSD
Data File Name	111SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:00:08-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467551 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	35.617	ppb	35.617	17.17	5928558	40000	
Be	9	1	6	34.020	ppb	34.020	2.99	8770	2000	
B	11	1	6	5843.344	ppb	5843.344	1.77	50106	100	>LDR
Na	23	2	45	110157.303	ppb	110157.303	1.25	32315210	400000	
Mg	24	2	45	15939.655	ppb	15939.655	2.00	1973599	400000	
Al	27	2	45	674.520	ppb	674.520	3.03	23299	400000	
K	39	2	45	18608.087	ppb	18608.087	3.82	1882934	400000	
Ca	44	2	45	35451.743	ppb	35451.743	1.29	261364	400000	
V	51	2	72	37.257	ppb	37.257	1.54	67618	2000	
Cr	52	2	72	31.347	ppb	31.347	1.35	69883	5000	
Mn	55	2	72	49.102	ppb	49.102	3.61	47545	10000	
Fe	57	2	72	666.026	ppb	666.026	3.98	27899	400000	
Co	59	2	72	31.170	ppb	31.170	0.55	109746	2000	
Ni	60	2	72	31.051	ppb	31.051	1.80	30310	5000	
Cu	63	2	72	30.934	ppb	30.934	1.48	84271	5000	
Zn	66	2	72	72.143	ppb	72.143	4.13	27392	5000	
As	75	2	72	33.842	ppb	33.842	1.28	9335	2000	
Se	78	1	72	31.870	ppb	31.870	3.00	8537	2000	
Sr	88	2	45	289.834	ppb	289.834	1.27	312583	2000	
Zr	90	2	72	33.056	ppb	33.056	19.00	533	1000	
Zr	90	1	72	34.897	ppb	34.897	14.65	1772	1000	
Nb	93	2	72	0.086	ppb	0.086	46.88	813	200	
Mo	95	2	115	37.001	ppb	37.001	3.36	48597	2000	
Pd	105	2	115	0.021	ppb	0.021	38.28	53	100	
Ag	107	2	115	32.380	ppb	32.380	3.71	129275	100	
Cd	111	2	115	34.066	ppb	34.066	4.73	19155	2000	
Sn	120	2	115	34.341	ppb	34.341	3.48	56015	2000	
Sb	121	2	115	37.180	ppb	37.180	5.42	49468	1000	
Ba	137	2	115	61.953	ppb	61.953	2.55	28682	5000	
W	182	2	165	31.533	ppb	31.533	2.64	93116	100	
Pt	195	2	165	-0.004	ppb	-0.004	-85.85	3	100	
Tl	205	2	165	31.890	ppb	31.890	1.76	147202	2000	
Pb	208	2	165	31.707	ppb	31.707	1.86	207105	5000	
Th	232	2	165	33.190	ppb	33.190	1.32	216395	2000	
U	238	2	165	36.568	ppb	36.568	0.65	256190	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	915798	0.93	963428	95.06	60	125	
Sc (IS)	45	2	HMI He	1513644	0.78	1482478	102.10	60	125	
Sc IS)	45	3	No Gas	58783654	1.87	60395536	97.33	60	120	
Ge Internal Standard	72	1	HMI H2	11594653	2.67	11879546	97.60	60	125	
Ge Internal Standard	72	2	HMI He	1968801	1.62	1923324	102.36	60	125	
In Internal standard	115	2	HMI He	5502880	2.42	5599328	98.28	60	125	
Ho-165	165	2	HMI He	17610311	1.44	17108014	102.94	60	125	

Sample Report

Sample Table

Sample Name	280-126900-B-2-B
Data File Name	112SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:03:39-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467551 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-4.211	ppb	-4.211	-67.84	5353919	40000	
Be	9	1	6	0.033	ppb	0.033	122.18	10	2000	
B	11	1	6	1289.497	ppb	1289.497	6.47	11377	100	>LDR
Na	23	2	45	45579.627	ppb	45579.627	3.82	13249496	400000	
Mg	24	2	45	10602.055	ppb	10602.055	5.18	1299378	400000	
Al	27	2	45	11.896	ppb	11.896	32.72	587	400000	
K	39	2	45	3674.493	ppb	3674.493	5.43	400091	400000	
Ca	44	2	45	23007.033	ppb	23007.033	3.40	167945	400000	
V	51	2	72	9.898	ppb	9.898	3.13	21373	2000	
Cr	52	2	72	0.150	ppb	0.150	56.25	833	5000	
Mn	55	2	72	5.058	ppb	5.058	4.31	4977	10000	
Fe	57	2	72	19.365	ppb	19.365	20.29	1420	400000	
Co	59	2	72	0.118	ppb	0.118	24.37	480	2000	
Ni	60	2	72	0.439	ppb	0.439	25.10	543	5000	
Cu	63	2	72	1.159	ppb	1.159	8.80	4497	5000	
Zn	66	2	72	3.901	ppb	3.901	7.12	2003	5000	
As	75	2	72	1.214	ppb	1.214	12.78	365	2000	
Se	78	1	72	0.323	ppb	0.323	46.45	95	2000	
Sr	88	2	45	153.753	ppb	153.753	4.90	164144	2000	
Zr	90	2	72	14.142	ppb	14.142	29.39	327	1000	
Zr	90	1	72	24.118	ppb	24.118	23.84	1512	1000	
Nb	93	2	72	-0.069	ppb	-0.069	-25.62	390	200	
Mo	95	2	115	0.723	ppb	0.723	19.61	1123	2000	
Pd	105	2	115	0.006	ppb	0.006	89.57	27	100	
Ag	107	2	115	0.009	ppb	0.009	150.38	120	100	
Cd	111	2	115	0.000	ppb	0.000	#DIV/0!	0	2000	
Sn	120	2	115	-0.003	ppb	-0.003	-1344.80	380	2000	
Sb	121	2	115	0.017	ppb	0.017	161.64	103	1000	
Ba	137	2	115	42.369	ppb	42.369	3.80	20794	5000	
W	182	2	165	0.091	ppb	0.091	78.19	1163	100	
Pt	195	2	165	-0.002	ppb	-0.002	-318.86	7	100	
Tl	205	2	165	0.010	ppb	0.010	60.16	177	2000	
Pb	208	2	165	0.006	ppb	0.006	163.16	467	5000	
Th	232	2	165	0.422	ppb	0.422	6.00	3244	2000	
U	238	2	165	1.561	ppb	1.561	5.70	11101	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	916282	4.51	963428	95.11	60	125	
Sc (IS)	45	2	HMI He	1499603	3.37	1482478	101.16	60	125	
Sc IS)	45	3	No Gas	59230093	0.82	60395536	98.07	60	120	
Ge Internal Standard	72	1	HMI H2	11845447	1.76	11879546	99.71	60	125	
Ge Internal Standard	72	2	HMI He	1931851	2.38	1923324	100.44	60	125	
In Internal standard	115	2	HMI He	5837199	4.00	5599328	104.25	60	125	
Ho-165	165	2	HMI He	17833596	2.69	17108014	104.24	60	125	

Sample Report

Sample Table

Sample Name	280-126913-C-1-C
Data File Name	113SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:07:11-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467551 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-15.439	ppb	-15.439	-34.21	5288321	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	801.389	ppb	801.389	11.31	7378	100	>LDR
Na	23	2	45	71742.139	ppb	71742.139	1.03	20328034	400000	
Mg	24	2	45	16862.246	ppb	16862.246	1.04	2015404	400000	
Al	27	2	45	0.581	ppb	0.581	277.82	200	400000	
K	39	2	45	864.419	ppb	864.419	3.13	121553	400000	
Ca	44	2	45	45344.398	ppb	45344.398	2.54	322612	400000	
V	51	2	72	0.172	ppb	0.172	229.77	5421	2000	
Cr	52	2	72	0.149	ppb	0.149	6.94	837	5000	
Mn	55	2	72	0.247	ppb	0.247	21.14	423	10000	
Fe	57	2	72	1.065	ppb	1.065	89.75	690	400000	
Co	59	2	72	0.027	ppb	0.027	72.69	167	2000	
Ni	60	2	72	0.204	ppb	0.204	31.75	320	5000	
Cu	63	2	72	1.604	ppb	1.604	10.48	5701	5000	
Zn	66	2	72	13.922	ppb	13.922	1.50	5701	5000	
As	75	2	72	0.093	ppb	0.093	71.11	64	2000	
Se	78	1	72	4.521	ppb	4.521	8.89	1200	2000	
Sr	88	2	45	1043.171	ppb	1043.171	3.03	1085490	2000	
Zr	90	2	72	1.966	ppb	1.966	255.91	203	1000	
Zr	90	1	72	15.760	ppb	15.760	70.39	1238	1000	
Nb	93	2	72	-0.101	ppb	-0.101	-32.42	307	200	
Mo	95	2	115	0.256	ppb	0.256	5.14	467	2000	
Pd	105	2	115	0.048	ppb	0.048	21.99	110	100	
Ag	107	2	115	0.005	ppb	0.005	210.27	97	100	
Cd	111	2	115	0.051	ppb	0.051	2.44	30	2000	
Sn	120	2	115	-0.030	ppb	-0.030	-155.83	327	2000	
Sb	121	2	115	-0.004	ppb	-0.004	-856.42	73	1000	
Ba	137	2	115	57.453	ppb	57.453	0.80	27597	5000	
W	182	2	165	0.073	ppb	0.073	54.77	1107	100	
Pt	195	2	165	0.002	ppb	0.002	504.14	13	100	
Tl	205	2	165	0.000	ppb	0.000	-6461.14	130	2000	
Pb	208	2	165	0.012	ppb	0.012	18.43	507	5000	
Th	232	2	165	0.343	ppb	0.343	5.78	2714	2000	
U	238	2	165	1.418	ppb	1.418	2.95	10082	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	937711	3.92	963428	97.33	60	125	
Sc (IS)	45	2	HMI He	1461221	2.12	1482478	98.57	60	125	
Sc IS)	45	3	No Gas	60474425	0.82	60395536	100.13	60	120	
Ge Internal Standard	72	1	HMI H2	11421664	3.21	11879546	96.15	60	125	
Ge Internal Standard	72	2	HMI He	1946311	2.12	1923324	101.20	60	125	
In Internal standard	115	2	HMI He	5709741	2.46	5599328	101.97	60	125	
Ho-165	165	2	HMI He	17805708	2.54	17108014	104.08	60	125	

Sample Report

Sample Table

Sample Name	280-126970-A-1-C
Data File Name	114SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:10:43-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467551 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-4.313	ppb	-4.313	-35.84	5376436	40000	
Be	9	1	6	0.014	ppb	0.014	145.03	5	2000	
B	11	1	6	192.972	ppb	192.972	8.59	1970	100	
Na	23	2	45	4268.826	ppb	4268.826	3.82	1241025	400000	
Mg	24	2	45	8649.441	ppb	8649.441	1.61	1044107	400000	
Al	27	2	45	3965.021	ppb	3965.021	1.46	132617	400000	
K	39	2	45	1583.060	ppb	1583.060	2.37	192149	400000	
Ca	44	2	45	232006.911	ppb	232006.911	1.27	1667008	400000	
V	51	2	72	-0.741	ppb	-0.741	-21.48	3714	2000	
Cr	52	2	72	0.032	ppb	0.032	79.48	550	5000	
Mn	55	2	72	270.800	ppb	270.800	2.70	245102	10000	
Fe	57	2	72	39.624	ppb	39.624	18.70	2133	400000	
Co	59	2	72	0.065	ppb	0.065	17.16	287	2000	
Ni	60	2	72	0.189	ppb	0.189	30.03	290	5000	
Cu	63	2	72	8.822	ppb	8.822	3.90	23516	5000	
Zn	66	2	72	2.547	ppb	2.547	15.97	1447	5000	
As	75	2	72	0.235	ppb	0.235	55.84	98	2000	
Se	78	1	72	0.297	ppb	0.297	21.34	83	2000	
Sr	88	2	45	452.653	ppb	452.653	2.57	475781	2000	
Zr	90	2	72	5.448	ppb	5.448	17.03	227	1000	
Zr	90	1	72	1.653	ppb	1.653	518.36	831	1000	
Nb	93	2	72	-0.047	ppb	-0.047	-57.76	427	200	
Mo	95	2	115	0.195	ppb	0.195	34.54	370	2000	
Pd	105	2	115	0.014	ppb	0.014	76.75	40	100	
Ag	107	2	115	0.023	ppb	0.023	34.51	167	100	
Cd	111	2	115	0.012	ppb	0.012	173.21	7	2000	
Sn	120	2	115	-0.036	ppb	-0.036	-90.21	303	2000	
Sb	121	2	115	0.129	ppb	0.129	65.76	247	1000	
Ba	137	2	115	8.666	ppb	8.666	2.90	4011	5000	
W	182	2	165	0.083	ppb	0.083	27.35	1110	100	
Pt	195	2	165	0.012	ppb	0.012	135.67	33	100	
Tl	205	2	165	0.652	ppb	0.652	9.19	3094	2000	
Pb	208	2	165	0.005	ppb	0.005	436.74	450	5000	
Th	232	2	165	0.647	ppb	0.647	10.59	4601	2000	
U	238	2	165	0.043	ppb	0.043	27.01	340	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	879616	1.64	963428	91.30	60	125	
Sc (IS)	45	2	HMI He	1475502	0.99	1482478	99.53	60	125	
Sc IS)	45	3	No Gas	59494533	0.53	60395536	98.51	60	120	
Ge Internal Standard	72	1	HMI H2	11139633	0.76	11879546	93.77	60	125	
Ge Internal Standard	72	2	HMI He	1846542	2.64	1923324	96.01	60	125	
In Internal standard	115	2	HMI He	5480880	3.40	5599328	97.88	60	125	
Ho-165	165	2	HMI He	17390363	1.83	17108014	101.65	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	115_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:14:14-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	76.331	ppb	3.063	124747	100	76.3	90	110	>+\-10%
Li	7	3	45	91.519	ppb	11.674	6764032	100	91.5	90	110	
Be	9	1	6	47.837	ppb	2.460	12071	50	95.7	90	110	
B	11	1	6	88.491	ppb	11.839	1137	50	177.0	90	110	>+\-10%
Na	23	2	45	1002.488	ppb	0.442	310007	1000	100.2	90	110	
Mg	24	2	45	972.119	ppb	1.759	118360	1000	97.2	90	110	
Al	27	2	45	966.784	ppb	0.505	32704	1000	96.7	90	110	
K	39	2	45	982.407	ppb	2.064	135110	1000	98.2	90	110	
Ca	44	2	45	976.154	ppb	9.753	7122	1000	97.6	90	110	
V	51	2	72	45.361	ppb	1.642	80933	50	90.7	90	110	
Cr	52	2	72	46.329	ppb	1.856	102727	50	92.7	90	110	
Mn	55	2	72	47.671	ppb	3.026	46031	50	95.3	90	110	
Fe	57	2	72	987.580	ppb	5.650	40928	1000	98.8	90	110	
Co	59	2	72	47.261	ppb	3.045	165813	50	94.5	90	110	
Ni	60	2	72	46.014	ppb	2.180	44718	50	92.0	90	110	
Cu	63	2	72	45.849	ppb	1.051	123810	50	91.7	90	110	
Zn	66	2	72	47.605	ppb	2.159	18230	50	95.2	90	110	
As	75	2	72	47.497	ppb	3.840	13046	50	95.0	90	110	
Se	78	1	72	47.929	ppb	2.150	13157	50	95.9	90	110	
Sr	88	2	45	101.147	ppb	2.033	107116	100	101.1	90	110	
Zr	90	2	72	27.557	ppb	34.759	473	50	55.1	90	110	>+\-10%
Zr	90	1	72	38.692	ppb	19.257	1925	50	77.4	90	110	>+\-10%
Nb	93	2	72	91.907	ppb	1.000	246568	100	91.9	90	110	
Mo	95	2	115	47.309	ppb	1.413	64333	50	94.6	90	110	
Pd	105	2	115	48.138	ppb	1.607	95803	50	96.3	90	110	
Ag	107	2	115	47.488	ppb	2.176	196307	50	95.0	90	110	
Cd	111	2	115	47.166	ppb	4.090	27483	50	94.3	90	110	
Sn	120	2	115	48.536	ppb	2.526	81860	50	97.1	90	110	
Sb	121	2	115	49.448	ppb	3.142	68147	50	98.9	90	110	
Ba	137	2	115	48.019	ppb	1.172	23023	50	96.0	90	110	
W	182	2	165	46.068	ppb	2.737	136864	50	92.1	90	110	
Pt	195	2	165	44.703	ppb	4.633	84715	50	89.4	90	110	>+\-10%
Tl	205	2	165	47.685	ppb	1.921	222088	50	95.4	90	110	
Pb	208	2	165	46.681	ppb	1.741	307563	50	93.4	90	110	
Th	232	2	165	47.385	ppb	3.278	311466	50	94.8	90	110	
U	238	2	165	47.536	ppb	3.576	335971	50	95.1	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	896579	2.73	963428	93.06	60	125	
Sc (IS)	45	2	HMI He	1485781	1.29	1482478	100.22	60	125	
Sc IS)	45	3	No Gas	58543951	2.44	60395536	96.93	60	120	
Ge Internal Standard	72	1	HMI H2	11880774	0.83	11879546	100.01	60	125	
Ge Internal Standard	72	2	HMI He	1963030	1.75	1923324	102.06	60	125	
In Internal standard	115	2	HMI He	5697954	0.42	5599328	101.76	60	125	
Ho-165	165	2	HMI He	17778216	3.34	17108014	103.92	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	116_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:17:46-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-26.028	ppb	-44.1	99160	0.1	
Li	7	3	45	-7.114	ppb	-45.7	5401248	0.05	
Be	9	1	6	0.007	ppb	326.6	3	0.5	
B	11	1	6	34.951	ppb	41.0	707	0.1	>RL
Na	23	2	45	8.674	ppb	37.8	24634	25	
Mg	24	2	45	-0.619	ppb	-94.2	163	25	
Al	27	2	45	-1.573	ppb	-77.9	133	15	
K	39	2	45	5.836	ppb	302.6	41225	50	
Ca	44	2	45	4.563	ppb	156.2	93	25	
V	51	2	72	-0.754	ppb	-10.6	3971	1	
Cr	52	2	72	-0.010	ppb	-298.6	497	1	
Mn	55	2	72	-0.046	ppb	-150.3	147	0.5	
Fe	57	2	72	-3.575	ppb	-106.9	513	25	
Co	59	2	72	-0.013	ppb	-42.5	30	0.5	
Ni	60	2	72	0.064	ppb	52.8	190	1	
Cu	63	2	72	0.351	ppb	20.5	2434	1	
Zn	66	2	72	0.315	ppb	116.4	717	5	
As	75	2	72	0.069	ppb	68.6	59	1	
Se	78	1	72	0.058	ppb	28.6	23	1	
Sr	88	2	45	-0.002	ppb	-1081.1	70	1	
Zr	90	2	72	-0.528	ppb	-634.8	180	1	
Zr	90	1	72	9.250	ppb	27.0	1098	1	>RL
Nb	93	2	72	1.160	ppb	11.5	3720	2	
Mo	95	2	115	-0.018	ppb	-187.9	97	0.5	
Pd	105	2	115	0.014	ppb	118.2	43	1	
Ag	107	2	115	0.007	ppb	50.4	110	1	
Cd	111	2	115	0.011	ppb	173.2	7	0.5	
Sn	120	2	115	0.014	ppb	423.5	410	1	
Sb	121	2	115	0.045	ppb	62.6	143	1	
Ba	137	2	115	-0.015	ppb	-213.2	13	0.5	
W	182	2	165	0.091	ppb	18.6	1133	1	
Pt	195	2	165	-0.005	ppb	0.0	0	1	
Tl	205	2	165	0.006	ppb	66.2	157	0.1	
Pb	208	2	165	0.027	ppb	12.4	593	0.5	
Th	232	2	165	0.199	ppb	20.6	1720	1	
U	238	2	165	0.007	ppb	138.9	87	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	917416	1.66	963428	95.22	60	125	
Sc (IS)	45	2	HMI He	1526345	3.46	1482478	102.96	60	125	
Sc IS)	45	3	No Gas	60264358	0.81	60395536	99.78	60	120	
Ge Internal Standard	72	1	HMI H2	11862944	0.60	11879546	99.86	60	125	
Ge Internal Standard	72	2	HMI He	1983186	1.86	1923324	103.11	60	125	
In Internal standard	115	2	HMI He	5841744	2.38	5599328	104.33	60	125	
Ho-165	165	2	HMI He	17369162	2.33	17108014	101.53	60	125	

Blank Report

Sample Table

Sample Name	MB 280-467358/1-C
Data File Name	117_BLK.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:21:19-06:00
Sample Type	Blank
Dilution	1
Comment	467559 200.8
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit
Li	7	1	45	-31.984	ppb	-19.35857513	97646	0.1
Li	7	3	45	-8.752	ppb	-75.26053555	5384824	0.05
Be	9	1	6	0.018	ppb	115.7057907	7	0.5
Na	23	2	45	5.055	ppb	76.13925058	22791	25
Mg	24	2	45	0.642	ppb	79.53398006	310	25
Al	27	2	45	-0.050	ppb	-2313.617514	180	15
K	39	2	45	28.298	ppb	62.16105207	42050	50
Ca	44	2	45	18.138	ppb	8.94782406	187	25
V	51	2	72	-0.382	ppb	-35.54467832	4577	1
Cr	52	2	72	-0.015	ppb	-484.6289715	487	1
Mn	55	2	72	-0.004	ppb	-1561.352937	187	0.5
Fe	57	2	72	-1.806	ppb	-173.9769614	583	25
Co	59	2	72	-0.019	ppb	-14.98082524	10	0.5
Ni	60	2	72	0.038	ppb	165.2241656	163	1
Cu	63	2	72	0.022	ppb	158.3630939	1540	1
Zn	66	2	72	1.898	ppb	13.72482728	1303	5
As	75	2	72	0.070	ppb	40.32331018	59	1
Se	78	1	72	0.008	ppb	413.3053787	9	1
Sr	88	2	45	0.035	ppb	78.96469599	107	1
Zr	90	2	72	-1.395	ppb	-317.7044479	170	1
Zr	90	1	72	3.532	ppb	105.2473955	961	1
Nb	93	2	72	0.368	ppb	15.94672705	1577	2
Mo	95	2	115	-0.016	ppb	-92.78459187	97	0.5
Pd	105	2	115	0.003	ppb	420.2169938	20	1
Ag	107	2	115	-0.007	ppb	-94.53045896	50	1
Cd	111	2	115	0.011	ppb	173.2050808	7	0.5
Sn	120	2	115	-0.016	ppb	-293.6232158	350	1
Sb	121	2	115	-0.018	ppb	-98.57952443	53	1
Ba	137	2	115	0.062	ppb	155.0822949	50	0.5
W	182	2	165	0.063	ppb	59.9025055	1043	1
Pt	195	2	165	0.000	ppb	-35940.45189	10	1
Tl	205	2	165	0.001	ppb	516.793109	133	0.1
Pb	208	2	165	0.001	ppb	616.9966245	423	0.5
Th	232	2	165	0.082	ppb	15.8878328	970	1
U	238	2	165	-0.005	ppb	-31.82242124	10	0.5

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	940781	5.07	963428	97.65	60	125	
Sc (IS)	45	2	HMI He	1475644	1.50	1482478	99.54	60	125	
Sc IS)	45	3	No Gas	60375595	1.00	60395536	99.97	60	120	
Ge Internal Standard	72	1	HMI H2	12165940	1.93	11879546	102.41	60	125	
Ge Internal Standard	72	2	HMI He	1973506	1.87	1923324	102.61	60	125	
In Internal standard	115	2	HMI He	5724153	0.61	5599328	102.23	60	125	
Ho-165	165	2	HMI He	17254535	3.77	17108014	100.86	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	LCS 280-467358/2-C
Data File Name	118_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:24:52-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	467559 200.8
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	24.099	24.099	ppb	19.993	5857032	400	6.0	80	120	>+/-20%
Be	9	1	6	35.485	35.485	ppb	2.527	9146	40	88.7	80	120	
Na	23	2	45	670.901	670.901	ppb	3.891	214846	40	1677.3	80	120	>+/-20%
Mg	24	2	45	672.660	672.660	ppb	3.169	82098	40	1681.7	80	120	>+/-20%
Al	27	2	45	673.417	673.417	ppb	2.829	22875	40	1683.5	80	120	>+/-20%
K	39	2	45	704.514	704.514	ppb	3.853	108281	40	1761.3	80	120	>+/-20%
Ca	44	2	45	656.683	656.683	ppb	4.230	4821	40	1641.7	80	120	>+/-20%
V	51	2	72	32.803	32.803	ppb	3.246	59558	40	82.0	80	120	
Cr	52	2	72	32.281	32.281	ppb	5.374	71239	40	80.7	80	120	
Mn	55	2	72	34.009	34.009	ppb	2.283	32681	40	85.0	80	120	
Fe	57	2	72	686.650	686.650	ppb	2.776	28477	40	1716.6	80	120	>+/-20%
Co	59	2	72	32.705	32.705	ppb	1.842	114070	40	81.8	80	120	
Ni	60	2	72	32.040	32.040	ppb	2.398	30975	40	80.1	80	120	
Cu	63	2	72	31.436	31.436	ppb	1.782	84817	40	78.6	80	120	>+/-20%
Zn	66	2	72	34.337	34.337	ppb	3.880	13222	40	85.8	80	120	
As	75	2	72	31.193	31.193	ppb	1.015	8526	40	78.0	80	120	>+/-20%
Se	78	1	72	33.050	33.050	ppb	3.756	9073	40	82.6	80	120	
Sr	88	2	45	67.615	67.615	ppb	3.958	71725	40	169.0	80	120	>+/-20%
Nb	93	2	72	0.538	0.538	ppb	23.946	2007	40	1.3	80	120	>+/-20%
Mo	95	2	115	33.880	33.880	ppb	4.041	45846	40	84.7	80	120	
Pd	105	2	115	0.027	0.027	ppb	7.538	67	40	0.1	80	120	>+/-20%
Ag	107	2	115	32.622	32.622	ppb	3.506	134102	40	81.6	80	120	
Cd	111	2	115	33.653	33.653	ppb	4.491	19492	40	84.1	80	120	
Sn	120	2	115	33.670	33.670	ppb	4.629	56567	40	84.2	80	120	
Sb	121	2	115	35.856	35.856	ppb	5.892	49161	40	89.6	80	120	
Ba	137	2	115	33.298	33.298	ppb	3.081	15881	40	83.2	80	120	
W	182	2	165	30.776	30.776	ppb	1.839	91956	40	76.9	80	120	>+/-20%
Pt	195	2	165	-0.005	-0.005	ppb	0.000	0	40	0.0	80	120	>+/-20%
Tl	205	2	165	32.041	32.041	ppb	3.221	149581	40	80.1	80	120	
Pb	208	2	165	31.395	31.395	ppb	0.535	207434	40	78.5	80	120	>+/-20%
Th	232	2	165	31.792	31.792	ppb	3.286	209610	40	79.5	80	120	>+/-20%
U	238	2	165	31.935	31.935	ppb	1.907	226263	40	79.8	80	120	>+/-20%

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	915446	0.69	963428	95.02	60	125	
Sc (IS)	45	2	HMI He	1488864	3.46	1482478	100.43	60	125	
Sc IS)	45	3	No Gas	59870794	1.82	60395536	99.13	60	120	
Ge Internal Standard	72	1	HMI H2	11877523	1.49	11879546	99.98	60	125	
Ge Internal Standard	72	2	HMI He	1950117	1.60	1923324	101.39	60	125	
In Internal standard	115	2	HMI He	5668509	2.76	5599328	101.24	60	125	
Ho-165	165	2	HMI He	17810612	0.88	17108014	104.11	60	125	

Sample Report

Sample Table

Sample Name	280-127000-C-1-J
Data File Name	119SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:28:25-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467559 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	3.182	ppb	3.182	24.26	5434250	40000	
Be	9	1	6	0.000	ppb	0.000	2410.09	2	2000	
B	11	1	6	1647.744	ppb	1647.744	0.86	14266	100	>LDR
Na	23	2	45	41220.727	ppb	41220.727	5.57	11802496	400000	
Mg	24	2	45	9837.014	ppb	9837.014	6.49	1187321	400000	
Al	27	2	45	5.283	ppb	5.283	62.92	357	400000	
K	39	2	45	3451.474	ppb	3451.474	3.77	372759	400000	
Ca	44	2	45	27135.455	ppb	27135.455	0.74	195283	400000	
V	51	2	72	0.629	ppb	0.629	41.11	6198	2000	
Cr	52	2	72	0.097	ppb	0.097	10.54	723	5000	
Mn	55	2	72	0.518	ppb	0.518	6.90	683	10000	
Fe	57	2	72	15.421	ppb	15.421	23.04	1273	400000	
Co	59	2	72	0.071	ppb	0.071	12.51	320	2000	
Ni	60	2	72	1.517	ppb	1.517	4.04	1583	5000	
Cu	63	2	72	1.133	ppb	1.133	11.80	4464	5000	
Zn	66	2	72	6.676	ppb	6.676	5.64	3044	5000	
As	75	2	72	0.654	ppb	0.654	9.97	217	2000	
Se	78	1	72	0.668	ppb	0.668	10.93	183	2000	
Sr	88	2	45	334.794	ppb	334.794	3.01	352220	2000	
Zr	90	2	72	10.135	ppb	10.135	76.87	287	1000	
Zr	90	1	72	24.541	ppb	24.541	34.71	1468	1000	
Nb	93	2	72	0.123	ppb	0.123	28.49	903	200	
Mo	95	2	115	2.998	ppb	2.998	9.67	4124	2000	
Pd	105	2	115	0.015	ppb	0.015	15.91	43	100	
Ag	107	2	115	-0.002	ppb	-0.002	-381.37	67	100	
Cd	111	2	115	0.017	ppb	0.017	2.49	10	2000	
Sn	120	2	115	0.036	ppb	0.036	148.23	430	2000	
Sb	121	2	115	0.128	ppb	0.128	33.73	250	1000	
Ba	137	2	115	42.463	ppb	42.463	4.67	20053	5000	
W	182	2	165	0.123	ppb	0.123	64.44	1233	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	0.023	ppb	0.023	11.87	233	2000	
Pb	208	2	165	0.021	ppb	0.021	52.09	553	5000	
Th	232	2	165	0.601	ppb	0.601	4.49	4331	2000	
U	238	2	165	4.003	ppb	4.003	2.02	27873	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	905788	1.66	963428	94.02	60	125	
Sc (IS)	45	2	HMI He	1477576	3.61	1482478	99.67	60	125	
Sc IS)	45	3	No Gas	58852002	1.36	60395536	97.44	60	120	
Ge Internal Standard	72	1	HMI H2	11437268	1.75	11879546	96.28	60	125	
Ge Internal Standard	72	2	HMI He	1947922	2.65	1923324	101.28	60	125	
In Internal standard	115	2	HMI He	5612911	2.50	5599328	100.24	60	125	
Ho-165	165	2	HMI He	17480788	0.80	17108014	102.18	60	125	

Sample Report

Sample Table

Sample Name	280-127000-C-1-K MS
Data File Name	120SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:31:57-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467559 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	42.571	ppb	42.571	23.10	6063949	40000	
Be	9	1	6	37.255	ppb	37.255	1.31	9411	2000	
B	11	1	6	1662.757	ppb	1662.757	4.77	14239	100	>LDR
Na	23	2	45	41523.848	ppb	41523.848	3.45	11666964	400000	
Mg	24	2	45	10628.266	ppb	10628.266	3.48	1259069	400000	
Al	27	2	45	681.752	ppb	681.752	4.33	22524	400000	
K	39	2	45	4240.686	ppb	4240.686	4.84	440289	400000	
Ca	44	2	45	28685.341	ppb	28685.341	1.77	202395	400000	
V	51	2	72	35.098	ppb	35.098	2.98	61057	2000	
Cr	52	2	72	34.577	ppb	34.577	4.50	73494	5000	
Mn	55	2	72	34.680	ppb	34.680	3.80	32103	10000	
Fe	57	2	72	717.909	ppb	717.909	1.70	28660	400000	
Co	59	2	72	33.715	ppb	33.715	4.06	113238	2000	
Ni	60	2	72	34.354	ppb	34.354	3.13	31983	5000	
Cu	63	2	72	34.200	ppb	34.200	1.76	88753	5000	
Zn	66	2	72	39.035	ppb	39.035	6.84	14399	5000	
As	75	2	72	33.966	ppb	33.966	2.99	8944	2000	
Se	78	1	72	33.385	ppb	33.385	2.01	9005	2000	
Sr	88	2	45	407.418	ppb	407.418	2.11	420439	2000	
Zr	90	2	72	8.056	ppb	8.056	113.48	257	1000	
Zr	90	1	72	14.788	ppb	14.788	17.38	1231	1000	
Nb	93	2	72	0.230	ppb	0.230	25.94	1147	200	
Mo	95	2	115	36.807	ppb	36.807	1.34	50258	2000	
Pd	105	2	115	0.020	ppb	0.020	52.55	53	100	
Ag	107	2	115	32.493	ppb	32.493	1.23	134825	100	
Cd	111	2	115	32.746	ppb	32.746	5.38	19141	2000	
Sn	120	2	115	34.050	ppb	34.050	1.63	57755	2000	
Sb	121	2	115	35.916	ppb	35.916	2.51	49698	1000	
Ba	137	2	115	76.787	ppb	76.787	4.15	36923	5000	
W	182	2	165	32.319	ppb	32.319	3.02	93260	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	33.098	ppb	33.098	1.89	149317	2000	
Pb	208	2	165	33.220	ppb	33.220	3.44	212016	5000	
Th	232	2	165	33.039	ppb	33.039	1.01	210490	2000	
U	238	2	165	38.021	ppb	38.021	1.21	260310	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	896986	2.75	963428	93.10	60	125	
Sc (IS)	45	2	HMI He	1448953	2.82	1482478	97.74	60	125	
Sc IS)	45	3	No Gas	59052208	1.43	60395536	97.78	60	120	
Ge Internal Standard	72	1	HMI H2	11669337	1.68	11879546	98.23	60	125	
Ge Internal Standard	72	2	HMI He	1879020	1.61	1923324	97.70	60	125	
In Internal standard	115	2	HMI He	5719257	2.03	5599328	102.14	60	125	
Ho-165	165	2	HMI He	17210837	1.44	17108014	100.60	60	125	

Sample Report

Sample Table

Sample Name	280-127000-C-1-L MSD
Data File Name	121SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:35:29-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467559 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	32.561	ppb	32.561	14.63	5876497	40000	
Be	9	1	6	34.493	ppb	34.493	2.22	8749	2000	
B	11	1	6	1637.806	ppb	1637.806	5.76	14106	100	>LDR
Na	23	2	45	39467.491	ppb	39467.491	0.24	11253710	400000	
Mg	24	2	45	10248.189	ppb	10248.189	1.51	1231812	400000	
Al	27	2	45	693.954	ppb	693.954	2.04	23262	400000	
K	39	2	45	4031.717	ppb	4031.717	0.26	426753	400000	
Ca	44	2	45	27288.129	ppb	27288.129	2.74	195336	400000	
V	51	2	72	34.082	ppb	34.082	2.37	60451	2000	
Cr	52	2	72	32.186	ppb	32.186	0.76	69639	5000	
Mn	55	2	72	34.081	ppb	34.081	1.73	32100	10000	
Fe	57	2	72	676.888	ppb	676.888	5.25	27515	400000	
Co	59	2	72	32.124	ppb	32.124	3.59	109766	2000	
Ni	60	2	72	32.185	ppb	32.185	1.30	30487	5000	
Cu	63	2	72	32.208	ppb	32.208	0.86	85099	5000	
Zn	66	2	72	38.243	ppb	38.243	2.97	14366	5000	
As	75	2	72	32.938	ppb	32.938	2.22	8819	2000	
Se	78	1	72	32.464	ppb	32.464	2.45	8616	2000	
Sr	88	2	45	395.267	ppb	395.267	1.71	413757	2000	
Zr	90	2	72	19.344	ppb	19.344	33.11	377	1000	
Zr	90	1	72	15.127	ppb	15.127	24.40	1221	1000	
Nb	93	2	72	0.066	ppb	0.066	39.95	737	200	
Mo	95	2	115	36.335	ppb	36.335	1.30	48767	2000	
Pd	105	2	115	0.012	ppb	0.012	48.64	37	100	
Ag	107	2	115	31.987	ppb	31.987	0.26	130463	100	
Cd	111	2	115	33.437	ppb	33.437	3.33	19221	2000	
Sn	120	2	115	33.228	ppb	33.228	1.60	55406	2000	
Sb	121	2	115	35.777	ppb	35.777	1.91	48659	1000	
Ba	137	2	115	75.546	ppb	75.546	2.64	35723	5000	
W	182	2	165	32.376	ppb	32.376	0.67	93930	100	
Pt	195	2	165	-0.002	ppb	-0.002	-424.41	7	100	
Tl	205	2	165	33.108	ppb	33.108	6.04	149982	2000	
Pb	208	2	165	32.859	ppb	32.859	4.32	210630	5000	
Th	232	2	165	33.570	ppb	33.570	3.37	214861	2000	
U	238	2	165	37.550	ppb	37.550	4.54	258125	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	900879	0.27	963428	93.51	60	125	
Sc (IS)	45	2	HMI He	1469351	1.05	1482478	99.11	60	125	
Sc IS)	45	3	No Gas	58725418	0.78	60395536	97.23	60	120	
Ge Internal Standard	72	1	HMI H2	11482419	0.84	11879546	96.66	60	125	
Ge Internal Standard	72	2	HMI He	1910800	0.99	1923324	99.35	60	125	
In Internal standard	115	2	HMI He	5620672	0.87	5599328	100.38	60	125	
Ho-165	165	2	HMI He	17300577	4.15	17108014	101.13	60	125	

Sample Report

Sample Table

Sample Name	280-127000-C-2-D
Data File Name	122SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:39:01-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467559 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	0.745	ppb	0.745	339.32	5421449	40000	
Be	9	1	6	0.013	ppb	0.013	147.20	5	2000	
B	11	1	6	1644.801	ppb	1644.801	2.75	14369	100	>LDR
Na	23	2	45	37896.830	ppb	37896.830	3.20	11043543	400000	
Mg	24	2	45	9118.789	ppb	9118.789	3.08	1120143	400000	
Al	27	2	45	6.563	ppb	6.563	52.76	407	400000	
K	39	2	45	3232.476	ppb	3232.476	1.99	357673	400000	
Ca	44	2	45	25978.123	ppb	25978.123	2.20	190042	400000	
V	51	2	72	0.312	ppb	0.312	17.59	5598	2000	
Cr	52	2	72	0.050	ppb	0.050	22.14	613	5000	
Mn	55	2	72	0.333	ppb	0.333	6.17	500	10000	
Fe	57	2	72	7.414	ppb	7.414	27.64	937	400000	
Co	59	2	72	0.077	ppb	0.077	32.47	337	2000	
Ni	60	2	72	0.964	ppb	0.964	2.85	1040	5000	
Cu	63	2	72	1.029	ppb	1.029	12.63	4137	5000	
Zn	66	2	72	5.845	ppb	5.845	12.15	2704	5000	
As	75	2	72	0.638	ppb	0.638	14.89	210	2000	
Se	78	1	72	0.615	ppb	0.615	9.47	173	2000	
Sr	88	2	45	318.454	ppb	318.454	4.80	340622	2000	
Zr	90	2	72	8.051	ppb	8.051	84.02	263	1000	
Zr	90	1	72	8.359	ppb	8.359	43.90	1061	1000	
Nb	93	2	72	-0.090	ppb	-0.090	-31.97	333	200	
Mo	95	2	115	2.657	ppb	2.657	5.91	3667	2000	
Pd	105	2	115	0.002	ppb	0.002	172.83	17	100	
Ag	107	2	115	0.001	ppb	0.001	887.36	80	100	
Cd	111	2	115	0.023	ppb	0.023	86.63	13	2000	
Sn	120	2	115	-0.010	ppb	-0.010	-570.02	353	2000	
Sb	121	2	115	0.135	ppb	0.135	4.72	260	1000	
Ba	137	2	115	39.901	ppb	39.901	1.99	18848	5000	
W	182	2	165	0.124	ppb	0.124	10.68	1283	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	0.019	ppb	0.019	44.70	223	2000	
Pb	208	2	165	0.020	ppb	0.020	36.88	573	5000	
Th	232	2	165	0.493	ppb	0.493	7.26	3767	2000	
U	238	2	165	3.753	ppb	3.753	1.62	27108	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	913974	2.14	963428	94.87	60	125	
Sc (IS)	45	2	HMI He	1502492	3.40	1482478	101.35	60	125	
Sc IS)	45	3	No Gas	59122330	0.53	60395536	97.89	60	120	
Ge Internal Standard	72	1	HMI H2	11733748	0.75	11879546	98.77	60	125	
Ge Internal Standard	72	2	HMI He	1924681	0.48	1923324	100.07	60	125	
In Internal standard	115	2	HMI He	5611780	1.48	5599328	100.22	60	125	
Ho-165	165	2	HMI He	18134724	2.18	17108014	106.00	60	125	

Sample Report

Sample Table

Sample Name	280-127000-C-3-D
Data File Name	123SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:42:34-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467559 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-4.694	ppb	-4.694	-104.79	5407440	40000	
Be	9	1	6	0.006	ppb	0.006	361.50	3	2000	
B	11	1	6	1138.844	ppb	1138.844	5.30	10390	100	>LDR
Na	23	2	45	28138.961	ppb	28138.961	3.78	8195218	400000	
Mg	24	2	45	8428.396	ppb	8428.396	3.37	1034246	400000	
Al	27	2	45	8.299	ppb	8.299	19.98	467	400000	
K	39	2	45	2660.302	ppb	2660.302	2.84	301105	400000	
Ca	44	2	45	22259.919	ppb	22259.919	2.27	162671	400000	
V	51	2	72	0.227	ppb	0.227	88.74	5534	2000	
Cr	52	2	72	0.064	ppb	0.064	78.31	653	5000	
Mn	55	2	72	0.610	ppb	0.610	9.94	773	10000	
Fe	57	2	72	5.561	ppb	5.561	42.19	873	400000	
Co	59	2	72	0.063	ppb	0.063	19.20	293	2000	
Ni	60	2	72	0.645	ppb	0.645	4.80	747	5000	
Cu	63	2	72	0.971	ppb	0.971	15.33	4037	5000	
Zn	66	2	72	6.092	ppb	6.092	8.55	2834	5000	
As	75	2	72	0.497	ppb	0.497	10.73	175	2000	
Se	78	1	72	0.507	ppb	0.507	30.22	141	2000	
Sr	88	2	45	262.892	ppb	262.892	3.29	280994	2000	
Zr	90	2	72	2.054	ppb	2.054	297.05	203	1000	
Zr	90	1	72	9.760	ppb	9.760	64.37	1081	1000	
Nb	93	2	72	-0.066	ppb	-0.066	-33.23	403	200	
Mo	95	2	115	2.807	ppb	2.807	5.03	3977	2000	
Pd	105	2	115	0.006	ppb	0.006	90.10	27	100	
Ag	107	2	115	0.010	ppb	0.010	24.08	120	100	
Cd	111	2	115	0.057	ppb	0.057	17.71	33	2000	
Sn	120	2	115	-0.048	ppb	-0.048	-40.33	300	2000	
Sb	121	2	115	0.082	ppb	0.082	52.64	193	1000	
Ba	137	2	115	38.068	ppb	38.068	5.83	18481	5000	
W	182	2	165	0.122	ppb	0.122	27.38	1227	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.006	ppb	-0.006	-110.16	103	2000	
Pb	208	2	165	0.025	ppb	0.025	78.25	580	5000	
Th	232	2	165	0.352	ppb	0.352	2.18	2717	2000	
U	238	2	165	2.831	ppb	2.831	2.12	19670	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	944256	5.23	963428	98.01	60	125	
Sc (IS)	45	2	HMI He	1500742	2.83	1482478	101.23	60	125	
Sc IS)	45	3	No Gas	59903218	0.55	60395536	99.18	60	120	
Ge Internal Standard	72	1	HMI H2	11534708	0.70	11879546	97.10	60	125	
Ge Internal Standard	72	2	HMI He	1951516	2.16	1923324	101.47	60	125	
In Internal standard	115	2	HMI He	5769530	1.07	5599328	103.04	60	125	
Ho-165	165	2	HMI He	17428593	2.59	17108014	101.87	60	125	

Sample Report

Sample Table

Sample Name	280-127000-C-4-D
Data File Name	124SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:46:06-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467559 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-4.211	ppb	-4.211	-37.98	5326922	40000	
Be	9	1	6	0.007	ppb	0.007	326.24	3	2000	
B	11	1	6	1211.827	ppb	1211.827	1.26	10433	100	>LDR
Na	23	2	45	29367.858	ppb	29367.858	0.76	8318517	400000	
Mg	24	2	45	8669.231	ppb	8669.231	1.69	1034503	400000	
Al	27	2	45	6.450	ppb	6.450	24.78	393	400000	
K	39	2	45	3213.118	ppb	3213.118	2.66	345481	400000	
Ca	44	2	45	22133.889	ppb	22133.889	3.03	157255	400000	
V	51	2	72	0.022	ppb	0.022	1696.95	5101	2000	
Cr	52	2	72	0.038	ppb	0.038	118.54	583	5000	
Mn	55	2	72	0.558	ppb	0.558	8.47	710	10000	
Fe	57	2	72	14.163	ppb	14.163	26.47	1203	400000	
Co	59	2	72	0.092	ppb	0.092	36.81	387	2000	
Ni	60	2	72	0.758	ppb	0.758	11.99	840	5000	
Cu	63	2	72	1.149	ppb	1.149	16.58	4434	5000	
Zn	66	2	72	4.992	ppb	4.992	14.70	2387	5000	
As	75	2	72	0.462	ppb	0.462	10.97	162	2000	
Se	78	1	72	0.440	ppb	0.440	26.26	125	2000	
Sr	88	2	45	267.954	ppb	267.954	2.53	278463	2000	
Zr	90	2	72	8.772	ppb	8.772	28.64	270	1000	
Zr	90	1	72	10.191	ppb	10.191	45.87	1104	1000	
Nb	93	2	72	-0.106	ppb	-0.106	-30.40	290	200	
Mo	95	2	115	2.499	ppb	2.499	10.35	3510	2000	
Pd	105	2	115	0.010	ppb	0.010	115.91	33	100	
Ag	107	2	115	0.005	ppb	0.005	305.83	97	100	
Cd	111	2	115	0.017	ppb	0.017	99.23	10	2000	
Sn	120	2	115	0.027	ppb	0.027	222.33	423	2000	
Sb	121	2	115	0.089	ppb	0.089	26.60	200	1000	
Ba	137	2	115	36.525	ppb	36.525	1.06	17533	5000	
W	182	2	165	0.079	ppb	0.079	26.81	1117	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.001	ppb	-0.001	-3264.25	127	2000	
Pb	208	2	165	0.009	ppb	0.009	129.73	487	5000	
Th	232	2	165	0.348	ppb	0.348	3.60	2727	2000	
U	238	2	165	2.396	ppb	2.396	4.13	16883	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	891750	0.99	963428	92.56	60	125	
Sc (IS)	45	2	HMI He	1458689	1.11	1482478	98.40	60	125	
Sc IS)	45	3	No Gas	58930442	0.24	60395536	97.57	60	120	
Ge Internal Standard	72	1	HMI H2	11661795	1.37	11879546	98.17	60	125	
Ge Internal Standard	72	2	HMI He	1920525	2.95	1923324	99.85	60	125	
In Internal standard	115	2	HMI He	5702474	1.30	5599328	101.84	60	125	
Ho-165	165	2	HMI He	17676611	2.47	17108014	103.32	60	125	

Sample Report

Sample Table

Sample Name	280-127000-C-5-D
Data File Name	125SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:49:37-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467559 200.8
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-1.251	ppb	-1.251	-307.61	5466539	40000	
Be	9	1	6	0.001	ppb	0.001	2244.25	2	2000	
B	11	1	6	695.883	ppb	695.883	5.45	6264	100	>LDR
Na	23	2	45	20085.413	ppb	20085.413	0.88	5886335	400000	
Mg	24	2	45	7359.597	ppb	7359.597	0.56	907735	400000	
Al	27	2	45	5.303	ppb	5.303	68.92	367	400000	
K	39	2	45	1775.328	ppb	1775.328	1.68	215277	400000	
Ca	44	2	45	19289.922	ppb	19289.922	2.45	141657	400000	
V	51	2	72	0.063	ppb	0.063	751.61	5248	2000	
Cr	52	2	72	0.030	ppb	0.030	79.29	577	5000	
Mn	55	2	72	0.303	ppb	0.303	45.36	480	10000	
Fe	57	2	72	1.790	ppb	1.790	120.67	720	400000	
Co	59	2	72	0.017	ppb	0.017	170.50	133	2000	
Ni	60	2	72	0.550	ppb	0.550	20.14	653	5000	
Cu	63	2	72	0.512	ppb	0.512	13.53	2824	5000	
Zn	66	2	72	2.495	ppb	2.495	8.26	1507	5000	
As	75	2	72	0.406	ppb	0.406	21.30	150	2000	
Se	78	1	72	0.352	ppb	0.352	9.63	103	2000	
Sr	88	2	45	235.495	ppb	235.495	2.24	252958	2000	
Zr	90	2	72	-2.552	ppb	-2.552	-181.85	157	1000	
Zr	90	1	72	2.624	ppb	2.624	153.80	908	1000	
Nb	93	2	72	-0.124	ppb	-0.124	-7.35	247	200	
Mo	95	2	115	2.423	ppb	2.423	2.94	3357	2000	
Pd	105	2	115	0.003	ppb	0.003	256.21	20	100	
Ag	107	2	115	0.004	ppb	0.004	247.14	93	100	
Cd	111	2	115	0.000	ppb	0.000	#DIV/0!	0	2000	
Sn	120	2	115	0.009	ppb	0.009	1079.79	383	2000	
Sb	121	2	115	0.072	ppb	0.072	60.87	173	1000	
Ba	137	2	115	38.057	ppb	38.057	2.50	17973	5000	
W	182	2	165	0.085	ppb	0.085	18.72	1130	100	
Pt	195	2	165	0.000	ppb	0.000	-49615.46	10	100	
Tl	205	2	165	0.002	ppb	0.002	819.73	137	2000	
Pb	208	2	165	0.002	ppb	0.002	704.06	437	5000	
Th	232	2	165	0.192	ppb	0.192	6.99	1697	2000	
U	238	2	165	2.315	ppb	2.315	2.04	16222	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	907379	2.67	963428	94.18	60	125	
Sc (IS)	45	2	HMI He	1507482	0.45	1482478	101.69	60	125	
Sc IS)	45	3	No Gas	59955763	1.16	60395536	99.27	60	120	
Ge Internal Standard	72	1	HMI H2	11811667	0.88	11879546	99.43	60	125	
Ge Internal Standard	72	2	HMI He	1950423	2.25	1923324	101.41	60	125	
In Internal standard	115	2	HMI He	5612973	2.27	5599328	100.24	60	125	
Ho-165	165	2	HMI He	17569021	1.19	17108014	102.69	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	126_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:53:08-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	69.704	ppb	12.186	125206	100	69.7	90	110	>+\-10%
Li	7	3	45	84.928	ppb	10.646	6810373	100	84.9	90	110	>+\-10%
Be	9	1	6	48.699	ppb	6.114	12533	50	97.4	90	110	
B	11	1	6	95.544	ppb	26.291	1217	50	191.1	90	110	>+\-10%
Na	23	2	45	975.930	ppb	1.353	308703	1000	97.6	90	110	
Mg	24	2	45	959.343	ppb	2.183	119260	1000	95.9	90	110	
Al	27	2	45	932.720	ppb	3.181	32213	1000	93.3	90	110	
K	39	2	45	975.599	ppb	1.644	137246	1000	97.6	90	110	
Ca	44	2	45	996.149	ppb	2.916	7415	1000	99.6	90	110	
V	51	2	72	45.686	ppb	2.240	82495	50	91.4	90	110	
Cr	52	2	72	46.441	ppb	0.803	104290	50	92.9	90	110	
Mn	55	2	72	48.255	ppb	2.417	47184	50	96.5	90	110	
Fe	57	2	72	983.007	ppb	1.378	41269	1000	98.3	90	110	
Co	59	2	72	47.094	ppb	1.730	167331	50	94.2	90	110	
Ni	60	2	72	46.568	ppb	2.992	45824	50	93.1	90	110	
Cu	63	2	72	46.631	ppb	1.273	127480	50	93.3	90	110	
Zn	66	2	72	48.144	ppb	1.926	18660	50	96.3	90	110	
As	75	2	72	46.181	ppb	2.691	12845	50	92.4	90	110	
Se	78	1	72	48.306	ppb	3.375	13248	50	96.6	90	110	
Sr	88	2	45	99.172	ppb	1.012	107234	100	99.2	90	110	
Zr	90	2	72	34.268	ppb	21.499	550	50	68.5	90	110	>+\-10%
Zr	90	1	72	39.320	ppb	28.566	1939	50	78.6	90	110	>+\-10%
Nb	93	2	72	91.042	ppb	1.444	247340	100	91.0	90	110	
Mo	95	2	115	45.927	ppb	5.921	63041	50	91.9	90	110	
Pd	105	2	115	48.410	ppb	1.292	97336	50	96.8	90	110	
Ag	107	2	115	47.324	ppb	1.938	197617	50	94.6	90	110	
Cd	111	2	115	48.429	ppb	2.635	28508	50	96.9	90	110	
Sn	120	2	115	48.259	ppb	3.588	82248	50	96.5	90	110	
Sb	121	2	115	48.344	ppb	4.139	67287	50	96.7	90	110	
Ba	137	2	115	48.479	ppb	0.618	23487	50	97.0	90	110	
W	182	2	165	47.567	ppb	4.530	137686	50	95.1	90	110	
Pt	195	2	165	47.627	ppb	5.147	87971	50	95.3	90	110	
Tl	205	2	165	49.628	ppb	3.090	225248	50	99.3	90	110	
Pb	208	2	165	48.520	ppb	2.547	311536	50	97.0	90	110	
Th	232	2	165	48.776	ppb	3.267	312499	50	97.6	90	110	
U	238	2	165	48.271	ppb	5.478	332413	50	96.5	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	915610	4.12	963428	95.04	60	125	
Sc (IS)	45	2	HMI He	1516884	1.14	1482478	102.32	60	125	
Sc IS)	45	3	No Gas	59834436	1.84	60395536	99.07	60	120	
Ge Internal Standard	72	1	HMI H2	11871945	1.13	11879546	99.94	60	125	
Ge Internal Standard	72	2	HMI He	1987634	1.40	1923324	103.34	60	125	
In Internal standard	115	2	HMI He	5757923	2.84	5599328	102.83	60	125	
Ho-165	165	2	HMI He	17329866	3.32	17108014	101.30	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	127_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T18:56:39-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-21.183	ppb	-24.8	99679	0.1	
Li	7	3	45	-2.212	ppb	-301.5	5454199	0.05	
Be	9	1	6	0.038	ppb	57.1	12	0.5	
B	11	1	6	27.377	ppb	37.1	653	0.1	>RL
Na	23	2	45	-3.123	ppb	-32.4	21023	25	
Mg	24	2	45	-0.556	ppb	-51.5	170	25	
Al	27	2	45	2.701	ppb	97.6	280	15	
K	39	2	45	16.092	ppb	160.8	41990	50	
Ca	44	2	45	-2.419	ppb	-148.1	40	25	
V	51	2	72	-0.178	ppb	-122.9	4957	1	
Cr	52	2	72	-0.022	ppb	-109.4	473	1	
Mn	55	2	72	-0.039	ppb	-104.9	153	0.5	
Fe	57	2	72	-3.400	ppb	-68.2	520	25	
Co	59	2	72	-0.006	ppb	-154.8	57	0.5	
Ni	60	2	72	0.066	ppb	61.4	193	1	
Cu	63	2	72	0.275	ppb	28.7	2237	1	
Zn	66	2	72	0.546	ppb	81.5	807	5	
As	75	2	72	0.037	ppb	62.8	50	1	
Se	78	1	72	0.044	ppb	102.2	19	1	
Sr	88	2	45	-0.020	ppb	-91.3	50	1	
Zr	90	2	72	1.622	ppb	180.4	203	1	>RL
Zr	90	1	72	7.113	ppb	55.1	1038	1	>RL
Nb	93	2	72	1.035	ppb	8.3	3400	2	
Mo	95	2	115	0.043	ppb	87.5	183	0.5	
Pd	105	2	115	0.005	ppb	165.9	23	1	
Ag	107	2	115	-0.001	ppb	-1587.6	77	1	
Cd	111	2	115	0.011	ppb	173.2	7	0.5	
Sn	120	2	115	-0.065	ppb	-51.6	277	1	
Sb	121	2	115	0.023	ppb	74.6	113	1	
Ba	137	2	115	0.031	ppb	133.3	37	0.5	
W	182	2	165	0.089	ppb	59.1	1167	1	
Pt	195	2	165	-0.002	ppb	-351.5	7	1	
Tl	205	2	165	-0.003	ppb	-348.9	120	0.1	
Pb	208	2	165	0.024	ppb	78.4	590	0.5	
Th	232	2	165	0.173	ppb	7.1	1613	1	
U	238	2	165	0.007	ppb	41.6	93	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	932412	1.35	963428	96.78	60	125	
Sc (IS)	45	2	HMI He	1515841	0.53	1482478	102.25	60	125	
Sc IS)	45	3	No Gas	59999262	1.39	60395536	99.34	60	120	
Ge Internal Standard	72	1	HMI H2	11880369	2.51	11879546	100.01	60	125	
Ge Internal Standard	72	2	HMI He	1993561	4.06	1923324	103.65	60	125	
In Internal standard	115	2	HMI He	5894266	1.02	5599328	105.27	60	125	
Ho-165	165	2	HMI He	17985493	2.51	17108014	105.13	60	125	

Blank Report

Sample Table

Sample Name	MB 280-467490/1-A
Data File Name	128_BLK.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:00:13-06:00
Sample Type	Blank
Dilution	1
Comment	467490 6020
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit
Li	7	1	45	-26.709	ppb	-31.93414837	99441	0.1
Li	7	3	45	-5.299	ppb	-109.4897269	5549549	0.05
Be	9	1	6	-0.006	ppb	-1.33502E-06	0	0.5
Na	23	2	45	-12.181	ppb	-18.92702756	18860	25
Mg	24	2	45	0.142	ppb	141.4675452	263	25
Al	27	2	45	4.298	ppb	37.43226536	343	15
K	39	2	45	-3.196	ppb	-290.2201237	41161	50
Ca	44	2	45	7.979	ppb	14.29117273	120	25
V	51	2	72	-1.243	ppb	-14.33265481	3200	1
Cr	52	2	72	0.062	ppb	68.70731133	670	1
Mn	55	2	72	-0.046	ppb	-190.8414267	150	0.5
Fe	57	2	72	-2.092	ppb	-76.53760528	583	25
Co	59	2	72	-0.014	ppb	-45.61296848	27	0.5
Ni	60	2	72	0.020	ppb	227.9486248	150	1
Cu	63	2	72	0.279	ppb	24.38208351	2280	1
Zn	66	2	72	2.665	ppb	19.20608507	1623	5
As	75	2	72	0.005	ppb	470.084964	42	1
Se	78	1	72	0.009	ppb	177.0545897	9	1
Sr	88	2	45	0.006	ppb	570.2706656	80	1
Zr	90	2	72	-0.247	ppb	-2821.848428	187	1
Zr	90	1	72	4.373	ppb	141.4249599	971	1
Nb	93	2	72	0.509	ppb	19.43525283	1997	2
Mo	95	2	115	-0.033	ppb	-103.3404936	77	0.5
Pd	105	2	115	0.000	ppb	-1141.727616	13	1
Ag	107	2	115	-0.010	ppb	-87.6581526	40	1
Cd	111	2	115	0.000	ppb	#DIV/0!	0	0.5
Sn	120	2	115	-0.093	ppb	-36.85263547	230	1
Sb	121	2	115	-0.008	ppb	-240.9634103	70	1
Ba	137	2	115	-0.003	ppb	-1242.842329	20	0.5
W	182	2	165	0.076	ppb	46.92788661	1093	1
Pt	195	2	165	-0.004	ppb	-87.221847	3	1
Tl	205	2	165	0.009	ppb	56.94454517	170	0.1
Pb	208	2	165	0.010	ppb	55.69422343	487	0.5
Th	232	2	165	0.616	ppb	2.237283571	4417	1
U	238	2	165	-0.002	ppb	-144.4145014	27	0.5

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	912917	1.45	963428	94.76	60	125	
Sc (IS)	45	2	HMI He	1556769	1.19	1482478	105.01	60	125	
Sc IS)	45	3	No Gas	61605789	2.66	60395536	102.00	60	120	
Ge Internal Standard	72	1	HMI H2	11983978	0.56	11879546	100.88	60	125	
Ge Internal Standard	72	2	HMI He	2019477	1.44	1923324	105.00	60	125	
In Internal standard	115	2	HMI He	5964092	1.85	5599328	106.51	60	125	
Ho-165	165	2	HMI He	17443199	2.94	17108014	101.96	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	LCS 280-467490/2-A
Data File Name	129_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:03:46-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	467490 6020
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	36.531	36.531	ppb	14.167	6249852	400	9.1	80	120	>+/-20%
Be	9	1	6	40.382	40.382	ppb	4.654	10828	40	101.0	80	120	
Na	23	2	45	822.514	822.514	ppb	3.879	268112	40	2056.3	80	120	>+/-20%
Mg	24	2	45	838.869	838.869	ppb	2.230	106138	40	2097.2	80	120	>+/-20%
Al	27	2	45	827.257	827.257	ppb	3.021	29087	40	2068.1	80	120	>+/-20%
K	39	2	45	835.906	835.906	ppb	3.241	125540	40	2089.8	80	120	>+/-20%
Ca	44	2	45	839.158	839.158	ppb	1.326	6371	40	2097.9	80	120	>+/-20%
V	51	2	72	38.021	38.021	ppb	3.716	71038	40	95.1	80	120	
Cr	52	2	72	39.342	39.342	ppb	2.617	90340	40	98.4	80	120	
Mn	55	2	72	40.885	40.885	ppb	4.829	40871	40	102.2	80	120	
Fe	57	2	72	822.199	822.199	ppb	2.024	35380	40	2055.5	80	120	>+/-20%
Co	59	2	72	39.539	39.539	ppb	0.099	143559	40	98.8	80	120	
Ni	60	2	72	39.955	39.955	ppb	3.583	40187	40	99.9	80	120	
Cu	63	2	72	37.636	37.636	ppb	2.670	105426	40	94.1	80	120	
Zn	66	2	72	40.385	40.385	ppb	4.621	16094	40	101.0	80	120	
As	75	2	72	36.590	36.590	ppb	1.462	10406	40	91.5	80	120	
Se	78	1	72	37.379	37.379	ppb	3.036	10427	40	93.4	80	120	
Sr	88	2	45	83.503	83.503	ppb	5.019	91811	40	208.8	80	120	>+/-20%
Nb	93	2	72	0.583	0.583	ppb	17.352	2217	40	1.5	80	120	>+/-20%
Mo	95	2	115	39.698	39.698	ppb	2.579	56873	40	99.2	80	120	
Pd	105	2	115	0.000	0.000	ppb	-674.020	13	40	0.0	80	120	>+/-20%
Ag	107	2	115	37.866	37.866	ppb	2.784	164782	40	94.7	80	120	
Cd	111	2	115	39.099	39.099	ppb	2.916	23978	40	97.7	80	120	
Sn	120	2	115	39.239	39.239	ppb	2.354	69760	40	98.1	80	120	
Sb	121	2	115	40.307	40.307	ppb	7.155	58454	40	100.8	80	120	
Ba	137	2	115	40.287	40.287	ppb	2.234	20343	40	100.7	80	120	
W	182	2	165	38.584	38.584	ppb	2.070	116746	40	96.5	80	120	
Pt	195	2	165	-0.002	-0.002	ppb	-359.948	7	40	0.0	80	120	>+/-20%
Tl	205	2	165	39.394	39.394	ppb	2.058	186528	40	98.5	80	120	
Pb	208	2	165	38.360	38.360	ppb	4.796	256842	40	95.9	80	120	
Th	232	2	165	39.643	39.643	ppb	3.902	264903	40	99.1	80	120	
U	238	2	165	39.478	39.478	ppb	2.143	283691	40	98.7	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	952833	1.85	963428	98.90	60	125	
Sc (IS)	45	2	HMI He	1544146	3.83	1482478	104.16	60	125	
Sc IS)	45	3	No Gas	61802685	1.52	60395536	102.33	60	120	
Ge Internal Standard	72	1	HMI H2	12072170	0.39	11879546	101.62	60	125	
Ge Internal Standard	72	2	HMI He	2030605	1.08	1923324	105.58	60	125	
In Internal standard	115	2	HMI He	5999187	1.87	5599328	107.14	60	125	
Ho-165	165	2	HMI He	18073344	3.61	17108014	105.64	60	125	

Sample Report

Sample Table

Sample Name	280-126898-R-7-B
Data File Name	130SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:07:18-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	2.683	ppb	2.683	167.75	5436007	40000	
Be	9	1	6	0.244	ppb	0.244	48.82	62	2000	
B	11	1	6	3585.311	ppb	3585.311	4.18	29491	100	>LDR
Na	23	2	45	200494.495	ppb	200494.495	2.80	58009117	400000	
Mg	24	2	45	14000.163	ppb	14000.163	5.87	1709421	400000	
Al	27	2	45	54.386	ppb	54.386	10.66	2020	400000	
K	39	2	45	2150.062	ppb	2150.062	4.36	249809	400000	
Ca	44	2	45	64503.081	ppb	64503.081	2.87	469083	400000	
V	51	2	72	0.507	ppb	0.507	7.87	5891	2000	
Cr	52	2	72	0.956	ppb	0.956	18.41	2557	5000	
Mn	55	2	72	24.355	ppb	24.355	2.83	23049	10000	
Fe	57	2	72	56.353	ppb	56.353	8.09	2880	400000	
Co	59	2	72	0.305	ppb	0.305	18.49	1113	2000	
Ni	60	2	72	3.769	ppb	3.769	2.73	3687	5000	
Cu	63	2	72	0.987	ppb	0.987	11.49	4004	5000	
Zn	66	2	72	5.652	ppb	5.652	14.19	2620	5000	
As	75	2	72	1.288	ppb	1.288	12.55	383	2000	
Se	78	1	72	0.230	ppb	0.230	26.86	67	2000	
Sr	88	2	45	323.462	ppb	323.462	3.46	344112	2000	
Zr	90	2	72	7.254	ppb	7.254	28.00	253	1000	
Zr	90	1	72	21.956	ppb	21.956	13.70	1388	1000	
Nb	93	2	72	0.320	ppb	0.320	17.53	1400	200	
Mo	95	2	115	2.330	ppb	2.330	16.77	3197	2000	
Pd	105	2	115	0.010	ppb	0.010	59.12	33	100	
Ag	107	2	115	-0.011	ppb	-0.011	-56.85	30	100	
Cd	111	2	115	0.053	ppb	0.053	36.71	30	2000	
Sn	120	2	115	-0.012	ppb	-0.012	-684.55	347	2000	
Sb	121	2	115	0.528	ppb	0.528	9.07	787	1000	
Ba	137	2	115	54.028	ppb	54.028	4.55	25287	5000	
W	182	2	165	0.138	ppb	0.138	43.15	1263	100	
Pt	195	2	165	-0.004	ppb	-0.004	-90.99	3	100	
Tl	205	2	165	0.027	ppb	0.027	52.90	250	2000	
Pb	208	2	165	0.020	ppb	0.020	66.41	547	5000	
Th	232	2	165	1.776	ppb	1.776	4.60	11808	2000	
U	238	2	165	4.369	ppb	4.369	1.14	30154	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	873658	1.89	963428	90.68	60	125	
Sc (IS)	45	2	HMI He	1493943	2.77	1482478	100.77	60	125	
Sc IS)	45	3	No Gas	58958976	1.27	60395536	97.62	60	120	
Ge Internal Standard	72	1	HMI H2	11329108	1.45	11879546	95.37	60	125	
Ge Internal Standard	72	2	HMI He	1916242	3.83	1923324	99.63	60	125	
In Internal standard	115	2	HMI He	5569340	4.10	5599328	99.46	60	125	
Ho-165	165	2	HMI He	17325892	2.47	17108014	101.27	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-7-A
Data File Name	131SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:10:50-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	73.819	ppb	73.819	10.23	6590545	40000	
Be	9	1	6	0.008	ppb	0.008	311.13	3	2000	
B	11	1	6	5807.830	ppb	5807.830	2.12	46236	100	>LDR
Na	23	2	45	289499.604	ppb	289499.604	4.04	83502866	400000	
Mg	24	2	45	72887.479	ppb	72887.479	4.25	8876002	400000	
Al	27	2	45	35.618	ppb	35.618	11.03	1383	400000	
K	39	2	45	3060.672	ppb	3060.672	1.98	337944	400000	
Ca	44	2	45	105580.162	ppb	105580.162	1.04	765878	400000	
V	51	2	72	1.208	ppb	1.208	16.89	7078	2000	
Cr	52	2	72	0.104	ppb	0.104	50.85	730	5000	
Mn	55	2	72	133.533	ppb	133.533	2.39	126363	10000	
Fe	57	2	72	32.343	ppb	32.343	15.97	1937	400000	
Co	59	2	72	1.619	ppb	1.619	7.97	5651	2000	
Ni	60	2	72	1.943	ppb	1.943	6.82	1973	5000	
Cu	63	2	72	0.481	ppb	0.481	9.57	2707	5000	
Zn	66	2	72	5.766	ppb	5.766	1.16	2680	5000	
As	75	2	72	1.076	ppb	1.076	9.06	328	2000	
Se	78	1	72	0.207	ppb	0.207	45.09	60	2000	
Sr	88	2	45	1488.946	ppb	1488.946	3.34	1579397	2000	
Zr	90	2	72	3610.933	ppb	3610.933	5.20	37459	1000	
Zr	90	1	72	4084.200	ppb	4084.200	2.03	108909	1000	
Nb	93	2	72	0.051	ppb	0.051	62.81	703	200	
Mo	95	2	115	1.076	ppb	1.076	16.55	1527	2000	
Pd	105	2	115	0.056	ppb	0.056	34.74	120	100	
Ag	107	2	115	-0.004	ppb	-0.004	-224.30	60	100	
Cd	111	2	115	0.000	ppb	0.000	#DIV/0!	0	2000	
Sn	120	2	115	-0.046	ppb	-0.046	-153.58	290	2000	
Sb	121	2	115	0.546	ppb	0.546	7.91	803	1000	
Ba	137	2	115	56.732	ppb	56.732	5.50	26332	5000	
W	182	2	165	0.182	ppb	0.182	10.18	1437	100	
Pt	195	2	165	0.000	ppb	0.000	-4022.52	10	100	
Tl	205	2	165	-0.001	ppb	-0.001	-914.91	127	2000	
Pb	208	2	165	0.043	ppb	0.043	23.11	717	5000	
Th	232	2	165	0.437	ppb	0.437	2.31	3347	2000	
U	238	2	165	6.385	ppb	6.385	1.71	45433	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	850347	0.89	963428	88.26	60	125	
Sc (IS)	45	2	HMI He	1489714	2.32	1482478	100.49	60	125	
Sc IS)	45	3	No Gas	59417225	0.50	60395536	98.38	60	120	
Ge Internal Standard	72	1	HMI H2	11223621	0.66	11879546	94.48	60	125	
Ge Internal Standard	72	2	HMI He	1928476	1.12	1923324	100.27	60	125	
In Internal standard	115	2	HMI He	5519342	1.87	5599328	98.57	60	125	
Ho-165	165	2	HMI He	17874201	1.37	17108014	104.48	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-10-A
Data File Name	132SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:14:22-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	74.092	ppb	74.092	11.60	6598154	40000	
Be	9	1	6	0.001	ppb	0.001	1577.15	2	2000	
B	11	1	6	6179.815	ppb	6179.815	4.38	49622	100	>LDR
Na	23	2	45	290378.133	ppb	290378.133	1.52	85797127	400000	
Mg	24	2	45	72074.314	ppb	72074.314	1.31	8991308	400000	
Al	27	2	45	102.261	ppb	102.261	14.79	3717	400000	
K	39	2	45	5024.818	ppb	5024.818	2.28	542022	400000	
Ca	44	2	45	105456.587	ppb	105456.587	0.79	783345	400000	
V	51	2	72	1.564	ppb	1.564	8.63	7945	2000	
Cr	52	2	72	0.142	ppb	0.142	23.76	843	5000	
Mn	55	2	72	548.174	ppb	548.174	1.05	537177	10000	
Fe	57	2	72	32.863	ppb	32.863	12.57	2030	400000	
Co	59	2	72	1.564	ppb	1.564	3.76	5661	2000	
Ni	60	2	72	1.971	ppb	1.971	9.10	2073	5000	
Cu	63	2	72	0.409	ppb	0.409	11.41	2614	5000	
Zn	66	2	72	4.260	ppb	4.260	4.39	2210	5000	
As	75	2	72	1.410	ppb	1.410	13.07	433	2000	
Se	78	1	72	0.113	ppb	0.113	53.27	36	2000	
Sr	88	2	45	1483.532	ppb	1483.532	0.82	1612032	2000	
Zr	90	2	72	91.199	ppb	91.199	14.90	1163	1000	
Zr	90	1	72	112.121	ppb	112.121	8.07	3791	1000	
Nb	93	2	72	-0.040	ppb	-0.040	-37.73	483	200	
Mo	95	2	115	1.761	ppb	1.761	3.69	2474	2000	
Pd	105	2	115	0.031	ppb	0.031	67.68	73	100	
Ag	107	2	115	-0.016	ppb	-0.016	-26.16	10	100	
Cd	111	2	115	0.018	ppb	0.018	99.81	10	2000	
Sn	120	2	115	-0.031	ppb	-0.031	-30.57	320	2000	
Sb	121	2	115	0.553	ppb	0.553	19.21	827	1000	
Ba	137	2	115	71.273	ppb	71.273	1.68	33662	5000	
W	182	2	165	0.312	ppb	0.312	21.32	1807	100	
Pt	195	2	165	-0.004	ppb	-0.004	-77.80	3	100	
Tl	205	2	165	0.005	ppb	0.005	241.36	153	2000	
Pb	208	2	165	0.040	ppb	0.040	60.20	690	5000	
Th	232	2	165	0.320	ppb	0.320	16.15	2544	2000	
U	238	2	165	9.790	ppb	9.790	5.77	68996	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	858239	0.98	963428	89.08	60	125	
Sc (IS)	45	2	HMI He	1525202	0.97	1482478	102.88	60	125	
Sc IS)	45	3	No Gas	59451974	1.04	60395536	98.44	60	120	
Ge Internal Standard	72	1	HMI H2	11309401	1.45	11879546	95.20	60	125	
Ge Internal Standard	72	2	HMI He	1998969	0.62	1923324	103.93	60	125	
In Internal standard	115	2	HMI He	5615285	1.97	5599328	100.28	60	125	
Ho-165	165	2	HMI He	17741616	5.52	17108014	103.70	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-13-A
Data File Name	133SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:17:53-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	55.090	ppb	55.090	6.02	6340471	40000	
Be	9	1	6	0.001	ppb	0.001	1549.30	2	2000	
B	11	1	6	5679.690	ppb	5679.690	3.92	45909	100	>LDR
Na	23	2	45	240862.791	ppb	240862.791	2.24	71518170	400000	
Mg	24	2	45	60851.881	ppb	60851.881	0.58	7628920	400000	
Al	27	2	45	13.093	ppb	13.093	4.83	643	400000	
K	39	2	45	1895.118	ppb	1895.118	2.85	230863	400000	
Ca	44	2	45	98847.334	ppb	98847.334	1.64	737773	400000	
V	51	2	72	-0.171	ppb	-0.171	-16.41	5014	2000	
Cr	52	2	72	0.079	ppb	0.079	61.09	703	5000	
Mn	55	2	72	406.601	ppb	406.601	1.90	400196	10000	
Fe	57	2	72	44.159	ppb	44.159	8.48	2510	400000	
Co	59	2	72	1.345	ppb	1.345	5.64	4901	2000	
Ni	60	2	72	1.718	ppb	1.718	14.94	1830	5000	
Cu	63	2	72	0.144	ppb	0.144	31.32	1900	5000	
Zn	66	2	72	2.486	ppb	2.486	21.76	1547	5000	
As	75	2	72	0.425	ppb	0.425	14.95	159	2000	
Se	78	1	72	0.032	ppb	0.032	193.73	15	2000	
Sr	88	2	45	1284.533	ppb	1284.533	1.56	1402346	2000	
Zr	90	2	72	32.254	ppb	32.254	43.60	533	1000	
Zr	90	1	72	35.821	ppb	35.821	12.98	1749	1000	
Nb	93	2	72	-0.055	ppb	-0.055	-17.14	443	200	
Mo	95	2	115	6.343	ppb	6.343	5.72	8852	2000	
Pd	105	2	115	0.046	ppb	0.046	58.05	107	100	
Ag	107	2	115	-0.009	ppb	-0.009	-45.20	40	100	
Cd	111	2	115	0.011	ppb	0.011	86.60	7	2000	
Sn	120	2	115	-0.036	ppb	-0.036	-142.19	320	2000	
Sb	121	2	115	0.340	ppb	0.340	5.46	553	1000	
Ba	137	2	115	31.739	ppb	31.739	4.35	15441	5000	
W	182	2	165	0.118	ppb	0.118	57.59	1273	100	
Pt	195	2	165	-0.004	ppb	-0.004	-81.23	3	100	
Tl	205	2	165	0.007	ppb	0.007	50.43	170	2000	
Pb	208	2	165	0.028	ppb	0.028	71.00	627	5000	
Th	232	2	165	0.250	ppb	0.250	8.07	2157	2000	
U	238	2	165	37.122	ppb	37.122	3.78	270024	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	863460	1.80	963428	89.62	60	125	
Sc (IS)	45	2	HMI He	1532583	1.03	1482478	103.38	60	125	
Sc IS)	45	3	No Gas	59819520	0.92	60395536	99.05	60	120	
Ge Internal Standard	72	1	HMI H2	11266503	0.05	11879546	94.84	60	125	
Ge Internal Standard	72	2	HMI He	2007716	1.39	1923324	104.39	60	125	
In Internal standard	115	2	HMI He	5780195	1.01	5599328	103.23	60	125	
Ho-165	165	2	HMI He	18296491	2.58	17108014	106.95	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	134_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:21:24-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	55.544	ppb	33.463	124639	100	55.5	90	110	>+\-10%
Li	7	3	45	76.675	ppb	4.116	6752713	100	76.7	90	110	>+\-10%
Be	9	1	6	49.522	ppb	4.333	12738	50	99.0	90	110	
B	11	1	6	258.260	ppb	18.447	2597	50	516.5	90	110	>+\-10%
Na	23	2	45	1147.614	ppb	0.633	360859	1000	114.8	90	110	>+\-10%
Mg	24	2	45	973.944	ppb	2.648	121655	1000	97.4	90	110	
Al	27	2	45	990.238	ppb	1.813	34360	1000	99.0	90	110	
K	39	2	45	999.309	ppb	2.262	140284	1000	99.9	90	110	
Ca	44	2	45	1034.611	ppb	4.623	7738	1000	103.5	90	110	
V	51	2	72	45.080	ppb	3.097	83302	50	90.2	90	110	
Cr	52	2	72	45.169	ppb	1.680	103730	50	90.3	90	110	
Mn	55	2	72	48.367	ppb	1.872	48367	50	96.7	90	110	
Fe	57	2	72	976.297	ppb	2.002	41917	1000	97.6	90	110	
Co	59	2	72	46.085	ppb	0.549	167472	50	92.2	90	110	
Ni	60	2	72	44.648	ppb	0.660	44938	50	89.3	90	110	>+\-10%
Cu	63	2	72	46.182	ppb	2.090	129112	50	92.4	90	110	
Zn	66	2	72	46.949	ppb	1.452	18620	50	93.9	90	110	
As	75	2	72	46.838	ppb	4.731	13318	50	93.7	90	110	
Se	78	1	72	49.030	ppb	0.696	13875	50	98.1	90	110	
Sr	88	2	45	101.082	ppb	3.292	109813	100	101.1	90	110	
Zr	90	2	72	48.946	ppb	16.920	723	50	97.9	90	110	
Zr	90	1	72	65.589	ppb	8.305	2760	50	131.2	90	110	>+\-10%
Nb	93	2	72	93.196	ppb	1.286	258877	100	93.2	90	110	
Mo	95	2	115	47.207	ppb	3.157	67147	50	94.4	90	110	
Pd	105	2	115	46.500	ppb	0.960	96812	50	93.0	90	110	
Ag	107	2	115	45.193	ppb	0.633	195444	50	90.4	90	110	
Cd	111	2	115	48.628	ppb	1.958	29643	50	97.3	90	110	
Sn	120	2	115	47.098	ppb	0.569	83119	50	94.2	90	110	
Sb	121	2	115	47.506	ppb	3.299	68492	50	95.0	90	110	
Ba	137	2	115	48.355	ppb	1.834	24255	50	96.7	90	110	
W	182	2	165	46.593	ppb	2.500	139982	50	93.2	90	110	
Pt	195	2	165	45.246	ppb	6.194	86688	50	90.5	90	110	
Tl	205	2	165	47.685	ppb	5.480	224425	50	95.4	90	110	
Pb	208	2	165	46.855	ppb	4.387	312005	50	93.7	90	110	
Th	232	2	165	45.943	ppb	4.001	305348	50	91.9	90	110	
U	238	2	165	47.023	ppb	2.517	336137	50	94.0	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	913608	1.93	963428	94.83	60	125	
Sc (IS)	45	2	HMI He	1524236	0.85	1482478	102.82	60	125	
Sc IS)	45	3	No Gas	60469357	1.22	60395536	100.12	60	120	
Ge Internal Standard	72	1	HMI H2	12248440	1.24	11879546	103.11	60	125	
Ge Internal Standard	72	2	HMI He	2032663	1.74	1923324	105.68	60	125	
In Internal standard	115	2	HMI He	5960875	0.63	5599328	106.46	60	125	
Ho-165	165	2	HMI He	17979902	3.46	17108014	105.10	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	135_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:24:55-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-26.869	ppb	-31.0	99270	0.1	
Li	7	3	45	-4.265	ppb	-21.9	5229924	0.05	
Be	9	1	6	0.000	ppb	-85761.4	2	0.5	
B	11	1	6	98.708	ppb	16.8	1243	0.1	>RL
Na	23	2	45	108.712	ppb	5.9	53781	25	>RL
Mg	24	2	45	5.535	ppb	12.6	923	25	
Al	27	2	45	1.127	ppb	241.3	223	15	
K	39	2	45	5.481	ppb	115.8	40904	50	
Ca	44	2	45	10.228	ppb	104.0	133	25	
V	51	2	72	-0.562	ppb	-41.7	4334	1	
Cr	52	2	72	-0.041	ppb	-69.4	433	1	
Mn	55	2	72	-0.068	ppb	-97.3	127	0.5	
Fe	57	2	72	-1.573	ppb	-183.1	600	25	
Co	59	2	72	-0.005	ppb	-157.8	60	0.5	
Ni	60	2	72	0.119	ppb	7.7	247	1	
Cu	63	2	72	0.327	ppb	13.5	2394	1	
Zn	66	2	72	0.084	ppb	303.1	637	5	
As	75	2	72	0.058	ppb	45.6	56	1	
Se	78	1	72	0.062	ppb	40.4	24	1	
Sr	88	2	45	0.085	ppb	31.2	163	1	
Zr	90	2	72	0.202	ppb	2028.0	190	1	
Zr	90	1	72	7.616	ppb	74.5	1061	1	>RL
Nb	93	2	72	1.098	ppb	4.1	3590	2	
Mo	95	2	115	0.012	ppb	288.4	140	0.5	
Pd	105	2	115	0.016	ppb	47.4	47	1	
Ag	107	2	115	0.000	ppb	-1031.4	80	1	
Cd	111	2	115	0.028	ppb	91.8	17	0.5	
Sn	120	2	115	-0.045	ppb	-89.7	313	1	
Sb	121	2	115	0.073	ppb	37.5	187	1	
Ba	137	2	115	0.011	ppb	285.1	27	0.5	
W	182	2	165	0.087	ppb	61.3	1127	1	
Pt	195	2	165	-0.002	ppb	-174.3	7	1	
Tl	205	2	165	0.008	ppb	170.7	167	0.1	
Pb	208	2	165	0.005	ppb	200.2	453	0.5	
Th	232	2	165	0.136	ppb	9.7	1323	1	
U	238	2	165	0.011	ppb	25.7	117	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	914383	4.68	963428	94.91	60	125	
Sc (IS)	45	2	HMI He	1514779	3.52	1482478	102.18	60	125	
Sc IS)	45	3	No Gas	57865882	0.23	60395536	95.81	60	120	
Ge Internal Standard	72	1	HMI H2	11976479	1.13	11879546	100.82	60	125	
Ge Internal Standard	72	2	HMI He	2002581	0.96	1923324	104.12	60	125	
In Internal standard	115	2	HMI He	5955707	1.90	5599328	106.36	60	125	
Ho-165	165	2	HMI He	17416789	1.30	17108014	101.80	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-A
Data File Name	136SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:28:28-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	1.190	ppb	1.190	475.16	5477430	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	570.160	ppb	570.160	8.24	5064	100	>LDR
Na	23	2	45	31929.103	ppb	31929.103	2.94	9616606	400000	
Mg	24	2	45	6755.920	ppb	6755.920	2.59	857582	400000	
Al	27	2	45	4.480	ppb	4.480	81.76	350	400000	
K	39	2	45	1444.634	ppb	1444.634	3.30	188003	400000	
Ca	44	2	45	26199.595	ppb	26199.595	1.04	198042	400000	
V	51	2	72	-0.749	ppb	-0.749	-27.91	4011	2000	
Cr	52	2	72	0.122	ppb	0.122	46.54	797	5000	
Mn	55	2	72	33.030	ppb	33.030	3.80	32571	10000	
Fe	57	2	72	16.038	ppb	16.038	25.28	1330	400000	
Co	59	2	72	0.588	ppb	0.588	2.18	2180	2000	
Ni	60	2	72	0.480	ppb	0.480	9.33	603	5000	
Cu	63	2	72	1.894	ppb	1.894	8.82	6648	5000	
Zn	66	2	72	14.278	ppb	14.278	1.53	5998	5000	
As	75	2	72	0.351	ppb	0.351	18.45	138	2000	
Se	78	1	72	0.397	ppb	0.397	8.75	115	2000	
Sr	88	2	45	214.132	ppb	214.132	2.25	236741	2000	
Zr	90	2	72	7.217	ppb	7.217	84.49	263	1000	
Zr	90	1	72	8.344	ppb	8.344	39.09	1064	1000	
Nb	93	2	72	0.667	ppb	0.667	7.82	2414	200	
Mo	95	2	115	2.366	ppb	2.366	4.70	3357	2000	
Pd	105	2	115	0.015	ppb	0.015	48.97	43	100	
Ag	107	2	115	-0.007	ppb	-0.007	-139.25	50	100	
Cd	111	2	115	0.029	ppb	0.029	35.82	17	2000	
Sn	120	2	115	-0.024	ppb	-0.024	-191.49	340	2000	
Sb	121	2	115	0.496	ppb	0.496	5.20	767	1000	
Ba	137	2	115	29.422	ppb	29.422	4.85	14223	5000	
W	182	2	165	0.149	ppb	0.149	31.17	1340	100	
Pt	195	2	165	-0.004	ppb	-0.004	-83.86	3	100	
Tl	205	2	165	0.019	ppb	0.019	55.99	223	2000	
Pb	208	2	165	0.378	ppb	0.378	8.93	2933	5000	
Th	232	2	165	0.669	ppb	0.669	5.45	4884	2000	
U	238	2	165	3.271	ppb	3.271	4.49	23342	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	882433	1.40	963428	91.59	60	125	
Sc (IS)	45	2	HMI He	1551852	1.60	1482478	104.68	60	125	
Sc IS)	45	3	No Gas	59661699	0.84	60395536	98.78	60	120	
Ge Internal Standard	72	1	HMI H2	11773466	0.56	11879546	99.11	60	125	
Ge Internal Standard	72	2	HMI He	2002214	4.13	1923324	104.10	60	125	
In Internal standard	115	2	HMI He	5741579	1.79	5599328	102.54	60	125	
Ho-165	165	2	HMI He	17908592	0.27	17108014	104.68	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-Asd@5
Data File Name	137SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:32:00-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-3.929	ppb	-3.929	-75.23	5336276	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	150.730	ppb	150.730	9.15	1693	100	
Na	23	2	45	5981.146	ppb	5981.146	2.59	1786867	400000	
Mg	24	2	45	1251.662	ppb	1251.662	3.45	156168	400000	
Al	27	2	45	1.016	ppb	1.016	167.20	223	400000	
K	39	2	45	283.421	ppb	283.421	7.22	68834	400000	
Ca	44	2	45	4878.347	ppb	4878.347	1.75	36244	400000	
V	51	2	72	-0.642	ppb	-0.642	-16.35	4197	2000	
Cr	52	2	72	-0.013	ppb	-0.013	-298.28	497	5000	
Mn	55	2	72	6.238	ppb	6.238	0.81	6311	10000	
Fe	57	2	72	3.370	ppb	3.370	59.99	807	400000	
Co	59	2	72	0.094	ppb	0.094	21.61	413	2000	
Ni	60	2	72	0.076	ppb	0.076	24.65	203	5000	
Cu	63	2	72	0.314	ppb	0.314	24.11	2354	5000	
Zn	66	2	72	2.330	ppb	2.330	8.93	1483	5000	
As	75	2	72	0.114	ppb	0.114	18.90	72	2000	
Se	78	1	72	0.063	ppb	0.063	92.86	24	2000	
Sr	88	2	45	40.338	ppb	40.338	2.81	43837	2000	
Zr	90	2	72	5.525	ppb	5.525	33.36	247	1000	
Zr	90	1	72	9.027	ppb	9.027	83.83	1084	1000	
Nb	93	2	72	0.259	ppb	0.259	29.84	1297	200	
Mo	95	2	115	0.550	ppb	0.550	10.26	903	2000	
Pd	105	2	115	0.005	ppb	0.005	341.33	23	100	
Ag	107	2	115	-0.002	ppb	-0.002	-375.87	73	100	
Cd	111	2	115	0.011	ppb	0.011	173.21	7	2000	
Sn	120	2	115	-0.013	ppb	-0.013	-199.42	370	2000	
Sb	121	2	115	0.096	ppb	0.096	57.38	220	1000	
Ba	137	2	115	5.276	ppb	5.276	11.86	2654	5000	
W	182	2	165	0.046	ppb	0.046	79.17	1060	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.007	ppb	-0.007	-117.62	103	2000	
Pb	208	2	165	0.078	ppb	0.078	13.10	970	5000	
Th	232	2	165	0.074	ppb	0.074	10.39	977	2000	
U	238	2	165	0.562	ppb	0.562	6.23	4137	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	916840	0.98	963428	95.16	60	125	
Sc (IS)	45	2	HMI He	1523349	1.36	1482478	102.76	60	125	
Sc IS)	45	3	No Gas	58988272	1.06	60395536	97.67	60	120	
Ge Internal Standard	72	1	HMI H2	11813907	2.16	11879546	99.45	60	125	
Ge Internal Standard	72	2	HMI He	2001274	1.54	1923324	104.05	60	125	
In Internal standard	115	2	HMI He	5946787	2.74	5599328	106.21	60	125	
Ho-165	165	2	HMI He	18350484	3.02	17108014	107.26	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-B MS
Data File Name	138SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:35:33-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	46.987	ppb	46.987	10.90	6145038	40000	
Be	9	1	6	41.303	ppb	41.303	3.61	10280	2000	
B	11	1	6	594.543	ppb	594.543	5.25	5278	100	>LDR
Na	23	2	45	33708.656	ppb	33708.656	1.27	9875297	400000	
Mg	24	2	45	7747.332	ppb	7747.332	2.13	956579	400000	
Al	27	2	45	831.857	ppb	831.857	0.85	28610	400000	
K	39	2	45	2355.980	ppb	2355.980	2.03	272841	400000	
Ca	44	2	45	28082.185	ppb	28082.185	1.74	206430	400000	
V	51	2	72	37.031	ppb	37.031	1.13	68528	2000	
Cr	52	2	72	38.040	ppb	38.040	1.86	86346	5000	
Mn	55	2	72	72.376	ppb	72.376	3.38	71363	10000	
Fe	57	2	72	799.369	ppb	799.369	2.41	34010	400000	
Co	59	2	72	38.581	ppb	38.581	1.45	138442	2000	
Ni	60	2	72	37.705	ppb	37.705	1.73	37487	5000	
Cu	63	2	72	37.869	ppb	37.869	2.98	104833	5000	
Zn	66	2	72	53.960	ppb	53.960	3.81	21043	5000	
As	75	2	72	36.497	ppb	36.497	1.94	10261	2000	
Se	78	1	72	39.738	ppb	39.738	3.60	10493	2000	
Sr	88	2	45	307.048	ppb	307.048	1.94	330156	2000	
Zr	90	2	72	30.326	ppb	30.326	23.59	513	1000	
Zr	90	1	72	39.128	ppb	39.128	23.48	1862	1000	
Nb	93	2	72	0.448	ppb	0.448	23.31	1820	200	
Mo	95	2	115	42.289	ppb	42.289	3.99	58739	2000	
Pd	105	2	115	0.003	ppb	0.003	324.87	20	100	
Ag	107	2	115	37.728	ppb	37.728	1.30	159380	100	
Cd	111	2	115	39.330	ppb	39.330	3.36	23413	2000	
Sn	120	2	115	39.615	ppb	39.615	3.65	68322	2000	
Sb	121	2	115	42.921	ppb	42.921	5.77	60407	1000	
Ba	137	2	115	70.838	ppb	70.838	2.47	34687	5000	
W	182	2	165	38.404	ppb	38.404	1.89	113726	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	39.126	ppb	39.126	1.58	181384	2000	
Pb	208	2	165	38.111	ppb	38.111	0.80	249963	5000	
Th	232	2	165	39.109	ppb	39.109	0.78	255996	2000	
U	238	2	165	42.719	ppb	42.719	3.38	300585	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	884125	0.63	963428	91.77	60	125	
Sc (IS)	45	2	HMI He	1509402	1.94	1482478	101.82	60	125	
Sc IS)	45	3	No Gas	59169299	1.26	60395536	97.97	60	120	
Ge Internal Standard	72	1	HMI H2	11426128	0.23	11879546	96.18	60	125	
Ge Internal Standard	72	2	HMI He	2006878	0.75	1923324	104.34	60	125	
In Internal standard	115	2	HMI He	5823683	3.04	5599328	104.01	60	125	
Ho-165	165	2	HMI He	17686740	0.74	17108014	103.38	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-C MSD
Data File Name	139SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:39:04-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	47.852	ppb	47.852	18.98	6046756	40000	
Be	9	1	6	41.848	ppb	41.848	2.21	10386	2000	
B	11	1	6	601.007	ppb	601.007	7.13	5314	100	>LDR
Na	23	2	45	34306.092	ppb	34306.092	4.87	9760528	400000	
Mg	24	2	45	7994.111	ppb	7994.111	1.95	959408	400000	
Al	27	2	45	859.456	ppb	859.456	4.86	28700	400000	
K	39	2	45	2411.149	ppb	2411.149	4.17	270380	400000	
Ca	44	2	45	28138.953	ppb	28138.953	3.14	200994	400000	
V	51	2	72	38.390	ppb	38.390	2.79	70860	2000	
Cr	52	2	72	38.342	ppb	38.342	2.55	87043	5000	
Mn	55	2	72	72.477	ppb	72.477	2.97	71480	10000	
Fe	57	2	72	802.925	ppb	802.925	1.76	34187	400000	
Co	59	2	72	38.753	ppb	38.753	1.49	139118	2000	
Ni	60	2	72	37.679	ppb	37.679	4.10	37461	5000	
Cu	63	2	72	39.144	ppb	39.144	5.01	108267	5000	
Zn	66	2	72	51.512	ppb	51.512	1.48	20125	5000	
As	75	2	72	37.127	ppb	37.127	3.22	10437	2000	
Se	78	1	72	37.921	ppb	37.921	4.45	10224	2000	
Sr	88	2	45	314.034	ppb	314.034	5.55	327916	2000	
Zr	90	2	72	45.425	ppb	45.425	10.19	677	1000	
Zr	90	1	72	49.549	ppb	49.549	15.89	2186	1000	
Nb	93	2	72	0.205	ppb	0.205	29.45	1157	200	
Mo	95	2	115	41.389	ppb	41.389	0.48	58498	2000	
Pd	105	2	115	0.000	ppb	0.000	-8108.09	13	100	
Ag	107	2	115	37.463	ppb	37.463	3.72	160831	100	
Cd	111	2	115	38.189	ppb	38.189	4.45	23103	2000	
Sn	120	2	115	40.131	ppb	40.131	3.05	70390	2000	
Sb	121	2	115	41.978	ppb	41.978	3.22	60100	1000	
Ba	137	2	115	66.581	ppb	66.581	2.95	33147	5000	
W	182	2	165	38.204	ppb	38.204	3.05	114651	100	
Pt	195	2	165	-0.004	ppb	-0.004	-82.28	3	100	
Tl	205	2	165	38.561	ppb	38.561	4.60	181087	2000	
Pb	208	2	165	39.169	ppb	39.169	3.83	260258	5000	
Th	232	2	165	39.692	ppb	39.692	1.04	263269	2000	
U	238	2	165	42.153	ppb	42.153	2.74	300563	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	881451	0.58	963428	91.49	60	125	
Sc (IS)	45	2	HMI He	1467646	4.17	1482478	99.00	60	125	
Sc IS)	45	3	No Gas	58098498	1.04	60395536	96.20	60	120	
Ge Internal Standard	72	1	HMI H2	11675058	3.03	11879546	98.28	60	125	
Ge Internal Standard	72	2	HMI He	2008104	2.76	1923324	104.41	60	125	
In Internal standard	115	2	HMI He	5921373	3.12	5599328	105.75	60	125	
Ho-165	165	2	HMI He	17924996	1.73	17108014	104.78	60	125	

Sample Report

Sample Table

Sample Name	280-127069-A-23-A pds
Data File Name	140SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:42:36-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	467490 6020
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	1.306	ppb	1.306	363.87	5372176	40000	
Be	9	1	6	222.563	ppb	222.563	1.81	55583	2000	
B	11	1	6	568.902	ppb	568.902	1.25	5084	100	>LDR
Na	23	2	45	31298.035	ppb	31298.035	1.95	9266020	400000	
Mg	24	2	45	6755.537	ppb	6755.537	0.52	843057	400000	
Al	27	2	45	2087.577	ppb	2087.577	4.61	72240	400000	
K	39	2	45	1466.831	ppb	1466.831	1.62	187004	400000	
Ca	44	2	45	25766.426	ppb	25766.426	2.14	191396	400000	
V	51	2	72	208.914	ppb	208.914	4.97	358229	2000	
Cr	52	2	72	206.926	ppb	206.926	3.16	462597	5000	
Mn	55	2	72	247.397	ppb	247.397	1.54	241086	10000	
Fe	57	2	72	2102.814	ppb	2102.814	2.57	87496	400000	
Co	59	2	72	208.080	ppb	208.080	4.99	738557	2000	
Ni	60	2	72	205.346	ppb	205.346	3.19	201536	5000	
Cu	63	2	72	203.120	ppb	203.120	2.89	550065	5000	
Zn	66	2	72	230.599	ppb	230.599	3.66	87048	5000	
As	75	2	72	198.113	ppb	198.113	2.35	54959	2000	
Se	78	1	72	204.594	ppb	204.594	0.27	55895	2000	
Sr	88	2	45	215.658	ppb	215.658	3.55	234308	2000	
Zr	90	2	72	52843.056	ppb	52843.056	5.52	561682	1000	>LDR
Zr	90	1	72	59843.555	ppb	59843.555	0.41	1670490	1000	>LDR
Nb	93	2	72	3.124	ppb	3.124	3.60	9053	200	
Mo	95	2	115	209.496	ppb	209.496	3.37	287694	2000	
Pd	105	2	115	0.238	ppb	0.238	3.22	493	100	
Ag	107	2	115	23.747	ppb	23.747	2.11	99358	100	
Cd	111	2	115	215.124	ppb	215.124	4.64	126767	2000	
Sn	120	2	115	212.080	ppb	212.080	2.64	360546	2000	
Sb	121	2	115	226.701	ppb	226.701	2.19	315795	1000	
Ba	137	2	115	250.418	ppb	250.418	2.92	121356	5000	
W	182	2	165	203.453	ppb	203.453	3.89	605438	100	
Pt	195	2	165	0.198	ppb	0.198	18.13	387	100	
Tl	205	2	165	211.356	ppb	211.356	5.26	990113	2000	
Pb	208	2	165	205.300	ppb	205.300	4.07	1359940	5000	
Th	232	2	165	2.381	ppb	2.381	5.85	16191	2000	
U	238	2	165	227.928	ppb	227.928	4.61	1621462	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	887232	0.88	963428	92.09	60	125	
Sc (IS)	45	2	HMI He	1525232	1.75	1482478	102.88	60	125	
Sc IS)	45	3	No Gas	58496598	1.27	60395536	96.86	60	120	
Ge Internal Standard	72	1	HMI H2	11828644	0.42	11879546	99.57	60	125	
Ge Internal Standard	72	2	HMI He	1987585	2.70	1923324	103.34	60	125	
In Internal standard	115	2	HMI He	5765743	2.37	5599328	102.97	60	125	
Ho-165	165	2	HMI He	17904327	3.65	17108014	104.65	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	141_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:46:06-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	72.602	ppb	31.915	121851	100	72.6	90	110	>+\-10%
Li	7	3	45	88.796	ppb	7.245	6660711	100	88.8	90	110	>+\-10%
Be	9	1	6	48.779	ppb	4.677	12273	50	97.6	90	110	
B	11	1	6	84.733	ppb	10.900	1103	50	169.5	90	110	>+\-10%
Na	23	2	45	984.059	ppb	1.188	313992	1000	98.4	90	110	
Mg	24	2	45	922.402	ppb	2.173	115753	1000	92.2	90	110	
Al	27	2	45	951.911	ppb	1.609	33184	1000	95.2	90	110	
K	39	2	45	937.353	ppb	1.065	134720	1000	93.7	90	110	
Ca	44	2	45	953.558	ppb	7.346	7168	1000	95.4	90	110	
V	51	2	72	47.182	ppb	2.280	84993	50	94.4	90	110	
Cr	52	2	72	45.919	ppb	2.707	103057	50	91.8	90	110	
Mn	55	2	72	47.629	ppb	3.233	46566	50	95.3	90	110	
Fe	57	2	72	960.132	ppb	2.032	40307	1000	96.0	90	110	
Co	59	2	72	45.926	ppb	2.067	163120	50	91.9	90	110	
Ni	60	2	72	45.763	ppb	0.645	45032	50	91.5	90	110	
Cu	63	2	72	45.976	ppb	3.161	125650	50	92.0	90	110	
Zn	66	2	72	45.397	ppb	3.517	17623	50	90.8	90	110	
As	75	2	72	48.254	ppb	4.335	13412	50	96.5	90	110	
Se	78	1	72	49.471	ppb	1.389	13368	50	98.9	90	110	
Sr	88	2	45	99.170	ppb	3.511	108213	100	99.2	90	110	
Zr	90	2	72	78.987	ppb	11.337	1027	50	158.0	90	110	>+\-10%
Zr	90	1	72	122.699	ppb	8.613	4215	50	245.4	90	110	>+\-10%
Nb	93	2	72	93.735	ppb	2.167	254502	100	93.7	90	110	
Mo	95	2	115	46.588	ppb	1.552	64761	50	93.2	90	110	
Pd	105	2	115	47.462	ppb	3.231	96545	50	94.9	90	110	
Ag	107	2	115	46.268	ppb	2.948	195507	50	92.5	90	110	
Cd	111	2	115	49.124	ppb	3.028	29266	50	98.2	90	110	
Sn	120	2	115	47.911	ppb	1.018	82620	50	95.8	90	110	
Sb	121	2	115	47.967	ppb	1.056	67598	50	95.9	90	110	
Ba	137	2	115	47.676	ppb	0.590	23370	50	95.4	90	110	
W	182	2	165	48.673	ppb	1.190	138541	50	97.3	90	110	
Pt	195	2	165	46.459	ppb	2.069	84401	50	92.9	90	110	
Tl	205	2	165	48.109	ppb	5.829	214629	50	96.2	90	110	
Pb	208	2	165	48.308	ppb	1.018	304944	50	96.6	90	110	
Th	232	2	165	46.161	ppb	1.414	290837	50	92.3	90	110	
U	238	2	165	48.358	ppb	2.515	327539	50	96.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	893959	1.26	963428	92.79	60	125	
Sc (IS)	45	2	HMI He	1531240	1.47	1482478	103.29	60	125	
Sc IS)	45	3	No Gas	57991689	0.95	60395536	96.02	60	120	
Ge Internal Standard	72	1	HMI H2	11696283	1.49	11879546	98.46	60	125	
Ge Internal Standard	72	2	HMI He	1987156	2.22	1923324	103.32	60	125	
In Internal standard	115	2	HMI He	5825422	1.40	5599328	104.04	60	125	
Ho-165	165	2	HMI He	17029240	1.08	17108014	99.54	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	142_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:49:37-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	091CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-34.208	ppb	-42.6	94636	0.1	
Li	7	3	45	-4.118	ppb	-278.2	5267966	0.05	
Be	9	1	6	0.070	ppb	86.9	18	0.5	
B	11	1	6	11.483	ppb	117.8	480	0.1	>RL
Na	23	2	45	25.752	ppb	12.3	29812	25	>RL
Mg	24	2	45	0.605	ppb	71.4	317	25	
Al	27	2	45	0.113	ppb	719.9	193	15	
K	39	2	45	-3.074	ppb	-192.3	40527	50	
Ca	44	2	45	2.404	ppb	75.9	77	25	
V	51	2	72	-0.084	ppb	-229.0	5061	1	
Cr	52	2	72	-0.007	ppb	-81.2	500	1	
Mn	55	2	72	-0.101	ppb	-39.7	93	0.5	
Fe	57	2	72	0.412	ppb	847.2	670	25	
Co	59	2	72	0.010	ppb	96.7	110	0.5	
Ni	60	2	72	0.114	ppb	54.3	237	1	
Cu	63	2	72	0.313	ppb	25.1	2310	1	
Zn	66	2	72	0.198	ppb	62.4	667	5	
As	75	2	72	0.071	ppb	34.2	59	1	
Se	78	1	72	0.068	ppb	86.8	25	1	
Sr	88	2	45	-0.017	ppb	-37.0	53	1	
Zr	90	2	72	5.940	ppb	42.0	247	1	>RL
Zr	90	1	72	12.202	ppb	22.3	1178	1	>RL
Nb	93	2	72	1.004	ppb	17.4	3270	2	
Mo	95	2	115	0.071	ppb	86.0	223	0.5	
Pd	105	2	115	0.017	ppb	144.2	50	1	
Ag	107	2	115	0.000	ppb	-3257.4	80	1	
Cd	111	2	115	0.038	ppb	137.5	23	0.5	
Sn	120	2	115	-0.015	ppb	-136.8	363	1	
Sb	121	2	115	0.097	ppb	61.7	220	1	
Ba	137	2	115	0.031	ppb	99.4	37	0.5	
W	182	2	165	0.108	ppb	78.8	1157	1	
Pt	195	2	165	0.000	ppb	4019.8	10	1	
Tl	205	2	165	0.042	ppb	15.5	310	0.1	
Pb	208	2	165	0.061	ppb	10.0	787	0.5	
Th	232	2	165	0.143	ppb	16.3	1330	1	
U	238	2	165	0.025	ppb	5.4	210	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	865044	1.78	963428	89.79	60	125	
Sc (IS)	45	2	HMI He	1532388	2.31	1482478	103.37	60	125	
Sc IS)	45	3	No Gas	58290138	2.17	60395536	96.51	60	120	
Ge Internal Standard	72	1	HMI H2	11842933	1.77	11879546	99.69	60	125	
Ge Internal Standard	72	2	HMI He	1968448	2.93	1923324	102.35	60	125	
In Internal standard	115	2	HMI He	5910421	0.55	5599328	105.56	60	125	
Ho-165	165	2	HMI He	16926752	1.70	17108014	98.94	60	125	

Sample Report

Sample Table

Sample Name	
Data File Name	143SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:53:10-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	60.314	ppb	60.314	21.60	9837144	40000	
Be	9	1	6	-0.002	ppb	-0.002	-412.60	2	2000	
B	11	1	6	-17.403	ppb	-17.403	-51.27	417	100	
Na	23	2	45	4.481	ppb	4.481	591.15	24697	400000	
Mg	24	2	45	-1.070	ppb	-1.070	-16.10	117	400000	
Al	27	2	45	-3.201	ppb	-3.201	-43.22	97	400000	
K	39	2	45	-81.036	ppb	-81.036	-110.26	34905	400000	
Ca	44	2	45	-2.827	ppb	-2.827	-92.99	40	400000	
V	51	2	72	-1.737	ppb	-1.737	-8.48	2587	2000	
Cr	52	2	72	-0.046	ppb	-0.046	-176.08	437	5000	
Mn	55	2	72	-0.073	ppb	-0.073	-59.67	127	10000	
Fe	57	2	72	-5.190	ppb	-5.190	-22.97	517	400000	
Co	59	2	72	-0.017	ppb	-0.017	-28.03	23	2000	
Ni	60	2	72	-0.001	ppb	-0.001	-3994.41	153	5000	
Cu	63	2	72	-0.100	ppb	-0.100	-46.31	1357	5000	
Zn	66	2	72	-0.725	ppb	-0.725	-12.80	373	5000	
As	75	2	72	-0.010	ppb	-0.010	-353.14	40	2000	
Se	78	1	72	0.052	ppb	0.052	68.48	28	2000	
Sr	88	2	45	-0.031	ppb	-0.031	-69.77	40	2000	
Zr	90	2	72	31.655	ppb	31.655	79.37	660	1000	
Zr	90	1	72	54.439	ppb	54.439	20.62	3260	1000	
Nb	93	2	72	0.121	ppb	0.121	108.28	1113	200	
Mo	95	2	115	-0.017	ppb	-0.017	-183.74	100	2000	
Pd	105	2	115	-0.007	ppb	-0.007	0.00	0	100	
Ag	107	2	115	-0.009	ppb	-0.009	-49.32	50	100	
Cd	111	2	115	0.000	ppb	0.000	#DIV/0!	0	2000	
Sn	120	2	115	-0.046	ppb	-0.046	-187.16	307	2000	
Sb	121	2	115	-0.040	ppb	-0.040	-39.57	23	1000	
Ba	137	2	115	-0.037	ppb	-0.037	-25.77	3	5000	
W	182	2	165	0.027	ppb	0.027	151.86	1063	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.003	ppb	-0.003	-510.40	120	2000	
Pb	208	2	165	0.032	ppb	0.032	180.05	627	5000	
Th	232	2	165	0.332	ppb	0.332	117.66	3561	2000	
U	238	2	165	0.004	ppb	0.004	167.71	70	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1485957	9.51	963428	154.24	60	125	IS Failed
Sc (IS)	45	2	HMI He	1748684	36.67	1482478	117.96	60	125	
Sc IS)	45	3	No Gas	91667404	4.09	60395536	151.78	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	16311160	12.26	11879546	137.30	60	125	IS Failed
Ge Internal Standard	72	2	HMI He	2259567	35.40	1923324	117.48	60	125	
In Internal standard	115	2	HMI He	6599256	36.40	5599328	117.86	60	125	
Ho-165	165	2	HMI He	20028724	35.32	17108014	117.07	60	125	

Sample Report

Sample Table

Sample Name	
Data File Name	144SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T19:56:45-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	46.737	ppb	46.737	15.84	10002704	40000	
Be	9	1	6	0.027	ppb	0.027	143.93	13	2000	
B	11	1	6	-19.267	ppb	-19.267	-18.30	393	100	
Na	23	2	45	-10.920	ppb	-10.920	-153.48	25722	400000	
Mg	24	2	45	-0.614	ppb	-0.614	-82.75	217	400000	
Al	27	2	45	-1.241	ppb	-1.241	-218.02	180	400000	
K	39	2	45	-131.326	ppb	-131.326	-51.09	37809	400000	
Ca	44	2	45	0.730	ppb	0.730	271.13	93	400000	
V	51	2	72	-1.857	ppb	-1.857	-8.52	3090	2000	
Cr	52	2	72	-0.066	ppb	-0.066	-83.12	503	5000	
Mn	55	2	72	-0.092	ppb	-0.092	-43.62	137	10000	
Fe	57	2	72	-3.324	ppb	-3.324	-65.53	737	400000	
Co	59	2	72	-0.006	ppb	-0.006	-166.19	70	2000	
Ni	60	2	72	0.001	ppb	0.001	9448.39	177	5000	
Cu	63	2	72	-0.153	ppb	-0.153	-16.72	1553	5000	
Zn	66	2	72	-0.719	ppb	-0.719	-18.05	473	5000	
As	75	2	72	-0.017	ppb	-0.017	-163.73	52	2000	
Se	78	1	72	0.021	ppb	0.021	171.12	17	2000	
Sr	88	2	45	-0.025	ppb	-0.025	-62.08	60	2000	
Zr	90	2	72	14.758	ppb	14.758	128.36	553	1000	
Zr	90	1	72	5.384	ppb	5.384	91.80	1371	1000	
Nb	93	2	72	-0.030	ppb	-0.030	-344.25	803	200	
Mo	95	2	115	-0.029	ppb	-0.029	-48.04	113	2000	
Pd	105	2	115	-0.001	ppb	-0.001	-151.96	17	100	
Ag	107	2	115	-0.013	ppb	-0.013	-33.30	40	100	
Cd	111	2	115	0.023	ppb	0.023	86.74	17	2000	
Sn	120	2	115	-0.100	ppb	-0.100	-74.79	267	2000	
Sb	121	2	115	-0.011	ppb	-0.011	-224.66	87	1000	
Ba	137	2	115	-0.029	ppb	-0.029	-82.72	7	5000	
W	182	2	165	0.004	ppb	0.004	532.85	1290	100	
Pt	195	2	165	0.000	ppb	0.000	6379.66	13	100	
Tl	205	2	165	-0.001	ppb	-0.001	-1988.76	150	2000	
Pb	208	2	165	0.017	ppb	0.017	111.40	730	5000	
Th	232	2	165	0.077	ppb	0.077	184.10	1617	2000	
U	238	2	165	0.006	ppb	0.006	100.79	110	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1464541	3.20	963428	152.01	60	125	IS Failed
Sc (IS)	45	2	HMI He	2215122	34.49	1482478	149.42	60	125	IS Failed
Sc IS)	45	3	No Gas	96416017	4.82	60395536	159.64	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	16406706	2.46	11879546	138.11	60	125	IS Failed
Ge Internal Standard	72	2	HMI He	2890399	34.97	1923324	150.28	60	125	IS Failed
In Internal standard	115	2	HMI He	8307188	32.29	5599328	148.36	60	125	IS Failed
Ho-165	165	2	HMI He	25160737	31.13	17108014	147.07	60	125	IS Failed

Sample Report

Sample Table

Sample Name	
Data File Name	145SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:00:20-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	54.893	ppb	54.893	15.83	10070564	40000	
Be	9	1	6	0.015	ppb	0.015	242.71	8	2000	
B	11	1	6	-26.228	ppb	-26.228	-23.31	280	100	
Na	23	2	45	-23.108	ppb	-23.108	-27.29	23733	400000	
Mg	24	2	45	-1.252	ppb	-1.252	-11.82	133	400000	
Al	27	2	45	-2.571	ppb	-2.571	-29.06	153	400000	
K	39	2	45	-162.261	ppb	-162.261	-5.92	38366	400000	
Ca	44	2	45	-1.028	ppb	-1.028	-92.47	80	400000	
V	51	2	72	-1.702	ppb	-1.702	-6.34	3907	2000	
Cr	52	2	72	-0.115	ppb	-0.115	-8.09	433	5000	
Mn	55	2	72	-0.113	ppb	-0.113	-13.26	133	10000	
Fe	57	2	72	-3.185	ppb	-3.185	-24.93	867	400000	
Co	59	2	72	-0.012	ppb	-0.012	-65.39	50	2000	
Ni	60	2	72	-0.050	ppb	-0.050	-31.20	130	5000	
Cu	63	2	72	-0.162	ppb	-0.162	-19.90	1717	5000	
Zn	66	2	72	-0.786	ppb	-0.786	-14.42	500	5000	
As	75	2	72	-0.012	ppb	-0.012	-104.60	60	2000	
Se	78	1	72	0.011	ppb	0.011	273.59	13	2000	
Sr	88	2	45	-0.025	ppb	-0.025	-42.50	70	2000	
Zr	90	2	72	-6.081	ppb	-6.081	-78.11	193	1000	
Zr	90	1	72	-1.329	ppb	-1.329	-387.44	1054	1000	
Nb	93	2	72	-0.158	ppb	-0.158	-27.59	267	200	
Mo	95	2	115	-0.018	ppb	-0.018	-114.73	153	2000	
Pd	105	2	115	0.005	ppb	0.005	206.13	37	100	
Ag	107	2	115	-0.014	ppb	-0.014	-28.70	30	100	
Cd	111	2	115	0.010	ppb	0.010	95.37	10	2000	
Sn	120	2	115	-0.123	ppb	-0.123	-21.92	283	2000	
Sb	121	2	115	-0.045	ppb	-0.045	-5.69	27	1000	
Ba	137	2	115	-0.001	ppb	-0.001	-501.55	33	5000	
W	182	2	165	0.029	ppb	0.029	85.80	1527	100	
Pt	195	2	165	-0.003	ppb	-0.003	-156.48	7	100	
Tl	205	2	165	-0.004	ppb	-0.004	-80.59	173	2000	
Pb	208	2	165	-0.008	ppb	-0.008	-100.73	583	5000	
Th	232	2	165	-0.045	ppb	-0.045	-7.60	257	2000	
U	238	2	165	0.000	ppb	0.000	-2652.94	60	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1373726	9.15	963428	142.59	60	125	IS Failed
Sc (IS)	45	2	HMI He	2394666	10.66	1482478	161.53	60	125	IS Failed
Sc IS)	45	3	No Gas	95089901	2.70	60395536	157.45	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	15382812	12.84	11879546	129.49	60	125	IS Failed
Ge Internal Standard	72	2	HMI He	3251077	10.20	1923324	169.03	60	125	IS Failed
In Internal standard	115	2	HMI He	9384393	9.98	5599328	167.60	60	125	IS Failed
Ho-165	165	2	HMI He	27763594	10.37	17108014	162.28	60	125	IS Failed

Sample Report

Sample Table

Sample Name	
Data File Name	146SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:03:52-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	43.443	ppb	43.443	9.53	10355594	40000	
Be	9	1	6	0.003	ppb	0.003	588.68	3	2000	
B	11	1	6	-24.149	ppb	-24.149	-17.00	310	100	
Na	23	2	45	-15.263	ppb	-15.263	-161.98	22935	400000	
Mg	24	2	45	-0.471	ppb	-0.471	-80.48	247	400000	
Al	27	2	45	-2.132	ppb	-2.132	-45.76	177	400000	
K	39	2	45	-155.412	ppb	-155.412	-45.77	34008	400000	
Ca	44	2	45	-0.082	ppb	-0.082	-1808.85	80	400000	
V	51	2	72	-1.690	ppb	-1.690	-8.79	3460	2000	
Cr	52	2	72	-0.042	ppb	-0.042	-309.85	500	5000	
Mn	55	2	72	-0.070	ppb	-0.070	-56.24	163	10000	
Fe	57	2	72	-4.103	ppb	-4.103	-81.05	660	400000	
Co	59	2	72	-0.010	ppb	-0.010	-79.15	50	2000	
Ni	60	2	72	-0.027	ppb	-0.027	-223.64	153	5000	
Cu	63	2	72	-0.053	ppb	-0.053	-174.30	1823	5000	
Zn	66	2	72	-0.685	ppb	-0.685	-35.07	517	5000	
As	75	2	72	-0.002	ppb	-0.002	-629.75	57	2000	
Se	78	1	72	0.014	ppb	0.014	336.86	13	2000	
Sr	88	2	45	-0.033	ppb	-0.033	-82.26	43	2000	
Zr	90	2	72	-3.734	ppb	-3.734	-89.93	220	1000	
Zr	90	1	72	-6.180	ppb	-6.180	-19.26	861	1000	
Nb	93	2	72	-0.162	ppb	-0.162	-10.95	217	200	
Mo	95	2	115	-0.019	ppb	-0.019	-284.35	107	2000	
Pd	105	2	115	0.005	ppb	0.005	164.74	30	100	
Ag	107	2	115	-0.008	ppb	-0.008	-58.15	67	100	
Cd	111	2	115	0.004	ppb	0.004	173.21	3	2000	
Sn	120	2	115	-0.035	ppb	-0.035	-204.22	417	2000	
Sb	121	2	115	-0.044	ppb	-0.044	-6.87	27	1000	
Ba	137	2	115	-0.021	ppb	-0.021	-132.18	20	5000	
W	182	2	165	0.019	ppb	0.019	310.88	1357	100	
Pt	195	2	165	-0.003	ppb	-0.003	-99.54	7	100	
Tl	205	2	165	-0.006	ppb	-0.006	-94.94	137	2000	
Pb	208	2	165	0.018	ppb	0.018	235.82	663	5000	
Th	232	2	165	-0.037	ppb	-0.037	-10.94	287	2000	
U	238	2	165	-0.002	ppb	-0.002	-126.15	33	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1391355	2.71	963428	144.42	60	125	IS Failed
Sc (IS)	45	2	HMI He	2218527	38.35	1482478	149.65	60	125	IS Failed
Sc IS)	45	3	No Gas	100636328	4.52	60395536	166.63	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	15362050	5.48	11879546	129.32	60	125	IS Failed
Ge Internal Standard	72	2	HMI He	2810900	38.24	1923324	146.15	60	125	IS Failed
In Internal standard	115	2	HMI He	8214859	41.77	5599328	146.71	60	125	IS Failed
Ho-165	165	2	HMI He	24487321	36.07	17108014	143.13	60	125	IS Failed

Sample Report

Sample Table

Sample Name	
Data File Name	147SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:07:25-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	75.398	ppb	75.398	31.44	7626118	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	-22.389	ppb	-22.389	-11.13	310	100	
Na	23	2	45	-9.824	ppb	-9.824	-158.93	20081	400000	
Mg	24	2	45	-0.127	ppb	-0.127	-446.63	243	400000	
Al	27	2	45	-2.413	ppb	-2.413	-54.38	123	400000	
K	39	2	45	-80.064	ppb	-80.064	-95.69	34253	400000	
Ca	44	2	45	-0.410	ppb	-0.410	-1233.04	53	400000	
V	51	2	72	-1.821	ppb	-1.821	-4.11	2400	2000	
Cr	52	2	72	-0.067	ppb	-0.067	-101.90	383	5000	
Mn	55	2	72	-0.044	ppb	-0.044	-62.74	160	10000	
Fe	57	2	72	-2.568	ppb	-2.568	-184.17	580	400000	
Co	59	2	72	-0.009	ppb	-0.009	-63.39	47	2000	
Ni	60	2	72	0.006	ppb	0.006	297.54	147	5000	
Cu	63	2	72	-0.164	ppb	-0.164	-55.97	1143	5000	
Zn	66	2	72	-0.889	ppb	-0.889	-12.74	297	5000	
As	75	2	72	-0.025	ppb	-0.025	-148.30	35	2000	
Se	78	1	72	0.013	ppb	0.013	166.14	12	2000	
Sr	88	2	45	-0.060	ppb	-0.060	-19.49	10	2000	
Zr	90	2	72	-3.177	ppb	-3.177	-170.51	160	1000	
Zr	90	1	72	-1.638	ppb	-1.638	-129.73	891	1000	
Nb	93	2	72	-0.179	ppb	-0.179	-3.94	113	200	
Mo	95	2	115	-0.036	ppb	-0.036	-2.41	77	2000	
Pd	105	2	115	0.006	ppb	0.006	223.33	27	100	
Ag	107	2	115	-0.016	ppb	-0.016	-4.99	13	100	
Cd	111	2	115	0.027	ppb	0.027	113.74	17	2000	
Sn	120	2	115	-0.094	ppb	-0.094	-24.99	237	2000	
Sb	121	2	115	-0.042	ppb	-0.042	-24.44	20	1000	
Ba	137	2	115	-0.037	ppb	-0.037	-24.64	3	5000	
W	182	2	165	-0.047	ppb	-0.047	-43.02	817	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.001	ppb	-0.001	-2472.06	143	2000	
Pb	208	2	165	0.026	ppb	0.026	61.47	643	5000	
Th	232	2	165	-0.039	ppb	-0.039	-29.21	220	2000	
U	238	2	165	-0.004	ppb	-0.004	-67.72	17	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1301577	9.46	963428	135.10	60	125	IS Failed
Sc (IS)	45	2	HMI He	1668759	26.62	1482478	112.57	60	125	
Sc IS)	45	3	No Gas	68829396	15.51	60395536	113.96	60	120	
Ge Internal Standard	72	1	HMI H2	13349040	14.69	11879546	112.37	60	125	
Ge Internal Standard	72	2	HMI He	2186478	22.26	1923324	113.68	60	125	
In Internal standard	115	2	HMI He	6277712	21.45	5599328	112.12	60	125	
Ho-165	165	2	HMI He	19374515	15.47	17108014	113.25	60	125	

Sample Report

Sample Table

Sample Name	
Data File Name	148SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:10:58-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	153.771	ppb	153.771	14.56	5530589	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	-23.630	ppb	-23.630	-16.63	337	100	
Na	23	2	45	-21.136	ppb	-21.136	-56.60	18600	400000	
Mg	24	2	45	-0.060	ppb	-0.060	-462.11	277	400000	
Al	27	2	45	-2.393	ppb	-2.393	-20.36	127	400000	
K	39	2	45	-101.798	ppb	-101.798	-39.80	36362	400000	
Ca	44	2	45	-3.589	ppb	-3.589	-88.01	40	400000	
V	51	2	72	-1.788	ppb	-1.788	-5.12	2670	2000	
Cr	52	2	72	-0.057	ppb	-0.057	-115.64	447	5000	
Mn	55	2	72	-0.116	ppb	-0.116	-41.55	87	10000	
Fe	57	2	72	-5.006	ppb	-5.006	-64.11	540	400000	
Co	59	2	72	-0.010	ppb	-0.010	-75.16	53	2000	
Ni	60	2	72	-0.018	ppb	-0.018	-73.61	130	5000	
Cu	63	2	72	-0.119	ppb	-0.119	-96.92	1373	5000	
Zn	66	2	72	-0.733	ppb	-0.733	-10.73	387	5000	
As	75	2	72	-0.019	ppb	-0.019	-169.03	41	2000	
Se	78	1	72	0.027	ppb	0.027	79.28	19	2000	
Sr	88	2	45	-0.053	ppb	-0.053	-12.81	17	2000	
Zr	90	2	72	-0.466	ppb	-0.466	-1216.67	210	1000	
Zr	90	1	72	0.189	ppb	0.189	366.31	1148	1000	
Nb	93	2	72	-0.185	ppb	-0.185	-8.23	107	200	
Mo	95	2	115	-0.041	ppb	-0.041	-111.76	73	2000	
Pd	105	2	115	0.002	ppb	0.002	230.65	20	100	
Ag	107	2	115	-0.010	ppb	-0.010	-23.10	43	100	
Cd	111	2	115	0.010	ppb	0.010	91.38	7	2000	
Sn	120	2	115	-0.088	ppb	-0.088	-50.97	267	2000	
Sb	121	2	115	-0.045	ppb	-0.045	-35.87	17	1000	
Ba	137	2	115	-0.016	ppb	-0.016	-140.16	13	5000	
W	182	2	165	-0.037	ppb	-0.037	-72.16	890	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.002	ppb	-0.002	-919.47	130	2000	
Pb	208	2	165	0.029	ppb	0.029	158.99	677	5000	
Th	232	2	165	-0.035	ppb	-0.035	-50.84	280	2000	
U	238	2	165	-0.001	ppb	-0.001	-203.78	33	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1466792	8.60	963428	152.25	60	125	IS Failed
Sc (IS)	45	2	HMI He	1851511	21.86	1482478	124.89	60	125	
Sc IS)	45	3	No Gas	42159344	20.37	60395536	69.81	60	120	
Ge Internal Standard	72	1	HMI H2	16141175	12.68	11879546	135.87	60	125	IS Failed
Ge Internal Standard	72	2	HMI He	2391189	22.88	1923324	124.33	60	125	
In Internal standard	115	2	HMI He	6783261	19.47	5599328	121.14	60	125	
Ho-165	165	2	HMI He	20508449	21.32	17108014	119.88	60	125	

Sample Report

Sample Table

Sample Name	
Data File Name	149SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:14:31-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	58.869	ppb	58.869	6.82	9426044	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	-30.290	ppb	-30.290	-12.76	220	100	
Na	23	2	45	-21.347	ppb	-21.347	-79.31	19411	400000	
Mg	24	2	45	-0.073	ppb	-0.073	-1310.92	280	400000	
Al	27	2	45	-3.447	ppb	-3.447	-29.51	100	400000	
K	39	2	45	-103.426	ppb	-103.426	-78.68	37735	400000	
Ca	44	2	45	-1.405	ppb	-1.405	-427.18	50	400000	
V	51	2	72	-1.817	ppb	-1.817	-8.82	2950	2000	
Cr	52	2	72	-0.109	ppb	-0.109	-33.75	343	5000	
Mn	55	2	72	-0.112	ppb	-0.112	-29.68	107	10000	
Fe	57	2	72	-3.516	ppb	-3.516	-4.01	683	400000	
Co	59	2	72	-0.012	ppb	-0.012	-18.62	47	2000	
Ni	60	2	72	0.030	ppb	0.030	305.06	217	5000	
Cu	63	2	72	-0.122	ppb	-0.122	-44.55	1493	5000	
Zn	66	2	72	-0.692	ppb	-0.692	-32.92	457	5000	
As	75	2	72	-0.010	ppb	-0.010	-108.14	50	2000	
Se	78	1	72	-0.020	ppb	-0.020	-36.81	1	2000	
Sr	88	2	45	-0.047	ppb	-0.047	-14.55	30	2000	
Zr	90	2	72	-5.021	ppb	-5.021	-41.68	173	1000	
Zr	90	1	72	-5.149	ppb	-5.149	-87.30	794	1000	
Nb	93	2	72	-0.176	ppb	-0.176	-17.11	163	200	
Mo	95	2	115	-0.044	ppb	-0.044	-58.86	90	2000	
Pd	105	2	115	-0.001	ppb	-0.001	-56.41	17	100	
Ag	107	2	115	-0.013	ppb	-0.013	-32.93	30	100	
Cd	111	2	115	0.007	ppb	0.007	173.21	7	2000	
Sn	120	2	115	-0.097	ppb	-0.097	-40.83	270	2000	
Sb	121	2	115	-0.040	ppb	-0.040	-7.88	30	1000	
Ba	137	2	115	-0.016	ppb	-0.016	-173.52	13	5000	
W	182	2	165	-0.014	ppb	-0.014	-554.93	1150	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.006	ppb	-0.006	-59.80	127	2000	
Pb	208	2	165	0.005	ppb	0.005	568.98	533	5000	
Th	232	2	165	-0.045	ppb	-0.045	-6.41	217	2000	
U	238	2	165	-0.004	ppb	-0.004	-45.48	13	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1320498	2.82	963428	137.06	60	125	IS Failed
Sc (IS)	45	2	HMI He	2019442	33.83	1482478	136.22	60	125	IS Failed
Sc IS)	45	3	No Gas	88104290	1.42	60395536	145.88	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	13677782	7.00	11879546	115.14	60	125	
Ge Internal Standard	72	2	HMI He	2626060	34.29	1923324	136.54	60	125	IS Failed
In Internal standard	115	2	HMI He	7728373	38.17	5599328	138.02	60	125	IS Failed
Ho-165	165	2	HMI He	22720331	34.93	17108014	132.81	60	125	IS Failed

Sample Report

Sample Table

Sample Name	
Data File Name	150SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:18:03-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	2.244	ppb	2.244	153.20	10912514	40000	
Be	9	1	6	0.003	ppb	0.003	501.48	3	2000	
B	11	1	6	-19.975	ppb	-19.975	-54.66	317	100	
Na	23	2	45	-31.522	ppb	-31.522	-18.42	18790	400000	
Mg	24	2	45	0.019	ppb	0.019	340.48	363	400000	
Al	27	2	45	-2.678	ppb	-2.678	-54.76	150	400000	
K	39	2	45	-134.942	ppb	-134.942	-16.00	40250	400000	
Ca	44	2	45	-4.463	ppb	-4.463	-88.55	40	400000	
V	51	2	72	-1.787	ppb	-1.787	-5.37	3277	2000	
Cr	52	2	72	-0.098	ppb	-0.098	-17.16	437	5000	
Mn	55	2	72	-0.137	ppb	-0.137	-10.28	83	10000	
Fe	57	2	72	-5.019	ppb	-5.019	-32.27	653	400000	
Co	59	2	72	-0.013	ppb	-0.013	-9.18	43	2000	
Ni	60	2	72	-0.007	ppb	-0.007	-507.83	180	5000	
Cu	63	2	72	-0.174	ppb	-0.174	-35.42	1503	5000	
Zn	66	2	72	-0.505	ppb	-0.505	-10.05	597	5000	
As	75	2	72	-0.010	ppb	-0.010	-16.02	54	2000	
Se	78	1	72	0.016	ppb	0.016	43.48	12	2000	
Sr	88	2	45	-0.048	ppb	-0.048	-17.23	30	2000	
Zr	90	2	72	5.165	ppb	5.165	66.14	357	1000	
Zr	90	1	72	-3.011	ppb	-3.011	-28.16	841	1000	
Nb	93	2	72	-0.179	ppb	-0.179	-15.76	153	200	
Mo	95	2	115	-0.058	ppb	-0.058	-14.91	60	2000	
Pd	105	2	115	-0.004	ppb	-0.004	-46.35	7	100	
Ag	107	2	115	-0.016	ppb	-0.016	-24.10	17	100	
Cd	111	2	115	0.000	ppb	0.000	#DIV/0!	0	2000	
Sn	120	2	115	-0.133	ppb	-0.133	-10.06	230	2000	
Sb	121	2	115	-0.050	ppb	-0.050	-14.52	13	1000	
Ba	137	2	115	-0.022	ppb	-0.022	-169.80	17	5000	
W	182	2	165	-0.008	ppb	-0.008	-304.05	1230	100	
Pt	195	2	165	-0.003	ppb	-0.003	-123.19	7	100	
Tl	205	2	165	-0.012	ppb	-0.012	-36.08	110	2000	
Pb	208	2	165	-0.007	ppb	-0.007	-281.34	523	5000	
Th	232	2	165	-0.006	ppb	-0.006	-704.93	593	2000	
U	238	2	165	-0.003	ppb	-0.003	-85.74	30	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1248517	15.68	963428	129.59	60	125	IS Failed
Sc (IS)	45	2	HMI He	2276623	15.40	1482478	153.57	60	125	IS Failed
Sc IS)	45	3	No Gas	118517334	3.18	60395536	196.24	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	13191176	17.80	11879546	111.04	60	125	
Ge Internal Standard	72	2	HMI He	2897187	15.34	1923324	150.63	60	125	IS Failed
In Internal standard	115	2	HMI He	8521133	10.73	5599328	152.18	60	125	IS Failed
Ho-165	165	2	HMI He	25137463	12.35	17108014	146.93	60	125	IS Failed

Sample Report

Sample Table

Sample Name	
Data File Name	151SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:21:37-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	69.538	ppb	69.538	9.06	6640707	40000	
Be	9	1	6	-0.003	ppb	-0.003	-171.60	2	2000	
B	11	1	6	-27.283	ppb	-27.283	-34.61	273	100	
Na	23	2	45	-34.676	ppb	-34.676	-6.94	19160	400000	
Mg	24	2	45	-0.841	ppb	-0.841	-28.68	220	400000	
Al	27	2	45	-2.717	ppb	-2.717	-55.45	150	400000	
K	39	2	45	-164.828	ppb	-164.828	-15.06	39140	400000	
Ca	44	2	45	-4.541	ppb	-4.541	-15.68	40	400000	
V	51	2	72	-1.765	ppb	-1.765	-6.83	3540	2000	
Cr	52	2	72	-0.114	ppb	-0.114	-17.00	417	5000	
Mn	55	2	72	-0.118	ppb	-0.118	-49.36	120	10000	
Fe	57	2	72	-5.814	ppb	-5.814	-16.37	657	400000	
Co	59	2	72	-0.015	ppb	-0.015	-29.76	33	2000	
Ni	60	2	72	-0.019	ppb	-0.019	-56.83	170	5000	
Cu	63	2	72	-0.149	ppb	-0.149	-48.45	1703	5000	
Zn	66	2	72	-0.854	ppb	-0.854	-25.68	440	5000	
As	75	2	72	-0.024	ppb	-0.024	-277.99	52	2000	
Se	78	1	72	0.010	ppb	0.010	144.49	13	2000	
Sr	88	2	45	-0.040	ppb	-0.040	-61.51	47	2000	
Zr	90	2	72	-3.451	ppb	-3.451	-19.22	233	1000	
Zr	90	1	72	-3.226	ppb	-3.226	-204.96	1175	1000	
Nb	93	2	72	-0.199	ppb	-0.199	-1.28	77	200	
Mo	95	2	115	-0.035	ppb	-0.035	-62.99	110	2000	
Pd	105	2	115	-0.006	ppb	-0.006	-35.45	3	100	
Ag	107	2	115	-0.017	ppb	-0.017	-10.85	13	100	
Cd	111	2	115	0.003	ppb	0.003	173.21	3	2000	
Sn	120	2	115	-0.129	ppb	-0.129	-18.03	243	2000	
Sb	121	2	115	-0.038	ppb	-0.038	-21.71	40	1000	
Ba	137	2	115	-0.012	ppb	-0.012	-156.24	23	5000	
W	182	2	165	-0.021	ppb	-0.021	-53.65	1240	100	
Pt	195	2	165	-0.003	ppb	-0.003	-132.38	7	100	
Tl	205	2	165	-0.010	ppb	-0.010	-80.19	127	2000	
Pb	208	2	165	-0.010	ppb	-0.010	-97.85	540	5000	
Th	232	2	165	-0.043	ppb	-0.043	-28.91	263	2000	
U	238	2	165	-0.003	ppb	-0.003	-91.29	30	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1518569	23.71	963428	157.62	60	125	IS Failed
Sc (IS)	45	2	HMI He	2476015	5.92	1482478	167.02	60	125	IS Failed
Sc IS)	45	3	No Gas	60530507	13.43	60395536	100.22	60	120	
Ge Internal Standard	72	1	HMI H2	18070776	30.59	11879546	152.12	60	125	IS Failed
Ge Internal Standard	72	2	HMI He	3097391	6.28	1923324	161.04	60	125	IS Failed
In Internal standard	115	2	HMI He	8795618	7.16	5599328	157.08	60	125	IS Failed
Ho-165	165	2	HMI He	26554357	5.51	17108014	155.22	60	125	IS Failed

Sample Report

Sample Table

Sample Name	
Data File Name	152SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:25:10-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	42.733	ppb	42.733	62.61	9748644	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	-25.580	ppb	-25.580	-25.73	283	100	
Na	23	2	45	-14.427	ppb	-14.427	-175.00	17118	400000	
Mg	24	2	45	-0.384	ppb	-0.384	-140.16	190	400000	
Al	27	2	45	-2.888	ppb	-2.888	-48.39	87	400000	
K	39	2	45	-38.832	ppb	-38.832	-369.70	35696	400000	
Ca	44	2	45	0.664	ppb	0.664	246.08	67	400000	
V	51	2	72	-1.775	ppb	-1.775	-1.43	2507	2000	
Cr	52	2	72	0.015	ppb	0.015	1009.79	513	5000	
Mn	55	2	72	-0.077	ppb	-0.077	-41.10	123	10000	
Fe	57	2	72	-5.851	ppb	-5.851	-24.66	460	400000	
Co	59	2	72	-0.006	ppb	-0.006	-34.30	57	2000	
Ni	60	2	72	-0.006	ppb	-0.006	-691.68	127	5000	
Cu	63	2	72	-0.118	ppb	-0.118	-70.51	1307	5000	
Zn	66	2	72	-0.544	ppb	-0.544	-14.60	440	5000	
As	75	2	72	-0.041	ppb	-0.041	-80.56	34	2000	
Se	78	1	72	0.011	ppb	0.011	464.46	11	2000	
Sr	88	2	45	-0.055	ppb	-0.055	-37.37	20	2000	
Zr	90	2	72	-0.035	ppb	-0.035	-12722.50	220	1000	
Zr	90	1	72	-3.307	ppb	-3.307	-14.17	894	1000	
Nb	93	2	72	-0.183	ppb	-0.183	-7.71	110	200	
Mo	95	2	115	-0.029	ppb	-0.029	-94.32	80	2000	
Pd	105	2	115	0.005	ppb	0.005	336.87	17	100	
Ag	107	2	115	-0.014	ppb	-0.014	-40.53	13	100	
Cd	111	2	115	0.019	ppb	0.019	128.13	13	2000	
Sn	120	2	115	-0.108	ppb	-0.108	-23.53	210	2000	
Sb	121	2	115	-0.029	ppb	-0.029	-86.95	37	1000	
Ba	137	2	115	0.004	ppb	0.004	1733.92	17	5000	
W	182	2	165	-0.060	ppb	-0.060	-80.96	807	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.009	ppb	-0.009	-149.18	77	2000	
Pb	208	2	165	0.023	ppb	0.023	276.04	503	5000	
Th	232	2	165	-0.036	ppb	-0.036	-46.41	260	2000	
U	238	2	165	0.001	ppb	0.001	229.45	50	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1363080	7.93	963428	141.48	60	125	IS Failed
Sc (IS)	45	2	HMI He	1657122	42.71	1482478	111.78	60	125	
Sc IS)	45	3	No Gas	95211732	7.63	60395536	157.65	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	14204495	8.55	11879546	119.57	60	125	
Ge Internal Standard	72	2	HMI He	2201413	40.32	1923324	114.46	60	125	
In Internal standard	115	2	HMI He	6404742	42.66	5599328	114.38	60	125	
Ho-165	165	2	HMI He	19245021	42.61	17108014	112.49	60	125	

Sample Report

Sample Table

Sample Name	
Data File Name	153SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-15T20:28:45-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	8.282	ppb	8.282	192.03	10037968	40000	
Be	9	1	6	0.016	ppb	0.016	172.57	8	2000	
B	11	1	6	-28.532	ppb	-28.532	-14.50	233	100	
Na	23	2	45	-35.399	ppb	-35.399	-7.20	17482	400000	
Mg	24	2	45	-1.007	ppb	-1.007	-29.96	170	400000	
Al	27	2	45	-3.025	ppb	-3.025	-3.68	127	400000	
K	39	2	45	-145.769	ppb	-145.769	-22.34	39130	400000	
Ca	44	2	45	-1.869	ppb	-1.869	-185.91	67	400000	
V	51	2	72	-1.692	ppb	-1.692	-4.33	3494	2000	
Cr	52	2	72	-0.080	ppb	-0.080	-34.06	497	5000	
Mn	55	2	72	-0.069	ppb	-0.069	-15.85	183	10000	
Fe	57	2	72	-5.686	ppb	-5.686	-14.80	623	400000	
Co	59	2	72	-0.007	ppb	-0.007	-130.52	77	2000	
Ni	60	2	72	-0.019	ppb	-0.019	-306.19	160	5000	
Cu	63	2	72	-0.185	ppb	-0.185	-28.97	1463	5000	
Zn	66	2	72	-0.547	ppb	-0.547	-51.91	573	5000	
As	75	2	72	-0.047	ppb	-0.047	-14.40	39	2000	
Se	78	1	72	0.009	ppb	0.009	351.26	11	2000	
Sr	88	2	45	-0.036	ppb	-0.036	-8.81	50	2000	
Zr	90	2	72	-5.236	ppb	-5.236	-48.69	193	1000	
Zr	90	1	72	-5.977	ppb	-5.977	-7.08	721	1000	
Nb	93	2	72	-0.194	ppb	-0.194	-9.83	87	200	
Mo	95	2	115	-0.047	ppb	-0.047	-73.42	83	2000	
Pd	105	2	115	0.002	ppb	0.002	447.58	27	100	
Ag	107	2	115	-0.017	ppb	-0.017	-10.73	10	100	
Cd	111	2	115	0.004	ppb	0.004	173.21	3	2000	
Sn	120	2	115	-0.129	ppb	-0.129	-16.72	233	2000	
Sb	121	2	115	-0.050	ppb	-0.050	-17.09	13	1000	
Ba	137	2	115	-0.029	ppb	-0.029	-79.74	10	5000	
W	182	2	165	0.013	ppb	0.013	271.57	1283	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.010	ppb	-0.010	-99.39	113	2000	
Pb	208	2	165	-0.015	ppb	-0.015	-47.66	457	5000	
Th	232	2	165	-0.045	ppb	-0.045	-17.16	220	2000	
U	238	2	165	-0.005	ppb	-0.005	-24.01	13	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1258458	12.35	963428	130.62	60	125	IS Failed
Sc (IS)	45	2	HMI He	2305036	10.00	1482478	155.49	60	125	IS Failed
Sc IS)	45	3	No Gas	107516754	11.91	60395536	178.02	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	12729568	16.90	11879546	107.16	60	125	
Ge Internal Standard	72	2	HMI He	2908760	9.40	1923324	151.24	60	125	IS Failed
In Internal standard	115	2	HMI He	8341611	8.51	5599328	148.98	60	125	IS Failed
Ho-165	165	2	HMI He	24721692	11.30	17108014	144.50	60	125	IS Failed

Sample Report

Sample Table

Sample Name	
Data File Name	154SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T06:16:21-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-3.383	ppb	-3.383	-188.59	7980063	40000	
Be	9	1	6	-0.002	ppb	-0.002	-353.87	2	2000	
B	11	1	6	-27.541	ppb	-27.541	-22.28	263	100	
Na	23	2	45	-60.848	ppb	-60.848	-0.44	5524	400000	
Mg	24	2	45	-1.349	ppb	-1.349	-7.84	97	400000	
Al	27	2	45	-0.871	ppb	-0.871	-66.76	213	400000	
K	39	2	45	-168.943	ppb	-168.943	-5.54	32046	400000	
Ca	44	2	45	-0.509	ppb	-0.509	-133.35	73	400000	
V	51	2	72	-2.214	ppb	-2.214	-5.01	2070	2000	
Cr	52	2	72	-0.108	ppb	-0.108	-20.16	383	5000	
Mn	55	2	72	-0.103	ppb	-0.103	-30.14	127	10000	
Fe	57	2	72	-1.657	ppb	-1.657	-21.60	813	400000	
Co	59	2	72	-0.015	ppb	-0.015	-33.69	33	2000	
Ni	60	2	72	-0.028	ppb	-0.028	-107.91	137	5000	
Cu	63	2	72	-0.270	ppb	-0.270	-6.44	1047	5000	
Zn	66	2	72	-0.970	ppb	-0.970	-11.21	323	5000	
As	75	2	72	-0.048	ppb	-0.048	-50.84	37	2000	
Se	78	1	72	-0.007	ppb	-0.007	-164.13	7	2000	
Sr	88	2	45	-0.046	ppb	-0.046	-26.45	30	2000	
Zr	90	2	72	0.541	ppb	0.541	398.21	263	1000	
Zr	90	1	72	14.557	ppb	14.557	5.59	1805	1000	
Nb	93	2	72	-0.207	ppb	-0.207	-3.78	37	200	
Mo	95	2	115	-0.034	ppb	-0.034	-40.79	100	2000	
Pd	105	2	115	-0.003	ppb	-0.003	-121.83	10	100	
Ag	107	2	115	-0.016	ppb	-0.016	-6.81	17	100	
Cd	111	2	115	0.004	ppb	0.004	173.21	3	2000	
Sn	120	2	115	-0.168	ppb	-0.168	-4.57	130	2000	
Sb	121	2	115	-0.048	ppb	-0.048	-16.51	17	1000	
Ba	137	2	115	-0.022	ppb	-0.022	-36.36	13	5000	
W	182	2	165	0.597	ppb	0.597	17.17	3400	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.020	ppb	-0.020	-36.54	50	2000	
Pb	208	2	165	-0.018	ppb	-0.018	-89.16	400	5000	
Th	232	2	165	-0.049	ppb	-0.049	-11.03	173	2000	
U	238	2	165	-0.005	ppb	-0.005	-24.72	7	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	1362539	4.78	963428	141.43	60	125	IS Failed
Sc (IS)	45	2	HMI He	2055788	2.85	1482478	138.67	60	125	IS Failed
Sc IS)	45	3	No Gas	88085223	1.52	60395536	145.85	60	120	IS Failed
Ge Internal Standard	72	1	HMI H2	17191611	2.32	11879546	144.72	60	125	IS Failed
Ge Internal Standard	72	2	HMI He	2728276	2.99	1923324	141.85	60	125	IS Failed
In Internal standard	115	2	HMI He	7789830	2.69	5599328	139.12	60	125	IS Failed
Ho-165	165	2	HMI He	22773258	1.14	17108014	133.11	60	125	IS Failed

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	155SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:04:22-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-65.490	ppb	-65.490	-17.34	3147789	40000	
Be	9	1	6	0.014	ppb	0.014	247.97	3	2000	
B	11	1	6	-11.647	ppb	-11.647	-97.01	200	100	
Na	23	2	45	-46.327	ppb	-46.327	-5.28	5921	400000	
Mg	24	2	45	-0.753	ppb	-0.753	-9.16	103	400000	
Al	27	2	45	26.390	ppb	26.390	5.21	777	400000	
K	39	2	45	52.792	ppb	52.792	17.44	32433	400000	
Ca	44	2	45	8.065	ppb	8.065	61.15	83	400000	
V	51	2	72	-0.822	ppb	-0.822	-26.48	2774	2000	
Cr	52	2	72	0.055	ppb	0.055	117.18	463	5000	
Mn	55	2	72	-0.027	ppb	-0.027	-344.60	120	10000	
Fe	57	2	72	13.826	ppb	13.826	26.53	883	400000	
Co	59	2	72	-0.015	ppb	-0.015	-41.11	17	2000	
Ni	60	2	72	0.305	ppb	0.305	49.33	307	5000	
Cu	63	2	72	0.122	ppb	0.122	52.39	1310	5000	
Zn	66	2	72	1.736	ppb	1.736	26.42	897	5000	
As	75	2	72	0.111	ppb	0.111	98.59	50	2000	
Se	78	1	72	0.038	ppb	0.038	238.53	12	2000	
Sr	88	2	45	-0.014	ppb	-0.014	-90.30	40	2000	
Zr	90	2	72	-7.419	ppb	-7.419	-39.91	77	1000	
Zr	90	1	72	3.994	ppb	3.994	81.08	677	1000	
Nb	93	2	72	-0.118	ppb	-0.118	-24.03	193	200	
Mo	95	2	115	-0.005	ppb	-0.005	-715.25	90	2000	
Pd	105	2	115	-0.005	ppb	-0.005	-76.92	3	100	
Ag	107	2	115	-0.016	ppb	-0.016	-32.52	10	100	
Cd	111	2	115	0.014	ppb	0.014	173.21	7	2000	
Sn	120	2	115	0.011	ppb	0.011	203.85	317	2000	
Sb	121	2	115	-0.029	ppb	-0.029	-134.98	30	1000	
Ba	137	2	115	0.018	ppb	0.018	221.58	23	5000	
W	182	2	165	0.629	ppb	0.629	6.32	1780	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.006	ppb	-0.006	-169.22	67	2000	
Pb	208	2	165	-0.003	ppb	-0.003	-98.50	263	5000	
Th	232	2	165	-0.015	ppb	-0.015	-77.84	230	2000	
U	238	2	165	-0.002	ppb	-0.002	-134.75	20	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	590846	1.74	963428	61.33	60	125	
Sc (IS)	45	2	HMI He	1077255	1.26	1482478	72.67	60	125	
Sc IS)	45	3	No Gas	42393474	0.97	60395536	70.19	60	120	
Ge Internal Standard	72	1	HMI H2	8447667	1.71	11879546	71.11	60	125	
Ge Internal Standard	72	2	HMI He	1426848	2.46	1923324	74.19	60	125	
In Internal standard	115	2	HMI He	4571614	0.96	5599328	81.65	60	125	
Ho-165	165	2	HMI He	11519092	2.22	17108014	67.33	60	125	

Sample Report

Sample Table

Sample Name	rinse-5830749
Data File Name	156SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:07:55-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	IS
ISTD Ref FileName	091CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	-61.489	ppb	-61.489	-15.56	3165246	40000	
Be	9	1	6	-0.006	ppb	-0.006	0.00	0	2000	
B	11	1	6	-9.809	ppb	-9.809	-83.90	203	100	
Na	23	2	45	-48.064	ppb	-48.064	-5.27	5628	400000	
Mg	24	2	45	-0.548	ppb	-0.548	-132.90	123	400000	
Al	27	2	45	26.542	ppb	26.542	12.31	790	400000	
K	39	2	45	49.223	ppb	49.223	39.01	32587	400000	
Ca	44	2	45	6.016	ppb	6.016	103.78	73	400000	
V	51	2	72	-0.788	ppb	-0.788	-24.95	2790	2000	
Cr	52	2	72	0.044	ppb	0.044	70.28	440	5000	
Mn	55	2	72	-0.024	ppb	-0.024	-77.62	120	10000	
Fe	57	2	72	12.358	ppb	12.358	9.77	833	400000	
Co	59	2	72	-0.011	ppb	-0.011	-109.11	27	2000	
Ni	60	2	72	0.357	ppb	0.357	5.24	340	5000	
Cu	63	2	72	0.164	ppb	0.164	58.73	1373	5000	
Zn	66	2	72	1.923	ppb	1.923	29.59	940	5000	
As	75	2	72	0.091	ppb	0.091	47.04	46	2000	
Se	78	1	72	0.025	ppb	0.025	97.76	9	2000	
Sr	88	2	45	-0.015	ppb	-0.015	-313.19	40	2000	
Zr	90	2	72	8.111	ppb	8.111	66.51	193	1000	
Zr	90	1	72	3.873	ppb	3.873	170.24	657	1000	
Nb	93	2	72	-0.179	ppb	-0.179	-6.41	73	200	
Mo	95	2	115	-0.008	ppb	-0.008	-605.90	87	2000	
Pd	105	2	115	0.006	ppb	0.006	374.34	20	100	
Ag	107	2	115	-0.009	ppb	-0.009	-54.07	33	100	
Cd	111	2	115	0.000	ppb	0.000	#DIV/0!	0	2000	
Sn	120	2	115	-0.027	ppb	-0.027	-70.17	267	2000	
Sb	121	2	115	-0.051	ppb	-0.051	-20.21	7	1000	
Ba	137	2	115	0.027	ppb	0.027	117.24	27	5000	
W	182	2	165	0.320	ppb	0.320	48.72	1187	100	
Pt	195	2	165	-0.005	ppb	-0.005	0.00	0	100	
Tl	205	2	165	-0.007	ppb	-0.007	-165.61	63	2000	
Pb	208	2	165	0.005	ppb	0.005	243.82	300	5000	
Th	232	2	165	-0.026	ppb	-0.026	-38.46	187	2000	
U	238	2	165	0.001	ppb	0.001	573.50	30	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	571903	2.00	963428	59.36	60	125	IS Failed
Sc (IS)	45	2	HMI He	1090448	1.19	1482478	73.56	60	125	
Sc IS)	45	3	No Gas	42041020	2.07	60395536	69.61	60	120	
Ge Internal Standard	72	1	HMI H2	8251358	2.10	11879546	69.46	60	125	
Ge Internal Standard	72	2	HMI He	1413716	2.49	1923324	73.50	60	125	
In Internal standard	115	2	HMI He	4593981	1.66	5599328	82.05	60	125	
Ho-165	165	2	HMI He	11486330	4.71	17108014	67.14	60	125	

Calibration Blank Report

Sample Table

Sample Name2	icis-5833267
Data File Name	157CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Method	
Acq Date Time	2019-08-16T07:11:28-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	I.S	Tune Step	Tune Mode	CPS	%RSD
Li	7	45	1	HMI H2	63170	0.00
Li	7	45	3	No Gas	3169549	0.00
B	11	6	1	HMI H2	127	12.97
Na	23	45	2	HMI He	5084	0.16
Mg	24	45	2	HMI He	103	32.89
Al	27	45	2	HMI He	343	11.04
K	39	45	2	HMI He	33863	0.02
Ca	44	45	2	HMI He	47	132.55
V	51	72	2	HMI He	2734	0.14
Cr	52	72	2	HMI He	393	1.35
Mn	55	72	2	HMI He	67	46.84
Fe	57	72	2	HMI He	450	4.86
Co	59	72	2	HMI He	20	661.44
Ni	60	72	2	HMI He	283	5.89
Cu	63	72	2	HMI He	1343	0.12
Zn	66	72	2	HMI He	780	0.75
As	75	72	2	HMI He	39	62.33
Se	78	72	1	HMI H2	8	1250.00
Sr	88	45	2	HMI He	27	292.73
Zr	90	72	2	HMI He	133	11.71
Zr	90	72	1	HMI H2	657	0.35
Nb	93	72	2	HMI He	137	25.30
Mo	95	115	2	HMI He	100	52.92
Ag	107	115	2	HMI He	17	415.69
Cd	111	115	2	HMI He	13	649.52
Sn	120	115	2	HMI He	223	3.06
Sb	121	115	2	HMI He	17	549.91
Ba	137	115	2	HMI He	20	500.00
W	182	165	2	HMI He	1070	0.75
Pt	195	165	2	HMI He	7	1299.04
Tl	205	165	2	HMI He	60	48.11
Pb	208	165	2	HMI He	323	2.21
Th	232	165	2	HMI He	173	8.38
U	238	165	2	HMI He	7	2598.08

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li-6 Internal Standard	6	1	HMI H2	568802	1.51
Sc (IS)	45	2	HMI He	1111045	0.44
Sc IS)	45	3	No Gas	41829669	1.31
Ge Internal Standard	72	1	HMI H2	8259059	2.42
Ge Internal Standard	72	2	HMI He	1393662	3.72
In Internal standard	115	2	HMI He	4566718	2.53
Ho-165	165	2	HMI He	11335408	4.21

Calibration Standard Report

Sample Table

Sample Name	ic-5833268
Data File Name	158CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
method	
Acq Date Time	2019-08-16T07:15:01-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	IS	Tune Step	Tune Mode	CPS	%RSD
Li	7	45	1	HMI H2	101496	0.00
Li	7	45	3	No Gas	4922343	0.00
Be	9	6	1	HMI H2	18421	0.01
B	11	6	1	HMI H2	747	1.70
Na	23	45	2	HMI He	445654	0.00
Mg	24	45	2	HMI He	187327	0.00
Al	27	45	2	HMI He	52544	0.00
K	39	45	2	HMI He	184502	0.00
Ca	44	45	2	HMI He	11557	0.03
V	51	72	2	HMI He	133558	0.00
Cr	52	72	2	HMI He	173719	0.00
Mn	55	72	2	HMI He	77385	0.00
Fe	57	72	2	HMI He	65617	0.00
Co	59	72	2	HMI He	277520	0.00
Ni	60	72	2	HMI He	75246	0.00
Cu	63	72	2	HMI He	206920	0.00
Zn	66	72	2	HMI He	30093	0.01
As	75	72	2	HMI He	22775	0.01
Se	78	72	1	HMI H2	22188	0.00
Sr	88	45	2	HMI He	184995	0.00
Zr	90	72	2	HMI He	760	1.37
Zr	90	72	1	HMI H2	2389	0.64
Nb	93	72	2	HMI He	451859	0.00
Mo	95	115	2	HMI He	112718	0.00
Pd	105	115	2	HMI He	164312	0.00
Ag	107	115	2	HMI He	341117	0.00
Cd	111	115	2	HMI He	50080	0.01
Sn	120	115	2	HMI He	144135	0.00
Sb	121	115	2	HMI He	119948	0.00
Ba	137	115	2	HMI He	39609	0.00
W	182	165	2	HMI He	228006	0.00
Pt	195	165	2	HMI He	148500	0.00
Tl	205	165	2	HMI He	345851	0.00
Pb	208	165	2	HMI He	483074	0.00
Th	232	165	2	HMI He	524378	0.00
U	238	165	2	HMI He	553558	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	569083	0.99	568802	100.05	60	125	
Sc (IS)	45	2	HMI He	1097346	0.53	1111045	98.77	60	125	
Sc IS)	45	3	No Gas	40925419	1.21	41829669	97.84	60	120	
Ge Internal Standard	72	1	HMI H2	8325824	1.25	8259059	100.81	60	125	
Ge Internal Standard	72	2	HMI He	1420415	1.10	1393662	101.92	60	125	
In Internal standard	115	2	HMI He	4536980	3.75	4566718	99.35	60	125	
Ho-165	165	2	HMI He	11452289	0.70	11335408	101.03	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	159_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:18:33-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	93.627	ppb	10.726	79872	100	93.6	90	110	
Li	7	3	45	99.737	ppb	2.245	3996701	100	99.7	90	110	
Be	9	1	6	49.666	ppb	2.248	9101	50	99.3	90	110	
B	11	1	6	56.295	ppb	20.037	473	50	112.6	90	110	>+\-10%
Na	23	2	45	1006.527	ppb	1.520	226361	1000	100.7	90	110	
Mg	24	2	45	996.255	ppb	1.893	93185	1000	99.6	90	110	
Al	27	2	45	1006.926	ppb	0.910	26570	1000	100.7	90	110	
K	39	2	45	978.913	ppb	3.686	107163	1000	97.9	90	110	
Ca	44	2	45	926.906	ppb	5.173	5371	1000	92.7	90	110	
V	51	2	72	49.466	ppb	1.478	65660	50	98.9	90	110	
Cr	52	2	72	48.468	ppb	0.186	82129	50	96.9	90	110	
Mn	55	2	72	49.807	ppb	3.056	37527	50	99.6	90	110	
Fe	57	2	72	1022.701	ppb	4.310	32861	1000	102.3	90	110	
Co	59	2	72	50.991	ppb	1.050	137682	50	102.0	90	110	
Ni	60	2	72	52.160	ppb	0.087	38316	50	104.3	90	110	
Cu	63	2	72	51.734	ppb	3.501	104775	50	103.5	90	110	
Zn	66	2	72	53.318	ppb	3.794	15974	50	106.6	90	110	
As	75	2	72	49.480	ppb	1.969	10982	50	99.0	90	110	
Se	78	1	72	47.948	ppb	1.918	10654	50	95.9	90	110	
Sr	88	2	45	98.050	ppb	1.147	90527	100	98.1	90	110	
Zr	90	2	72	42.473	ppb	13.989	390	50	84.9	90	110	>+\-10%
Zr	90	1	72	56.424	ppb	10.627	1638	50	112.8	90	110	>+\-10%
Nb	93	2	72	100.949	ppb	1.943	221928	100	100.9	90	110	
Mo	95	2	115	48.527	ppb	4.596	54562	50	97.1	90	110	
Pd	105	2	115	49.665	ppb	2.561	81315	50	99.3	90	110	
Ag	107	2	115	49.025	ppb	4.281	166602	50	98.0	90	110	
Cd	111	2	115	48.418	ppb	3.977	24171	50	96.8	90	110	
Sn	120	2	115	47.904	ppb	3.248	68855	50	95.8	90	110	
Sb	121	2	115	47.916	ppb	5.579	57217	50	95.8	90	110	
Ba	137	2	115	48.638	ppb	6.570	19192	50	97.3	90	110	
W	182	2	165	48.280	ppb	2.660	112223	50	96.6	90	110	
Pt	195	2	165	47.235	ppb	3.113	71162	50	94.5	90	110	
Tl	205	2	165	45.657	ppb	3.445	160219	50	91.3	90	110	
Pb	208	2	165	47.289	ppb	3.339	231855	50	94.6	90	110	
Th	232	2	165	49.010	ppb	0.764	260834	50	98.0	90	110	
U	238	2	165	49.113	ppb	0.719	275790	50	98.2	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	566116	1.12	568802	99.53	60	125	
Sc (IS)	45	2	HMI He	1095250	1.09	1111045	98.58	60	125	
Sc IS)	45	3	No Gas	40788439	0.84	41829669	97.51	60	120	
Ge Internal Standard	72	1	HMI H2	8334941	0.82	8259059	100.92	60	125	
Ge Internal Standard	72	2	HMI He	1381812	0.20	1393662	99.15	60	125	
In Internal standard	115	2	HMI He	4518265	3.60	4566718	98.94	60	125	
Ho-165	165	2	HMI He	11617650	1.20	11335408	102.49	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	160_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:22:05-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	3.505	ppb	162.8	62193	0.1	>RL
Li	7	3	45	-5.984	ppb	-47.7	3107574	0.05	
Be	9	1	6	0.009	ppb	173.2	2	0.5	
B	11	1	6	6.418	ppb	87.9	163	0.1	>RL
Na	23	2	45	4.765	ppb	23.1	6091	25	
Mg	24	2	45	0.435	ppb	134.5	143	25	
Al	27	2	45	-0.788	ppb	-97.1	320	15	
K	39	2	45	-5.071	ppb	-547.3	33172	50	
Ca	44	2	45	0.073	ppb	1379.2	47	25	
V	51	2	72	0.109	ppb	175.0	2897	1	
Cr	52	2	72	0.059	ppb	14.9	497	1	
Mn	55	2	72	0.025	ppb	111.0	87	0.5	
Fe	57	2	72	-1.804	ppb	-72.9	393	25	
Co	59	2	72	0.007	ppb	48.3	40	0.5	
Ni	60	2	72	-0.058	ppb	-107.0	243	1	
Cu	63	2	72	0.273	ppb	42.2	1907	1	
Zn	66	2	72	0.639	ppb	121.4	970	5	
As	75	2	72	0.028	ppb	108.0	45	1	
Se	78	1	72	0.050	ppb	119.6	19	1	
Sr	88	2	45	0.054	ppb	45.8	77	1	
Zr	90	2	72	7.407	ppb	77.1	180	1	>RL
Zr	90	1	72	2.173	ppb	132.8	684	1	>RL
Nb	93	2	72	2.113	ppb	1.6	4851	2	>RL
Mo	95	2	115	0.048	ppb	67.4	153	0.5	
Pd	105	2	115	0.028	ppb	48.1	47	1	
Ag	107	2	115	0.008	ppb	107.6	43	1	
Cd	111	2	115	-0.007	ppb	-463.5	10	0.5	
Sn	120	2	115	0.122	ppb	29.0	397	1	
Sb	121	2	115	0.168	ppb	44.5	217	1	
Ba	137	2	115	0.034	ppb	254.7	33	0.5	
W	182	2	165	0.027	ppb	226.7	1157	1	
Pt	195	2	165	0.000	ppb	-2080.7	7	1	
Tl	205	2	165	0.017	ppb	47.6	120	0.1	
Pb	208	2	165	0.031	ppb	18.8	483	0.5	
Th	232	2	165	0.246	ppb	3.8	1483	1	
U	238	2	165	0.028	ppb	47.6	163	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	558267	0.75	568802	98.15	60	125	
Sc (IS)	45	2	HMI He	1101134	0.15	1111045	99.11	60	125	
Sc IS)	45	3	No Gas	41735251	1.81	41829669	99.77	60	120	
Ge Internal Standard	72	1	HMI H2	8127435	0.48	8259059	98.41	60	125	
Ge Internal Standard	72	2	HMI He	1402800	0.53	1393662	100.66	60	125	
In Internal standard	115	2	HMI He	4538920	2.55	4566718	99.39	60	125	
Ho-165	165	2	HMI He	11607979	1.91	11335408	102.40	60	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Table

Sample Name	ccvl-5833291
Data File Name	161LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:25:38-06:00
Sample Type	LLCCV
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	9.874	ppb	112.735	3255502	50	19.7	70	130	>+/-30%
Be	9	1	6	1.172	ppb	28.394	217	1	117.2	70	130	
Na	23	2	45	51.519	ppb	1.858	16511	50	103.0	70	130	
Mg	24	2	45	51.186	ppb	5.208	4934	50	102.4	70	130	
Al	27	2	45	91.746	ppb	23.800	2754	50	183.5	70	130	>+/-30%
K	39	2	45	95.140	ppb	20.140	40971	100	95.1	70	130	
Ca	44	2	45	38.430	ppb	35.788	270	50	76.9	70	130	
V	51	2	72	5.007	ppb	2.173	9253	5	100.1	70	130	
Cr	52	2	72	2.075	ppb	3.698	3961	2	103.7	70	130	
Mn	55	2	72	1.104	ppb	10.243	913	1	110.4	70	130	
Fe	57	2	72	50.706	ppb	8.957	2090	50	101.4	70	130	
Co	59	2	72	1.118	ppb	2.374	3094	1	111.8	70	130	
Ni	60	2	72	1.486	ppb	1.902	1390	1.5	99.0	70	130	
Cu	63	2	72	1.953	ppb	7.204	5334	2	97.7	70	130	
Zn	66	2	72	10.686	ppb	1.293	3890	10	106.9	70	130	
As	75	2	72	5.078	ppb	11.189	1183	5	101.6	70	130	
Se	78	1	72	4.490	ppb	2.033	1007	5	89.8	70	130	
Sr	88	2	45	1.099	ppb	19.715	1053	1	109.9	70	130	
Zr	90	2	72	-6.699	ppb	-99.559	93	0.5	-1339.7	70	130	>+/-30%
Zr	90	1	72	4.224	ppb	98.148	737	0.5	844.8	70	130	>+/-30%
Nb	93	2	72	0.970	ppb	12.060	2307	2	48.5	70	130	>+/-30%
Mo	95	2	115	2.049	ppb	13.067	2437	2	102.5	70	130	
Pd	105	2	115	0.016	ppb	86.611	27	1	1.6	70	130	>+/-30%
Ag	107	2	115	5.110	ppb	2.947	17660	5	102.2	70	130	
Cd	111	2	115	1.110	ppb	18.502	577	1	111.0	70	130	
Sn	120	2	115	9.784	ppb	7.408	14463	10	97.8	70	130	
Sb	121	2	115	2.150	ppb	8.780	2627	2	107.5	70	130	
Ba	137	2	115	0.907	ppb	13.054	383	1	90.7	70	130	
W	182	2	165	4.808	ppb	1.070	12122	1	480.8	70	130	>+/-30%
Pt	195	2	165	-0.005	ppb	0.000	0	1	-0.5	70	130	>+/-30%
Tl	205	2	165	0.967	ppb	4.410	3444	1	96.7	70	130	
Pb	208	2	165	0.986	ppb	4.909	5144	1	98.6	70	130	
Th	232	2	165	1.955	ppb	3.855	10537	2	97.7	70	130	
U	238	2	165	0.991	ppb	1.894	5554	1	99.1	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	569981	1.29	568802	100.21	60	125	
Sc (IS)	45	2	HMI He	1106785	1.14	1111045	99.62	60	125	
Sc IS)	45	3	No Gas	41756079	1.65	41829669	99.82	60	120	
Ge Internal Standard	72	1	HMI H2	8347309	1.02	8259059	101.07	60	125	
Ge Internal Standard	72	2	HMI He	1407204	0.72	1393662	100.97	60	125	
In Internal standard	115	2	HMI He	4586831	0.85	4566718	100.44	60	125	
Ho-165	165	2	HMI He	11576649	0.71	11335408	102.13	60	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	icsa-5831053
Data File Name	162ICSA.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:29:10-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	12.311	ppb	53.7	59892	10	>RL or LOD
Li	7	3	45	-4.263	ppb	-284.3	2953268	10	
Be	9	1	6	0.009	ppb	173.2	2	1	
B	11	1	6	5.137	ppb	163.8	153	10	
Na	23	2	45	96565.762	ppb	1.7	20618218	100000	
Mg	24	2	45	96892.370	ppb	1.5	8787925	100000	
Al	27	2	45	99720.889	ppb	3.3	2521739	100000	
K	39	2	45	99914.554	ppb	1.4	7344404	100000	
V	51	2	72	0.304	ppb	42.8	2994	1	
Cr	52	2	72	1.477	ppb	13.2	2780	1	>RL or LOD
Mn	55	2	72	0.623	ppb	11.7	517	1	
Co	59	2	72	0.302	ppb	21.1	807	1	
Ni	60	2	72	0.338	ppb	42.0	510	1	
Cu	63	2	72	0.429	ppb	21.0	2113	1	
Zn	66	2	72	0.940	ppb	94.1	1007	1	
As	75	2	72	0.070	ppb	79.2	52	1	
Se	78	1	72	0.127	ppb	79.7	33	1	
Sr	88	2	45	1.710	ppb	15.5	1557	1	>RL or LOD
Nb	93	2	72	4.211	ppb	1.8	9059	1	>RL or LOD
Mo	95	2	115	2071.825	ppb	0.5	2191416	2000	>RL or LOD
Pd	105	2	115	0.022	ppb	34.1	33	1	
Ag	107	2	115	0.064	ppb	46.2	220	1	
Cd	111	2	115	0.449	ppb	32.8	223	1	
Sn	120	2	115	0.101	ppb	85.2	343	1	
Sb	121	2	115	0.161	ppb	26.8	197	1	
Ba	137	2	115	0.874	ppb	34.1	343	1	
W	182	2	165	0.479	ppb	17.2	2107	1	
Pt	195	2	165	0.023	ppb	52.8	40	1	
Tl	205	2	165	0.035	ppb	56.1	177	1	
Pb	208	2	165	0.286	ppb	3.6	1657	1	
Th	232	2	165	0.982	ppb	6.4	5171	1	
U	238	2	165	0.020	ppb	61.3	113	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	550181	0.55	568802	96.73	60	125	
Sc (IS)	45	2	HMI He	1063317	1.43	1111045	95.70	60	125	
Sc IS)	45	3	No Gas	39480311	2.41	41829669	94.38	60	120	
Ge Internal Standard	72	1	HMI H2	7653747	0.42	8259059	92.67	60	125	
Ge Internal Standard	72	2	HMI He	1333689	0.74	1393662	95.70	60	125	
In Internal standard	115	2	HMI He	4253696	1.76	4566718	93.15	60	125	
Ho-165	165	2	HMI He	11129319	1.42	11335408	98.18	60	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	icsab-5831054
Data File Name	163ICSB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:32:40-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	45	198.885	ppb	1.172	93128	100	198.9	80	120	>+\-20%
Li	7	3	45	202.055	ppb	0.381	4641490	100	202.1	80	120	>+\-20%
Be	9	1	6	98.034	ppb	1.727	17076	100	98.0	80	120	
B	11	1	6	29.641	ppb	34.695	293	100	29.6	80	120	>+\-20%
V	51	2	72	106.079	ppb	3.266	127600	100	106.1	80	120	
Cr	52	2	72	102.911	ppb	2.977	161195	100	102.9	80	120	
Mn	55	2	72	105.969	ppb	1.947	73933	100	106.0	80	120	
Co	59	2	72	102.026	ppb	3.970	255239	100	102.0	80	120	
Ni	60	2	72	101.916	ppb	3.702	69118	100	101.9	80	120	
Cu	63	2	72	98.264	ppb	5.869	183206	100	98.3	80	120	
Zn	66	2	72	106.988	ppb	3.172	28981	100	107.0	80	120	
As	75	2	72	104.882	ppb	3.573	21529	100	104.9	80	120	
Se	78	1	72	103.235	ppb	0.659	20894	100	103.2	80	120	
Sr	88	2	45	208.088	ppb	0.887	183641	100	208.1	80	120	>+\-20%
Zr	90	2	72	146.829	ppb	27.400	950	100	146.8	80	120	>+\-20%
Zr	90	1	72	150.625	ppb	6.055	2973	100	150.6	80	120	>+\-20%
Nb	93	2	72	229.327	ppb	4.881	466860	100	229.3	80	120	
Mo	95	2	115	2171.601	ppb	1.287	2283710	100	2171.6	80	120	
Pd	105	2	115	97.673	ppb	0.683	149787	100	97.7	80	120	
Ag	107	2	115	99.216	ppb	2.995	315892	100	99.2	80	120	
Cd	111	2	115	101.104	ppb	0.871	47278	100	101.1	80	120	
Sn	120	2	115	102.535	ppb	1.569	137828	100	102.5	80	120	
Sb	121	2	115	108.846	ppb	0.305	121810	100	108.8	80	120	
Ba	137	2	115	102.185	ppb	6.695	37779	100	102.2	80	120	
W	182	2	165	104.083	ppb	0.974	228799	100	104.1	80	120	
Pt	195	2	165	97.656	ppb	2.671	139876	100	97.7	80	120	
Tl	205	2	165	93.377	ppb	0.466	311417	100	93.4	80	120	
Pb	208	2	165	97.226	ppb	5.737	452608	100	97.2	80	120	
Th	232	2	165	109.305	ppb	1.704	552679	100	109.3	80	120	
U	238	2	165	104.265	ppb	1.557	556488	100	104.3	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	538192	1.14	568802	94.62	60	125	
Sc (IS)	45	2	HMI He	1047019	0.99	1111045	94.24	60	125	
Sc IS)	45	3	No Gas	38439707	0.35	41829669	91.90	60	120	
Ge Internal Standard	72	1	HMI H2	7594653	1.40	8259059	91.96	60	125	
Ge Internal Standard	72	2	HMI He	1281262	3.04	1393662	91.93	60	125	
In Internal standard	115	2	HMI He	4229488	0.27	4566718	92.62	60	125	
Ho-165	165	2	HMI He	11041971	1.87	11335408	97.41	60	125	

Sample Report

Sample Table

Sample Name	rinse-
Data File Name	164SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:36:10-06:00
Analyst	Denver Metals
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	157CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	units	FinalConc	Conc %RSD	CPS	LDR	QC Flag
Li	7	3	45	13.549	ppb	13.549	28.62	3103413	40000	
Be	9	1	6	0.046	ppb	0.046	32.87	8	2000	
B	11	1	6	2.068	ppb	2.068	472.70	137	100	
Na	23	2	45	83.965	ppb	83.965	9.15	22578	400000	
Mg	24	2	45	18.964	ppb	18.964	25.66	1793	400000	
Al	27	2	45	27.493	ppb	27.493	18.43	1013	400000	
K	39	2	45	22.678	ppb	22.678	94.44	33799	400000	
Ca	44	2	45	17.077	ppb	17.077	80.85	137	400000	
V	51	2	72	0.521	ppb	0.521	21.32	3204	2000	
Cr	52	2	72	0.057	ppb	0.057	92.87	463	5000	
Mn	55	2	72	0.005	ppb	0.005	313.85	67	10000	
Fe	57	2	72	21.951	ppb	21.951	42.93	1083	400000	
Co	59	2	72	0.010	ppb	0.010	82.70	43	2000	
Ni	60	2	72	0.005	ppb	0.005	1692.62	270	5000	
Cu	63	2	72	0.107	ppb	0.107	124.41	1463	5000	
Zn	66	2	72	0.476	ppb	0.476	48.40	863	5000	
As	75	2	72	0.003	ppb	0.003	2336.60	37	2000	
Se	78	1	72	0.086	ppb	0.086	91.36	25	2000	
Sr	88	2	45	0.052	ppb	0.052	117.66	73	2000	
Zr	90	2	72	-7.907	ppb	-7.907	-66.73	80	1000	
Zr	90	1	72	0.605	ppb	0.605	971.10	627	1000	
Nb	93	2	72	0.123	ppb	0.123	13.88	383	200	
Mo	95	2	115	1.467	ppb	1.467	25.11	1677	2000	
Pd	105	2	115	0.048	ppb	0.048	53.25	77	100	
Ag	107	2	115	0.016	ppb	0.016	29.00	67	100	
Cd	111	2	115	-0.014	ppb	-0.014	-163.39	7	2000	
Sn	120	2	115	0.020	ppb	0.020	142.32	240	2000	
Sb	121	2	115	0.066	ppb	0.066	47.03	93	1000	
Ba	137	2	115	-0.008	ppb	-0.008	-654.91	17	5000	
W	182	2	165	-0.031	ppb	-0.031	-283.00	963	100	
Pt	195	2	165	0.023	ppb	0.023	104.24	40	100	
Tl	205	2	165	0.048	ppb	0.048	38.11	217	2000	
Pb	208	2	165	0.039	ppb	0.039	107.12	487	5000	
Th	232	2	165	0.023	ppb	0.023	42.89	280	2000	
U	238	2	165	0.022	ppb	0.022	59.53	120	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	560313	2.47	568802	98.51	60	125	
Sc (IS)	45	2	HMI He	1055556	4.39	1111045	95.01	60	125	
Sc IS)	45	3	No Gas	39378337	0.26	41829669	94.14	60	120	
Ge Internal Standard	72	1	HMI H2	7758179	1.25	8259059	93.94	60	125	
Ge Internal Standard	72	2	HMI He	1311307	2.11	1393662	94.09	60	125	
In Internal standard	115	2	HMI He	4367798	5.66	4566718	95.64	60	125	
Ho-165	165	2	HMI He	10924145	5.77	11335408	96.37	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	LCS 280-467486/2-A
Data File Name	165_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:39:43-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	467486 6020a
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	44.796	44.796	ppb	13.901	3407059	400	11.2	80	120	>+/-20%
Be	9	1	6	41.087	41.087	ppb	1.768	7251	40	102.7	80	120	
Na	23	2	45	856.999	856.999	ppb	3.778	191198	40	2142.5	80	120	>+/-20%
Mg	24	2	45	839.373	839.373	ppb	3.740	77598	40	2098.4	80	120	>+/-20%
Al	27	2	45	858.049	858.049	ppb	4.428	22434	40	2145.1	80	120	>+/-20%
K	39	2	45	834.352	834.352	ppb	5.308	95152	40	2085.9	80	120	>+/-20%
Ca	44	2	45	830.289	830.289	ppb	3.730	4764	40	2075.7	80	120	>+/-20%
V	51	2	72	39.841	39.841	ppb	4.460	53332	40	99.6	80	120	
Cr	52	2	72	40.190	40.190	ppb	3.585	68076	40	100.5	80	120	
Mn	55	2	72	41.420	41.420	ppb	1.943	31185	40	103.5	80	120	
Fe	57	2	72	884.425	884.425	ppb	2.242	28447	40	2211.1	80	120	>+/-20%
Co	59	2	72	41.130	41.130	ppb	1.895	110956	40	102.8	80	120	
Ni	60	2	72	40.058	40.058	ppb	1.747	29462	40	100.1	80	120	
Cu	63	2	72	40.980	40.980	ppb	1.537	83226	40	102.4	80	120	
Zn	66	2	72	45.937	45.937	ppb	4.240	13856	40	114.8	80	120	
As	75	2	72	37.613	37.613	ppb	3.116	8346	40	94.0	80	120	
Se	78	1	72	36.811	36.811	ppb	1.778	7883	40	92.0	80	120	
Sr	88	2	45	83.955	83.955	ppb	3.268	76616	40	209.9	80	120	>+/-20%
Nb	93	2	72	0.113	0.113	ppb	23.527	383	40	0.3	80	120	>+/-20%
Mo	95	2	115	42.136	42.136	ppb	1.876	46397	40	105.3	80	120	
Pd	105	2	115	0.010	0.010	ppb	90.750	17	40	0.0	80	120	>+/-20%
Ag	107	2	115	40.448	40.448	ppb	3.180	134554	40	101.1	80	120	
Cd	111	2	115	40.202	40.202	ppb	2.254	19662	40	100.5	80	120	
Sn	120	2	115	40.130	40.130	ppb	3.844	56484	40	100.3	80	120	
Sb	121	2	115	41.695	41.695	ppb	2.846	48759	40	104.2	80	120	
Ba	137	2	115	41.763	41.763	ppb	3.923	16148	40	104.4	80	120	
W	182	2	165	38.766	38.766	ppb	2.073	91369	40	96.9	80	120	
Pt	195	2	165	0.000	0.000	ppb	-3636.526	7	40	0.0	80	120	>+/-20%
Tl	205	2	165	39.127	39.127	ppb	5.634	138873	40	97.8	80	120	
Pb	208	2	165	38.887	38.887	ppb	1.128	192976	40	97.2	80	120	
Th	232	2	165	39.240	39.240	ppb	1.104	211330	40	98.1	80	120	
U	238	2	165	40.045	40.045	ppb	2.307	227440	40	100.1	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	545207	1.58	568802	95.85	60	125	
Sc (IS)	45	2	HMI He	1082847	2.12	1111045	97.46	60	125	
Sc IS)	45	3	No Gas	39736897	2.30	41829669	95.00	60	120	
Ge Internal Standard	72	1	HMI H2	8031873	2.60	8259059	97.25	60	125	
Ge Internal Standard	72	2	HMI He	1380727	2.50	1393662	99.07	60	125	
In Internal standard	115	2	HMI He	4420453	2.00	4566718	96.80	60	125	
Ho-165	165	2	HMI He	11752595	1.73	11335408	103.68	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	166_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:44:16-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	95.554	ppb	5.524	80866	100	95.6	90	110	
Li	7	3	45	113.225	ppb	9.096	4152018	100	113.2	90	110	>+\-10%
Be	9	1	6	48.226	ppb	1.725	9047	50	96.5	90	110	
B	11	1	6	48.591	ppb	18.556	437	50	97.2	90	110	
Na	23	2	45	988.275	ppb	2.573	224419	1000	98.8	90	110	
Mg	24	2	45	973.795	ppb	2.661	91945	1000	97.4	90	110	
Al	27	2	45	1004.114	ppb	0.265	26750	1000	100.4	90	110	
K	39	2	45	967.308	ppb	1.110	107314	1000	96.7	90	110	
Ca	44	2	45	968.082	ppb	7.263	5661	1000	96.8	90	110	
V	51	2	72	49.146	ppb	1.068	66928	50	98.3	90	110	
Cr	52	2	72	47.637	ppb	2.656	82789	50	95.3	90	110	
Mn	55	2	72	49.813	ppb	1.490	38496	50	99.6	90	110	
Fe	57	2	72	989.738	ppb	3.847	32634	1000	99.0	90	110	
Co	59	2	72	47.816	ppb	2.255	132438	50	95.6	90	110	
Ni	60	2	72	48.839	ppb	2.371	36819	50	97.7	90	110	
Cu	63	2	72	48.259	ppb	0.488	100336	50	96.5	90	110	
Zn	66	2	72	49.828	ppb	4.861	15367	50	99.7	90	110	
As	75	2	72	48.051	ppb	1.574	10939	50	96.1	90	110	
Se	78	1	72	47.191	ppb	2.436	10252	50	94.4	90	110	
Sr	88	2	45	97.330	ppb	2.273	90709	100	97.3	90	110	
Zr	90	2	72	28.572	ppb	31.912	313	50	57.1	90	110	>+\-10%
Zr	90	1	72	37.467	ppb	2.180	1281	50	74.9	90	110	>+\-10%
Nb	93	2	72	94.470	ppb	2.543	213039	100	94.5	90	110	
Mo	95	2	115	47.924	ppb	3.938	54094	50	95.8	90	110	
Pd	105	2	115	49.832	ppb	1.553	81877	50	99.7	90	110	
Ag	107	2	115	47.580	ppb	4.183	162354	50	95.2	90	110	
Cd	111	2	115	48.365	ppb	1.805	24248	50	96.7	90	110	
Sn	120	2	115	48.282	ppb	3.618	69632	50	96.6	90	110	
Sb	121	2	115	47.711	ppb	2.155	57210	50	95.4	90	110	
Ba	137	2	115	47.713	ppb	3.411	18908	50	95.4	90	110	
W	182	2	165	48.718	ppb	3.176	110555	50	97.4	90	110	
Pt	195	2	165	47.349	ppb	6.711	69598	50	94.7	90	110	
Tl	205	2	165	48.013	ppb	2.840	164494	50	96.0	90	110	
Pb	208	2	165	47.980	ppb	4.185	229786	50	96.0	90	110	
Th	232	2	165	48.249	ppb	2.915	250677	50	96.5	90	110	
U	238	2	165	49.852	ppb	4.005	273235	50	99.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	579632	1.57	568802	101.90	60	125	
Sc (IS)	45	2	HMI He	1105681	1.29	1111045	99.52	60	125	
Sc IS)	45	3	No Gas	41119655	1.04	41829669	98.30	60	120	
Ge Internal Standard	72	1	HMI H2	8148991	0.51	8259059	98.67	60	125	
Ge Internal Standard	72	2	HMI He	1417284	0.69	1393662	101.69	60	125	
In Internal standard	115	2	HMI He	4532338	2.07	4566718	99.25	60	125	
Ho-165	165	2	HMI He	11346145	2.46	11335408	100.09	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	167_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:47:48-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	6.481	ppb	154.8	62574	0.1	>RL
Li	7	3	45	4.358	ppb	113.2	3210873	0.05	>RL
Be	9	1	6	0.092	ppb	46.8	17	0.5	
B	11	1	6	9.059	ppb	68.5	180	0.1	>RL
Na	23	2	45	23.862	ppb	5.2	10306	25	
Mg	24	2	45	4.688	ppb	19.1	543	25	
Al	27	2	45	6.102	ppb	16.4	500	15	
K	39	2	45	4.463	ppb	260.8	33873	50	
Ca	44	2	45	8.095	ppb	82.9	93	25	
V	51	2	72	0.331	ppb	45.2	3207	1	
Cr	52	2	72	0.024	ppb	159.5	440	1	
Mn	55	2	72	0.050	ppb	50.7	107	0.5	
Fe	57	2	72	1.077	ppb	326.0	490	25	
Co	59	2	72	0.023	ppb	73.4	83	0.5	
Ni	60	2	72	0.079	ppb	79.2	347	1	
Cu	63	2	72	0.386	ppb	27.6	2157	1	
Zn	66	2	72	1.077	ppb	24.9	1107	5	
As	75	2	72	0.032	ppb	74.2	46	1	
Se	78	1	72	0.044	ppb	97.6	17	1	
Sr	88	2	45	0.025	ppb	152.1	50	1	
Zr	90	2	72	-5.209	ppb	-96.4	103	1	
Zr	90	1	72	18.934	ppb	51.0	964	1	>RL
Nb	93	2	72	1.387	ppb	2.4	3257	2	
Mo	95	2	115	0.127	ppb	13.7	243	0.5	
Pd	105	2	115	0.034	ppb	40.2	57	1	
Ag	107	2	115	0.016	ppb	17.1	70	1	
Cd	111	2	115	-0.007	ppb	-292.9	10	0.5	
Sn	120	2	115	0.039	ppb	237.7	277	1	
Sb	121	2	115	0.133	ppb	28.1	177	1	
Ba	137	2	115	-0.007	ppb	-193.9	17	0.5	
W	182	2	165	-0.012	ppb	-440.4	1053	1	
Pt	195	2	165	-0.002	ppb	-153.5	3	1	
Tl	205	2	165	0.036	ppb	47.5	183	0.1	
Pb	208	2	165	0.026	ppb	51.6	450	0.5	
Th	232	2	165	0.207	ppb	12.4	1257	1	
U	238	2	165	0.024	ppb	53.9	140	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	562170	2.15	568802	98.83	60	125	
Sc (IS)	45	2	HMI He	1100603	1.43	1111045	99.06	60	125	
Sc IS)	45	3	No Gas	41829152	0.87	41829669	100.00	60	120	
Ge Internal Standard	72	1	HMI H2	8119315	0.70	8259059	98.31	60	125	
Ge Internal Standard	72	2	HMI He	1413901	1.99	1393662	101.45	60	125	
In Internal standard	115	2	HMI He	4528746	1.28	4566718	99.17	60	125	
Ho-165	165	2	HMI He	11435246	2.59	11335408	100.88	60	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Table

Sample Name	ccvl-5833291
Data File Name	168LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:51:18-06:00
Sample Type	LLCCV
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	14.376	ppb	74.012	3322429	50	28.8	70	130	>+/-30%
Be	9	1	6	0.995	ppb	15.113	185	1	99.5	70	130	
Na	23	2	45	64.025	ppb	3.597	19344	50	128.1	70	130	
Mg	24	2	45	51.771	ppb	5.179	5004	50	103.5	70	130	
Al	27	2	45	91.490	ppb	10.893	2757	50	183.0	70	130	>+/-30%
K	39	2	45	91.500	ppb	11.424	40814	100	91.5	70	130	
Ca	44	2	45	37.155	ppb	17.404	263	50	74.3	70	130	
V	51	2	72	5.536	ppb	6.759	9856	5	110.7	70	130	
Cr	52	2	72	1.950	ppb	5.264	3717	2	97.5	70	130	
Mn	55	2	72	0.995	ppb	10.649	823	1	99.5	70	130	
Fe	57	2	72	52.994	ppb	9.998	2147	50	106.0	70	130	
Co	59	2	72	1.021	ppb	7.161	2804	1	102.1	70	130	
Ni	60	2	72	1.310	ppb	10.566	1250	1.5	87.4	70	130	
Cu	63	2	72	2.074	ppb	2.518	5534	2	103.7	70	130	
Zn	66	2	72	10.963	ppb	10.531	3937	10	109.6	70	130	
As	75	2	72	5.098	ppb	6.451	1177	5	102.0	70	130	
Se	78	1	72	4.750	ppb	8.920	1032	5	95.0	70	130	
Sr	88	2	45	1.064	ppb	10.149	1023	1	106.4	70	130	
Zr	90	2	72	-0.565	ppb	-1918.794	130	0.5	-113.0	70	130	>+/-30%
Zr	90	1	72	0.801	ppb	1211.001	657	0.5	160.2	70	130	>+/-30%
Nb	93	2	72	0.516	ppb	19.576	1283	2	25.8	70	130	>+/-30%
Mo	95	2	115	2.073	ppb	10.175	2437	2	103.7	70	130	
Pd	105	2	115	0.010	ppb	91.614	17	1	1.0	70	130	>+/-30%
Ag	107	2	115	4.882	ppb	3.683	16685	5	97.6	70	130	
Cd	111	2	115	1.009	ppb	27.815	520	1	100.9	70	130	
Sn	120	2	115	9.849	ppb	3.342	14397	10	98.5	70	130	
Sb	121	2	115	1.939	ppb	4.588	2344	2	96.9	70	130	
Ba	137	2	115	0.868	ppb	27.846	363	1	86.8	70	130	
W	182	2	165	4.971	ppb	3.300	12602	1	497.1	70	130	>+/-30%
Pt	195	2	165	-0.002	ppb	-157.909	3	1	-0.2	70	130	>+/-30%
Tl	205	2	165	0.945	ppb	9.454	3390	1	94.5	70	130	
Pb	208	2	165	0.987	ppb	8.651	5190	1	98.7	70	130	
Th	232	2	165	1.931	ppb	4.267	10500	2	96.6	70	130	
U	238	2	165	0.961	ppb	4.632	5428	1	96.1	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	574734	1.28	568802	101.04	60	125	
Sc (IS)	45	2	HMI He	1110107	1.68	1111045	99.92	60	125	
Sc IS)	45	3	No Gas	42070371	1.78	41829669	100.58	60	120	
Ge Internal Standard	72	1	HMI H2	8090808	1.23	8259059	97.96	60	125	
Ge Internal Standard	72	2	HMI He	1395761	0.74	1393662	100.15	60	125	
In Internal standard	115	2	HMI He	4536144	0.96	4566718	99.33	60	125	
Ho-165	165	2	HMI He	11674066	0.57	11335408	102.99	60	125	

Laboratory Control Sample (LCS) Report

Sample Table

Sample Name	280-125964-A-7-A LCS
Data File Name	169_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:54:50-06:00
Sample Type	LCS
Dilution	1
Analyst	Denver Metals
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	FinalConc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	3	45	43.871	43.871	ppb	22.490	3592770	400	11.0	80	120	>+/-20%
Be	9	1	6	35.586	35.586	ppb	3.664	6670	40	89.0	80	120	
Na	23	2	45	680.881	680.881	ppb	0.546	156461	40	1702.2	80	120	>+/-20%
Mg	24	2	45	664.325	664.325	ppb	1.749	62864	40	1660.8	80	120	>+/-20%
Al	27	2	45	670.993	670.993	ppb	5.109	18016	40	1677.5	80	120	>+/-20%
K	39	2	45	668.866	668.866	ppb	1.638	84733	40	1672.2	80	120	>+/-20%
Ca	44	2	45	705.731	705.731	ppb	5.653	4147	40	1764.3	80	120	>+/-20%
V	51	2	72	34.076	34.076	ppb	5.176	46933	40	85.2	80	120	
Cr	52	2	72	32.849	32.849	ppb	4.532	56816	40	82.1	80	120	
Mn	55	2	72	32.310	32.310	ppb	3.890	24818	40	80.8	80	120	
Fe	57	2	72	700.233	700.233	ppb	7.698	23065	40	1750.6	80	120	>+/-20%
Co	59	2	72	33.553	33.553	ppb	2.778	92315	40	83.9	80	120	
Ni	60	2	72	34.335	34.335	ppb	2.319	25793	40	85.8	80	120	
Cu	63	2	72	32.452	32.452	ppb	2.363	67458	40	81.1	80	120	
Zn	66	2	72	36.006	36.006	ppb	1.013	11247	40	90.0	80	120	
As	75	2	72	32.004	32.004	ppb	3.027	7250	40	80.0	80	120	
Se	78	1	72	32.455	32.455	ppb	3.666	7045	40	81.1	80	120	
Sr	88	2	45	65.627	65.627	ppb	0.802	61277	40	164.1	80	120	>+/-20%
Nb	93	2	72	0.588	0.588	ppb	5.533	1453	40	1.5	80	120	>+/-20%
Mo	95	2	115	33.320	33.320	ppb	0.457	37676	40	83.3	80	120	
Pd	105	2	115	0.026	0.026	ppb	12.018	43	40	0.1	80	120	>+/-20%
Ag	107	2	115	32.770	32.770	ppb	2.222	111888	40	81.9	80	120	
Cd	111	2	115	32.372	32.372	ppb	1.943	16241	40	80.9	80	120	
Sn	120	2	115	31.659	31.659	ppb	1.649	45787	40	79.1	80	120	>+/-20%
Sb	121	2	115	34.863	34.863	ppb	2.912	41840	40	87.2	80	120	
Ba	137	2	115	34.234	34.234	ppb	6.605	13579	40	85.6	80	120	
W	182	2	165	32.356	32.356	ppb	2.853	77590	40	80.9	80	120	
Pt	195	2	165	-0.005	-0.005	ppb	0.000	0	40	0.0	80	120	>+/-20%
Tl	205	2	165	32.988	32.988	ppb	3.075	118880	40	82.5	80	120	
Pb	208	2	165	31.459	31.459	ppb	1.527	158486	40	78.6	80	120	>+/-20%
Th	232	2	165	30.845	30.845	ppb	1.091	168585	40	77.1	80	120	>+/-20%
U	238	2	165	32.275	32.275	ppb	2.572	186017	40	80.7	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	579193	1.63	568802	101.83	60	125	
Sc (IS)	45	2	HMI He	1107432	0.75	1111045	99.67	60	125	
Sc IS)	45	3	No Gas	41995839	0.35	41829669	100.40	60	120	
Ge Internal Standard	72	1	HMI H2	8138733	0.40	8259059	98.54	60	125	
Ge Internal Standard	72	2	HMI He	1408035	1.85	1393662	101.03	60	125	
In Internal standard	115	2	HMI He	4535521	1.26	4566718	99.32	60	125	
Ho-165	165	2	HMI He	11926318	1.52	11335408	105.21	60	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	ccv-5833269
Data File Name	170_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T07:58:22-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	45	107.906	ppb	9.249	81539	100	107.9	90	110	
Li	7	3	45	106.171	ppb	2.631	4151875	100	106.2	90	110	
Be	9	1	6	45.868	ppb	2.110	8485	50	91.7	90	110	
B	11	1	6	41.623	ppb	13.504	387	50	83.2	90	110	>+\-10%
Na	23	2	45	997.099	ppb	1.736	224670	1000	99.7	90	110	
Mg	24	2	45	973.605	ppb	2.019	91215	1000	97.4	90	110	
Al	27	2	45	1015.860	ppb	4.152	26844	1000	101.6	90	110	
K	39	2	45	967.167	ppb	3.378	106456	1000	96.7	90	110	
Ca	44	2	45	1015.160	ppb	1.699	5888	1000	101.5	90	110	
V	51	2	72	50.009	ppb	3.465	68039	50	100.0	90	110	
Cr	52	2	72	47.527	ppb	5.165	82568	50	95.1	90	110	
Mn	55	2	72	49.818	ppb	2.115	38506	50	99.6	90	110	
Fe	57	2	72	1011.491	ppb	1.446	33346	1000	101.1	90	110	
Co	59	2	72	48.426	ppb	1.729	134128	50	96.9	90	110	
Ni	60	2	72	48.370	ppb	1.516	36485	50	96.7	90	110	
Cu	63	2	72	50.700	ppb	1.184	105362	50	101.4	90	110	
Zn	66	2	72	52.399	ppb	4.657	16111	50	104.8	90	110	
As	75	2	72	48.542	ppb	3.707	11048	50	97.1	90	110	
Se	78	1	72	49.054	ppb	1.863	10669	50	98.1	90	110	
Sr	88	2	45	96.943	ppb	3.244	89646	100	96.9	90	110	
Zr	90	2	72	19.957	ppb	29.282	260	50	39.9	90	110	>+\-10%
Zr	90	1	72	36.834	ppb	20.741	1271	50	73.7	90	110	>+\-10%
Nb	93	2	72	94.665	ppb	1.739	213483	100	94.7	90	110	
Mo	95	2	115	48.166	ppb	1.978	53869	50	96.3	90	110	
Pd	105	2	115	49.569	ppb	1.266	80732	50	99.1	90	110	
Ag	107	2	115	49.593	ppb	2.312	167630	50	99.2	90	110	
Cd	111	2	115	48.287	ppb	4.539	23971	50	96.6	90	110	
Sn	120	2	115	49.086	ppb	0.883	70183	50	98.2	90	110	
Sb	121	2	115	48.461	ppb	0.884	57601	50	96.9	90	110	
Ba	137	2	115	48.178	ppb	3.105	18921	50	96.4	90	110	
W	182	2	165	49.074	ppb	2.114	114259	50	98.1	90	110	
Pt	195	2	165	47.922	ppb	5.941	72246	50	95.8	90	110	
Tl	205	2	165	50.232	ppb	4.042	176492	50	100.5	90	110	
Pb	208	2	165	49.463	ppb	6.339	242683	50	98.9	90	110	
Th	232	2	165	49.124	ppb	4.145	261732	50	98.2	90	110	
U	238	2	165	49.334	ppb	6.447	277173	50	98.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	571479	0.94	568802	100.47	60	125	
Sc (IS)	45	2	HMI He	1097109	0.97	1111045	98.75	60	125	
Sc IS)	45	3	No Gas	41762622	0.09	41829669	99.84	60	120	
Ge Internal Standard	72	1	HMI H2	8156996	0.70	8259059	98.76	60	125	
Ge Internal Standard	72	2	HMI He	1417720	2.43	1393662	101.73	60	125	
In Internal standard	115	2	HMI He	4491476	2.62	4566718	98.35	60	125	
Ho-165	165	2	HMI He	11643680	4.15	11335408	102.72	60	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	ccb-5833267
Data File Name	171_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081519.b
Acq Date Time	2019-08-16T08:01:55-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	157CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	IS	Conc	Units	Conc %RSD	CPS	Upper Limit	QC Flag
Li	7	1	45	-0.495	ppb	-1387.8	61380	0.1	
Li	7	3	45	2.536	ppb	76.8	3205944	0.05	>RL
Be	9	1	6	0.009	ppb	173.2	2	0.5	
B	11	1	6	-6.273	ppb	-105.5	87	0.1	
Na	23	2	45	15.267	ppb	6.0	8302	25	
Mg	24	2	45	1.390	ppb	41.5	230	25	
Al	27	2	45	1.273	ppb	239.1	370	15	
K	39	2	45	8.127	ppb	100.4	33729	50	
Ca	44	2	45	-4.448	ppb	-80.4	20	25	
V	51	2	72	0.651	ppb	70.5	3624	1	
Cr	52	2	72	-0.041	ppb	-7.6	330	1	
Mn	55	2	72	0.067	ppb	35.7	120	0.5	
Fe	57	2	72	0.665	ppb	410.3	477	25	
Co	59	2	72	0.010	ppb	143.0	47	0.5	
Ni	60	2	72	0.060	ppb	182.5	333	1	
Cu	63	2	72	0.269	ppb	27.7	1917	1	
Zn	66	2	72	0.844	ppb	104.1	1037	5	
As	75	2	72	0.035	ppb	403.8	47	1	
Se	78	1	72	0.031	ppb	151.0	15	1	
Sr	88	2	45	0.019	ppb	121.9	43	1	
Zr	90	2	72	5.647	ppb	208.8	170	1	>RL
Zr	90	1	72	17.884	ppb	36.9	958	1	>RL
Nb	93	2	72	1.488	ppb	2.9	3487	2	
Mo	95	2	115	0.058	ppb	87.1	163	0.5	
Pd	105	2	115	0.031	ppb	92.1	50	1	
Ag	107	2	115	0.004	ppb	218.2	30	1	
Cd	111	2	115	-0.014	ppb	-169.9	7	0.5	
Sn	120	2	115	0.085	ppb	22.3	340	1	
Sb	121	2	115	0.099	ppb	13.0	133	1	
Ba	137	2	115	0.035	ppb	81.7	33	0.5	
W	182	2	165	-0.056	ppb	-49.0	960	1	
Pt	195	2	165	-0.002	ppb	-148.7	3	1	
Tl	205	2	165	0.013	ppb	72.6	107	0.1	
Pb	208	2	165	0.030	ppb	76.2	477	0.5	
Th	232	2	165	0.241	ppb	8.8	1447	1	
U	238	2	165	0.025	ppb	26.4	147	0.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li-6 Internal Standard	6	1	HMI H2	563697	0.92	568802	99.10	60	125	
Sc (IS)	45	2	HMI He	1086978	2.23	1111045	97.83	60	125	
Sc IS)	45	3	No Gas	41984585	1.71	41829669	100.37	60	120	
Ge Internal Standard	72	1	HMI H2	8208894	0.66	8259059	99.39	60	125	
Ge Internal Standard	72	2	HMI He	1415508	1.56	1393662	101.57	60	125	
In Internal standard	115	2	HMI He	4486887	1.20	4566718	98.25	60	125	
Ho-165	165	2	HMI He	11517843	3.82	11335408	101.61	60	125	

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job Number: 280-126873-1

SDG No.:

Project: Cornhusker (CHAAP)

Client Sample ID	Lab Sample ID
SP-S2	280-126873-1
SP-E1	280-126873-2
SP-S22	280-126873-4

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SP-S2 Lab Sample ID: 280-126873-1

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG ID.:

Matrix: Water Date Sampled: 07/31/2019 08:45

Reporting Basis: WET Date Received: 08/01/2019 09:15

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
pH adj. to 25 deg C	7.3	0.1	0.1	0.1	SU		HF	1	9040C
Total Suspended Solids	3.5	5.0	3.5	1.4	mg/L	U		1	SM 2540D

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SP-E1 Lab Sample ID: 280-126873-2

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG ID.:

Matrix: Water Date Sampled: 07/31/2019 08:56

Reporting Basis: WET Date Received: 08/01/2019 09:15

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
pH adj. to 25 deg C	7.4	0.1	0.1	0.1	SU		HF	1	9040C

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SP-S22 Lab Sample ID: 280-126873-4

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG ID.:

Matrix: Water Date Sampled: 07/31/2019 08:48

Reporting Basis: WET Date Received: 08/01/2019 09:15

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
pH adj. to 25 deg C	7.4	0.1	0.1	0.1	SU		HF	1	9040C
Total Suspended Solids	3.5	5.0	3.5	1.4	mg/L	U		1	SM 2540D

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Analyst: SPG Batch Start Date: 08/05/2019

Reporting Units: SU Analytical Batch No.: 466717

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	ICV	12:59	pH adj. to 25 deg C	7.0	7.00	100	97-102		pH 7.0 Buffer 00257
17	CCV	14:08	pH adj. to 25 deg C	7.0	7.00	100	97-102		pH 7.0 Buffer 00267
28	CCV	14:58	pH adj. to 25 deg C	7.0	7.00	100	97-102		pH 7.0 Buffer 00267

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

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	LOQ	Dil
Batch ID: 466673	Date: 08/05/2019 12:17						
SM 2540D	MB 280-466673/1	Total Suspended Solids	2.8	U	mg/L	4.0	1

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 466717	Date: 08/05/2019 13:10										
						LCS Source: pH 7.0 Buffer_00267					
9040C	LCS 280-466717/4	pH adj. to 25 deg C	7.0		SU	7.00	100	99-101	0	5	
Batch ID: 466673	Date: 08/05/2019 12:17										
						LCS Source: TSS Daily STD_00737					
SM 2540D	LCS 280-466673/2	Total Suspended Solids	86.8		mg/L	100	87	79-114	17	20	

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

FORM VIIA-IN

7A-IN
LAB CONTROL SAMPLE DUPLICATE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 466717	Date: 08/05/2019 13:13										
						LCSD Source: pH 7.0 Buffer_00267					
9040C	LCSD 280-466717/5	pH adj. to 25 deg C	7.0		SU	7.00	100	99-101	0	5	
Batch ID: 466673	Date: 08/05/2019 12:17										
						LCSD Source: TSS Daily STD_00737					
SM 2540D	LCSD 280-466673/3	Total Suspended Solids	103		mg/L	100	103	79-114	17	20	

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

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job Number: 280-126873-1

SDG Number:

Matrix: Water Instrument ID: WC-AT3

Method: 9040C LOQ Date: 11/01/2009 00:00

Analyte	Wavelength/ Mass	LOQ (SU)	
pH adj. to 25 deg C		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job Number: 280-126873-1

SDG Number:

Matrix: Water Instrument ID: WC-AT3

Method: 9040C XRL Date: 11/01/2009 00:00

Analyte	Wavelength/ Mass	XRL (SU)	
pH adj. to 25 deg C		0.1	

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job Number: 280-126873-1

SDG Number:

Matrix: Water Instrument ID: NOEQUIP

Method: SM 2540D DL Date: 04/01/2011 10:35

Analyte	Wavelength/ Mass	LOQ (mg/L)	DL (mg/L)
Total Suspended Solids		4	1.1

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job Number: 280-126873-1

SDG Number:

Matrix: Water Instrument ID: NOEQUIP

Method: SM 2540D XMDL Date: 04/01/2011 10:35

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Suspended Solids		4	1.1

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: WC-AT3 Analysis Method: 9040C

Start Date: 08/05/2019 12:59 End Date: 08/05/2019 15:04

Lab Sample Id	D/F	Type	Time	Analytes																								
				pH																								
ICV 280-466717/1	1		12:59	X																								
ZZZZZZ			13:03																									
ZZZZZZ			13:06																									
LCS 280-466717/4	1	T	13:10	X																								
LCSD 280-466717/5	1	T	13:13	X																								
RINSE 280-466717/6			13:20																									
ZZZZZZ			13:25																									
ZZZZZZ			13:29																									
ZZZZZZ			13:33																									
ZZZZZZ			13:38																									
ZZZZZZ			13:42																									
ZZZZZZ			13:47																									
ZZZZZZ			13:51																									
ZZZZZZ			13:55																									
ZZZZZZ			14:00																									
ZZZZZZ			14:05																									
CCV 280-466717/17	1		14:08	X																								
RINSE 280-466717/18			14:13																									
ZZZZZZ			14:19																									
ZZZZZZ			14:22																									
ZZZZZZ			14:25																									
ZZZZZZ			14:31																									
ZZZZZZ			14:36																									
280-126873-1	1	T	14:41	X																								
280-126873-2	1	T	14:47	X																								
280-126873-4	1	T	14:51	X																								
ZZZZZZ			14:55																									
CCV 280-466717/28	1		14:58	X																								
RINSE 280-466717/29			15:04																									

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Instrument ID: NOEQUIP Analysis Method: SM 2540D

Start Date: 08/05/2019 12:17 End Date: 08/05/2019 12:17

Lab Sample Id	D/F	Type	Time	Analytes																								
				TSS																								
MB 280-466673/1	1	T	12:17	X																								
LCS 280-466673/2	1	T	12:17	X																								
LCSD 280-466673/3	1	T	12:17	X																								
ZZZZZZ			12:17																									
ZZZZZZ			12:17																									
ZZZZZZ			12:17																									
ZZZZZZ			12:17																									
ZZZZZZ			12:17																									
ZZZZZZ			12:17																									
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280-126873-1	1	T	12:17	X																								
280-126873-4	1	T	12:17	X																								
ZZZZZZ			12:17																									
ZZZZZZ			12:17																									
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ZZZZZZ			12:17																									
ZZZZZZ			12:17																									

Prep Types:
T = Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 466717 Batch Start Date: 08/05/19 12:59 Batch Analyst: Gonzalez, Sofie P

Batch Method: 9040C Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	pH 7.0 Buffer 00257	pH 7.0 Buffer 00267				
ICV 280-466717/1		9040C		30 mL					
LCS 280-466717/4		9040C			30 mL				
LCSD 280-466717/5		9040C			30 mL				
CCV 280-466717/17		9040C			30 mL				
CCV 280-466717/28		9040C			30 mL				

Batch Notes	
Batch Comment	SG trained by SGB
pH Buffer 1 ID	pH 2.0 Buffer_00081
pH Buffer 2 ID	pH 4.0 Buffer_00181
pH Buffer 3 ID	pH 7.0 Buffer_00267
pH Buffer 4 ID	pH 10 Buffer_00142
pH Buffer 5 ID	pH 12 Buffer_00156
pH Buffer 6 ID	pH 7.0 Buffer_00257
Calibration Date and Time	see attached
pH Meter Calibration Slope	see attached
Probe ID	PCE 86 pH 1105_jan 14
Sufficient volume for sample dup	yes

Basis	Basis Description

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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 466673 Batch Start Date: 08/05/19 12:17 Batch Analyst: Larson, Eric C

Batch Method: SM 2540D Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	CrucibleID	TareWeight	InitialAmount	Weight1	Weight2	Weight3
MB 280-466673/1		SM 2540D		D0531126 0.1112	0.1112 g	250 mL	0.1112 g	0.1112 g	0 g
LCS 280-466673/2		SM 2540D		D0531125 0.1104	0.1104 g	250 mL	0.1321 g	0.1321 g	0 g
LCSD 280-466673/3		SM 2540D		D0531124 0.1106	0.1106 g	250 mL	0.1364 g	0.1363 g	0 g
280-126873-C-1	SP-S2	SM 2540D	T	D0531109 0.1091	0.1091 g	200 mL	0.1090 g	0.1090 g	0 g
280-126873-C-4	SP-S22	SM 2540D	T	D0531108 0.1096	0.1096 g	200 mL	0.1094 g	0.1094 g	0 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	WeightOne%Diff	Residue	Residue2	FinalAmount	ResDishWt	DishWeight
MB 280-466673/1		SM 2540D		PASS <0.5mg	0 g	0 g	250 mL	0.1112 g	0.1112 g
LCS 280-466673/2		SM 2540D		PASS <0.5mg	0.0217 g	0.0217 g	250 mL	0.1321 g	0.1104 g
LCSD 280-466673/3		SM 2540D		PASS <0.5mg	0.0258 g	0.0257 g	250 mL	0.1363 g	0.1106 g
280-126873-C-1	SP-S2	SM 2540D	T	PASS <0.5mg	-0.0001 g	-0.0001 g	250 mL	0.109 g	0.1091 g
280-126873-C-4	SP-S22	SM 2540D	T	PASS <0.5mg	-0.0002 g	-0.0002 g	250 mL	0.1094 g	0.1096 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	TSS Daily STD 00737					
MB 280-466673/1		SM 2540D							
LCS 280-466673/2		SM 2540D		250 mL					
LCSD 280-466673/3		SM 2540D		250 mL					
280-126873-C-1	SP-S2	SM 2540D	T						
280-126873-C-4	SP-S22	SM 2540D	T						

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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Denver Job No.: 280-126873-1

SDG No.:

Batch Number: 466673 Batch Start Date: 08/05/19 12:17 Batch Analyst: Larson, Eric C

Batch Method: SM 2540D Batch End Date:

Batch Notes	
Balance ID	19350788
Date/Time - In - CW (WT2)	08/06/2019 15:30
Date/Time - Out - CW (WT2)	08/07/2019 09:09
Temperature - Start - CW (WT2) - Correct	103 Celsius
Temperature - End - CW (WT2) - Correct	103 Celsius
Temperature - Start-CW(WT2) -Uncorrected	102 Celsius
Temperature - End-CW(WT2) -Uncorrected	102 Celsius
Temperature - Start - Corrected	103 Celsius
Temperature - End - Corrected	103 Celsius
Date/Time - In	08/05/2019 13:19
Date/Time - Out	08/06/2019 08:32
Filter ID	16825705
Nominal Amount Used	250 mL
Oven ID	E
Perform Calculation (0=No, 1=Yes)	1
Thermometer ID	1354
Temperature - Start - Uncorrected	102 Celsius
Temperature - End - Uncorrected	102 Celsius

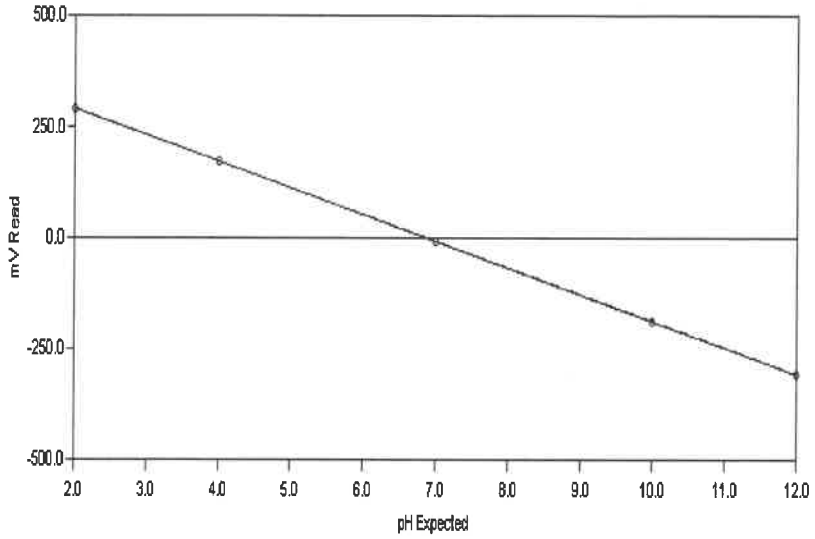
Basis	Basis Description
T	Total/NA

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.

MANTECH INC.

Calibration Report

Calibration Record # 511



Calibration Settings

Calibration ID	PH	Date	8/5/2019
Channel	1	Time	9:04 AM
Probe Type	pH	Temperature	295.22 K 22.07 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-59.665	CorrCoeff	1.0000
Intercept	-8.542	Equation: Y = (-59.665) X + (-8.542)	

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-59.665	-65.00	-54.00
Intercept	-8.542	-100.00	100.00
Correlation Coefficient	1.0000	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	2.00	289.55
	4.00	171.02
	7.00	-9.15
	10.00	-187.13
	12.00	-307.00

Test America
Water Analysis Report

Analyst: SG

Run Number 2076 **Order Number** 20190805-3

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	pH2	pH3	Acid	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	(mL) @ 8.3	(mL) @ 4.5	(mL) @ 4.2	Conc (N)
ICV	8/5/2019	12:59 PM	22.69	-1.00	7.00	6.99	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
check ph 2	8/5/2019	1:03 PM	22.63	-1.00	2.01	2.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
check ph 12	8/5/2019	1:06 PM	22.35	-1.00	12.02	12.02	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
LCS	8/5/2019	1:10 PM	22.31	-1.00	7.01	7.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
LCSD	8/5/2019	1:13 PM	22.14	-1.00	7.01	7.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
RINSE	8/5/2019	1:20 PM	22.29	-1.00	6.78	6.37	6.11	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126832-m-5	8/5/2019	1:25 PM	21.57	-1.00	7.74	7.68	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
DU 280-126832-m-5	8/5/2019	1:29 PM	21.28	-1.00	7.74	7.69	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126776-g-3	8/5/2019	1:33 PM	20.70	-1.00	7.76	7.76	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126832-m-1	8/5/2019	1:38 PM	21.15	-1.00	7.40	7.37	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126832-m-8	8/5/2019	1:42 PM	21.40	-1.00	7.80	7.76	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126832-m-11	8/5/2019	1:47 PM	21.38	-1.00	6.16	6.10	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126833-a-1	8/5/2019	1:51 PM	21.05	-1.00	7.84	7.80	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126833-a-2	8/5/2019	1:55 PM	20.51	-1.00	6.16	6.13	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126833-b-3	8/5/2019	2:00 PM	20.99	-1.00	7.03	6.98	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126833-b-4	8/5/2019	2:05 PM	21.32	-1.00	7.03	6.99	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV	8/5/2019	2:08 PM	21.64	-1.00	7.02	7.01	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
RINSE	8/5/2019	2:13 PM	22.20	-1.00	6.69	6.28	6.06	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126852-a-1	8/5/2019	2:19 PM	21.90	-1.00	6.12	6.12	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126861-b-1	8/5/2019	2:22 PM	21.27	-1.00	8.15	8.18	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126871-a-1	8/5/2019	2:25 PM	21.19	-1.00	6.63	6.59	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126871-a-2	8/5/2019	2:31 PM	21.31	-1.00	6.89	6.79	6.87	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126871-a-3	8/5/2019	2:36 PM	21.67	-1.00	6.75	6.70	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126873-c-1	8/5/2019	2:41 PM	21.92	-1.00	7.34	7.29	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126873-d-2	8/5/2019	2:47 PM	22.28	-1.00	7.38	7.34	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126873-c-4	8/5/2019	2:51 PM	22.10	-1.00	7.40	7.36	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
280-126875-a-1	8/5/2019	2:55 PM	21.74	-1.00	7.95	7.95	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

08/19/2019

PC-TitratION PLUS by Man-Tech Associates, Inc.

GENERAL RESULTS REPORT.SRW
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Run Number 2076 **Order Number** 20190805-3

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	pH2	pH3	Acid	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	(mL) @ 8.3	(mL) @ 4.5	(mL) @ 4.2	Conc (N)
CCV	8/5/2019	2:58 PM	21.83	-1.00	7.02	7.01	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
RINSE	8/5/2019	3:04 PM	21.85	-1.00	6.72	6.26	6.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

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Shipping and Receiving Documents

Brice Engineering
3800 Centerpoint Drive, Suite 417
Anchorage, Alaska 99503 907.275.2899

CHAIN OF CUSTODY RECORD

Project Name	**LTO CHAAP**	Project No. **1430057.0001.001**	
Project Location	**Grand Island, NE**	Dept. :	Task :
Sampler(s)	**Ed Richards**	Project Manager	**Corey Schwabenlander**

Sample Date	Time	Type Comp.	Grab	Sample Identification	Matrix	Containers No.	Containers Type	VOC	pH/TSS	pH only		Selenium						Remarks
7/31/2019	8:45		X	SP-S2	Water	3	40 ml	X										**HCl** **4°**
7/31/2019	8:45		X	SP-S2	Water	1	250 ml		X									**4°**
7/31/2019	8:56		X	SP-E1	Water	3	40 ml	X										**HCl** **4°**
7/31/2019	8:56		X	SP-E1	Water	1	250 ml			X								**4°**
7/31/2019	8:56		X	SP-E1	Water	1	250 ml					X						**HNO_3** **4°**
7/31/2019	8:56		X	SP-E11	Water	1	250 ml					X						**HNO_3** **4°**
7/31/2019	8:48		X	SP-S22	Water	3	40 ml	X										**HCl** **4°**
7/31/2019	8:48		X	SP-S22	Water	1	250 ml		X									**4°**
7/31/2019	8:45		--	**TB-1062**	--	2	40 ml	X										**HCl** **4°**

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: Ed Richards	7/31/2019	15:30	Method of Shipment **Fed-X**	**Please take note of project number and contractor info.**
Received by: TADEW	8/1/19	0915	Airbill No.	
Relinquished by:			Lab Address **TestAmerica Denver 4955 Yarrow St. Arvada, CO 8002**	
Received by:				

Cooler Temp. _____ C pH [ ] Yes [ ] No Comments : Custody Seal Intact [ ] Yes [ ] No

~~0.9~~ 0.9, IR9, Xfered by ~~SB~~, 8/1/19

RAP 8-1-19 0.7

No. 43661

280-126873 Chain of Custody

White copy - Laboratory Yellow copy - Laboratory Pink copy - Customer

Brice Engineering
3800 Centerpoint Drive, Suite 417
Anchorage, Alaska 99503 907.275.2899

CHAIN OF CUSTODY RECORD

Project Name	**LTO CHAAP**	Project No. **1430057.0001.001**	Analytical Parameters
Project Location	**Grand Island, NE**	Dept. : Task :	
Sampler(s)	**Ed Richards**	Project Manager **Scott Mann**	

Sample Date	Time	Type Comp.	Grab	Sample Identification	Matrix	Containers No.	Type	Explosives	Remarks
7/31/2019	8:45		X	SP-S2	Water	2	1 liter Amber	X	4°
7/31/2019	8:50		X	SP-S6	Water	2	1 liter Amber	X	4°
7/31/2019	8:53		X	SP-S8	Water	2	1 liter Amber	X	4°
7/31/2019	8:56		X	SP-E1	Water	2	1 liter Amber	X	4°
7/31/2019	8:48		X	SP-S22	Water	2	1 liter Amber	X	4°

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: Ed Richards	7/31/2019	15:30	Method of Shipment **Fed-X**	
Received by: TADEN	8/1/19	0915	Airbill No.	
Relinquished by:			Lab Address **TestAmerica Denver 4955 Yarrow St. Arvada, CO 8002**	
Received by:				

Cooler Temp. _____ C pH [ ] Yes [ ] No Comments : Custody Seal Intact [ ] Yes [ ] No 3

No. 43662

White copy - Laboratory Yellow copy - Laboratory Pink copy - Customer

08/19/2019

Login Sample Receipt Checklist

Client: Brice Environmental Services, Corp

Job Number: 280-126873-1

Login Number: 126873
List Number: 1
Creator: Paul, Ryan D

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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.	True	
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").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	